National Electricity Rules Version 31

Status Information

This is a draft consolidation based on the latest electronically available version of the National Electricity Rules as at 1 September 2009.

This draft consolidated version of the National Electricity Rules includes the following draft amendment.

Draft National Electricity Amendment (Bid and Offer Validation Data) Rule 2009

This version of the National Electricity Rules only contains the Chapters of the National Electricity Rules that are amended by the draft Rule.

This version of the National Electricity Rules is provided for information purposes only. The Australian Energy Market Commission does not guarantee the accuracy, reliability or completeness of this consolidated version. The official National Electricity Amendment (Bid and Offer Validation Data) Rule 2009 are published separately on the website of the Australian Energy Market Commission.

This coversheet was last updated on 1 September 2009

TABLE OF CONTENTS

3. Market Rules **12~~13~~**

3.1 Introduction to Market Rules **12~~13~~**

3.1.1 Purpose 12~~13~~

3.1.2 [Deleted] 12~~13~~

3.1.3 [Deleted] 12~~13~~

3.1.4 Market design principles 12~~13~~

3.1.5 Time for undertaking action 14~~15~~

3.2 AEMO's Market Responsibilities **14~~15~~**

3.2.1 Market functions of AEMO 14~~15~~

3.2.2 Spot market 15~~16~~

3.2.3 Power system operations 15~~16~~

3.2.4 Ancillary services function 16~~17~~

3.2.5 [Deleted] 16~~17~~

3.2.6 Settlements 16~~17~~

3.3 Prudential Requirements **16~~17~~**

3.3.1 Market Participant criteria 16~~17~~

3.3.2 Credit support 16~~17~~

3.3.3 Acceptable credit criteria 17~~18~~

3.3.4 Acceptable credit rating 17~~18~~

3.3.5 Amount of credit support 18~~19~~

3.3.6 Changes to credit support 18~~19~~

3.3.7 Drawings on credit support 18~~19~~

3.3.8 Maximum credit limit and prudential margin 19~~20~~

3.3.8A Security Deposits 19~~20~~

3.3.9 Outstandings 19~~20~~

3.3.10 Trading limit 20~~21~~

3.3.11 Call notices 20~~21~~

3.3.12 Typical accrual 21~~22~~

3.3.13 Response to Call Notices 22~~23~~

3.3.13A Application of monies in the security deposit fund 22~~23~~

3.3.14 Potential value of a transaction 24~~25~~

3.3.15 Trading margin 24~~25~~

3.3.16 Limitation on entry of transactions 24~~25~~

3.3.17 Scheduled prices 25~~26~~

3.3.18 Additional credit support 25~~26~~

3.3.19 Consideration of other Market Participant transactions 25~~26~~

3.4 Spot Market **26~~27~~**

3.4.1 Establishment of spot market 26~~27~~

3.4.2 Trading day and trading interval 26~~27~~
3.4.3 Spot market operations timetable 26~~27~~
3.5 Regions 27~~28~~
3.5.1 [Deleted] 27~~28~~
3.5.2 [Deleted] 27~~28~~
3.5.3 [Deleted] 27~~28~~
3.5.4 [Deleted] 27~~28~~
3.5.5 [Deleted] 27~~28~~
3.5.6 Abolition of Snowy region 27~~28~~
3.6 Network Losses and Constraints 28~~29~~
3.6.1 Inter-regional losses 28~~29~~
3.6.2 Intra-regional losses 29~~30~~
3.6.2A Load and generation data used to determine inter-regional loss factor equations and intra-regional loss factors 32~~33~~
3.6.3 Distribution losses 34~~35~~
3.6.4 Network constraints 38~~39~~
3.6.5 Settlements residue due to network losses and constraints 38~~39~~
3.7 Projected Assessment of System Adequacy 40~~41~~
3.7.1 Administration of PASA 40~~41~~
3.7.2 Medium term PASA 41~~42~~
3.7.3 Short term PASA 43~~44~~
3.7A Congestion information resource 46~~47~~
3.7B Unconstrained intermittent generation forecast 49~~50~~
3.7C Energy Adequacy Assessment Projection 50~~51~~
3.8 Central Dispatch and Spot Market Operation 53~~54~~
3.8.1 Central Dispatch 53~~54~~
3.8.2 Participation in central dispatch 55~~56~~
3.8.3 Bid and offer aggregation guidelines 56~~57~~
3.8.3A Ramp rates 57~~58~~
3.8.4 Notification of scheduled capacity 59~~60~~
3.8.5 Submission timing 60~~61~~
3.8.6 Generating unit offers for dispatch 60~~61~~
3.8.6A Scheduled network service offers for dispatch 62~~63~~
3.8.7 Bids for scheduled load 64~~65~~
3.8.7A Market ancillary services offers 65~~66~~
3.8.8 Validation of dispatch bids and offers 66~~67~~
3.8.9 Default offers and bids 67~~68~~
3.8.10 Network constraints 68~~69~~
3.8.11 Ancillary services constraints 70~~71~~

3.8.12 System scheduled reserve constraints 70~~71~~
3.8.13 Notification of constraints 70~~71~~
3.8.14 Dispatch under conditions of supply scarcity 70~~71~~
3.8.15 [Deleted] 71~~72~~
3.8.16 Equal priced dispatch bids and dispatch offers 71~~72~~
3.8.17 Self-commitment 71~~72~~
3.8.18 Self-decommitment 72~~73~~
3.8.19 Dispatch inflexibilities 72~~73~~
3.8.20 Pre-dispatch schedule 75~~76~~
3.8.21 On-line dispatch process 76~~77~~
3.8.22 Rebidding 78~~79~~
3.8.22A Variation of offer, bid or rebid 79~~80~~
3.8.23 Failure to conform to dispatch instructions 79~~80~~
3.8.24 Scheduling errors 81~~82~~
3.9 Price Determination 82~~83~~
3.9.1 Principles applicable to spot price determination 82~~83~~
3.9.2 Determination of spot prices 83~~84~~
3.9.2A Determination of ancillary services prices 85~~86~~
3.9.2B Pricing where AEMO determines a manifestly incorrect input 86~~87~~
3.9.3 Pricing in the event of intervention by AEMO 87~~88~~
3.9.3A Reliability standard and reliability settings review 88~~89~~
3.9.4 Market Price Cap 88~~89~~
3.9.5 Application of the Market Price Cap 89~~90~~
3.9.6 Market Floor Price 90~~91~~
3.9.6A Application of the Market Floor Price 90~~91~~
3.9.7 Pricing for constrained-on scheduled generating units 91~~92~~
3.10 [Deleted] 91~~92~~
3.11 Ancillary Services 91~~92~~
3.11.1 Introduction 91~~92~~
3.11.2 Market ancillary services 91~~92~~
3.11.3 Acquisition of non-market ancillary services 92~~93~~
3.11.4 Procedure for determining quantities of network control ancillary services 94~~95~~
3.11.4A Guidelines and objectives for acquisition of system restart ancillary services 94~~95~~
3.11.4B Determination of electrical sub-network boundaries 95~~96~~
3.11.5 Tender process for non-market ancillary services 96~~97~~
3.11.6 Procedures for the dispatch of non-market ancillary services by AEMO98~~99~~
3.11.7 Performance and testing 99~~100~~

3.12 Market Intervention by AEMO **99~~100~~**
3.12.1 Intervention settlement timetable 99~~100~~
3.12.2 Affected Participants and Market Customers entitlements to compensation in relation to AEMO intervention 100~~101~~
3.12.3 Role of the Independent Expert in calculating payments in relation to intervention by AEMO 104~~105~~
3.12A Mandatory restrictions **107~~108~~**
3.12A.1 Restriction offers 107~~108~~
3.12A.2 Mandatory restrictions schedule 108~~109~~
3.12A.3 Acquisition of capacity 109~~110~~
3.12A.4 Rebid of capacity under restriction offers 109~~110~~
3.12A.5 Dispatch of restriction offers 109~~110~~
3.12A.6 Pricing during a restriction price trading interval 110~~111~~
3.12A.7 Determination of funding restriction shortfalls 110~~111~~
3.12A.8 Cancellation of a mandatory restriction period 115~~116~~
3.12A.9 Review by AEMC 115~~116~~
3.13 Market Information **116~~117~~**
3.13.1 Provision of information 116~~117~~
3.13.2 Systems and procedures 116~~117~~
3.13.3 Standing data 117~~118~~
3.13.4 Spot market 123~~124~~
3.13.4A Market ancillary services 128~~129~~
3.13.5 Ancillary services contracting by AEMO 128~~129~~
3.13.5A Settlement residue auctions 128~~129~~
3.13.6 [Deleted] 129~~130~~
3.13.6A Report by AEMO 129~~130~~
3.13.7 Monitoring of significant variation between forecast and actual prices by AER 130~~131~~
3.13.8 Public information 131~~132~~
3.13.9 [Deleted] 132~~133~~
3.13.10 Market auditor 132~~133~~
3.13.11 [Deleted] 132~~133~~
3.13.12 NMI Standing Data 133~~134~~
3.13.13 Inter-network tests 136~~137~~
3.14 Administered Price Cap and Market Suspension **136~~137~~**
3.14.1 Cumulative Price Threshold and Administered Price Cap 136~~137~~
3.14.2 Application of Administered Price Cap 137~~138~~
3.14.3 Conditions for suspension of the spot market 138~~139~~
3.14.4 Declaration of market suspension 139~~140~~

3.14.5 Pricing during market suspension 140141
3.14.6 Compensation due to the application of an administered price, market price cap or market floor price 143144
3.15 Settlements 146147
3.15.1 Settlements management by AEMO 146147
3.15.2 Electronic funds transfer 146147
3.15.3 Connection point and virtual transmission node responsibility 146147
3.15.4 Adjusted energy amounts - connection points 147148
3.15.5 Adjusted energy - transmission network connection points 147148
3.15.5A Adjusted energy – virtual transmission nodes 148149
3.15.6 Spot market transactions 148149
3.15.6A Ancillary service transactions 149150
3.15.7 Payment to Directed Participants 157158
3.15.7A Payment to Directed Participants for services other than energy and market ancillary services 159160
3.15.7B Claim for additional compensation by Directed Participants 161162
3.15.8 Funding of Compensation for directions 163164
3.15.9 Reserve settlements 166167
3.15.10 Administered price, market price cap or market floor price compensation payments 167168
3.15.10A Goods and services tax 168169
3.15.10B Restriction contract amounts 169170
3.15.10C Intervention Settlements 170171
3.15.11 Reallocation transactions 174175
3.15.11A Reallocation procedures 175176
3.15.12 Settlement amount 176177
3.15.13 Payment of settlement amount 176177
3.15.14 Preliminary statements 177178
3.15.15 Final statements 177178
3.15.15A Use of estimated settlement amounts by AEMO 177178
3.15.16 Payment by market participants 178179
3.15.17 Payment to market participants 178179
3.15.18 Disputes 178179
3.15.19 Revised Statements and Adjustments 178179
3.15.20 Payment of adjustments 181182
3.15.21 Default procedure 181182
3.15.22 Maximum total payment in respect of a billing period 184185
3.15.23 Maximum total payment in respect of a financial year 185186
3.15.24 Compensation for reductions under clause 3.15.23 186187

3.15.25 Interest on overdue amounts 187~~188~~
3.16 Participant compensation fund 187~~188~~
3.16.1 Establishment of Participant compensation fund 187~~188~~
3.16.2 Dispute resolution panel to determine compensation 188~~189~~
3.17 AEMO Software 189~~190~~
3.17.1 Acceptance of software 189~~190~~
3.17.2 [Deleted] 189~~190~~
3.18 Settlement Residue Auctions 189~~190~~
3.18.1 Settlement residue concepts 189~~190~~
3.18.2 Auctions and eligible persons 190~~191~~
3.18.3 Auction rules 191~~192~~
3.18.4 Proceeds and fees 192~~193~~
3.18.5 Settlement residue committee 193~~194~~
3.19 Market Management Systems Access Procedures 195~~196~~
3.20 Reliability and Emergency Reserve Trader 195~~196~~
3.20.1 Expiry of reserve and emergency reliability trader 195~~196~~
3.20.2 Reliability and emergency reserve trader 196~~197~~
3.20.3 Reserve contracts 196~~197~~
3.20.4 Dispatch pricing methodology for unscheduled reserve contracts 197~~198~~
3.20.5 AEMO's risk management and accounts relating to the reliability safety net 198~~199~~
3.20.6 Reporting on RERT by AEMO 198~~199~~
3.20.7 AEMO's exercise of the RERT 199~~200~~
3.20.8 RERT Guidelines 200~~201~~
3.20.9 Review of reserve and emergency reliability trader 201~~202~~
Schedule 3.1 – Bid and Offer Validation Data 202~~203~~
Scheduled Generating Unit Data: 202~~203~~
Semi-Scheduled Generating Unit Data: 203~~204~~
Scheduled Load Data: 204~~205~~
Scheduled Network Service Data: 205~~206~~
Dispatch Inflexibility Profile: 207
Aggregation Data: 207~~208~~
Schedule 3.2 - [Deleted] 207~~208~~
Schedule 3.3 - Principles for Determination of Maximum Credit Limits & Prudential Margins 207~~208~~
S3.3.1 Principles for determining maximum credit limits 207~~208~~
S3.3.2 Principles for determining prudential margins 209
5. Network Connection 211
5.1 Statement of Purpose 211

5.1.1 [Deleted] 211
5.1.2 Purpose 211
5.1.3 Principles 213
5.2 Obligations 214
5.2.1 Obligations of Registered Participants 214
5.2.2 Connection agreements 214
5.2.3 Obligations of network service providers 215
5.2.4 Obligations of customers 218
5.2.5 Obligations of Generators 219
5.3 Establishing or Modifying Connection 220
5.3.1 Process and procedures 220
5.3.2 Connection enquiry 221
5.3.3 Response to connection enquiry 221
5.3.4 Application for connection 224
5.3.4A Negotiated access standards 225
5.3.5 Preparation of offer to connect 227
5.3.6 Offer to connect 228
5.3.7 Finalisation of connection agreements 229
5.3.7A Application for connection to declared shared network 231
5.3.8 Provision and use of information 231
5.3.9 Procedure to be followed by a Generator proposing to alter a generating system 232
5.3.10 Acceptance of performance standards for generating plant that is altered234
5.4 Design of Connected Equipment 235
5.4.1 Application 235
5.4.2 Advice of inconsistencies 235
5.4.3 Additional information 235
5.4.4 Advice on possible non-compliance 235
5.4A Access arrangements relating to Transmission Networks 236
5.5 Access arrangements relating to Distribution Networks 239
5.6 Planning and Development of Network 243
5.6.1 Forecasts for connection points to transmission network 243
5.6.2 Network Development 243
5.6.2A Annual Planning Report 247
5.6.3 AEMO's obligation to publish information and guidelines and provide advice 250
5.6.4 Last Resort Planning Power 252
5.6.5 [Deleted] 255
5.6.5A Investments subject to the regulatory test 255

5.6.5B Regulatory investment test for transmission 257
Principles 257
5.6.5C Investments subject to the regulatory investment test for transmission 262
5.6.5D Identification of a credible option 264
5.6.5E Review of Costs Thresholds 265
5.6.6 Regulatory investment test for transmission procedures 266
5.6.6B Construction of Funded Augmentations 276
5.6A National Transmission Planning 277
5.6A.1 Preliminary consultation 277
5.6A.2 Publication of NTNDP 278
5.6A.3 Development strategies for national transmission flow paths 280
5.6A.4 NTNDP database 281
5.6A.5 Jurisdictional planning bodies and jurisdictional planning representatives 281
5.7 Inspection and Testing 282
5.7.1 Right of entry and inspection 282
5.7.2 Right of testing 284
5.7.3 Tests to demonstrate compliance with connection requirements for generators 285
5.7.4 Routine testing of protection equipment 287
5.7.5 Testing by Registered Participants of their own plant requiring changes to normal operation 288
5.7.6 Tests of generating units requiring changes to normal operation 289
5.7.7 Inter-network power system tests 291
5.8 Commissioning 297
5.8.1 Requirement to inspect and test equipment 297
5.8.2 Co-ordination during commissioning 298
5.8.3 Control and protection settings for equipment 298
5.8.4 Commissioning program 299
5.8.5 Commissioning tests 300
5.9 Disconnection and Reconnection 300
5.9.1 Voluntary disconnection 300
5.9.2 Decommissioning procedures 301
5.9.3 Involuntary disconnection 301
5.9.4 Direction to disconnect 302
5.9.4A Notification of disconnection 302
5.9.5 Disconnection during an emergency 302
5.9.6 Obligation to reconnect 303
Schedule 5.1a - System standards 305

S5.1a.1 Purpose 305
S5.1a.2 Frequency 305
S5.1a.3 System stability 305
S5.1a.4 Power frequency voltage 306
S5.1a.5 Voltage fluctuations 307
S5.1a.6 Voltage waveform distortion 307
S5.1a.7 Voltage unbalance 307
S5.1a.8 Fault clearance times 308
Schedule 5.1 - Network Performance Requirements to be Provided or Co-ordinated by Network Service Providers 311
S5.1.1 Introduction 311
S5.1.2 Network reliability 312
S5.1.3 Frequency variations 314
S5.1.4 Magnitude of power frequency voltage 315
S5.1.5 Voltage fluctuations 316
S5.1.6 Voltage harmonic or voltage notching distortion 317
S5.1.7 Voltage unbalance 318
S5.1.8 Stability 319
S5.1.9 Protection systems and fault clearance times 320
S5.1.10 Load and network control facilities 324
S5.1.11 Automatic reclosure of transmission or distribution lines 325
S5.1.12 Rating of transmission lines and equipment 325
S5.1.13 Information to be provided 326
Schedule 5.2 - Conditions for Connection of Generators 327
S5.2.1 Outline of requirements 327
S5.2.2 Application of Settings 328
S5.2.3 Technical matters to be coordinated 328
S5.2.4 Provision of information 330
S5.2.5 Technical requirements 332
S5.2.6 Monitoring and control requirements 362
S5.2.7 Power station auxiliary supplies 365
S5.2.8 Fault current 365
Schedule 5.3 - Conditions for Connection of Customers 368
S5.3.1a Introduction to the schedule 368
S5.3.1 Information 369
S5.3.2 Design standards 370
S5.3.3 Protection systems and settings 370
S5.3.4 Settings of protection and control systems 372
S5.3.5 Power factor requirements 373

S5.3.6 Balancing of load currents 374
S5.3.7 Voltage fluctuations 374
S5.3.8 Harmonics and voltage notching 375
S5.3.9 Design requirements for Network Users' substations 375
S5.3.10 Load shedding facilities 376
Schedule 5.3a - Conditions for connection of Market Network Services 377
S5.3a.1a Introduction to the schedule 377
S5.3a.1 Provision of Information 378
S5.3a.2 Application of settings 379
S5.3a.3 Technical matters to be co-ordinated 380
S5.3a.4 Monitoring and control requirements 381
S5.3a.5 Design standards 382
S5.3a.6 Protection systems and settings 383
S5.3a.7 [Deleted] 384
S5.3a.8 Reactive power capability 384
S5.3a.9 Balancing of load currents 385
S5.3a.10 Voltage fluctuations 385
S5.3a.11 Harmonics and voltage notching 386
S5.3a.12 Design requirements for Market Network Service Providers' substations 386
S5.3a.13 Market network service response to disturbances in the power system 387
S5.3a.14 Protection of market network services from power system disturbances 387
Schedule 5.4 - Information to be Provided with Preliminary Enquiry 389
Schedule 5.5 - Technical Details to Support Application for Connection and Connection Agreement 390
Schedule 5.5.1 - [Deleted] 394
Schedule 5.5.2 - [Deleted] 394
Schedule 5.5.3 - Network and plant technical data of equipment at or near connection point 394
Schedule 5.5.4 - Network Plant and Apparatus Setting Data 397
Schedule 5.5.5 - Load Characteristics at Connection Point 398
Schedule 5.6 - Terms and Conditions of Connection agreements 400
Schedule 5.7 - Annual Forecast Information for Planning Purposes 402
10. GLOSSARY 406

CHAPTER 3

3. Market Rules

3.1 Introduction to Market Rules

3.1.1 Purpose

This Chapter sets out the procedures which govern the operation of the *market* relating to the wholesale trading of electricity and the provision of *ancillary services* and includes provisions relating to:

(a) *prudential requirements* to be met for participation in the *market*;

(b) the operation of the *spot market*;

(c) bidding and *dispatch*;

(d) *spot price* determination;

(d1) the determination of *ancillary service prices*;

(e) *AEMO* clearing house and trading functions;

(f) *market* information requirements and obligations;

(g) the conditions and procedures for *market suspension*; and

(h) *settlements*.

3.1.2 [Deleted]

3.1.3 [Deleted]

3.1.4 Market design principles

(a) This Chapter is intended to give effect to the following market design principles:

(1) minimisation of *AEMO* decision-making to allow *Market Participants* the greatest amount of commercial freedom to decide how they will operate in the *market*;

(2) maximum level of *market* transparency in the interests of achieving a very high degree of *market* efficiency;

(3) avoidance of any special treatment in respect of different technologies used by *Market Participants*;

(4) consistency between *central dispatch* and pricing;

(5) equal access to the market for existing and prospective *Market Participants*;

(6) *ancillary services* should, to the extent that it is efficient, be acquired through competitive market arrangements and as far as practicable determined on a dynamic basis. Where dynamic determination is not practicable, competitive commercial contracts between *AEMO* and service providers should be used in preference to bilaterally negotiated arrangements;

(7) the power of direction to provide *ancillary services* as a last resort to ensure system security should not be affected by the competitive market arrangements;

(8) where arrangements require participants to pay a proportion of *AEMO* costs for *ancillary services*, charges should where possible be allocated to provide incentives to lower overall costs of the national electricity market. Costs unable to be reasonably allocated this way should be apportioned as broadly as possible whilst minimising distortions to production, consumption and investment decisions; and

(9) where arrangements provide for *AEMO* to *dispatch* or procure an *ancillary service*, *AEMO* should be responsible for settlement of the service.

(a1) *AEMO* must review, prepare and publish a report on:

(1) **[Deleted]**

(2) the operation and effectiveness of the *spot market* for *market ancillary services* within the overall *central dispatch* and any recommendations for their improvement, including:

(i) simplification of the arrangements for the provision of *market ancillary services*; and

(ii) improving the determination of *market ancillary services* requirements;

(3) the potential future implementation of a usage market for *market ancillary services* whilst retaining an enabling market to assist *AEMO* with its obligations with respect to system security; and

(4) the provision of *network control ancillary services* including:

(i) a review of the responsibilities of *AEMO* and *Transmission Network Service Providers* for the provision of *reactive power support*;

(ii) a review of the formulation of those generic *network constraints* within *central dispatch* that are dependant on the provision of *network control ancillary services*; and

(iii) a program to assess the potential implementation of market mechanisms for the recruitment and *dispatch* of *NCAS*.

(a2) In conducting the reviews under clause 3.1.4(a1), *AEMO* must:

(1) seek and take account of the opinion of the *Reliability Panel* on matters to be considered in, and the draft conclusions of, the review set out in clause 3.1.4(a1)(1);

(2) **[Deleted]**

(3) *publish* a program for the conduct of the reviews within three months of the *market ancillary services commencement date*;

(4) take into account when setting the program of the reviews the need to balance the benefit of utilising the results of other reviews or *market* experience and the need to progress *market* development;

(5) use the *Rules consultation procedures* in conducting each review;

(6) *publish* a review outline and indicative timelines at the commencement of each review;

(7) complete each review and deliver to the *AEMC* a report of the findings and recommendations of the review within 12 months of the commencement of the review; and

(8) deliver to the *AEMC* within 3 months of the conclusion of each review any proposed *Rule* changes required to implement the recommendations of the review.

(b) This Chapter is not intended to regulate anti-competitive behaviour by *Market Participants* which, as in all other markets, is subject to the relevant provisions of the Trade Practices Act, 1974 and the Competition Codes of *participating jurisdictions*.

3.1.5 Time for undertaking action

The provisions of clause 1.7.1(l) do not apply to this Chapter and, under the provisions of this Chapter, an event which is required to occur on or by a stipulated *day* must occur on or by that *day* whether or not a *business day*.

3.2 AEMO's Market Responsibilities

3.2.1 Market functions of AEMO

(a) *AEMO* must operate and administer the *market* in accordance with this Chapter.

(b) *AEMO* must establish, maintain and *publish* a register of all current *Market Participants*.

(c) *AEMO* must:

(1) establish procedures for consultation with *Registered Participants* in respect of the manner in which *AEMO* fulfils its functions and obligations under the *Rules*; and

(2) *publish* annually performance indicators to monitor *AEMO's* performance in respect of its *market* management functions.

3.2.2 Spot market

AEMO must do all things necessary to operate and administer a *spot market* for the sale and purchase of electricity and *market ancillary services* in accordance with this Chapter including:

(a) the provision of facilities for the receipt and processing of *dispatch bids*, *dispatch offers* and *market ancillary service offers* for the *spot market*;

(b) the management of a centralised national *dispatch* process, including the publication of *pre-dispatch schedules* and *spot price forecasts*;

(c) the determination and publication of *spot prices* at each *regional reference node* for each *trading interval*;

(c1) the determination and publication of *ancillary service prices* at each *regional reference node* for each *dispatch interval*;

(d) the compilation and publication of *spot market* trading statistics;

(e) the identification of *regions* and *regional reference nodes* for *spot price* and *ancillary service price* determination;

(f) the determination and publication of *inter-regional loss factors* and *intra-regional loss factors*;

(g) the suspension of the *spot market* under conditions prescribed in rule 3.14; and

(h) the collection and dissemination of information necessary to enable the *market* to operate efficiently.

3.2.3 Power system operations

(a) Subject to Chapter 4, *AEMO* must manage the day to day operation of the *power system*, using its reasonable endeavours to maintain *power system security* in accordance with this Chapter.

(b) *AEMO* must perform *projected assessment of system adequacy processes* ("PASA") in accordance with rule 3.7, *publish* the details of these assessments in accordance with rule 3.13 and implement an escalating series of *market* interventions in accordance with this Chapter to maintain *power system security*.

3.2.4 Ancillary services function

(a) *AEMO* must determine the *market's* requirements for *non-market ancillary services* in accordance with rule 3.11.

(b) *AEMO* must use reasonable endeavours to ensure adequate *non-market ancillary services* are available in accordance with rule 3.11.

3.2.5 [Deleted]

3.2.6 Settlements

AEMO must provide a financial *settlements* service in accordance with rule 3.15, including billing and clearance for all *market* trading.

3.3 Prudential Requirements

3.3.1 Market Participant criteria

Each *Market Participant* must whilst participating in the *market*:

(a) be resident in, or have a permanent establishment in, Australia;

(b) not be under external administration (as defined in the Corporations Act) or under a similar form of administration under any laws applicable to it in any jurisdiction;

(c) not be immune from suit in respect of the obligations of the *Market Participant* under the *Rules*; and

(d) be capable of being sued in its own name in a court of Australia.

3.3.2 Credit support

Where at any time a *Market Participant* does not meet the *acceptable credit criteria*, the *Market Participant* must procure that *AEMO* holds the benefit of *credit support* in respect of that *Market Participant*. A *credit support* is an obligation in writing which:

(a) is from an entity (the "*Credit Support Provider*") which meets the *acceptable credit criteria* and which is not itself a *Market Participant*;

(b) is a guarantee or bank letter of credit in a form prescribed by *AEMO;*

(c) is duly executed by the *Credit Support Provider* and delivered unconditionally to *AEMO*;

(d) constitutes valid and binding unsubordinated obligations of the *Credit Support Provider* to pay to *AEMO* amounts in accordance with its terms which relate to obligations of the relevant *Market Participant* under the *Rules*; and

(e) permits drawings or claims by *AEMO* to a stated certain amount.

3.3.3 Acceptable credit criteria

Where the *Rules* require that an entity meet the *acceptable credit criteria*, this means that the entity must:

(a) be either:

(1) any entity under the prudential supervision of the Australian Prudential Regulation Authority; or

(2) a central borrowing authority of an Australian State or Territory which has been established by an Act of Parliament of that State or Territory;

(b) be resident in, or have a permanent establishment in, Australia;

(c) not be an externally administered body corporate (as defined in the Corporations Act) or under a similar form of administration under any laws applicable to it in any jurisdiction;

(d) not be immune from suit;

(e) be capable of being sued in its own name in a court of Australia; and

(f) have an *acceptable credit rating*.

3.3.4 Acceptable credit rating

(a) *AEMO* may from time to time, after complying with the *Rules consultation procedures*, determine what constitutes an *acceptable credit rating* for the purposes of the *Rules*, including (without limitation) determining which organisations publishing ratings will be used for this purpose, which of the type of ratings issued will be used for this purpose, and which level of rating is to be acceptable.

(b) Until varied by determination of *AEMO*, an *acceptable credit rating* is either:

(1) a rating of A-1 or higher for short term unsecured counterparty obligations of the entity, as rated by Standard and Poor's (Australia) Pty. Limited; or

(2) a rating of P-1 or higher for short term unsecured counterparty obligations of the entity, as rated by Moodys Investor Service Pty. Limited.

(c) Any determination of *AEMO* which varies what constitutes an *acceptable credit rating* will take effect from such date (not being earlier than 30 *business days* after the date of notification of the determination to *Market Participants*) as *AEMO* specifies by notice to the *Market Participants*.

3.3.5 Amount of credit support

A *Market Participant* which does not meet the *acceptable credit criteria* must procure that at all times the aggregate undrawn or unclaimed amounts of then current and valid *credit support* held by *AEMO* in respect of the *Market Participant* is not less than the current *maximum credit limit* for that *Market Participant*.

3.3.6 Changes to credit support

(a) If:

(1) a *credit support* provided to *AEMO* by a *Market Participant* under this rule 3.3 (called the "existing *credit support")*, is due to expire or terminate; and

(2) after that *credit support* expires or terminates the total *credit support* held by *AEMO* in respect of that *Market Participant* will be less than the *Market Participant's maximum credit limit*,

then at least 10 *business days* prior to the time at which the existing *credit support* is due to expire or terminate the *Market Participant* must procure a replacement *credit support* which will become effective upon expiry of the existing *credit support* such that it complies with the requirements of this rule 3.3.

(b) Where a *credit support* otherwise ceases to be current or valid, whether by reason of the *Credit Support Provider* ceasing to meet the *acceptable credit criteria* or any other reason, the *Market Participant* must procure the replacement of that *credit support* so as to comply with its obligation to maintain aggregate undrawn current and valid *credit support* of not less than the current *maximum credit limit* for that *Market Participant*. The *Market Participant* must procure that the replacement *credit support* is issued to *AEMO* within 24 hours after the *Market Participant* first becomes aware that the *credit support* has ceased to be current or valid (whether by reason of the *Market Participant's* own knowledge or a notification by *AEMO*).

3.3.7 Drawings on credit support

(a) If *AEMO* exercises its rights under a *credit support* provided by a *Market Participant* under this rule 3.3 in accordance with clause 3.15.21(b)(2), then *AEMO* must notify the *Market Participant.*

(b) If, as a result of *AEMO* exercising its rights under a *credit support* provided by a *Market Participant* under this rule 3.3 in accordance with clause 3.15.21(b)(2), the remaining *credit support* held by *AEMO* in respect of that *Market Participant* is less than the *Market Participant's maximum credit limit* then, within 24 hours of receiving a notice under clause 3.3.7(a), the *Market Participant* must procure for *AEMO* additional *credit support* complying with the requirements of this rule 3.3, such that the aggregate undrawn and valid *credit support* held by *AEMO* in respect of the *Market Participant* is not less

than the amount of *credit support* which that *Market Participant* is required to provide under this rule 3.3.

3.3.8 Maximum credit limit and prudential margin

(a) *AEMO* must determine for each *Market Participant* a *maximum credit limit* and *prudential margin*.

(b) The *maximum credit limit* for a *Market Participant* is a dollar amount determined by *AEMO* applying the principles set out in schedule 3.3, being an amount determined by *AEMO* on the basis of a *reasonable worst case* estimate of the aggregate payments for *trading amounts* (after *reallocation*) to be made by the *Market Participant* to *AEMO* over a period of up to the *credit period* applicable to that *Market Participant*.

(c) The *prudential margin* for a *Market Participant* is a dollar amount to be determined by *AEMO* applying the principles set out in schedule 3.3, being an amount determined by *AEMO* on the basis of a *reasonable worst case* estimate of the aggregate of the expected *trading amount* and the *reallocation amount* owing by the *Market Participant* to *AEMO* in respect of the *reaction period*.

(d) *AEMO* must *publish* details of the methodology used in determining *maximum credit limits* and *prudential margins*.

(e) *AEMO* shall review the *maximum credit limit* and *prudential margin* of each *Market Participant* not less than once each year.

(f) *AEMO* may change either or both of the *maximum credit limit* or *prudential margin* for a *Market Participant* at any time (whether by reason of an annual review or otherwise), provided that any change to the *maximum credit limit* or *prudential margin* will apply with effect from such time (not being earlier than the time of notification of the changed *maximum credit limit* or *prudential margin*, as the case may be, to the *Market Participant*) as *AEMO* specifies.

(g) *AEMO* must notify the *Market Participant* of any determination or change under this clause 3.3.8 of that *Market Participant's maximum credit limit* or *prudential margin* (as the case may be) and, on request from that *Market Participant*, provide details of the basis for that determination or change, including the trading, price, volatility and *prospective reallocation* assumptions and the average *spot prices* and *ancillary service prices* and average *trading amounts.*

3.3.8A Security Deposits

At any time, a *Market Participant* may provide a security deposit to *AEMO* to secure payment of any amount which may become payable in respect of a *billing period*.

3.3.9 Outstandings

At any time the *outstandings* of a *Market Participant* is the dollar amount determined by the formula:

OS = – (A + B + SDA)

where:

OS is the amount of the *outstandings* of the *Market Participant*;

A is the aggregate of the net *settlement amounts* payable in respect of *billing periods* prior to the current *billing period* which remain unpaid by, or to, the *Market Participant* whether or not the *payment date* has yet been reached;

B is the net *settlement amount* payable by, or to, the *Market Participant* in respect of *transactions* for *trading intervals* that have already occurred in the current *billing period*; and

SDA is the balance (if any) of the *Market Participant* in the security deposit fund, in which case a credit balance will be a positive amount and a debit balance will be a negative amount.

The amounts to be used in this calculation will be the actual *settlement amounts* for *billing periods* where *final statements* have been issued by *AEMO* or *AEMO's* reasonable estimate of the *settlement amounts* for *billing periods* (where *final statements* have not been issued by *AEMO*).

Note: Where the value of *outstandings* of a *Market Participant* is a negative amount the absolute value of the *outstandings* amount will, for the purposes of rule 3.3, be treated as if it were an amount payable by *AEMO* to the *Market Participant*.

3.3.10 Trading limit

The trading limit for a *Market Participant* is the dollar amount determined by *AEMO* on the basis of a *reasonable worst case* estimate by *AEMO* applying the principles in schedule 3.3 and determined using the following formula:

TL = CS – PM

where:

TL is the *trading limit*;

CS is the *credit support* provided by the *Market Participant*; and

PM is the *prudential margin* determined in accordance with clause 3.3.8(c).

Note: If the *prudential margin* exceeds the *credit support* the *trading limit* will have a negative value.

3.3.11 Call notices

(a) If at any time the *outstandings* of a *Market Participant* is greater than the *trading limit* for that *Market Participant*, *AEMO* may do either or both of the following:

(1) give the *Market Participant* an "*interim statement*" covering any *transactions* for *trading intervals* not already the subject of issued *preliminary* or *final statements* or another *interim statement*, notwithstanding that the usual time for the issue of a *preliminary* or *final statement* for those *trading intervals* has not been reached; and

(2) give the *Market Participant* a notice (a "*call notice*") that specifies an *invoiced amount*, the current *maximum credit limit* for the *Market Participant*, the current *trading limit* for the *Market Participant*, and the *call amount*, where:

Call Amount = the higher of:

(OS – TypA); and

(OS – TL)

except where the formula produces a negative result, in which case the *call amount* is zero,

where:

OS is the *outstandings* for the *Market Partic*ipant as at the date of the issue of the *call notice*; and

TypA is the *typical accrual* for the *Market Participant* as at the date of the issue of the *call notice*; and

TL is the *trading limit* for the *Market Participant* as at the date of the issue of the *call notice*.

Note: If the value of *outstandings* of a *Market Participant* has a negative value and the *trading limit* also has a negative value, the *outstandings* will be greater than the *trading limit* if the absolute value of the *trading limit* is greater than the absolute value of the *outstandings*, in which case *AEMO* may exercise its powers under either or both of clauses 3.3.11(a)(1) or 3.3.11(a)(2).

(b) *AEMO* may, in its absolute discretion, cancel a *call notice* or *interim statement* issued under this clause at any time. The cancellation of a *call notice* or *interim statement* does not affect *AEMO's* rights to issue a further *call notice* or *interim statement* on the same grounds that gave rise to *AEMO* issuing the cancelled *call notice* or *interim statement*.

3.3.12 Typical accrual

(a) The *typical accrual* for a *Market Participant* at any time is the amount which *AEMO* determines would have been the *outstandings* of the *Market Participant* at that time had the *spot prices* and *ancillary service prices* and the *trading amounts* of the *Market Participant* been at the level of the average *spot price* and *ancillary service prices* and average *trading amounts* of the *Market Participant* used by *AEMO* for the purposes of the most recent determination of the *maximum credit limit* of the *Market Participant*.

Note: The value of the *typical accrual* of a *Market Participant* will be a negative amount if the average *settlement amount* of the *Market Participant* is a positive amount.

(b) *AEMO* must, on request from a *Market Participant*, provide that *Market Participant* with details of any *typical accrual* for that *Market Participant*.

3.3.13 Response to Call Notices

(a) Subject to clause 3.3.13(b), where *AEMO* has given a *call notice* to a *Market Participant*, the *Market Participant* must before 11.00 am (*Sydney time*) on the next *business day* following the issue of the *call notice* either:

(1) agree with *AEMO* to an increase in the *Market Participant's maximum credit limit* by an amount not less than the *call amount*, and provide to *AEMO* additional *credit support* where, by virtue of the increase in the *maximum credit limit*, the *Market Participant* no longer complies with its obligations under clause 3.3.5;

(2) (where clause 3.3.13(a)(1) is not satisfied) pay to *AEMO* in cleared funds a security deposit of an amount not less than the *call amount*;

(3) lodge a *reallocation request* of an amount which is not less than the *call amount* and which is accepted by *AEMO*; or

(4) provide to *AEMO* any combination of clauses 3.3.13(a)(1), (2) and (3) such that the aggregate of the amount which can be drawn under the additional *credit support* provided and the amount of the security deposit paid and the amount of the *reallocation request* accepted by *AEMO* is not less than the *call amount.*

(b) If *AEMO* gives a *call notice* to a *Market Participant* after noon (*Sydney time*), then *AEMO* is deemed to have given that *call notice* on the next *business day* for the purposes of this clause.

3.3.13A Application of monies in the security deposit fund

(a) Subject to clauses 3.3.13A(b) and (e), *AEMO* may apply money from the security deposit fund recorded as a credit balance in the name of a *Market Participant* in payment of monies owing by that *Market Participant* to *AEMO*:

(1) in respect of any *final statement* previously given to that *Market Participant* which has not been fully paid by the appointed time on the due date and remains unpaid; or

(2) at the time of issuing any *final statement*,

in which case *AEMO* may set off all, or part of, any amount by which a *Market Participant* is in credit in the security deposit fund at that time against any amounts owing to *AEMO* under the *final statement*.

(b) Subject to clause 3.3.13A(c):

(1) a *Market Participant* may, by giving notice at least one *business day* prior to the due time for the issue of a *final statement*, seek agreement with *AEMO* on the arrangements to apply to the application of security deposits paid by that *Market Participant* under clause 3.3.8A against amounts owing to *AEMO* under a particular *final statement* or *final statements*; and

(2) *AEMO* must apply the security deposits in accordance with an agreement reached under clause 3.3.13A(b)(1).

If agreement is not reached between *AEMO* and the *Market Participant* under this clause, then *AEMO* has a discretion to apply the security deposit funds of that *Market Participant* in payment of moneys that the *Market Participant* owes *AEMO* as set out in clauses 3.3.13A(a)(1) and (2).

(c) Despite any agreement under clause 3.3.13A(b), if a *default event* occurs in relation to a *Market Participant*, then *AEMO* has a discretion as to which amounts owing to *AEMO* under *final statements* it applies or partially applies security deposits paid by that *Market Participant* under clause 3.3.8A.

(d) In the case of security deposits paid by a *Market Participant* in the security deposit fund under clause 3.3.13, *AEMO* has a discretion as to which *final statements* it applies or partially applies those monies against.

(e) However, in exercising its discretion in clauses 3.3.13A(b), (c) or (d), if a *Market Participant* pays *AEMO* a security deposit, then *AEMO* must apply any remaining portion of the security deposit (taking into account deductions for any liabilities or expenses of the security deposit fund) against the longest outstanding amounts owing to *AEMO* under *final statements* issued not later than the *final statement* for the *billing period* in which the security deposit was paid to *AEMO*. If, for any reason, *AEMO* has not fully applied such security deposit within this time, then *AEMO* must apply the remainder to amounts owing to *AEMO* under the next *final statement* or *statements* until it has been fully applied.

(f) If:

(1) a *Market Participant* has a credit balance in the security deposit fund and ceases, or intends to cease, being a *Market Participant*; and

(2) that *Market Participant* has paid all money owing to *AEMO* and *AEMO* reasonably considers that the *Market Participant* will not owe any money to *AEMO* in the future arising from that person's activities as a *Market Participant*,

then *AEMO* must return any credit balance for that *Market Participant* in the security deposit fund to that *Market Participant* (subject to deduction for any liabilities and expenses of the security deposit fund).

(g) If, for any reason, there is a debit balance in the security deposit fund for a *Market Participant*, then the *Market Participant* must pay that amount to *AEMO*. For this purpose, *AEMO* may:

(1) include that amount in the next *final statement*; or

(2) issue an account to that *Market Participant* for payment of that debit balance and the *Market Participant* must pay that amount within 2 *business days*.

3.3.14 Potential value of a transaction

At any time, the *potential value* of a *transaction*, or of any bid or offer by a *Market Participant* to effect a *transaction*, under which the *trading amount* payable to *AEMO* is determined by reference to one or more specified *regional reference prices* or *ancillary service prices*, is the dollar amount determined by this procedure:

(a) the *transaction* is first tested to determine the *trading amount* which would result for the *Market Participant* if the *regional reference price* or *ancillary service price* applicable to the *transaction* was equal to the *scheduled high price*;

(b) the *transaction* is then tested to determine the *trading amount* which would result for the *Market Participant* if the *regional reference price* or *ancillary service price* applicable to the *transaction* was equal to the *scheduled low price*;

(c) if the *trading amount* resulting for both tests is a positive amount or zero, then the *potential value* of the *transaction* is zero;

(d) if the *trading amount* resulting for either test is a negative amount, then the *potential value* of the *transaction* is the absolute value of the negative amount (or, where both tests produce a negative amount, the *potential value* of the *transaction* is the absolute value of the most negative amount).

3.3.15 Trading margin

At any time, the *trading margin* for a *Market Participant* is a dollar amount equal to the amount by which its *trading limit* exceeds its current *outstandings* due to *AEMO* and if the *outstandings* are equal to or exceed the *trading limit*, the *trading margin* is zero.

3.3.16 Limitation on entry of transactions

(a) A *Market Participant* must not submit any bid or offer to effect any *transaction* with *AEMO* where the *potential value* of that *transaction*, plus the *potential value* of all other *uncompleted transactions*, exceeds the *trading margin* for the *Market Participant*.

(b) A *transaction* is an *uncompleted transaction* if some or all of the *trading intervals* to which that *transaction* relates have not yet occurred.

3.3.17 Scheduled prices

(a) The *scheduled high price* and the *scheduled low price* are amounts determined by *AEMO* in its absolute discretion from time to time as a basis upon which to determine the *potential value* of a *transaction* in accordance with clause 3.3.14.

(b) *AEMO* may determine different *scheduled high prices* and *scheduled low prices* for each *region*.

(c) The *scheduled high price* for *energy* and *market ancillary services* cannot be greater than the *market price cap* and the *scheduled low price* for:

(i) *energy*, cannot be less than the *market floor price*; and

(ii) *market ancillary services*, cannot be less than zero.

(d) *AEMO* must notify all *Market Participants* without delay of any determination of *scheduled high prices* and *scheduled low prices*.

(e) For *Market Participants* who do not trade in the *spot market*, the *scheduled high price* shall be the *market price cap* and the *scheduled low price* shall be zero.

3.3.18 Additional credit support

(a) Where at any time the aggregate *potential value* of a *Market Participant's uncompleted transactions* exceeds the *trading margin* for the *Market Participant* (including without limitation where this is a result of a redetermination of *scheduled high prices* or *scheduled low prices*) the *Market Participant* must provide to *AEMO* additional *credit support* satisfying the criteria in clause 3.3.2 for an amount not less than the amount by which the *trading margin* is exceeded. The *Market Participant* must procure that the additional *credit support* is provided to *AEMO* within 24 hours after *AEMO* has notified the *Market Participant* that additional *credit support* is required.

(b) *Credit support* required pursuant to this clause 3.3.18 is in addition to and not inclusive of the *credit support* which a *Market Participant* is required to procure pursuant to other provisions of the *Rules*.

3.3.19 Consideration of other Market Participant transactions

(a) For the purposes of determining the *prudential requirements* to be satisfied by *Market Participants* in accordance with this rule 3.3, *AEMO* must consult with *Market Participants* and any other person *AEMO* considers appropriate.

(b) *AEMO* is not required to meet its obligations under clause 3.3.19(a) in any way which increases *AEMO*'s risks in the collection of moneys owed to it in accordance with any of the provisions of the *Rules*.

3.4 Spot Market

3.4.1 Establishment of spot market

(a) *AEMO* must establish and operate a *spot market* as a mechanism for:

(1) balancing electricity *supply* and demand;

(2) acquiring *market ancillary services*; and

(3) setting a *spot price* for electricity at each *regional reference node* and *market connection point* for each *trading interval* and *ancillary service prices* at each *regional reference node* for each *dispatch interval*.

(b) *AEMO* must determine and *publish* in accordance with rule 3.9:

(1) a *spot price* for *energy* to apply at each *regional reference node* in each *trading interval*; and

(2) a*ncillary service prices* to apply at each *regional reference node* for each *dispatch interval*.

3.4.2 Trading day and trading interval

(a) A *trading interval* is a 30 minute period ending on the hour or on the half hour.

(b) A *trading interval* is identified by the *time* at which it ends.

(c) The *trading day* in the *spot market* will be the 24 hour period commencing at 4.00 am Eastern Standard Time.

3.4.3 Spot market operations timetable

(a) *AEMO* must operate the *spot market* according to the *timetable* which must be approved by the *AEMC* and *published* by *AEMO* following compliance with the *Rules consultation procedures*.

(b) If *AEMO* wishes to change the *timetable* at any time, it may do so following compliance with the *Rules consultation procedures*.

3.5 Regions

3.5.1 [Deleted]

3.5.2 [Deleted]

3.5.3 [Deleted]

3.5.4 [Deleted]

3.5.5 [Deleted]

3.5.6 Abolition of Snowy region

(a) In this clause 3.5.6:

current *Regions Publication* means the document published by *NEMMCO* entitled "List of Regional Boundaries and Marginal Loss Factors for the 2007/08 Financial Year".

New South Wales *region* comprises the *region* as identified in the current *Regions Publication*.

Snowy *region* comprises the *region* as identified in the current *Regions Publication*.

Victoria *region* comprises the *region* as identified in the current *Regions Publication*.

(b) Despite any other provision of the *Rules*, at 00:00 hours *EST* on 1 July 2008:

(1) the Snowy *region* is abolished;

(2) the *regional reference node* known as the Murray 330kV node is abolished;

(3) the New South Wales *region* and the Victoria *region* are modified by the allocation of the *loads* and *generators* to each *region* as set out in clause 11.13.8; and

(4) the location of the *region* boundary between the New South Wales *region* and the Victoria *region* is as set out in clause 11.13.9.

(c) For the avoidance of doubt:

(1) the *regional reference node* (known as the Sydney West 330kV node) for the New South Wales *region;* and

(2) the *regional reference* node *(*known as the Thomastown 66kV node) for the Victoria *region*,

are not affected by the abolition of the *regional reference node* known as the Murray 330kV node for the Snowy *region*.

3.6 Network Losses and Constraints

3.6.1 Inter-regional losses

(a) *Inter-regional losses* are *electrical energy losses* due to a notional transfer of electricity through *regulated interconnectors* from the *regional reference node* in one *region* to the *regional reference node* in an adjacent *region*.

(b) *Inter-regional loss factors*:

(1) describe the *marginal electrical energy losses* for electricity transmitted through *regulated interconnectors* from a *regional reference node* in one *region* to the *regional reference node* in an adjacent *region* for a particular time period and a defined range of operating conditions;

(2) to apply between each pair of adjacent *regional reference nodes* are to be determined as part of the *central dispatch* process using *inter-regional loss factor* equations derived in accordance with the methodology determined by *AEMO* pursuant to clause 3.6.1(c); and

(3) are to be used in the *central dispatch* process as a notional adjustment to relate the prices of electricity at *regional reference nodes* in adjacent *regions* so as to reflect the cost of *inter-regional losses*.

(c) *AEMO* must determine, *publish* and maintain, in accordance with the *Rules consultation procedures*, a methodology for the determination of *inter-regional loss factor* equations for a *financial year*, describing *inter-regional loss factors* between each pair of adjacent *regional reference nodes* in terms of significant variables.

(d) In preparing the methodology for the determination of *inter-regional loss factor* equations referred to in clause 3.6.1(c), *AEMO* must implement the following principles:

(1) *Inter-regional loss factor* equations are to apply for a *financial year*.

(2) *Inter-regional loss factor* equations must be suitable for use in *central dispatch*.

(3) *Inter-regional loss factors* are determined as part of the *central dispatch* process using *inter-regional loss factor* equations. The *inter-regional loss factors* must:

(i) as closely as is reasonably practicable, describe the *marginal electrical energy losses* for electricity transmitted through the relevant *regulated interconnector* between the 2 relevant *regional reference nodes* in adjacent *regions* for each *trading interval* of the

financial year in respect of which the relevant *inter-regional loss factor* equations apply; and

(ii) aim to minimise the impact on the *central dispatch* process of *generation* and *scheduled load* as compared to the *dispatch* of *generation* and *scheduled load* which would result from a fully optimised dispatch process taking into account the effect of losses.

(4) *Inter-regional loss factor* equations are determined using forecast *load* and *generation* data and, if required, modelled *load* and *generation* data for the *financial year* in which the *inter-regional loss factor* equations are to apply. The forecast *load* and *generation* data and modelled *load* and *generation* data, if any, used must be that *load* and *generation* data prepared by *AEMO* pursuant to clause 3.6.2A.

(5) *Inter-regional loss factor* equations are determined by applying regression analysis to the *load* and *generation* data referred to in clause 3.6.1(d)(4) to determine:

(i) the variables which have a significant effect on the *marginal electrical energy losses* for electricity transmitted through each *regulated interconnector* for both directions of flow on those *regulated interconnectors*; and

(ii) the parameters that represent the relationship between each of those variables and the *marginal electrical energy losses*.

(e) *AEMO* must determine the *inter-regional loss factor* equations used to calculate *inter-regional loss factors* in each *financial year* in accordance with the methodology prepared and *published* by *AEMO* under clause 3.6.1(c).

(f) *AEMO* must *publish* the *inter-regional loss factor* equations determined under clause 3.6.1(e) by 1 April prior to the *financial year* in which they are to apply.

3.6.2 Intra-regional losses

(a) *Intra-regional losses* are *electrical energy losses* that occur due to the transfer of electricity between a *regional reference node* and *transmission network connection points* in the same *region*.

(b) *Intra-regional loss factors*:

(1) notionally describe the *marginal electrical energy losses* for electricity transmitted between a *regional reference node* and a *transmission network connection point* in the same *region* for a defined time period and associated set of operating conditions;

(2) will be a single static *intra-regional loss factor* that applies for a *financial year* derived in accordance with the methodology determined by *AEMO* pursuant to clause 3.6.2(d) for each *transmission network connection point*; and

(3) may, with the agreement of the *AER*, be averaged over an adjacent group of *transmission network connection points* within a single *region*. If averaging is used, the relevant *transmission network connection points* will be collectively defined as a *virtual transmission node* with a *loss factor* calculated as the volume weighted average of the *transmission loss factors* of the constituent *transmission network connection points*.

(c) An *intra-region*al *loss factor* is to be used as a price multiplier that can be applied to the *regional reference price* to determine the *local spot price* at each *transmission network connection point* and *virtual transmission node*.

(d) *AEMO* must determine, *publish* and maintain, in accordance with *Rules consultation procedures*, a methodology for the determination of *intra-regional loss factors* to apply for a *financial year* for each *transmission network connection point*.

(e) In preparing the methodology referred to in clause 3.6.2(d), *AEMO* must implement the following principles:

(1) *Intra-regional loss factors* are to apply for a *financial year*.

(2) An *intra-regional loss factor* must, as closely as is reasonably practicable, describe the average of the *marginal electrical energy losses* for electricity transmitted between a *transmission network connection point* and the *regional reference node* in the same *region* for each *trading interval* of the *financial year* in which the *intra-regional loss factor* applies.

(2A) *Intra-regional loss factors* must aim to minimise the impact on the *central dispatch* process of *generation* and *scheduled load* compared to that which would result from a fully optimised dispatch process taking into account the effect of losses.

(3) Forecast *load* and *generation* data for the *financial year* for which the *intra-regional loss factor* is to apply must be used. The forecast *load* and *generation* data used must be that *load* and *generation* data prepared by *AEMO* pursuant to clause 3.6.2A.

(4) The *load* and *generation* data referred to in clause 3.6.2(e)(3) must be used to determine *marginal loss factors* for each *transmission network connection point* for each *trading interval* in the *financial year* to which the *load* and *generation* data relates.

(5) The *intra-regional loss factor* for each *transmission network connection point* is determined using a volume weighted average of the *marginal loss factors* for the *transmission network connection point*.

(6) In determining the *intra-regional loss factor* for a *transmission network connection point*, flows in *network elements* that solely or principally provide *market network services* will be treated as invariant, as the methodology is not seeking to calculate the *marginal losses* within such *network elements*.

(f) *AEMO* must calculate *intra-regional loss factors* for each *transmission network connection point* for each *financial year* in accordance with the methodology prepared and published by *AEMO* under clause 3.6.2(d).

(f1) By 1 April in each year, *AEMO* must *publish* the *intra-regional loss factors* revised under clause 3.6.2(f) and to apply for the next *financial year*.

(g) *AEMO* must, in accordance with the *Rules consultation procedures*, determine, *publish* and maintain the methodology which is to apply to the calculation of average *transmission loss factors*, determined in accordance with clause 3.6.2(b)(3), for each *virtual transmission node* proposed by a *Distribution Network Service Provider*.

(h) As soon as practicable after the *publication* of the methodology referred to in clause 3.6.2(g), and thereafter by 1 April in each year, *AEMO* must calculate and *publish* the *transmission loss factors* for each *virtual transmission node*, determined in accordance with clause 3.6.2(b)(3), that are to apply for the next *financial year*.

(i) Notwithstanding clauses 3.6.2(a) to (f1), *AEMO* must:

(1) determine an *intra-regional loss factor* in the *financial year* in which the *intra-regional loss factor* is to apply for a *transmission network connection point* which is established in that *financial year* in accordance with the procedure for establishing *connection* set out in rule 5.3, provided that *AEMO* did not determine an *intra-regional loss factor* for the *transmission network connection point* pursuant to clause 3.6.2(f1) in the *financial year* preceding that in which the *connection point* is established; or

(2) revise an *intra-regional loss factor* in the *financial year* in which the *intra-regional loss factor* is to apply for a *transmission network connection point* which is modified in that *financial year* in accordance with the procedure for modifying *connection* set out in rule 5.3, provided that, in *AEMO*'s reasonable opinion, the modification to that *connection point* results in a material change in the capacity of the *connection point*.

(j) *AEMO* must, where required to determine the *intra-regional loss factor* for an established or modified *transmission network connection point* under clause 3.6.2(i), do so as far as practicable in accordance with the methodology *published* by *AEMO* pursuant to clause 3.6.2(d).

(k) For the purposes of clause 3.6.2(j), the forecast *load* and *generation* data used to calculate the *intra-regional loss factor* for the *transmission network connection point* must be determined using the forecast *load* and *generation* data determined by *AEMO* under clause 3.6.2A for other *transmission network connection points* in the same *region* for that *financial year* adjusted to take into account the effect of the established or modified *connection point*. Notwithstanding this clause 3.6.2(k), *Registered Participants* must comply with their obligations with respect to the provision of information to *AEMO*, for the purpose of determining new or revised *intra-regional loss factors* for

connection points that are established or modified during the *financial year* in which the *intra-regional loss factors* are to apply, specified by the methodology developed and *published* by *AEMO* under clause 3.6.2A.

(l) In the case of a *connection point* that is established in the *financial year* in which the *intra-regional loss factor* is to apply:

(1) the *intra-regional loss factor* determined by *AEMO* in accordance with clause 3.6.2(i) will apply from the time the *intra-regional loss factor* is determined and *published* by *AEMO*; and

(2) *AEMO* must use reasonable endeavours to determine and *publish* the *intra-regional loss factor* at least 45 *business days* prior to the commencement of operation of the established *connection point*, where the relevant *Registered Participants* comply with any applicable requirements and deadlines for the provision of information to *AEMO* specified by the methodology *published* by *AEMO* under clause 3.6.2A.

(m) In the case of a *connection point* that is modified in the *financial year* in which the *intra-regional loss factor* is to apply:

(1) the *intra-regional loss factor* determined by *AEMO* in accordance with clause 3.6.2(i) will apply from the date when the modification to the *connection point* takes effect; and

(2) *AEMO* must use reasonable endeavours to *publish* the *intra-regional loss factor* at least 45 *business days* prior to the date when the modification to the *connection point* takes effect, where the relevant *Registered Participants* comply with any applicable requirements and deadlines for the provision of information to *AEMO* specified by the methodology *published* by *AEMO* under clause 3.6.2A.

(n) For the avoidance of doubt, where *AEMO* determines an *intra-regional loss factor* for a *transmission network connection point* under clause 3.6.2(i), which is to apply in the *financial year* in which the *transmission network connection point* is established or modified, the *intra-regional loss factors* for all other *transmission network connection points* for that *financial year*, determined in accordance with clauses 3.6.2(a) to (g), must remain unchanged.

3.6.2A Load and generation data used to determine inter-regional loss factor equations and intra-regional loss factors

(a) *AEMO* must prepare *load* and *generation* data for each *financial year* to be used in both the determination of *inter-regional loss factor* equations under clause 3.6.1 and *intra-regional loss factors* under clause 3.6.2 in accordance with the methodology determined, *published* and maintained by *AEMO* for this purpose, under clause 3.6.2A(b).

(b) *AEMO* must determine, *publish* and maintain, in accordance with the *Rules consultation procedures*, a methodology for:

(1) forecasting the *load* and *generation* data to be used in both the determination of *inter-regional loss factor* equations and *intra-regional loss factors*, including new or revised *intra-regional loss factors* for *connection points* that are established or modified, respectively, during the *financial year* in which the *intra-regional loss factors* are to apply;

(2) modelling additional *load* and *generation* data, where required, to be used in determining *inter-regional loss factor* equations; and

(3) the collection of relevant data from *Registered Participants*, including without limitation deadlines for the provision of that data by *Registered Participants.*

(c) The methodology developed and *published* by *AEMO* under clause 3.6.2A(b) must specify information reasonably required by *AEMO* to fulfil its obligations under clause 3.6.2A, including without limitation historic *load* and *generation* data, forecast *energy* and *maximum demand* data for a *connection point* and forecast data for any new *loads*. In particular, the methodology must specify information to be provided by *Registered Participants* that is in addition to the information provided by those *Registered Participants* under other provisions of the *Rules*.

(d) In preparing the methodology for forecasting and modelling *load* and *generation* data under clause 3.6.2A(b), *AEMO* must implement the following principles:

(1) The forecast *load* and *generation* data must be representative of expected *load* and *generation* in the *financial year* in which the *inter-regional loss factor* equations or *intra-regional loss factors* are to apply having regard to:

(i) actual *load* and *generation* data available for a 12 month period defined by the methodology with the objective to use the most recent *load* and *generation* data practicable;

(ii) projected *load* growth between each calendar month to which the actual *load* and *generation* data referred to in clause 3.6.2A(d)(1)(i) relates and the same calendar month in the *financial year* for which the forecast *load* and *generation* data is determined; and

(iii) the projected *network* configuration and projected *network* performance for the *financial year* in which the *inter-regional loss factor* equation or *intra-regional loss factor*, as the case may be, is to apply.

(2) Additional modelled *load* and *generation* data sets must only be used:

(i) in the determination of *inter-regional loss factor* equations under clause 3.6.1; and

(ii) where the range of forecast *load* and *generation* data is not sufficient to derive *inter-regional loss factor* equations to apply

over the full range of transfer capability of the *regulated interconnector*.

(e) *Registered Participants* must comply with the obligations to provide information set out in the methodology developed and *published* by *AEMO* under this clause 3.6.2A, including the deadlines for the provision of that information and any other obligations with respect to the provision of that information set out in the methodology.

3.6.3 Distribution losses

(a) *Distribution losses* are *electrical energy losses* incurred in the conveyance of electricity over a *distribution network.*

(b) *Distribution loss factors*:

(1) notionally describe the *average electrical energy losses* for electricity transmitted on a *distribution network* between a *distribution network connection point* and a *transmission network connection point* or *virtual transmission node* for the financial year in which they apply;

(2) will be either:

(i) a site specific *distribution loss factor* derived in accordance with the methodology determined by the *AER* or the *Distribution Network Service Provider* pursuant to clause 3.6.3(h), for each *distribution network connection point* of the following types:

(A) a *connection point* for an *embedded generating unit* with actual *generation* of more than 10MW, based on the most recent data available for a consecutive 12 month period at the time of determining the *distribution loss factor*. Where relevant data is not available for a consecutive 12 month period as a *distribution network connection point* is newly established or has been modified, a *Network Service Provider* may determine whether an *embedded generating unit* has *generation* of more than 10MW, based on its best projection of *generation* in the *financial year* in which the *distribution loss factor* is to apply, taking into account the terms of the relevant *connection agreement*;

(B) a *connection point* for an end-user with actual or forecast *load* of more than 40GWh or an electrical demand of more than 10MW, based on the most recent data available for a consecutive 12 month period at the time of determining the *distribution loss factor*. Where relevant data is not available for a consecutive 12 month period as a *distribution network connection point* is newly established or has been modified, a *Network Service Provider* may determine whether an end-user has *load* of more than 40GWh or forecast *peak load* of more than 10MW, based on its best projection of *load* in the

financial year in which the *distribution loss factor* is to apply, taking into account the terms of the relevant *connection agreement*;

(C) a *connection point* for a *market network service provider*; and

(D) a *connection point* between two or more *distribution networks*; or

(ii) derived, in accordance with the methodology determined by the *AER* or the *Distribution Network Service Provider* pursuant to clause 3.6.3(h), using the volume weighted average of the *average electrical energy loss* between the *transmission network connection point* or *virtual transmission node* to which it is assigned and each *distribution network connection point* in the relevant *voltage* class (determined in accordance with clause 3.6.3(d)(2)) assigned to that *transmission network connection point* or *virtual transmission node*, for all *connection points* on a *distribution network* not of a type described in clause 3.6.3(b)(2)(i);

(3) are to be used in the settlement process as a notional adjustment to the electrical *energy*, expressed in MWh, flowing at a *distribution network connection point* in a *trading interval* to determine the *adjusted gross energy* amount for that *connection point* in that *trading interval*, in accordance with clause 3.15.4.

(b1) Where a *Generator* meets the reasonable cost of the *Distribution Network Service Provider* in performing the necessary calculation in respect of a *generating unit* of up to 10MW or 40GWh per annum capacity, the *Distribution Network Service Provider* must calculate a site specific *distribution loss factor* that, notwithstanding any other provision of the *Rules* to the contrary, for the purposes of the *Rules* is to apply in respect of that *generating unit* on the same basis as applies for a *generating unit* of more than 10MW or 40GWh per annum capacity as though the *generating unit* were a unit of more than 10MW or 40GWh per annum capacity.

(c) Each *Distribution Network Service Provider* must assign each *connection point* on its *distribution network*, of a type described in clause 3.6.3(b)(2)(i), to a single *transmission network connection point* taking into account normal *network* configurations and predominant *load* flows.

(d) Each *Distribution Network Service Provider* must assign each *connection point* on its *distribution network*, not of a type described in clause 3.6.3(b)(2)(i):

(1) where practicable, to a single *transmission network connection point* or otherwise, to a *virtual transmission node*, taking into account normal network configurations and predominant *load* flows; and

(2) to a class of *distribution network connection points* based on the location of, *voltage* of and pattern of electrical *energy* flows at the *distribution network connection point*.

(e) So far as practicable, the assignment of *connection points* on the *distribution network* to:

(1) *transmission network connection points* under clause 3.6.3(c); or

(2) *transmission network connection points* or *virtual transmission nodes* and a class of *distribution network connection points* under clause 3.6.3(d),

must be consistent with the geographic boundaries of the *pricing zones* for use in *distribution service* pricing, and the *voltage* levels incorporated within those *pricing zones*.

(f) The assignment of *connection points* on a *distribution network*:

(1) to a single *transmission network connection point* under clause 3.6.3(c); or

(2) to a *transmission network connection point* or *virtual transmission node* and a class of *distribution network connection points* under clause 3.6.3(d),

is subject to the approval of the *AER* and the *Distribution Network Service Provider* must inform *AEMO* of such approved assignments.

(g) *Distribution loss factors* must be determined by a *Distribution Network Service Provider* for all *connection points* on its *distribution network* either individually, for all connection points assigned to a single *transmission network connection point* under clause 3.6.3(c), or collectively, for all *connection points* assigned to a *transmission network connection point* or a *virtual transmission node* and a particular *distribution network connection point* class under clause 3.6.3(d), in accordance with:

(1) the methodology developed, *published* and maintained by the *AER* for the determination of *distribution loss factors*; or

(2) where the *AER* has not *published* a methodology under clause 3.6.3(g)(1), the methodology developed, *published* and maintained by the *Distribution Network Service Provider* for the determination of *distribution loss factors*.

(h) The methodology for the determination of *distribution loss factors* referred to in clause 3.6.3(g) must be developed having regard to the following principles:

(1) The aggregate of the *adjusted gross energy* amounts for a *distribution network*, determined in accordance with clause 3.15.4 using the *distribution loss factors* for the *financial year* in which the *distribution loss factors* are to apply should equal, as closely as is reasonably practicable, the sum of:

A. the amount of electrical *energy*, expressed in MWh, flowing at all *connection points* in the *distribution network* in the

financial year in which the *distribution loss factors* are to apply; and

B. the total *electrical energy losses* incurred on the *distribution network* in the *financial year* in which the *distribution loss factors* are to apply.

(2) The methodology used to determine *distribution loss factors* for a *financial year* should incorporate provisions requiring a *Distribution Network Service Provider* to undertake a reconciliation between the aggregate of the *adjusted gross energy* amounts for its *distribution network* for the previous *financial year* determined in accordance with clause 3.15.4 using the *distribution loss factors* that applied for *connection points* in that *distribution network* in the previous *financial year* and the sum of:

(i) the amount of electrical *energy*, expressed in MWh flowing, at all *connection points* in its *distribution network* in the previous *financial year*; and

(ii) the total *electrical energy losses* incurred on its *distribution network* in the previous *financial year*.

(3) The *distribution loss factor* for a *distribution network connection point*, other than those described in clause 3.6.3(b)(2)(i), is determined using a volume weighted average of the *average electrical energy loss* between the *transmission network connection point* or *virtual transmission node* to which it is assigned and each *distribution network connection point* in the relevant class of *distribution network connection points* assigned to that *transmission network connection point* or *virtual transmission node* for the *financial year* in which the *distribution loss factor* is to apply.

(4) The *distribution loss factor* for a *distribution network connection point* described in clause 3.6.3(b)(2)(i) is determined using the *average electrical energy loss* between the *distribution network connection point* and the *transmission network connection point* to which it is assigned in the *financial year* in which the *distribution loss factor* is to apply.

(5) In determining the *average electrical energy losses* referred to in clauses 3.6.3(h)(3) and (4), the *Distribution Network Service Provider* must use the most recent actual *load* and *generation* data available for a consecutive 12 month period but may adjust this *load* and *generation* data to take into account projected *load* and / or *generation* growth in the *financial year* in which the *distribution loss factors* are to apply.

(6) In determining *distribution loss factors*, flows in *network elements* that solely or principally provide *market network services* will be treated as invariant, as the methodology is not seeking to calculate the *marginal losses* within such *network elements*.

(i) Each year the *Distribution Network Service Provider* must determine the *distribution loss factors* to apply in the next *financial year* in accordance with clause 3.6.3(g) and provide these to *AEMO* for *publication* by 1 April. Before providing the *distribution loss factors* to *AEMO* for *publication*, the *Distribution Network Service Provider* must obtain the approval of the *AER* for the *distribution loss factors* it has determined for the next *financial year*.

3.6.4 Network constraints

(a) Conveyance of electricity between *regions* through a *regulated interconnector* is *constrained* when for operational reasons it is not acceptable for the *regulated interconnector* to transfer the level of electricity between *regions* that would be transferred if the limitation was removed and the condition impacts on the *dispatch* of other *regulated interconnectors*, *generation*, *scheduled network services* or *loads.*

(a1) Conveyance of electricity between *regions* by means of a *scheduled network service* is *constrained* when the *dispatch* of the relevant *scheduled network service* is limited by the notified available capacity or *ramp rate* and the limitation impacts on the *dispatch* of *generation*, *regulated interconnectors*, other *scheduled network services* or *loads.*

(b) Conveyance of electricity within a *region* is *constrained* when for operational reasons it is not acceptable for a *network* to transfer the level of electricity between different parts of the *region* that would be transferred if the limitation was removed and the condition impacts on the *dispatch* of *generation*, *scheduled network services* or *loads*.

(c) For every *trading interval AEMO* must record any *constraints* including a description and the duration of the *constraint*.

(d) Any *constraints* which occur within a *region* or between *regions* must be taken into account in the *dispatch* process under clause 3.8.10.

3.6.5 Settlements residue due to network losses and constraints

(a) *Settlements residue* will be allocated, and distributed or recovered by *AEMO* in accordance with the following principles:

(1) full effect is to be given to the *jurisdictional derogations* contained in Chapter 9 relating to *settlements residue*;

(2) the portion of the *settlements residue* attributable to *regulated interconnectors* (as adjusted to take into account the effect of any applicable *jurisdictional derogations* referred to in clause 3.6.5(a)(1)) will be distributed or recovered in accordance with rule 3.18;

(3) the remaining *settlements residue*, including the portion of *settlements residue* due to *intra-regional loss factors*, will be distributed to or recovered from the appropriate *Transmission Network Service Providers* (which will not include *Market Network Service Providers*);

(4) subject to clause 3.6.5(c), if the *settlements residue* arising in respect of a *trading interval*, after taking into account any adjustment in accordance with clauses 5.7.7(aa)(3) or (ab), is a negative amount, then the amount may be recovered:

(i) to the extent to which the *settlements residue* would have been distributed in accordance with clause 3.6.5(a)(2), from *eligible persons* participating in the *auctions* conducted under rule 3.18 either from positive *settlements residue* amounts arising in the same *billing period* or otherwise as part of future *auction expense fees*; and

(ii) from the *Network Service Provider* to which the *settlements residue* would have been distributed had it been a positive amount; and

(4A) subject to clause 3.6.5(c), if the *settlements residue* arising in respect of a *trading interval*, after taking into account any adjustment in accordance with clause 5.7.7(aa)(3) or (ab), is a negative amount, then:

(i) the whole or any part of the amount may be recovered from positive *settlements residue* amounts arising in the *billing period* in which the negative *settlements residue* arose; and

(ii) if the whole or a part of the amount is not recoverable under clause 3.6.5(a)(4A)(i), the unrecovered amount may be recovered from the proceeds of the first *auction* after that *billing period*; and

(iii) if the whole or a part of the amount is recoverable under neither clause 3.6.5(a)(4A)(i) nor clause 3.6.5(a)(4A)(ii), the unrecovered amount may be recovered from the proceeds of successive *auctions* until the negative amount is recovered.

(4B) subject to clause 3.6.5(a)(4A), interest costs incurred by *AEMO* in relation to any unrecovered negative *settlements residue* amounts referred to in clause 3.6.5(a)(4A) may be recovered:

(i) from proceeds of the first *auction* after the *billing period* in which the interest costs arose; and

(ii) if the whole or a part of the interest costs are not recoverable under clause 3.6.5(a)(4B)(i), unrecovered interest costs may be recovered from the proceeds of successive *auctions* until all the interests costs are recovered.

(5) for the purposes of the distribution or recovery of *settlements residue* that is attributable to *regulated interconnectors*:

(i) all of the *settlements residue* relating to electricity that is transferred from one *region* (the “exporting region”) to another *region* (the “importing region”) must be allocated to *Network Service Providers* in respect of a *network* located in the importing region (or part of a *network* located in the importing region);

(ii) the importing region must, in respect of the period from *market commencement* until the expiry date referred to in subparagraph (iv), pay a charge to the exporting region reflecting the extent of the use of a *network* located in the exporting region (or part of a *network* located in the exporting region) to transfer the electricity from the exporting region to the importing region;

(iii) the amount of the charge described in subparagraph (ii) must not exceed the amount of the *settlements residue* referred to in subparagraph (i), and must be agreed between the *participating jurisdictions* in which the importing region and the exporting region are located; and

(iv) the expiry date referred to in subparagraph (ii), means 1 July 2012 or the date of commencement of rules which make alternative provision in the *Rules* for inter-regional *settlements*, whichever is the earlier date; and

(6) any portion of *settlements residue* distributed to a *Network Service Provider* or amount paid on that portion under clause 3.15.10A (if any), or rule 3.18 to a *Network Service Provider*, including any such payments as adjusted by a *routine revised statement* or *special revised statement* issued under rule 3.15, net of any portion of *settlements residue* recovered from the *Network Service Provider* in accordance with clause 3.6.5(a)(4), will be used to offset *network service* charges.

(b) A *Transmission Network Service Provider* or its jurisdictional delegate is a *Market Participant* for the purposes of clause 3.3.1 and rule 3.15 (excluding clause 3.15.1(b)) but not otherwise.

(c) Subject to clauses 11.1.1 and 11.1.2:

(i) clause 3.6.5(a)(4) does not have effect during the period commencing on 1 July 2006 and ending at the last moment of 30 June 2010 but comes into effect again at the end of that period; and

(ii) clauses 3.6.5(a)(4A) and (4B) expire at the end of that period.

3.7 Projected Assessment of System Adequacy

3.7.1 Administration of PASA

(a) *AEMO* must administer medium term and short term *projected assessment of system adequacy processes* to be known as *PASA*.

(b) The *PASA* is a comprehensive program of information collection, analysis, and disclosure of medium term and short term *power system security* prospects so that *Scheduled Generators* and *Market Participants* are properly informed to enable them to make decisions about *supply*, demand and *outages* of *transmission networks* in respect of periods up to 2 years in advance.

(c) On a weekly basis *AEMO* must:

(1) collect and analyse information from all *Scheduled Generators*, *Market Customers*, *Transmission Network Service Providers* and *Market Network Service Providers* about their intentions for:

(i) *generation*, *transmission* and *Market Network Service* maintenance scheduling;

(ii) intended *plant* availabilities;

(iii) *energy constraints*;

(iv) other *plant* conditions which could materially impact upon *power system security*; and

(v) significant changes to *load* forecasts previously notified to *AEMO*,

for the following 24 months;

(2) prepare the *unconstrained intermittent generation forecasts* for the following 24 months; and

(3) following analysis and assessment of the information referred to subparagraphs (1) and (2), *publish* information that will:

(i) assist *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* to plan any scheduled work on *plant*; and

(ii) inform the *market* of possible *power system security* problems.

(d) *AEMO* must use its reasonable endeavours to ensure that it provides to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* sufficient information to allow *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* to undertake maintenance and *outage* planning without violating *power system security* and to allow the *market* to operate effectively with a minimal amount of intervention by *AEMO*.

3.7.2 Medium term PASA

(a) The *medium term PASA* covers the 24 month period commencing from the *day* 8 *days* after the *day* of publication with a daily resolution, and must be reviewed and issued every week by *AEMO* in accordance with the *timetable*.

(b) *AEMO* may *publish* additional updated versions of the *medium term PASA* in the event of *changes* which, in the judgment of *AEMO*, are materially significant and should be communicated to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants*.

(c) The following *PASA* inputs are to be prepared by *AEMO*:

(1) forecast *load* which is:

(i) to indicate for each *region* the most probable *peak load*, time of the peak, and daily *energy* on the basis of past trends, day type and special events including all anticipated *scheduled load* and other *load* except pumped storage *loads*;

(ii) subsequently to be adjusted by an amount anticipated in the forecast as *scheduled load* by *load* bidders; and

(iii) an indicative half hourly *load* profile for each day type for each *region* for each month of the year;

(2) reserve requirements of each *region* determined in accordance with the *medium term capacity reserve standards* set out in the *power system security and reliability standards*;

(3) forecast *network constraints* known to *AEMO* at the time;

(4) an *unconstrained intermittent generation forecast* for each *semi-scheduled generating unit* for each *day*.

(d) The following *medium term PASA* inputs must be submitted by each relevant *Scheduled Generator* or *Market Participant* in accordance with the *timetable*:

(1) *PASA availability* of each *scheduled generating unit*, *scheduled load* or *scheduled network service* for each *day*; and

(2) weekly *energy constraints* applying to each *scheduled generating unit* or *scheduled load*.

(e) *Network Service Providers* must provide to *AEMO* an outline of planned *network outages* in accordance with the *timetable* and provide to *AEMO* any other information on planned *network outages* that is reasonably requested by *AEMO* to assist *AEMO* to meet its obligations under paragraph (f)(6).

(f) *AEMO* must prepare and *publish* the following information in respect of each *day* covered by the *medium term PASA* in accordance with clause 3.13.4:

(1) forecasts of the most probable peak *power system load* plus required *reserve*, adjusted to make allowance for *scheduled load*, for each *region* and for the total *power system*;

(2) the aggregated MW allowance (if any) made by *AEMO* for *generation* from *non-scheduled generating systems* in each forecast of the most probable peak *power system load* referred to subparagraph (1);

(3) in respect of each forecast of the most probable peak *power system load* referred to in subparagraph (1), a value that is the sum of that forecast and the relevant aggregated MW allowance referred to in subparagraph (2);

(4) forecasts of the most probable *energy* consumption for each *region* and for the total *power system*;

(5) aggregate *generating unit PASA availability* for each *region*, calculated by adding the following categories:

(i) the capacity of *scheduled generating units* that are able to operate at the full offered *PASA availability* on a continuous basis to meet forecast *power system load*;

(ii) an allocation of *generation* that cannot be *generated* continuously at the full offered *PASA availability* of the *scheduled generating units* for the period covered due to specified weekly *energy constraints*; and

(iii) the forecast *generation* of *semi-scheduled generating units* as provided by the *unconstrained intermittent generation forecasts*; and

(6) identification and quantification of:

(i) any projected *violations* of *power system security*;

(ii) any *days* on which *low reserve* or *lack of reserve* conditions are forecast to apply;

(iii) where a projected *supply* deficit in one *region* can be supplemented by a surplus in another *region* (dependent on forecast *interconnector* transfer capabilities);

(iv) forecast *interconnector* transfer capabilities and the discrepancy between forecast *interconnector* transfer capabilities and the forecast capacity of the relevant *interconnector* in the absence of *outages* on the relevant *interconnector* only; and

(v) when and where *network constraints* may become binding on the *dispatch* of *generation* or *load*.

(g) *AEMO* must document the procedure it uses for preparation of the *medium term PASA* and make it available to all *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* on a cost recovery basis.

3.7.3 Short term PASA

(a) The *short term PASA* must be issued at least daily by *AEMO* in accordance with the *timetable*.

(b) The *short term PASA* covers the period of six *trading days* starting from the end of the *trading day* covered by the most recently *published pre-dispatch schedule* with a half hourly resolution.

(c) *AEMO* may *publish* additional updated versions of the *short term PASA* in the event of *changes* which, in the judgement of *AEMO*, are materially significant and should be communicated to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants*.

(d) The following *short term PASA inputs* are to be prepared by *AEMO*:

(1) forecast *load* which is to include:

(i) the most probable half hourly *profile* on the basis of past trends, day type and special events; and

(ii) all *scheduled load* and other *load* except for pumped storage *loads*,

which must subsequently be adjusted in accordance with *dispatch offers* for *scheduled load*;

(2) *reserve* requirements for each *region* determined in accordance with the *short term capacity reserve standards*;

(3) anticipated *network constraints* known to *AEMO* at the time; and

(4) an *unconstrained intermittent generation forecast* for each *semi-scheduled generating unit* for each *trading interval*.

(e) The following *short term PASA* inputs must be submitted by each relevant *Scheduled Generator* and *Market Participant* in accordance with the *timetable* and must represent the *Scheduled Generator's* or *Market Participant's* current intentions and best estimates:

(1) availability of each *scheduled generating unit*, *scheduled load* or *scheduled network service* for each *trading interval* under expected *market* conditions;

(2) *PASA availability* of each *scheduled generating unit*, *scheduled load* or *scheduled network service* for each *trading interval*;

(3) *scheduled generating unit synchronisation* and *de-synchronisation* times for *slow start generating units*; and

(4) projected daily *energy* availability for *energy constrained scheduled generating units* and *energy constrained scheduled loads*.

(f) If *AEMO* considers it reasonably necessary for adequate *power system* operation and the maintenance of *power system security*, *Registered Participants* who may otherwise be exempted from providing inputs for the *PASA* process must do so to the extent specified by *AEMO*.

(g) *Network Service Providers* must provide to *AEMO* an outline of planned *network outages* in accordance with the *timetable* and provide to *AEMO* any other information on planned *network outages* that is reasonably requested by *AEMO* to assist *AEMO* to meet its obligations under clause 3.7.3(h)(5).

(h) *AEMO* must prepare and *publish* the following information as *short term PASA* outputs for each *trading interval* in the period covered in accordance with clause 3.13.4(c):

(1) forecasts of the most probable *power system load* plus required *scheduled reserve* adjusted to make allowance for *scheduled load*, for each *region* and for the total *power system*;

(2) forecasts of *power system load* for each *region* with 10% and 90% probability of exceedence;

(3) forecasts of the most probable *energy* consumption for each *region* and for the total *power system*;

(4) aggregate *generating unit* availability for each *region* calculated by adding the following categories:

(i) the capacity of *scheduled generating units* that are able to operate at the full offered availability on a continuous basis to meet forecast *power system load*;

(ii) an allocation of *generation* that cannot be *generated* continuously at the full offered availability of the *scheduled generating units* for the period covered due to specified daily *energy constraints*; and

(iii) the forecast *generation* of *semi-scheduled generating units* as provided by the *unconstrained intermittent generation forecasts*;

(4A) aggregate *generating unit PASA availability* for each region;

(4B) the aggregated MW allowance (if any) made by *AEMO* for generation from *non-scheduled generating systems* in each forecast:

(i) of the most probable peak *power system load* referred to in clause 3.7.3(h)(1); and

(ii)referred to in clauses 3.7.3(h)(2), (3), (4) and (4A);

(4C) in respect of each forecast:

(i) of the most probable peak *power system load* referred to in clause 3.7.3(h)(1);

(ii) referred to in clauses 3.7.3(h)(2), (3), (4) and (4A),

a value that is the sum of that forecast and the relevant aggregated MW allowance (if any) referred to in clause 3.7.3(4B); and

(5) identification and quantification of:

(i) any projected *violations* of *power system security*;

(ii) any *trading intervals* for which *low reserve* or *lack of reserve* conditions are forecast to apply;

(iii) where a projected *supply* deficit in one *region* can be supplemented by a surplus in another *region* (dependent on forecast *interconnector* transfer capabilities);

(iv) forecast *interconnector* transfer capabilities and the discrepancy between forecast *interconnector* transfer capabilities and the forecast capacity of the relevant *interconnector* in the absence of outages on the relevant *interconnector* only; and

(v) when and where *network constraints* may become binding on the *dispatch* of *generation* or *load*.

(i) In the event that in performing the *short-term PASA AEMO* identifies any projected *low reserve* or *lack of reserve* conditions in respect of a *participating jurisdiction*, then *AEMO* must use its reasonable endeavours to advise the *Jurisdictional Co-ordinator* for that *participating jurisdiction* of any potential requirements during such conditions to shed *sensitive loads*.

(j) *AEMO* must document the procedure it uses for preparation of the *short term PASA* and make it available to all *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* on a cost recovery basis.

3.7A Congestion information resource

(a) The objective of the *congestion information resource* is to provide information in a cost effective manner to *Market Participants* to enable them to understand patterns of *network* congestion and make projections of *market* outcomes in the presence of *network* congestion (the *congestion information resource objective*).

Development of congestion information resource

(b) To implement the *congestion information resource objective*, *AEMO* must develop and *publish*, in accordance with this rule 3.7A, an information resource comprising:

(1) information on *planned network events* that are likely to materially affect *network constraints* in relation to a *transmission system*;

(2) historical data on *mis-pricing* at *transmission network* nodes in the *national electricity market*; and

(3) any other information that *AEMO*, in its reasonable opinion, considers relevant to implement the *congestion information resource objective*,

which is to be known as the *congestion information resource*.

(c) The *congestion information resource* must contain at least the same level of detail as is required to be included in the interim congestion information resource *published* under clause 11.30.2.

(d) *AEMO* must develop, and amend from time to time, the *congestion information resource*:

(1) consistently with the *congestion information resource objective*;

(2) in accordance with the *congestion information resource guidelines*; and

(3) to incorporate any new, or amend any existing, aspect of the *congestion information resource* where *AEMO* forms the view that such an amendment will improve the implementation of the *congestion information resource objective*.

(e) Subject to paragraph (f), *AEMO* must update and *publish* the information contained in the *congestion information resource* (whether in whole or in part) at intervals to be determined by *AEMO* in accordance with the *congestion information resource guidelines*.

(f) The intervals determined by *AEMO* for updating and *publishing* the *congestion information resource* must be included in the *timetable*.

(g) If there has been a material change to the information contained in the *congestion information resource* and *AEMO* considers *Market Participants* require the new information prior to the next periodic update of the *congestion information resource* in accordance with paragraph (e), *AEMO* may provide *Market Participants* with the new information in accordance with the *congestion information resource guidelines*.

(h) *AEMO* must *publish* the first *congestion information resource* by 1 September 2011 and there must be a *congestion information resource* available at all times after that date.

(i) For the purpose of *publishing* the first *congestion information resource* under paragraph (b), AEMO may, subject to paragraph (d), *publish* the interim congestion information resource referred to in clause 11.30.2, as the first *congestion information resource*, in whole or in part.

(j) *AEMO* must not *publish confidential information* as part of, or in connection with, the *congestion information resource*.

Congestion information resource guidelines

(k) *AEMO* must develop and *publish* guidelines (the *congestion information resource guidelines*) in relation to:

(1) the categories of information to be contained in the *congestion information resource* including the source of that information;

(2) the scope and type of information to be provided by *Transmission Network Service Providers* in accordance with paragraphs (n) and (o);

(3) the processes to be implemented by *AEMO* to obtain the information from *Transmission Network Service Providers* in accordance with paragraphs (n) and (o);

(4) the determination of the intervals for updating and *publishing* the *congestion information resource* under paragraph (e); and

(5) the processes to be implemented by *AEMO* for providing *Market Participants* with information under paragraph (g).

(l) *AEMO* must develop and *publish* the first *congestion information resource guidelines* in accordance with the *Rules consultation procedures* by 1 September 2010 and there must be a set of *congestion information resource guidelines* available and up to date at all times after that date.

(m) *AEMO* must amend the *congestion information resource guidelines* in accordance with the *Rules consultation procedures*.

Information of Transmission Network Service Providers

(n) In addition to the obligations imposed on *Transmission Network Service Providers* by rule 3.7, *Transmission Network Service Providers* must provide *AEMO* with the information specified in the *congestion information resource guidelines* as information that is to be provided by them:

(1) in a form which clearly identifies *confidential information*; and

(2) in accordance with the *congestion information resource guidelines*.

(o) If there has been a material change to the information provided by a *Transmission Network Service Provider* under paragraph (n), the *Transmission Network Service Provider* must provide *AEMO* with the revised information as soon as practicable.

(p) Information contained in the *congestion information resource* which has been provided by, or has been derived from information provided by, a *Transmission Network Service Provider* under this rule 3.7A:

(1) must represent the *Transmission Network Service Provider's* current intentions and best estimates regarding *planned network events* at the time the information is made available;

(2) does not bind the *Transmission Network Service Provider* to comply with an advised *outage* program; and

(3) may be subject to change due to unforeseen circumstances outside the control of the *Transmission Network Service Provider*.

3.7B Unconstrained intermittent generation forecast

(a) *AEMO* must prepare a forecast of the *available capacity* of each *semi-scheduled generating unit* (to be known as an *unconstrained intermittent generation forecast*) in accordance with this rule 3.7B for the purposes of:

(1) the *projected assessment of system adequacy process*;

(2) *dispatch*; and

(3) *pre-dispatch*.

(b) A *Semi-Scheduled Generator* must:

(1) submit to *AEMO*, in accordance with the *timetable*, the *plant availability* for each *semi-scheduled generating unit* for the purpose of paragraph (a) as soon as the *Semi-Scheduled Generator* becomes aware that the *plant availability* of the unit is at least 6MW below or above the *nameplate rating* of the unit; and

(2) where the *Semi-Scheduled Generator* has submitted *plant availability* in accordance with subparagraph (1), notify *AEMO* in accordance with the *timetable* as soon as the *Semi-Scheduled Generator* becomes aware of any changes to the *plant availability* of that *semi-scheduled generating unit* until such time as the *plant availability* of that *semi-scheduled generating unit* is no longer at least 6MW below or above the *nameplate rating* of the unit.

(c) When preparing an *unconstrained intermittent generation forecast* for the purposes referred to in paragraph (a), *AEMO* must take into account:

(1) the maximum *generation* of the *semi-scheduled generating unit*~~total registered capacity~~ provided by the *Semi-Scheduled Generator* as part of its *bid and offer validation data*~~*registered bid and offer data*~~;

(2) the *plant availability* of the *semi-scheduled generating unit* submitted by the *Semi-Scheduled Generator* under paragraph (b);

(3) the information obtained for the *semi-scheduled generating unit* from the *remote monitoring equipment* specified in clause S5.2.6.1;

(4) the forecasts of the energy available for input into the electrical power conversion process for each *semi-scheduled generating unit*;

(5) the *energy conversion model* for each *semi-scheduled generating unit*;

(6) the assumption that there are no *network constraints* otherwise affecting the *generation* from that *semi-scheduled generating unit*; and

(7) the timeframes of:

(i) *pre-dispatch*;

(ii) *dispatch*,

(iii) *medium term PASA*; and

(iv) *short term PASA*.

(d) *NEMMCO* must prepare the first *unconstrained intermittent generation forecast* for *each semi-scheduled generating unit* by 31 March 2009 and there must be an *unconstrained intermittent generation forecast* for each *semi-scheduled generating unit* available at all times after that date.

3.7C Energy Adequacy Assessment Projection

Purpose of EAAP

(a) The purpose of the *energy adequacy assessment projection* (or *EAAP*) is to make available to *Market Participants* and other interested persons an analysis that quantifies the impact of *energy constraints* on *energy* availability over a 24 month period under a range of scenarios.

EAAP principles

(b) The *EAAP* must:

(1) cover a 24 month period, commencing on the day the *EAAP* is *published* under this rule 3.7C;

(2) be *published* every three months;

(3) provide a probabilistic assessment of projected *energy* availability for each *region*;

(4) provide projected *unserved energy* levels for each *region* with a monthly resolution;

(5) provide aggregated information on the adequacy of *energy* availability for each scenario that *AEMO* defines for the purposes of the *EAAP*, based on information received from *Registered Participants* and on anticipated *power system* constraints;

(6) take into account:

(A) where relevant, the information and *medium term PASA* inputs referred to in clauses 3.7.1 and 3.7.2;

(B) where relevant, the matters *AEMO* considers in, and for the purposes of, clause 5.6.5(c) in carrying out the *ANTS review*;

(C) *Generator Energy Limitation Frameworks* provided in accordance with paragraph (g), including *GELFs* that apply to more than one *scheduled generating unit* under clause 3.7C(k)(6) where those *GELFs* adequately represent the relevant *generating units*; and

(D) *GELF parameters* for each *GELF* which are provided in accordance with the *EAAP guidelines* and are updated in accordance with the *timetable*.

(c) *AEMO* must comply with the *EAAP principles* in preparing the *EAAP*.

Administration of EAAP

(d) *AEMO* must *publish* the *EAAP* every three months in accordance with the *timetable* and the first *EAAP* must be published by 31 March 2010.

(e) For the purposes of preparing the *EAAP*, *a Scheduled Generator* must provide *AEMO* with the following information in accordance with the *timetable*:

(1) updated *GELF parameters* for each *GELF* provided by it in accordance with paragraph (g); and

(2) other information that supplements the data provided under subparagraph (1) that is reasonably required by *AEMO* to study the scenarios defined in the *EAAP guidelines*.

(f) In considering whether information referred to in subparagraph (e)(2) is reasonably required, *AEMO* must have regard to the likely costs that may be incurred by the *Scheduled Generator* in preparing and providing that information compared to the likely benefits from the use of that information for the purposes of the *EAAP*.

Generator Energy Limitation Framework

(g) A *Scheduled Generator* must prepare and submit to *AEMO*, in accordance with the *EAAP guidelines* and for the purposes of the *EAAP*, a description of the *energy constraints* that affect the ability of each of its *scheduled generating units* to generate electricity (‘*GELF*’ or ‘*Generator Energy Limitation Framework*’). The *GELF* must be in a form that adequately represents that *generating unit* sufficient for *AEMO* to include the *GELF* in the *EAAP*.

(h) A *GELF* submitted under paragraph (g) must be supplemented by *GELF parameters* for that *GELF* as defined in the *EAAP guidelines*, and those parameters must be updated every three months in accordance with the *timetable*.

(i) Where a *Scheduled Generator* has submitted a *GELF* under paragraph (g) and there has been a material *change* to any of its *scheduled generating units* which has an impact on the *energy constraints* associated with that *GELF*, the *Scheduled Generator* must revise and re-submit the *GELF* in accordance with that paragraph.

(j) Subject to paragraph (r), a *GELF* or information provided in relation to a *GELF* to *AEMO* must be treated by *AEMO* as *confidential information*.

EAAP guidelines

(k) *AEMO* must develop and *publish* guidelines (the '*EAAP guidelines*') that:

(1) define scenarios that *AEMO* must study in preparing the *EAAP*;

(2) define modelling assumptions for the *EAAP*;

(3) define the components of a *GELF* that a *Scheduled Generator* must include in a *GELF* submitted under paragraph (g);

(4) provide detail on the forms of the *GELF* sufficient for a *Scheduled Generator* to meet the requirements of paragraph (g);

(5) define variable parameters specific to a *GELF* (‘*GELF parameters*’) that are likely to have a material impact on the *GELF* and therefore the *EAAP*, and which may include, but are not limited to, parameters in relation to:

(i) hydro storage including pump storage;

(ii) thermal generation fuel;

(iii) cooling water availability; and

(iv) gas supply limitations;

(6) define circumstances where a *GELF* submitted under paragraph (g) can apply to a collection of *scheduled generating units* that face common *energy constraints* due to their geographic location, access to fuel source or another similar reason;

(7) define the form of information to be submitted by each *Scheduled Generator* in accordance with paragraph (e); and

(8) define arrangements for managing the confidentiality of information submitted to *AEMO* under this rule 3.7C.

(l) The scenarios that are defined for the purposes of subparagraph (k)(1) may include, but are not limited to:

(1) water conditions such as normal rainfall and drought;

(2) material restrictions on the supply of a significant fuel source;

(3) other limits on a fuel source for a major form of generation; and

(4) any other scenario that *AEMO* reasonably considers will have a material impact on the *EAAP*.

(m) *AEMO* must comply with the *EAAP principles* in preparing the *EAAP guidelines*.

(n) *AEMO* must comply with the *EAAP guidelines* in preparing the *EAAP*.

(o) *AEMO* must develop and *publish* the *EAAP guidelines* in accordance with the *Rules consultation procedures*.

(p) *NEMMCO* must develop and *publish* the first *EAAP guidelines* by 30 June 2009 and there must be a set of *EAAP guidelines* available at all times after that date.

(q) *AEMO* may from time to time in accordance with the *Rules consultation procedures* amend or replace the *EAAP guidelines*.

Provision of information to Scheduled Generators

(r) *AEMO* must provide to each *Scheduled Generator*, based on the relevant *GELF*, an estimate of the total *energy* production of the *scheduled generating units* of that *Scheduled Generator* for the period of the *EAAP*.

Review

(s) The *Reliability Panel* must conduct a review of the operation of this rule 3.7C by no later than the end of the third year after the *publication* of the first *EAAP*.

3.8 Central Dispatch and Spot Market Operation

3.8.1 Central Dispatch

(a) *AEMO* must operate a *central dispatch* process to *dispatch scheduled generating units*, *semi-scheduled generating units*, *scheduled loads*, *scheduled network services* and *market ancillary services* in order to balance *power system supply* and demand, using its reasonable endeavours to maintain *power system security* in accordance with Chapter 4 and to maximise the value of *spot market* trading on the basis of *dispatch offers* and *dispatch bids*.

(b) The *central dispatch* process should aim to maximise the value of *spot market* trading i.e. to maximise the value of *dispatched load* based on *dispatch bids* less the combined cost of *dispatched generation* based on *generation dispatch offers*, *dispatched network services* based on *network dispatch offers*, and *dispatched market ancillary services* based on *market ancillary service offers* subject to:

(1) *dispatch offers*, *dispatch bids* and *market ancillary service offers*;

(2) *constraints*:

(i) due to availability and *commitment*; or

(ii) in the case of *semi-scheduling generating units*, identified by the *unconstrained intermittent generation forecast*;

(3) *non-scheduled load* requirements in each *region*;

(4) *power system security* requirements determined as described in Chapter 4 and the *power system security and reliability standards*;

(5) *network constraints*;

(6) *intra-regional losses* and *inter-regional losses*;

(7) *constraints* consistent with *dispatch bid and offer data* ~~*registered bid and offer* data~~;

(8) current levels of *dispatched generation*, *load* and *market network services*;

(9) *constraints* imposed by *ancillary services* requirements;

(10) arrangements designed to ensure pro-rata loading of tied *dispatch bid and offer data*~~*registered bid and offer data*~~;

(11) ensuring that as far as reasonably practical, in relation to a *AEMO intervention event*:

(A) the number of *Affected Participants*; and

(B) the effect on *interconnector* flows,

is minimised; and

(12) the management of negative *settlements residue*, in accordance with clause 3.8.10 and any guidelines issued by *AEMO* under clause 3.8.10(c).

(c) *AEMO* must establish procedures to allow relaxation of *power system constraints* listed in clause 3.8.1(b) in order to resolve infeasible *dispatch* solutions, subject to the following principles:

(1) the procedures are developed in consultation with *Registered Participants* to achieve a reasonable *dispatch* outcome while maintaining consistency with *AEMO's* obligations to maintain *power system security* and the pricing principles listed in clause 3.9.1; and

(2) *AEMO* must report to *Registered Participants* any events requiring the relaxation of these *constraints*.

(d) *AEMO* must develop and *publish* a *dispatch algorithm* to be used by *AEMO* for the purpose of *central dispatch* and pricing in accordance with rules 3.8 and 3.9.

(e) *AEMO* must use the *dispatch algorithm* to determine the *loading level* in MW for each *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* in each *dispatch interval* in accordance with the principles set out in clause 3.8.1(b).

(e1) *AEMO* must use the *dispatch algorithm* to determine the quantity of each *market ancillary service* which will be *enabled* for each *ancillary service generating unit* or *ancillary service load*.

(e2) When *AEMO* determines the quantity of each *market ancillary service* which will be *enabled*, *AEMO* must determine:

(1) the required quantity of each *market ancillary service* that may be sourced from any *region* (referred to as the "*global market ancillary service requirement*"); and

(2) any required quantity of such *market ancillary service* which must only be sourced from one or more nominated *regions (*referred to as a "*local market ancillary service requirement*"*)*.

(f) *AEMO* may investigate from time to time:

(1) the scope for further development of the *dispatch algorithm* beyond the minimum requirements specified in clause 3.8.1(b); and

(2) the sufficiency of the *dispatch algorithm* in meeting the minimum requirements specified in clause 3.8.1(b),

and following compliance with the *Rules consultation procedures*, *publish* a report setting out its recommendations.

3.8.2 Participation in central dispatch

(a) A *Generator* must submit *generation dispatch offers* in respect of its *scheduled generating units* or *semi-scheduled generating units* (as the case may be) for each *trading day* in accordance with clause 3.8.6.

(b) *Generation dispatch offers* for a *scheduled generating unit* must include a specified *self-dispatch level* and may include prices and MW quantities for increased or decreased levels of *generation* above or below this *self-dispatch level*.

(b1) A *Scheduled Network Service Provider* must submit *network dispatch offers* in respect of each of its *scheduled network services* for each *trading day* in accordance with clause 3.8.6A.

(c) Subject to clause 3.8.2(d), *dispatch bids* may be submitted by *Market Participants* in respect of *scheduled loads*, in accordance with clause 3.8.7, and may specify prices and MW quantities for any *trading interval* either for reductions or increases in *load*.

(c1) *Market ancillary service offers* may be submitted by *Ancillary Service Providers* in respect of *market ancillary service*s in accordance with clause 3.8.7A.

(d) *Dispatch bids* and *market ancillary service offers* will only be included in the *central dispatch* process by *AEMO* if it is satisfied that adequate communication and/or telemetry is available to support the issuing of *dispatch instructions* and the audit of responses.

(e) If *AEMO* considers it reasonably necessary for adequate system operation and the maintenance of *power system security*, *Registered Participants* who may otherwise be exempted from participating in the *central dispatch* process must do so to the extent and in the capacity specified by *AEMO*.

3.8.3 Bid and offer aggregation guidelines

(a) *Scheduled Generators*, *Semi-Scheduled Generators* or *Market Participants* who wish to aggregate their relevant *generating units*, *scheduled network services* or *scheduled loads* for the purpose of *central dispatch* must apply to *AEMO* to do so.

(b) *AEMO* must approve applications for aggregation made under paragraph (a) if the following conditions are fulfilled:

(1) aggregated *generating units* or *loads* must be *connected* at a single site with the same *intra-regional loss factor* and be operated by a single *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant*;

(2) aggregated *scheduled network services* must be *connected* at the same two sites, have the same *intra-regional loss factors*, have the same *distribution loss factors* where applicable and be operated by the same *Generator* or *Market Participant*;

(3) *power system security* must not be materially affected by the proposed aggregation; and

(4) *control systems* such as *automatic generation control systems* must satisfy the *Rules* after aggregating.

(c) Notwithstanding that one or more of the conditions set out in paragraph (b) may not have been fulfilled by the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant*, *AEMO* may approve an application for aggregation provided that such aggregation would not materially distort *central dispatch*.

(d) Subject to paragraph (f), for the purposes of Chapter 3 (except rule 3.7B) and rule 4.9, a reference to a *generating unit*, *scheduled load* and *scheduled network service* is only taken as a reference to aggregated *generating units*, aggregated *scheduled network services* and aggregated *scheduled loads* aggregated in accordance with this clause 3.8.3.

(e) *AEMO* must evaluate applications for aggregation and reply within 20 *business days* of receipt of the application setting out whether the application is to be approved and the conditions that apply to the proposed approval.

(f) *Scheduled Generators* and *Market Participants* that have been granted aggregated status must, if required by *AEMO*, declare individual *scheduled generating unit*, *scheduled network service* or *scheduled load* availability and operating status to *AEMO* in the *PASA* process under rule 3.7 to allow *power system security* to be effectively monitored.

(g) If a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant's* application for aggregation is denied by *AEMO*, *AEMO* must provide that applicant with reasons for that denial.

(h) *AEMO* must maintain a database of aggregated *scheduled generating units*, *semi-scheduled generating units*, *scheduled network services* and *scheduled loads* and their components.

(i) For the avoidance of doubt, *semi-scheduled generating units* which are registered as a single *semi-scheduled generating unit* under clause 2.2.7 are not aggregated *semi-scheduled generating units* for the purposes of Chapter 3 and rule 4.9.

3.8.3A Ramp rates

(a) This clause 3.8.3A applies to a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* with *generating units*, *scheduled network services* and/or *scheduled loads* providing *ramp rates* to *AEMO* in accordance with the following clauses:

(1) with respect to notification of scheduled capacity prior to *dispatch*:

(i) clause 3.8.4(c);

(ii) clause 3.8.4(e);

(iii) clause 3.8.4(d);

(2) with respect to offers for *dispatch*:

(i) clause 3.8.6(b);

(ii) clause 3.8.6(g);

(iii) clause 3.8.6A(b);

(iv) clause 3.8.7(c); and

(3) with respect to *rebids*, clause 3.8.22(b)

(b) Subject to clauses 3.8.3A(c) and 3.8.3A(i), a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to which this clause 3.8.3A applies must provide an up *ramp rate* and a down *ramp rate* to *AEMO* for each *generating unit*, *scheduled network service* and/or *scheduled load* that is:

(1) at least:

(i) 3MW/minute in the case of a *scheduled network service* or *scheduled load*; or

(ii) the lower of:

(A) 3MW/minute or 3% of the maximum *generation* ~~registered full *load* (MW generated)~~ in the case of a *scheduled generating unit*; or

(B) 3MW/minute or 3% of the maximum *generation* ~~registered capacity~~ in the case of a *semi-scheduled generating unit*,

provided in accordance with clause 3.13.3(b), expressed as MW/minute rounded down to the nearest whole number except where this would result in the nearest whole number being zero, in which case the up *ramp rate* and/or down *ramp rate* is deemed to be 1 MW/minute; and

(2) at most the relevant *maximum ramp rate* provided in accordance with clause 3.13.3(b).

(c) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to which this clause 3.8.3A applies may provide a *ramp rate* to *AEMO* that is less than that specified in clause 3.8.3A(b)(1) if the *ramp rate* is affected by an event or other occurrence that:

(1) physically prevents the relevant *generating unit*, *scheduled load* or *scheduled network service* from attaining a *ramp rate* of at least that specified in clause 3.8.3A(b)(1); or

(2) makes it unsafe for the relevant *generating unit*, *scheduled load* or *scheduled network service* to operate at a *ramp rate* of at least that specified in clause 3.8.3A(b)(1),

for the period of time in which the *ramp rate* is so affected by that event or other occurrence.

(d) If a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to which this clause 3.8.3A applies provides a *ramp rate* that is less than that specified in clause 3.8.3A(b)(1), it must provide a *ramp rate* to *AEMO* that is the maximum the relevant *generating unit*, *scheduled load* or *scheduled network service* can safely attain at that time.

(e) If a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to which this clause 3.8.3A applies provides a *ramp rate* that is less than that specified in clause 3.8.3A(b)(1), it must simultaneously provide *AEMO* with a brief, verifiable and specific reason why the *ramp rate* is below that specified in clause 3.8.3A(b)(1).

(f) The *AER* may require, upon written request, the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to provide such additional information as it may require from time to time to substantiate and verify the reason provided in clause 3.8.3A(e).

(g) The *AER* must exercise its powers under clause 3.8.3A(f) in accordance with any guidelines issued by the *AER* from time to time in accordance with the *Rules consultation procedures.*

(h) If a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to which this clause 3.8.3A applies provides a *maximum ramp rate* in accordance with clause 3.13.3(b) of less than that specified in clause 3.8.3A(b)(1), it must provide *AEMO* with a brief, verifiable and specific reason why the *ramp rate* is below that specified in clause 3.8.3A(b)(1).

(i) Clauses 3.8.3A(b), 3.8.3A(c) and 3.8.3A(e) do not apply to a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to which this clause 3.8.3A applies if*:*

(1) it has provided a *maximum ramp rate* in accordance with clause 3.13.3(b) which is less than that specified in clause 3.8.3A(b)(1); and

(2) it has notified *AEMO* of this in accordance with clause 3.8.3A(h).

(j) In addition to the obligations in clause 3.8.3A(d), if clause 3.8.3A(i) applies, the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must only provide *ramp rates* that are, at most, the *maximum ramp rate* for the relevant *generating unit*, *scheduled load* or *scheduled network service* in accordance with clause 3.13.3(b).

3.8.4 Notification of scheduled capacity

All *Scheduled Generators* and *Market Participants* with *scheduled generating units*, *scheduled network services* and/or *scheduled loads* must inform *AEMO* of their available capacity as follows in accordance with the *timetable*:

(a) *Scheduled Generators* and *Market Participants* must notify *AEMO* of the available capacity of each *scheduled generating unit*, *scheduled network service* and/or *scheduled load* for each *trading interval* of the *trading day*;

(b) subsequent *changes* may only be made to the information provided under clause 3.8.4(c), (d) and (e) in accordance with clause 3.8.22;

(c) for *Scheduled Generators*, two *days* ahead of each *trading day*:

(1) a MW capacity profile that specifies the MW available for each of the 48 *trading intervals* in the *trading day*;

(2) estimated *commitment* or *decommitment* times;

(3) daily *energy* availability for *energy constrained generating units*; and

(4) an up *ramp rate* and a down *ramp rate*;

(d) for *scheduled loads*, two *days* ahead of each *trading day*:

(1) a MW capacity profile that specifies the MW available for *dispatch* for each of the 48 *trading intervals* in the *trading day*;

(2) daily *energy* availability for *energy constrained scheduled load*; and

(3) an up *ramp rate* and a down *ramp rate*;

(e) for *scheduled network services*, two *days* ahead of each *trading day*:

(1) a MW capacity profile that specifies the *power transfer capability* in each direction available for each of the 48 *trading intervals* in the *trading day;* and

(2) an up *ramp rate* and a down *ramp rate*.

3.8.5 Submission timing

(a) To be valid for inclusion in the *central dispatch* process, a *dispatch bid* or *dispatch offer* or *market ancillary service offer* must be submitted according to the *timetable*.

(b) Subject to clause 3.8.22, changes to the:

(1) MW quantities in the *dispatch bids;*

(2) MW quantities and *off-loading prices* in the *generation dispatch offers*; and

(3) MW quantities in the *network dispatch offers*,

may be made after the relevant deadline in the *timetable.*

(c) The submission of *dispatch bids*, *dispatch offers* and *market ancillary service offers* to *AEMO* must be made using the *electronic communication system* unless otherwise approved by *AEMO*.

3.8.6 Generating unit offers for dispatch

Scheduled Generator

(a) A *Scheduled Generator's dispatch offer* must:

(1) contain its intended *self-dispatch level* for each *trading interval*, and may contain up to 10 *price bands* which may be for:

(i) possible *dispatch* above the intended *self-dispatch level*; or

(ii) possible *off-loading* below the intended *self-dispatch level*,

by *dispatch instruction*;

(2) specify for each of the 48 *trading intervals* in the *trading day*:

(i) a MW capacity for the intended *self-dispatch level;*

(ii) an incremental MW amount for each *price band* specified in the *dispatch offer*; and

(iii) an up *ramp rate* and a down *ramp rate*;

(3) where the offer specifies a *self-dispatch level* of more than zero, specify at least one *price band* for *off-loading* below the intended *self-dispatch level* and the total MW quantity in *price bands* specified for *off-loading* in each *trading interval* must equal the MW quantity of the *self-dispatch level* for that *trading interval* to enable possible *off-loading* to a zero *dispatch* level; and

(4) specify a *loading price* or an *off-loading price* for each *price band* specified in the *dispatch offer*, in dollars and whole cents per MWh, and this price is to apply to the *price band* throughout the *trading day*.

(b) A *Scheduled Generator's dispatch offer* may specify the daily *energy* available for *energy constrained scheduled generating units*.

(c) A *Scheduled Generator's loading prices* offered must be equal to or greater than $0/MWh and may not exceed the product of the *market price cap* multiplied by the *intra-regional loss factor* at the *Scheduled Generator's transmission network connection point* for the *scheduled generating unit*.

(d) A *loading price* of a *Scheduled Generator* specified for a *price band* is to be interpreted as the minimum price at which up to the specified MW increment is to be loaded in the *central dispatch* process.

(e) A *Scheduled Generator's off-loading prices* must be less than $0/MWh, that is, negative in sign and may not be less than the product of the *market floor price* multiplied by the *intra-regional loss factor* at the *Scheduled Generator's transmission network connection point* for the *scheduled generating unit*.

(f) An *off-loading price* of a *Scheduled Generator* specified for a *price band* is to be interpreted as the maximum price payable to *AEMO* by the *Scheduled Generator* in respect of the *generating unit*'s *sent out generation* with the *generating unit's* output reduced below its specified *self-dispatch level* in the *central dispatch* process by an amount less than the specified MW increment.

Semi-Scheduled Generator

(g) A *Semi-Scheduled Generator's dispatch offer* may contain up to 10 *price bands* and must specify for each of the 48 *trading intervals* in the *trading day*:

(1) an incremental MW amount for each *price band* specified in the *dispatch offer*; and

(2) an up *ramp rate* and a down *ramp rate*.

Semi-Scheduled and Scheduled Generators

(h) A *dispatch offer* of a *Semi-Scheduled Generator* or *Scheduled Generator* must meet the following requirements:

(1) the MW quantities specified are to apply at the terminals of the *semi-scheduled generating unit* or *scheduled generating unit* or, with *AEMO*'s agreement, at any other point in the relevant *Generator's* electrical installation or on the *network*;

(2) prices specified for each *price band* specified in the *dispatch offer* must increase monotonically with an increase in available MWs;

(3) prices specified are to apply at the *connection point* of the *semi-scheduled generating unit* or the *scheduled generating unit* (as the case may be) and for the purposes of *central dispatch* shall be referred to the *regional reference node* to which that *connection point* is assigned as follows:

RP = DOP ÷ LF

where

RP is the price specified in the *dispatch offer* when referred to the appropriate *regional reference node* and must not be greater than the *market price cap* or less than the *market floor price*;

DOP is the price as specified in the *dispatch offer*; and

LF where the *connection point*:

(i) is a *transmission network connection point*, is the *intra-regional loss factor* at that *connection point*; or

(ii) is a *distribution network connection point*, is the product of the *distribution loss factor* at that *connection point* multiplied by the *intra-regional loss factor* at the *transmission network connection point* to which it is assigned; and

(4) the MW quantity specified in each *price band* in each *trading interval* must be specified in whole MW.

3.8.6A Scheduled network service offers for dispatch

The following requirements apply to a *network dispatch offer* to provide *scheduled network services*:

(a) the *network dispatch offer* may contain up to a maximum of ten *price bands* for each direction of power flow for the *scheduled network service;*

(b) the *network dispatch offer* must specify for each of the 48 *trading intervals* in the *trading day*:

(1) an incremental power delivery range for each *price band* specified in the *network dispatch offer*; and

(2) an up *ramp rate* and a down *ramp rate*;

(c) the *network dispatch offer* must specify a price for each *price band* in dollars and whole cents per MWh and this price is to apply to the *price band* throughout the *trading day;*

(d) within the set of *price bands* applying to a particular direction of power flow, prices specified for each *price band* specified in the *network dispatch offer* must increase monotonically with an increase in available MWs;

(e) if negative prices are employed, the absolute value of the most negative price in one direction cannot exceed the price for the first *price band* in the opposite direction, after adjustment for losses;

(f) the price specified in a *price band* for power transfer from the *scheduled network service's connection point* A to *connection point* B is to be interpreted in the *central dispatch* process as meaning that the *Scheduled Network Service Provider* is willing to deliver an increment of power to *connection point* B, within the power delivery range of the power band, provided that the net revenue which is expected to be derived from that increment per MWh delivered to *connection point* B is not less than the specified price;

(g) for the purposes of this clause 3.8.6A, the net revenue that a *Scheduled Network Service Provider* expects to receive for energy delivered by the *scheduled network service* to *connection point* B is to be determined as follows:

net revenue = PB × FB – PA × FA

where

PA and PB are the prices at the *scheduled network service's connection points* A and B, which are assumed not to change as a result of the incremental transfer;

FA and FB are the energy transfers scheduled by *central dispatch* for receipt by the *scheduled network service* at *connection point* A and delivery at *connection point* B respectively; and

FA and FB are deemed to be related by the loss vs flow relationship *published* by *AEMO* ~~notified in accordance with schedule 3.1~~;

(h) for the purposes of this clause 3.8.6A, the price at a *connection point* will be deemed to be related as follows to the price at the *regional reference node* to which that *connection point* is assigned:

P = RP x LF

where

Pis the price at the *connection point*;

RPis the price at the appropriate *regional reference node*; and

LF where the *scheduled network service's connection point* is a *transmission network connection point*, is the *intra-regional loss factor* at that *connection point*, or where the *scheduled network service's connection point* is a *distribution network connection point*, is the product of the *distribution loss factor* at that *connection point* multiplied by the *intra-regional loss factor* at the *transmission network connection point* to which it is assigned;

(i) prices specified in the *network dispatch offer* must not exceed the *market price cap*; and

(j) the power delivery range specified in each *price band* in each *trading interval* must be specified in whole MW.

3.8.7 Bids for scheduled load

The following requirements apply to a *dispatch bid* for *scheduled loads*:

(a) the *dispatch bid* must specify whether the *scheduled load* is to be considered as *normally on* or *normally off*;

(b) the *dispatch bid* may contain up to a maximum of ten *price bands*;

(c) the *dispatch bid* must specify for each of the 48 *trading intervals* in the *trading day*:

(1) an incremental MW amount for each *price band* specified in the *dispatch bid*; and

(2) an up *ramp rate* and a down *ramp rate*;

(d) the *dispatch bid* must specify a price for each *price band* in dollars and whole cents per MWh and this price is to apply to the *price band* throughout the *trading day*;

(e) prices specified for each *price band* specified in the *dispatch bid* must increase monotonically with an increase in available MWs;

(f) prices specified are to apply at the *scheduled load's connection point* and for the purposes of *central dispatch* shall be referred to the *regional reference node* to which that *connection point* is assigned as follows:

$$RP = DOP \div LF$$

where

RP is the price specified in the *dispatch bid* when referred to the appropriate *regional reference node*;

DOP is the price as specified in the *dispatch bid*; and

LF where the *scheduled load's connection point* is a *transmission network connection point*, is the *intra-regional loss factor* at that *connection point*, or where the *scheduled load's connection point* is a *distribution network connection point*, is the product of the *distribution loss factor* at that *connection point* multiplied by the *intra-regional loss factor* at the *transmission network connection point* to which it is assigned;

(g) MW quantities specified for a *price band* are to apply at the *scheduled load's connection point* or at any other point in the *Market Participant's* electrical installation or on the *network* as agreed to by *AEMO*;

(h) prices specified must be:

(1) more than the product of the *market floor price* multiplied by the *intra-regional loss factor* at the *scheduled load's transmission network connection point*; and

(2) less than the product of the *market price cap* multiplied by the *intra-regional loss factor* at the *scheduled load's transmission network connection point*;

(i) for a *scheduled load* specified in the *dispatch bid* as being *normally on*, the price specified for a *price band* is to be interpreted in the *central dispatch* process as the price at or above which the *scheduled load* will reduce electricity consumed by up to the MW increment specified in that *price band*;

(j) for a *scheduled load* specified in the *dispatch bid* as being *normally off*, the price specified for a *price band* is to be interpreted in the *central dispatch* process as the price at or below which the *scheduled load* will increase electricity consumed by up to the MW increment specified in that *price band*;

(k) the MW capacity quantity specified in each *price band* in each *trading interval* must be specified in whole MW;

(l) the sum of the MW quantities specified in each *price band* in any *trading interval* must not exceed the maximum capacity of the *scheduled load*; and

(m) the *dispatch bid* may specify the daily *energy* available for *energy constrained scheduled loads*.

3.8.7A Market ancillary services offers

The following requirements apply to all *market ancillary service offers* for each type of *market ancillary service*:

(a) the *market ancillary service offer* may contain up to 10 *price band*s;

(b) the *market ancillary service offer* must specify for each of the 48 *trading intervals* in the *trading day* an incremental MW amount for each *price band* specified in the *market ancillary service offer*;

(c) the MW quantities specified are to apply at the nominated *connection point* of the *Market Participant* or, with *AEMO's* agreement, at any other point in the *Market Participant's* electrical installation or on the *network*;

(d) the *ancillary service offer* must specify a price for each *price band* specified in the *market ancillary service offer*, in dollars and whole cents per MW per hour (an '*enabling price*'), and this price is to apply to the *price band* throughout the *trading day*;

(e) *enabling prices* for each *price band* specified in the *market ancillary service offer* must increase monotonically with an increase in available MWs;

(f) *enabling prices* are to apply at the nominated *connection point* of the *Market Participant* or, with *AEMO's* agreement, at any other point in the *Market Participant's* electrical installation or on the *network*;

(g) *enabling prices* offered must be equal to or greater than $0 per MW per hour and may not exceed the *market price cap*;

(h) the *enabling price* for a *price band* is to be interpreted as the minimum price at which up to the specified MW response is to be enabled in the *central dispatch* process;

(i) the MW quantity in each *price band* in each *trading interval* must be specified in whole MW;

(j) the *market ancillary service offer* must include the following values:

(1) the *response breakpoint*;

(2) the upper and lower *enablement limits*; and

(3) the *response capability*;

(k) an *Ancillary Service Provider* that submits a *market ancillary service offer* must ensure that the *ancillary service generating unit* or *ancillary service load*, as the case may be, is at all times capable of responding in the manner contemplated by the *market ancillary service specification*;

(l) the values associated with a *market ancillary service offer* referred to in clause 3.8.7A(j) must represent technical characteristics of the *ancillary service generating unit* or *ancillary service load*; and

(m) rebids made under clause 3.8.22 of the values associated with the *market ancillary service offer* referred to in clause 3.8.7A(j) must represent technical characteristics at the time of *dispatch* of the *ancillary service generating unit* or *ancillary service load*.

3.8.8 Validation of dispatch bids and offers

(a) If a *dispatch offer*, *dispatch bid* or *market ancillary service offer* is made in accordance with clauses 3.8.6, 3.8.6A, 3.8.7 or 3.8.7A (whichever is

applicable), *AEMO* must make available to the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* who submitted the *dispatch offer*, *dispatch bid* or *market ancillary service offer* the following information without delay:

(1) acknowledgement of receipt of a valid *dispatch offer*, *dispatch bid* or *market ancillary service offer*; and

(2) the data contained in the *dispatch offer*, *dispatch bid* or *market ancillary service offer* as it will be used by *AEMO* in the *central dispatch* process.

(b) It is the responsibility of each *Scheduled Generator*, *Semi-Scheduled Generator* and *Market Participant* to check that the data contained in its *dispatch offer*, *dispatch bid* or *market ancillary service offer* as received and to be used by *AEMO* in the *central dispatch* process is correct.

(c) If a *dispatch offer*, *dispatch bid* or *market ancillary service offer* is not made in accordance with clauses 3.8.6, 3.8.6A, 3.8.7 or 3.8.7A (whichever is applicable), *AEMO* must not include that *dispatch offer*, *dispatch bid* or *market ancillary service offer* in the *central dispatch* process and must without delay notify the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* submitting the *dispatch offer*, *dispatch bid* or *market ancillary service offer* of its invalidity and provide to that *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* details of the invalid data.

(d) If any details contained within a *dispatch offer*, *dispatch bid* or *market ancillary service offer* are inconsistent with the *bid and offer validation data*~~*registered bid and offer data*~~ provided by the relevant *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* then *AEMO* has the right to treat that *dispatch offer*, *dispatch bid* or *market ancillary service offer* as invalid and if it does so must notify the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* without delay.

3.8.9 Default offers and bids

(a) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* may, at any time, submit a *dispatch offer*, a *dispatch bid* or a *market ancillary service offer* in respect of a *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled load*, *scheduled network service*, *ancillary service generating unit* or *ancillary service load* to apply from a specified future *trading day*.

(b) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* may vary or withdraw a *default dispatch bid*, *default dispatch offer* or *market ancillary service offer* at any time prior to the deadline for submissions of *dispatch offers*, *dispatch bids* and *market ancillary service offers* for a *trading day* in accordance with the *timetable*.

(c) Subject to any procedures *published* in accordance with clause 3.8.9(d), *default dispatch offer*, *default dispatch bid* or *market ancillary service offer* applicable to a *trading day* must be included by *AEMO* in the *central dispatch* process

when the deadline for submission of *dispatch offers*, *dispatch bids* and *market ancillary service offers* for that *trading day* arrives in accordance with the *timetable* if, and only if, no later valid *dispatch offer*, *dispatch bid* or *market ancillary service offer* has been submitted pursuant to clauses 3.8.6, 3.8.6A, 3.8.7, 3.8.7A or 3.8.9(b).

(d) *AEMO*, in consultation with *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* in accordance with the *Rules consultation procedures*, must develop and *publish* procedures to determine the circumstances when *AEMO* may use a prior *dispatch offer* or *dispatch bid* lodged by a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* as a substitute for a *default dispatch offer* or *default dispatch bid*.

(e) *AEMO* may disregard a *default dispatch offer* or a *default dispatch bid* and substitute a prior *dispatch offer* or *dispatch bid* or *market ancillary service offer* lodged by a *Scheduled Generator*, *Semi-Scheduled Generator* or a *Market Participant* determined in accordance with a procedure developed under clause 3.8.9(d) as input to *PASA*, *pre-dispatch* and *central dispatch*.

3.8.10 Network constraints

(a) In accordance with the *AEMO power system security responsibilities* and any other standards set out in Chapter 4, *AEMO* must determine any *constraints* on the *dispatch* of *scheduled generating units*, *semi-scheduled generating units*, *scheduled network services*, *scheduled loads*, *ancillary service generating units* or *ancillary service loads* which may result from planned *network outages*.

(b) Subject to paragraph (e), *AEMO* must determine and represent *network constraints* in *dispatch* which may result from limitations on *intra-regional* or *inter-regional* power flows and, in doing so, must use a *fully co-optimised network constraint formulation*.

(c) *AEMO* must, in accordance with the *Rules consultation procedures*, develop and *publish* by 1 June 2010, and, where necessary, amend *network constraint* formulation guidelines, to address, amongst other things, the following matters:

(1) the circumstances in which *AEMO* will use *alternative network constraint formulations* in *dispatch*;

(2) the process by which *AEMO* will identify or be advised of a requirement to create or modify a *network constraint* equation, including in respect of:

(i) the methodology to be used by *AEMO* in determining *network constraint* equation terms and co-efficients; and

(ii) the means by which *AEMO* will obtain information from, and disseminate information to, S*cheduled Generators*, *Semi-Scheduled Generators* and *Market Participants*;

(3) the methodology to be used by *AEMO* in selecting the form of a *network constraint* equation, including in respect of the location of terms on each side of the equation;

(4) the process to be used by *AEMO* for applying, invoking and revoking *network constraint* equations in relation to different types of *network constraints*, including in respect of:

(i) the circumstances in which *AEMO* will use *alternative network constraint formulations* and *fully co-optimised network constraint formulations*; and

(ii) the dissemination of information to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* in respect of this process; and

(5) *AEMO's* policy in respect of the management of negative *settlements residue*, by intervening in the *central dispatch* process under clause 3.8.1 through the use of *fully co-optimised network constraint formulations*, including in respect of the process to be undertaken by *NEMMCO* to manage negative *settlements residue*.

(d) *AEMO* must at all times comply with the *network constraint* formulation guidelines issued in accordance with paragraph (c).

(e) Where, in *AEMO's* reasonable opinion, a specific *network constraint* is such that use of a *fully co-optimised network constraint formulation* is not appropriate, *AEMO* may apply an *alternative network constraint formulation* for the expected duration of that *network constraint*, if *AEMO*:

(1) has previously identified, in guidelines issued in accordance with paragraph (c), that it may use an *alternative network constraint formulation* in respect of that type of *network constraint*; and

(2) reasonably considers that it can apply an *alternative network constraint formulation* without prejudicing its obligation to operate a *central dispatch* process to *dispatch scheduled generating units*, *semi-scheduled generating units*, *scheduled loads*, *scheduled network services* and *market ancillary services* in order to balance *power system supply* and *power system demand*, consistent with using its reasonable endeavours to maintain *power system security* in accordance with Chapter 4 of the *Rules* and to maximise the value of *spot market* trading on the basis of *dispatch offers* and *dispatch bids*, in accordance with clause 3.8.1(a) and (b).

(f) *AEMO* must represent *network constraints* as inputs to the *dispatch* process in a form that can be reviewed after the *trading interval* in which they occurred.

(g) Within 3 years from 1 September 2009, the *AEMC* must commence a review, under section 45 of the *National Electricity Law*, in respect of the efficiency with which *AEMO* is managing circumstances in which the *settlements residue* arising in respect of a *trading interval* is a negative amount.

3.8.11 Ancillary services constraints

(a) *AEMO* must determine the quantity and nature of *ancillary services* which:

(1) have been provided or procured in accordance with the *AEMO power system security responsibilities* set out in clause 4.3.1 or are otherwise available;

(2) are required to be managed in conjunction with *dispatch*; and

(3) may impose constraints on *central dispatch*.

(a1) For each *dispatch interval AEMO* must impose constraints upon the *dispatch algorithm* to determine the quantity of each *global market ancillary service requirement* and any *local market ancillary service requirements*.

3.8.12 System scheduled reserve constraints

AEMO must use its reasonable endeavours to ensure that the *dispatch* process meets all requirements for *scheduled reserves* as described in Chapter 4.

3.8.13 Notification of constraints

AEMO must *publish* the parameters used in the *dispatch algorithm* for the modelling of *network constraints*, *regulating capability constraints*, *power system reserve constraints* and *ancillary services*.

3.8.14 Dispatch under conditions of supply scarcity

During times of *supply* scarcity, *AEMO* must use its reasonable endeavours to ensure that the actions set out below occur in the following sequence:

(a) subject to:

(1) any adjustments which may be necessary to implement action under paragraph (c); and

(2) any *plant* operating restrictions associated with a *relevant AEMO intervention event*,

all valid *dispatch bids* and *dispatch offers* submitted by *Scheduled Generators*, *Semi-Scheduled Generators* or *Market Participants* are *dispatched*, including those priced at the *market price cap*;

(b) subject to:

(1) any adjustments which may be necessary to implement action under paragraph (c); and

(2) any *plant* operating restrictions associated with a *relevant AEMO intervention event*,

after all valid *dispatch bids* and *dispatch offers* referred to in paragraph (a) have been exhausted, exercise the *reliability and emergency reserve trader* in accordance with rule 3.20 by:

(3) *dispatching scheduled generating units*, *scheduled network services* or *scheduled loads* in accordance with any *scheduled reserve contract*; or

(4) *activating loads* or *generating units* under any *unscheduled reserve contract*; and

(c) any further corrective actions required are implemented in accordance with clauses 4.8.5B and 4.8.9.

3.8.15 [Deleted]

3.8.16 Equal priced dispatch bids and dispatch offers

If there are *scheduled generating units*, *semi-scheduled generating units* or *scheduled loads*, in the same *region*, for which the prices submitted in *dispatch bids* or *dispatch offers* for a particular *trading interval* result in identical prices at their *regional reference node*, then the MW quantities specified in the relevant *price bands* of those *dispatch bids* or *dispatch offers* must be *dispatched* on a pro-rata basis, where this can be achieved without imposing undue costs on any party, or violating other constraints.

3.8.17 Self-commitment

(a) *Slow start generating units* are *generating units* which are unable to *synchronise* and increase *generation* within 30 minutes of receiving an instruction from *AEMO*.

(b) *Slow start generating units* must *self-commit* to be eligible for *dispatch*.

(c) A *Generator* may only *self-commit* a *scheduled generating unit* in accordance with this clause.

(d) A *Scheduled Generator* or a *Semi-Scheduled Generator* has a right to *synchronise* its *scheduled generating unit* or *semi-scheduled generating unit* (as the case may be) to the *power system* and have *AEMO dispatch* that *generating unit* subject to the *dispatch* procedures set out in this rule 3.8.

(e) A *Scheduled Generator* must advise *AEMO* of its intention to *self-commit* and *synchronise* a *scheduled generating unit* with a *nameplate rating* of 30MW or more.

(f) Unless otherwise agreed with *AEMO*, the *Scheduled Generator* must advise of its intention under paragraph (e) through *PASA* and *pre-dispatch* by submitting an amended *available capacity* profile of the *scheduled generating unit* into the *market information bulletin board*.

(g) The exact time of *synchronisation* for a *scheduled generating unit* will be subject to directions from *AEMO* in accordance with Chapter 4.

(h) A *Scheduled Generator* or *Market Participant* must notify *AEMO* of any changes to *self-commitment* decisions without delay.

(i) *AEMO* must notify all *Scheduled Generators* and *Market Participants* of any changes to *self-commitment* decisions without delay.

3.8.18 Self-decommitment

(a) A *Generator* may only *self-decommit* a *scheduled generating unit* in accordance with this clause.

(b) *Scheduled Generators* must notify *AEMO* of their planned *self-decommitment* decisions in relation to *slow start generating units* at least 2 *days* in advance of *dispatch*.

(c) A *Scheduled Generator* must advise *AEMO* of its intention to *self-decommit* and *de-synchronise* a *generating unit* with a *nameplate rating* of 30 MW or more.

(d) Unless otherwise agreed with *AEMO*, the *Scheduled Generator* must advise of its intention under paragraph (c) through *PASA* and *pre-dispatch* by submitting an amended *available capacity* profile of the *scheduled generating unit* into the *market information bulletin board*.

(e) A *Scheduled Generator* or *Market Participant* must notify *AEMO* as soon as practicable of any changes in their *self-decommitment* decisions.

(f) *AEMO* must notify all *Scheduled Generators* and *Market Participants* of any changes to *self-decommitment* decisions as soon as practicable.

3.8.19 Dispatch inflexibilities

(a) Subject to clause 3.8.19(a2), if a *Scheduled Generator* or *Market Participant* reasonably expects one or more of its *scheduled generating units*, *scheduled network services* or *scheduled loads* to be unable to operate in accordance with *dispatch instructions* in any *trading interval*, due to abnormal *plant* conditions or other abnormal operating requirements in respect of that *scheduled generating unit*, *scheduled network service* or *scheduled load*, it must advise *AEMO* through the *PASA* process or in its *dispatch offer* or *dispatch bid* in respect of that *scheduled generating unit*, *scheduled network service* or *scheduled load*, as appropriate under this Chapter, that the *scheduled generating unit*, *scheduled network service* or *scheduled load* is *inflexible* in that *trading interval* and must specify a fixed *loading level* at which the *scheduled generating unit*, *scheduled network service* or *scheduled load* is to be operated in that *trading interval*.

(a1) Subject to clause 3.8.19(a2), if a *Semi-Scheduled Generator* reasonably expects one or more of its *semi-scheduled generating units* to be unable to operate in

accordance with *dispatch instructions* in any *trading interval* due to abnormal *plant* conditions or other abnormal operating requirements in respect of that *semi-scheduled generating unit*, it must advise *AEMO* in its *dispatch offer* in respect of that *semi-scheduled generating unit*, as appropriate under this Chapter, that the *semi-scheduled generating unit* is *inflexible* in that *trading interval* and must specify a maximum *loading level* at or below which the *semi-scheduled generating unit* is to be operated in that *trading interval*. Where the specified maximum *loading level* in these circumstances exceeds the *unconstrained intermittent generation forecast* for the *semi-scheduled generating unit*, the *dispatch level* for the *semi-scheduled generating unit* will nonetheless not exceed the *unconstrained intermittent generation forecast*.

(a2) If clause 3.8.19(a) or clause 3.8.19(a1) applies, the *Scheduled Generator*, *Market Participant* or *Semi-Scheduled Generator*:

(1) must not advise *AEMO* that a *scheduled generating unit, semi-scheduled generating unit, scheduled network service* or *scheduled load* is *inflexible* under clause 3.8.19(a) or clause 3.8.19(a1) unless it reasonably expects the *scheduled generating unit, semi-scheduled generating unit, scheduled network service* or *scheduled load* to be unable to operate in accordance with *dispatch instructions* in any *trading interval*, due to abnormal *plant* conditions or other abnormal operating requirements in respect of that *scheduled generating unit, semi-scheduled generating unit, scheduled network service* or *scheduled load*; and

(2) must, as soon as practicable, advise *AEMO* that a *scheduled generating unit, semi-scheduled generating unit, scheduled network service* or *scheduled load* is not *inflexible* once it no longer reasonably expects the *scheduled generating unit, semi-scheduled generating unit, scheduled network service* or *scheduled load* to be unable to operate in accordance with *dispatch instructions* in any *trading interval*, due to abnormal *plant* conditions or other abnormal operating requirements in respect of that *scheduled generating unit, semi-scheduled generating unit, scheduled network service* or *scheduled load*.

(b) Where a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* advises *AEMO* that a *scheduled generating unit, semi-scheduled generating unit, scheduled network service* or *scheduled load* is *inflexible* in accordance with clause 3.8.19(a) or 3.8.19(a1) the *Scheduled Generator, Semi-Scheduled Generator* or *Market Participant* must:

(1) provide *AEMO* with a brief, verifiable and specific reason why the *scheduled generating unit, semi-scheduled generating unit, scheduled network service* or *scheduled load* is *inflexible* at the same time as it advises *AEMO* of the *inflexibility*; and

(2) provide to the *AER*, upon written request, in accordance with the guidelines issued by the *AER* from time to time in accordance with the *Rules consultation procedures* such additional information to substantiate and verify the reason for such *inflexibility* as the *AER* may require from time to time. The *AER* must provide information provided to it in

accordance with this clause 3.8.19(b)(2) to any *Market Participant* that requests such information, except to the extent that the information can be reasonably claimed to be *confidential information*.

(c) Other than in *trading intervals* for which it has been specified by a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* in the relevant *dispatch offer* or *dispatch bid* for a *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* that the *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* is *inflexible*, *AEMO* will *dispatch* the *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* in accordance with the prices and *price bands* specified in the relevant *dispatch offer* or *dispatch bid*.

(d) In respect of *scheduled loads*, *scheduled generating units* or *semi-scheduled generating units* which are not *slow start generating units*, *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* may provide *AEMO*, as part of a *dispatch offer* or *dispatch bid*~~the *registered bid* and *offer data*~~ in respect of those *scheduled loads* or *generating units* or *semi-scheduled generating units*, with a *dispatch inflexibility profile*.

(e) A *dispatch inflexibility* profile for a *generating unit* must contain the following parameters to indicate its MW capacity and time related *inflexibilities*:

(1) The time, T1, in minutes, following the issue of a *dispatch instruction* by *AEMO* to increase its loading from 0 MW, which is required for the *plant* to begin to vary its *dispatch* level from 0 MW in accordance with the instruction;

(2) The time, T2, in minutes, that the *plant* requires after T1 (as specified in subparagraph (1)) to reach a specified minimum MW *loading level*;

(3) The time, T3, in minutes, that the *plant* requires to be operated at or above its minimum *loading level* before it can be reduced below that level;

(4) The time, T4, in minutes, following the issue of a *dispatch instruction* by *AEMO* to reduce loading from the minimum *loading level* (specified under subparagraph (2)) to zero, that the *plant* requires to completely comply with that instruction;

(5) T1, T2, T3 and T4 must all be equal to or greater than zero;

(6) The sum (T1 + T2) must be less than or equal to 30 minutes; and

(7) The sum (T1 + T2 + T3 + T4) must be less than 60 minutes.

(f) A *dispatch inflexibility profile* for a *scheduled load* must contain parameters to indicate its MW capacity and time related *inflexibilities*.

(g) *AEMO* must use reasonable endeavours not to issue a *dispatch instruction* which is inconsistent with a *Scheduled Generator's*, *Semi-Scheduled Generator's* or *Market Participant's dispatch inflexibility profile*.

3.8.20 Pre-dispatch schedule

(a) Each *day*, in accordance with the *timetable*, *AEMO* must prepare and *publish* a *pre-dispatch schedule* covering each *trading interval* of the period commencing from the next *trading interval* after the current *trading interval* up to and including the final *trading interval* of the last *trading day* for which all valid *dispatch bids* and *dispatch offers* have been received in accordance with the *timetable* and applied by the *pre-dispatch* process.

(b) The *pre-dispatch* process is to have a resolution of one *trading interval* and no analysis will be made of operations within the *trading interval*, other than to ensure that *contingency capacity reserves* are adequate as set out in Chapter 4.

(c) *AEMO* must determine the *pre-dispatch schedule* for each *trading interval* on the basis of:

(1) *dispatch bids*, *dispatch offers* and *market ancillary service offers* submitted for that *trading interval*;

(2) *AEMO's* forecast *power system load* for each *region* for that *trading interval*; and

(3) the *unconstrained intermittent generation forecasts*,

and by using a process consistent with the principles for *central dispatch* as set out in clause 3.8.1.

(d) In determining the *pre-dispatch schedule AEMO* shall not take account of any *dispatch inflexibility profile* submitted in accordance with clause 3.8.19.

(e) Any inputs made to the *pre-dispatch* process by *AEMO* for the purpose of achieving a physically realisable schedule or to satisfy *power system security* requirements must be made prior to release of the *pre-dispatch schedule* and recorded by *AEMO* in a manner suitable for audit.

(f) The *pre-dispatch schedule* must include the details set out in clause 3.13.4(f).

(g) Each *Scheduled Generator*, *Scheduled Network Service Provider* and *Market Customer* which has classified a *scheduled load* and *Market Participant* (which has classified an *ancillary service generating unit* or *ancillary service load*) must ensure that it is able to *dispatch* its plant as required under the *pre-dispatch schedule* and is responsible for changing inputs to the *central dispatch* process, if necessary to achieve this, via the rebidding provisions under clause 3.8.22.

(h) The *pre-dispatch schedule* must be re-calculated and the results re-*published* by *AEMO* regularly in accordance with the *timetable*, or more often if a change

in circumstances is deemed by *AEMO* to be likely to have a significant effect on the operation of the *market*.

(i) *AEMO* must fully document the operation of the *pre-dispatch* process, including the principles adopted in making calculations required to be included and all such documentation must be made available to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* at a fee to be set by *AEMO* to cover its costs of supplying such documentation.

(j) The following *pre-dispatch* outputs relating specifically to a *generating unit*, *scheduled network service*, *scheduled load* or *ancillary service load* operated by a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* (as the case may be) must be made available electronically to the relevant *Generator* or *Market Participant* on a confidential basis:

(1) the scheduled times of *commitment* and *de-commitment* of individual *slow start generating units*;

(2) scheduled half hourly *loading* for each scheduled entity;

(3) scheduled provision of *ancillary services*;

(4) scheduled *constraints* for the provision of *ancillary services*;

(5) scheduled *constraints* due to *network* limitations;

(6) *unconstrained intermittent generation forecasts* for each *trading interval*; and

(7) for each *semi-scheduled generating unit* and *trading interval*, whether or not a condition for setting a *semi-dispatch interval* applies.

(k) Where the *pre-dispatch schedule* may have failed to *dispatch* a *scheduled generating unit* or a *semi-scheduled generating unit* to maximise the joint value of *energy* and *ancillary services pre-dispatch* outputs of a *scheduled generating unit* or *semi-scheduled generating unit*, due to the *generating unit* operating outside its *enablement limit*, *AEMO* must notify the *Scheduled Generator* or *Semi-Scheduled Generator* operating the relevant *generating unit* electronically on a confidential basis.

3.8.21 On-line dispatch process

(a) *Dispatch bids* and *dispatch offers* must be *centrally dispatched* by *AEMO* using the *dispatch algorithm*.

(a1) A *dispatch interval* is to be five minutes in duration.

(b) The *dispatch algorithm* is to be run by *AEMO* for each *dispatch interval*. If the *dispatch algorithm* is not successfully run for any *dispatch interval* then the values of the last successful run of the *dispatch algorithm* must be used for that *dispatch interval*.

(c) *Central dispatch* results in the setting of *dispatch prices* and *ancillary services prices* for each *dispatch interval* and *spot prices* for each *trading interval* in accordance with rule 3.9.

(d) Where possible, *dispatch instructions* will be issued electronically via the *automatic generation control system* or via an electronic display in the *plant* control room (which may be onsite or offsite) of the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* (as the case may be).

(e) *AEMO* may issue *dispatch instructions* in some other form if in its reasonable opinion the methods described in paragraph (d) are not possible.

(f) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must ensure it has facilities to receive *dispatch instructions* in the manner described in this clause 3.8.21.

(g) *Dispatch instructions* that are issued via the *automatic generation control system* are to be issued progressively at intervals of no more than 5 minutes following re-evaluation of *central dispatch* to achieve a prompt and smooth implementation of the outcomes of each *central dispatch* update.

(h) With the exception of instructions issued by telephone, all *dispatch instructions* and the times at which they are issued are to be logged automatically and *dispatch instructions* that are issued by telephone must be recorded by *AEMO*.

(i) *AEMO* may modify or override the *dispatch algorithm* outcome in accordance with the requirements of clause 4.8.9 or due to *plant* not conforming to *dispatch instructions* and in such circumstances *AEMO* must record the details of the event and the reasons for its action for audit purposes.

(j) If a *scheduled load*, *scheduled generating unit* or *semi-scheduled generating unit*, in respect of which a *dispatch inflexibility profile* has been notified to *AEMO* in accordance with clause 3.8.19, is *dispatched* from 0 MW in any *dispatch interval* by the *central dispatch* process, then the specified *dispatch inflexibility profile* must be used by *AEMO* as a *constraint* on the *dispatch* of that *plant* for the relevant subsequent *dispatch intervals*.

(k) A *scheduled load* or *generating unit* whose *dispatch* is *constrained* in any *dispatch interval* due to a *dispatch inflexibility profile* submitted under clause 3.8.19 cannot be used as the basis for setting the *dispatch price* in that *dispatch interval* at any location.

(l) *AEMO* must fully document the operation of the process described in this clause 3.8.21, including the software, algorithms, and the principles adopted in making judgments where they are required in the process and all such documentation must be made available to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* at a price reflective of costs incurred by *AEMO* in providing such documentation.

(m) Where the *central dispatch* process may have failed to *dispatch* a *scheduled generating unit* or *semi-scheduled generating unit* to maximise the joint value of *energy* and *ancillary services* due to the relevant *generating unit* operating

outside its *enablement limit*, *AEMO* must notify the *Scheduled Generator* or *Semi-Scheduled Generator* operating the relevant *generating unit* electronically on a confidential basis.

3.8.22 Rebidding

(a) Prices for each *price band* that are specified in *dispatch bids*, *dispatch offers* and *market ancillary service offers* are firm and no changes to the price for any *price band* are to be accepted under any circumstances.

(b) Subject to paragraph (c) and clauses 3.8.3A, 3.8.7A, 3.8.19(a) and 3.8.22A, a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* may vary:

(1) its *available capacity*, daily *energy constraints*, *dispatch inflexibilities* and *ramp rates* of *generating units*, *scheduled network services* and *scheduled loads*; and

(2) the *response breakpoints*, *enablement limits* and response limits of *market ancillary services*.

(c) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must provide:

(1) all *rebids* to *AEMO* electronically unless otherwise approved by *AEMO;*

(2) to *AEMO*, at the same time as the *rebid* is made:

(i) a brief, verifiable and specific reason for the *rebid;* and

(ii) the time at which the event(s) or other occurrence(s) adduced by the relevant *Generator* or *Market Participant* as the reason for the *rebid*, occurred; and

(3) to the *AER*, upon written request, in accordance with guidelines published by the *AER* from time to time under this clause 3.8.22 and in accordance with the *Rules consultation procedures*, such additional information to substantiate and verify the reason for a *rebid* as the *AER* may require from time to time.

(d) The *AER* must provide information provided to it in accordance with paragraph (c)(3) to any *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* that requests such information, except to the extent that the information can be reasonably claimed to be *confidential information*.

(e) The guidelines developed by the *AER* under paragraph (c)(3) must include:

(1) the amount of detail to be included in the information provided to *AEMO* under paragraph (c)(2); and

(2) procedures for handling claims by *Scheduled Generators*, *Semi-Scheduled Generators* or *Market Participants* in accordance with

paragraph (d) or clause 3.8.19(b)(2) that the information provided to the *AER* by such *Generators* or *Market Participants* under those clauses is *confidential information.*

(f) The *AER* must *publish* the guidelines developed under this clause 3.8.22 and may amend such guidelines from time to time.

(g) *AEMO* must:

(1) subject to the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* complying with paragraphs (c)(1) and (c)(2)(i) and (ii), accept the *rebid;* and

(2) *publish*, in accordance with clause 3.13.4(p), the time the *rebid* was made and the reason provided by the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* under paragraph (c)(2)(i).

3.8.22A Variation of offer, bid or rebid

(a) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must make a *dispatch offer*, *dispatch bid* or *rebid* in relation to *available capacity* and daily *energy constraints* in good faith.

(b) In paragraph (a) a *dispatch offer*, *dispatch bid* or *rebid* is taken to be made in good faith if, at the time of making such an offer, bid or *rebid*, a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* has a genuine intention to honour that offer, bid or *rebid* if the material conditions and circumstances upon which the offer, bid or *rebid* were based remain unchanged until the relevant *dispatch interval*.

(c) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* may be taken to have contravened paragraph (a) notwithstanding that, after all the evidence has been considered, the intention of the relevant *Generator* or *Market Participant* is ascertainable only by inference from:

(1) the conduct of the relevant *Generator* or *Market Participant*;

(2) the conduct of any other person; or

(3) the relevant circumstances.

3.8.23 Failure to conform to dispatch instructions

(a) If a *scheduled generating unit*, *scheduled network service* or *scheduled load* fails to respond to a *dispatch instruction* within a tolerable time and accuracy (as determined in *AEMO's* reasonable opinion), then the *scheduled generating unit*, *scheduled network service* or *scheduled load* (as the case may be):

(1) is to be declared and identified as non-conforming; and

(2) cannot be used as the basis for setting *spot prices*.

(b) If a *semi-scheduled generating unit* fails to respond to a *dispatch instruction* within a tolerable time and accuracy (as determined in *AEMO's* reasonable opinion) in a *semi-dispatch interval* where the unit's actual *generation* is more than the *dispatch level*, the unit is to be declared and identified as non-conforming and cannot be used as the basis for setting *spot prices*.

(c) If a *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* is identified as non-conforming under paragraphs (a) or (b):

(1) *AEMO* must advise the *Scheduled Generator*, *Semi-Scheduled Generator*, *Scheduled Network Service Provider* or *Market Customer* that the relevant *generating unit*, *scheduled network service* or *scheduled load* is identified as non-conforming, and request and log a reason for the non-compliance with the *dispatch instruction*;

(2) if in *AEMO's* opinion modification of *plant* parameters is necessary or desirable, *AEMO* must request the *Scheduled Generator*, *Semi-Scheduled Generator*, *Scheduled Network Service Provider* or *Market Customer* to submit modified *plant* parameters to satisfy *AEMO* that a realistic real time *dispatch* schedule can be carried out;

(3) should a *Scheduled Generator* or *Semi-Scheduled Generator* fail to meet the requests set out subparagraphs (1) and (2) or if *AEMO* is not satisfied that the *generating unit* will respond to future *dispatch instructions* as required, *AEMO* must direct the *generating unit's* output to follow, as far as is practicable, a specified output profile to be determined at its discretion by *AEMO*;

(4) should a *Scheduled Network Service Provider* fail to meet the requests set out in subparagraphs (1) and (2) or if *AEMO* is not satisfied that the *scheduled network service* will respond to future *dispatch instructions* as required, *AEMO* must direct the *scheduled network service* to follow, as far as is practicable, a specified transfer profile to be determined at its discretion by *AEMO*; and

(5) should a *Market Customer* not meet the requests set out in subparagraphs (1) and (2) within a reasonable time of the request, or if *AEMO* is not satisfied that the *scheduled load* will respond to future *dispatch instructions* as required, *AEMO* acting reasonably may invoke a *default dispatch bid* lodged by the relevant *Market Customer* or apply *constraints* as it deems appropriate.

(d) Until a *Scheduled Generator*, *Semi-Scheduled Generator*, *Scheduled Network Service Provider* or *Market Customer* satisfactorily responds to the requests under paragraphs (c)(1) and (2) and *AEMO* is satisfied that the *generating unit*, *scheduled network service* or *scheduled load* (as the case may be) will respond to future *dispatch instructions* as required, the *generating unit*, *scheduled network service* or *scheduled load* (as the case may be) continues to be non-conforming.

(e) If a *generating unit*, *scheduled network service* or *scheduled load* (as the case may be) continues to be non-conforming under this clause 3.8.23 after a reasonable period of time, *AEMO* must prepare a report setting out the details of the non-conformance and forward a copy of the report to the *Scheduled Generator*, *Semi-Scheduled Generator*, *Scheduled Network Service Provider* or *Market Customer* (as the case may be) and the *AER*.

(f) The direction referred to in paragraphs (c)(3) and (4) must remain in place until the *Scheduled Generator*, *Semi-Scheduled Generator* or *Scheduled Network Service Provider* (whichever is relevant) satisfies *AEMO* of rectification of the cause of the non-conformance.

(g) If an *ancillary service generating unit* or *ancillary service load* is *enabled* to provide a *market ancillary service* and fails to respond in the manner contemplated by the *market ancillary service specification* (as determined in *AEMO's* reasonable opinion), then:

(1) the *ancillary service generating unit* or *ancillary service load* is to be declared and identified as non-conforming;

(2) *AEMO* must advise the relevant *Market Participant* that the *ancillary service generating unit* or *ancillary service load* is identified as non-conforming, and request a reason for the non-conformance. The relevant *Market Participant* must promptly provide a reason if requested to do so, and the reason is to be logged; and

(3) *AEMO* may set a fixed level for the relevant *ancillary service* (in this clause 3.8.23 called the 'fixed constraint') for the *ancillary service generating unit* or *ancillary service load* and the relevant *Market Participant* must ensure that the *ancillary service generating unit* or *ancillary service load* complies with the fixed constraint set by *AEMO*.

(h) *AEMO* must lift the fixed constraint in respect of an *ancillary service generating unit* or *ancillary service load* when *AEMO* is reasonably satisfied (as a result of a test or otherwise) that the *ancillary service generating unit* or *ancillary service load* is capable of responding in the manner contemplated by the *market ancillary service specification*.

(i) In assessing a report of non-conformance with a *dispatch instruction* by a *scheduled load*, the *AER* shall have regard to whether a *default dispatch bid* had been lodged with *AEMO* and was, or could have reasonably been, applied in the circumstances applicable to that *scheduled load*.

3.8.24 Scheduling errors

(a) A *scheduling error* is any one of the following circumstances:

(1) the *dispute resolution panel* determines under rule 8.2 that *AEMO* has failed to follow the *central dispatch* process set out in this rule 3.8; or

(2) *AEMO* declares that it failed to follow the *central dispatch* process set out in this rule 3.8; or

(3) *AEMO* determines under clause 3.9.2B(d) that a *dispatch interval* contained a manifestly incorrect input.

(b) *Spot prices* and *market ancillary service* prices will not be adjusted due to the occurrence of a *scheduling error* except where the *scheduling error* arises through the application of clause 3.9.2B.

3.9 Price Determination

3.9.1 Principles applicable to spot price determination

(a) The principles applying to the determination of prices in the *spot market* are as follows:

(1) a *dispatch price* at a *regional reference node* is determined by the *central dispatch* process for each *dispatch interval*;

(2) a *spot price* at a *regional reference node* is the time-weighted average of the *dispatch prices* at that *regional reference node* in a *trading interval*;

(2A) the *central dispatch* process must determine an *ancillary service price* for each *market ancillary service* at each *regional reference node* for every *dispatch interval*;

(3) *dispatch prices* determine *dispatch* such that a *generating unit* or *load* whose *dispatch bid* or *dispatch offer* at a location is below the *spot price* at that location will normally be *dispatched*;

(3A) *generating units*, *scheduled network services* or *scheduled loads* which operate in accordance with a *direction*, are to be taken into account in the *central dispatch* process, but the *dispatch offer*, in the case of a *generating unit* or *scheduled network service*, which operates in accordance with a *direction*, or the *dispatch bid*, in the case of a *scheduled load* which operates in accordance with a *direction*, will not be used in the calculation of the *dispatch price* in the relevant *dispatch interval*;

(3B) *ancillary service generating units* and *ancillary service loads* the subject of a fixed constraint (within the meaning of clause 3.8.23(g)) are to be taken into account in the *central dispatch* process, but the price in a *market ancillary service offer* which operates in accordance with a fixed constraint will not be used in the calculation of the *ancillary service price* for that *market ancillary service* in the relevant *dispatch interval*;

(3C) *generating units* or *loads* which operate in accordance with a *direction* to provide an *ancillary service* are to be taken into account in the *central dispatch* process, but the price in a *market ancillary service offer* which operates in accordance with a *direction*, will not be used in the calculation of the *ancillary service price* for that *market ancillary service* in the relevant *dispatch interval*;

(4) *network losses*, *network constraints*, the availability of *scheduled network services* and *network dispatch offers* are taken into account in the determination of *dispatch* and consequently affect *dispatch prices*, *spot prices* and (apart from *network losses*) *ancillary services prices*;

(5) where the *energy* output of a *Registered Participant* is limited above or below the level at which it would otherwise have been *dispatched* by *AEMO* on the basis of its *dispatch offer* or *dispatch bid* due to an *ancillary services direction*, the *Registered Participant's dispatch offer* or *dispatch bid* is taken into account in the determination of *dispatch* but the *dispatch offer* or *dispatch bid* will not be used in the calculation of the *dispatch price* for *energy* in the relevant *dispatch interval*;

(5A) *market ancillary service offers*, in other *ancillary services markets*, due to an *ancillary services direction* are taken into account in the determination of *dispatch* and consequently affect *ancillary service prices* in those other *ancillary services markets*;

(6) when the *spot price* is determined, it applies to both sales and purchases of electricity at a particular location and time;

(6A) when an *ancillary service price* is determined for an *ancillary service*, it applies to purchases of that *ancillary service*;

(6B) when an *ancillary service price* is determined under paragraph (6A) for a *regulation service*, it applies to purchases of that *regulation service* and, where appropriate, purchases of a *delayed service*;

(7) *spot prices* and *dispatch prices* provide *Market Participants* with signals as to the value of providing or cost of consuming electricity at a particular location at a particular time; and

(7A) *ancillary service prices* provide *Ancillary Service Providers* with signals as to the value of providing the relevant *market ancillary service* within a particular *region* at a particular time.

(b) A single *regional reference price* which is the *spot price* at the *regional reference node* provides a reference from which the *spot prices* are determined within each *region*.

(c) The *local spot price* at each *transmission network connection point* is the *spot price* at the *regional reference node* for the *region* to which the *connection point* is assigned multiplied by the *intra-regional loss factor* applicable to that *connection point*.

3.9.2 Determination of spot prices

(a) **[Deleted]**

(b) **[Deleted]**

(c) Each time the *dispatch algorithm* is run by *AEMO*, it must determine a *dispatch price* for each *regional reference node* for a *dispatch interval* in accordance with clause 3.8.21(b), provided that if *AEMO* fails to run the *dispatch algorithm* to determine *dispatch prices* for any *dispatch interval* then the *dispatch price* for that *dispatch interval* is the last *dispatch price* determined by the *dispatch algorithm* prior to the relevant *dispatch interval*.

(d) The *dispatch price* at a *regional reference node* represents the marginal value of *supply* at that location and time, this being determined as the price of meeting an incremental change in *load* at that location and time in accordance with clause 3.8.1(b).

(e) Notwithstanding clauses 3.9.2(c) or (d), for any *dispatch interval* if:

(1) the *dispatch price* for that *dispatch interval* has not already been set by the *central dispatch* process and *AEMO* reasonably determines that the *central dispatch* process may determine that all *load* in a *region* could not otherwise be supplied and *AEMO* issues instructions that are current for that *dispatch interval* to *Network Service Providers* or *Market Participants* to shed *load*, then *AEMO* must set the *dispatch price* at that *region's regional reference node* to equal the *market price cap*;

(2) *AEMO* has declared a *dispatch interval* to be an *intervention price dispatch interval* under clause 3.9.3(a), then subject to clauses 3.9.3(c) and 3.9.3(d) *AEMO* must set the *dispatch price* in accordance with clause 3.9.3; and

(3) **[Deleted]**

(4) an *administered price period* in accordance with rule 3.14 applies, then *AEMO* must limit the *dispatch price* in accordance with clause 3.14.2(d1).

(f) **[Deleted]**

(g) **[Deleted]**

(h) The *spot price* at a *regional reference node* for a *trading interval* equals the time weighted average of the *dispatch prices* at the *regional reference node* for each of the *dispatch intervals* in the *trading interval*, provided that if *AEMO* has made a declaration that the *market* is suspended under clause 3.14.3, then the *spot price* in any *trading interval* during the period during which the *spot market* is suspended must be determined in accordance with clause 3.14.5.

(i) **[Deleted]**

(j) **[Deleted]**

(k) If a test is being conducted on a *generating unit* or *scheduled load* in accordance with clause 3.11.7 and for the purpose of conducting that test, the *generating unit* or *scheduled load* is excluded from *central dispatch*, then that

generating unit or *scheduled load* cannot be used to set the *dispatch price* for *energy* in the relevant *dispatch interval*.

3.9.2A Determination of ancillary services prices

(a) Each time the *dispatch algorithm* is run by *AEMO*, it must determine an *ancillary service price* for each *market ancillary service* for each *regional reference node* which is to apply until the next time the *dispatch algorithm* is run, provided that if *AEMO* fails to run the *dispatch algorithm* to determine *ancillary service prices* for any *dispatch interval* then the *ancillary service price* for that *dispatch interval* is the last *ancillary service price* determined by the *dispatch algorithm* prior to the relevant *dispatch interval*.

(b) For each *market ancillary service*, including the *regulating raise service* and the *regulating lower service*, each time the *dispatch algorithm* is run by *AEMO* where a local *ancillary services* constraint has been applied, *AEMO* must:

(1) calculate the marginal price of meeting any *global market ancillary service requirement* for that service;

(2) calculate the marginal price of meeting each *local market ancillary service requirement* for that service and;

(3) identify for each *local market ancillary service requirement* the *regions* requiring the service.

(b1) An *ancillary service price* for a *region* is the sum of:

(1) the marginal price of meeting any *global market ancillary service requirement* for that service; and

(2) the marginal price of meeting each *local market ancillary service requirement* for that service in that *region*.

(c) If an *ancillary service price* determined using the *dispatch algorithm* under clause 3.9.2A(a):

(1) is less than zero, then the *ancillary service price* is reset to zero; and

(2) is greater than the *market price cap*, then the *ancillary service price* is reset to the *market price cap*.

(c1) If a marginal price calculated pursuant to clause 3.9.2A(b) is greater than the *market price cap*, then that marginal price is reset to the *market price cap.*

(d) If a test is being conducted on a *generating unit* or *scheduled load* in accordance with clause 3.11.7 and for the purpose of conducting that test, the *generating unit* or *scheduled load* is excluded from *central dispatch*, then that *generating unit* or *scheduled load* cannot be used to set *market ancillary service prices*.

3.9.2B Pricing where AEMO determines a manifestly incorrect input

(a) For the purposes of this clause:

"Input" means any value that is used by the *dispatch algorithm* including measurements of *power system* status, five minute demand forecast values, *constraint* equations entered by *AEMO*, or software setup but not including *dispatch bids* and *dispatch offers* submitted by *Registered Participants*.

"Last correct *dispatch interval*" means the most recent *dispatch interval* preceding the affected *dispatch interval* that is not itself an affected *dispatch interval*.

(b) *AEMO* may apply the automated procedures developed in accordance with clause 3.9.2B(h), to identify a *dispatch interval* as subject to review ("a *dispatch interval* subject to review").

(c) *AEMO* may also determine that a *dispatch interval* is subject to review if *AEMO* considers that it is likely to be subject to a manifestly incorrect input, but only where the *dispatch interval* immediately preceding it was a *dispatch interval* subject to review.

(d) *AEMO* must determine whether a *dispatch interval* subject to review contained a manifestly incorrect input to the *dispatch algorithm* ("an affected *dispatch interval*").

(e) Where *AEMO* determines an affected *dispatch interval*, *AEMO* must:

(1) replace all *dispatch prices* and *market ancillary services* prices with the corresponding prices for the last correct *dispatch interval*; and

(2) recalculate, in accordance with clause 3.9.2(h), and adjust all *spot prices* relevant to each affected *dispatch interval*.

(f) *AEMO* may only carry out the action described in clause 3.9.2B(e) if no more than 30 minutes have elapsed since the publication of the *dispatch prices* for the *dispatch interval* subject to review.

(g) As soon as reasonably practicable after the action as described in clause 3.9.2B(e), *AEMO* must *publish* a report outlining:

(1) The reasons for the determination under clause 3.9.2B(d);

(2) Whether that determination was correct;

(3) What action will be taken to minimise the risk of a similar event in future.

(h) *AEMO* must, in consultation with *Registered Participants*, develop procedures for the automatic identification of *dispatch intervals* subject to review under clause 3.9.2B (b) (the "automated procedures").

(i) The purpose of the automated procedures is to detect instances where manifestly incorrect inputs may have resulted in material differences in pricing outcomes.

(j) [**Deleted**]

(k) At least once each calendar year, *AEMO* must review the effectiveness of the automated procedures referred to in clause 3.9.2B(h).

(l) *AEMO* must report on the findings of the review under clause 3.9.2B(k) and must include in that report details of all *dispatch intervals* subject to review that were not affected *dispatch intervals* and an analysis of why such intervals were identified as subject to review.

(m) [**Deleted**]

3.9.3 Pricing in the event of intervention by AEMO

(a) In respect of a *dispatch interval* where a *AEMO intervention event* occurs *AEMO* must declare that *dispatch interval* to be an *intervention price dispatch interval*.

(b) Subject to paragraphs (c) and (d), *AEMO* must in accordance with the methodology or assumptions *published* pursuant to paragraph (e) set the *dispatch price* and *ancillary service prices* for an *intervention price dispatch interval* at the value which *AEMO*, in its reasonable opinion, considers would have applied as the *dispatch price* and *ancillary service price* for that *dispatch interval* in the relevant *region* had the *AEMO intervention event* not occurred.

(c) *AEMO* may continue to set *dispatch prices* pursuant to clause 3.9.2 and *ancillary service prices* pursuant to clause 3.9.2A until the later of:

(1) the second *dispatch interval* after the first *dispatch interval* in which the *AEMO intervention event* occurred; or

(2) if applicable, the second *dispatch interval* after the restoration of the *power system* to a *secure operating state* after any *direction* which constitutes the *AEMO intervention event* was issued,

provided that *AEMO* must use its reasonable endeavours to set *dispatch prices* and *ancillary service prices* pursuant to this clause 3.9.3 as soon as practicable following the *AEMO intervention event*.

(d) *AEMO* must continue to set *dispatch prices* pursuant to clause 3.9.2 and *ancillary service prices* pursuant to clause 3.9.2A if a *direction* given to a *Registered Participant* in respect of *plant* at the *regional reference node* would not in *AEMO's* reasonable opinion have avoided the need for any *direction* which constitutes the *AEMO intervention event* to be issued.

(e) Subject to paragraph (g), *AEMO* must develop in accordance with the *Rules consultation procedures* and *publish* details of the methodology it will use, and

any assumptions it may be required to make, to determine *dispatch prices* and *ancillary service prices* for the purposes of paragraph (b).

(f) The methodology developed by *AEMO* under paragraph (e) must wherever reasonably practicable:

(1) be consistent with the principles for *spot price* determination set out in clause 3.9.l;

(2) enable *AEMO* to determine and *publish* such prices in accordance with clause 3.13.4; and

(3) be consistent with the principles for *ancillary service price* determination set out in clauses 3.9.2 and 3.9.2A.

(g) *AEMO* may make minor and administrative amendments to the methodology developed under paragraph (e) without complying with the *Rules consultation procedures*.

3.9.3A Reliability standard and reliability settings review

(a) By 30 April of each second year (commencing 2010) the *Reliability Panel* must conduct a review in accordance with the *Rules consultation procedures* on the *reliability standard* and *reliability* settings set out in paragraph (b) of this clause and *publish* a report on the *reliability standard* and *reliability* settings that it recommends should apply from 1 July in the year commencing 2 years after the year in which the review is conducted.

(b) In conducting a review in accordance with this clause 3.9.3A, the *Reliability Panel* must review the following:

(1) the *reliability standard*;

(2) the *market price cap*;

(3) the *cumulative price threshold*; and

(4) the *market floor price*.

3.9.4 Market Price Cap

(a) The *market price cap* is a price cap which is to be applied to *dispatch prices*.

(b) The value of the *market price cap* is $10,000/MWh prior to 1 July 2010. Effective from 1 July 2010, the value of the *market price cap* is $12,500/MWh.

(c) In conducting a review of the *market price cap* in accordance with clause 3.9.3A, the *Reliability Panel* must have regard to the potential impact of any proposed increase in the *market price cap* on:

(1) *spot prices*;

(2) investment in the *National Electricity Market*; and

(3) the *reliability* of the *power system*.

(c1) The *market price cap* recommended by the *Reliability Panel* in a review under clause 3.9.3A must be a level which the *Reliability Panel* considers will:

(1) allow the *reliability standard* to be satisfied without use of *AEMO's* powers to intervene under clauses 3.20.7(a) and 4.8.9(a);

(2) in conjunction with other provisions of the *Rules*, not create risks which threaten the overall integrity of the *market*; and

(3) take into account any other matters the *Reliability Panel* considers relevant.

(c2) A report of the *Reliability Panel* under clause 3.9.3A must set out the conclusions of its review and the recommendation in relation to the level of the *market price cap* along with supporting information including:

(1) details of all relevant *market* conditions and circumstances on which the recommendation is based; and

(2) an assessment of whether the level of the *market price cap* together with the operation of the *cumulative price threshold* has achieved the objectives set out in clauses 3.9.4(c1)(1) and (2).

(d) In its review of the *market price cap* under clause 3.9.3A, the *Reliability Panel* may only recommend a change to the *market price cap* from 1 July in the year commencing 2 years after the year in which the review is being conducted where:

(1) in the *Reliability Panel's* opinion, it is highly probable that the relevant *market* conditions and circumstances on which the recommendation for that year are based as stated in the report of the *Reliability Panel* under clause 3.9.3A will eventuate; and

(2) the *Reliability Panel* has given due consideration to the impact of the change to the *market price cap* on *Market Participants* and, in the event of a recommended decrease in the *market price cap*, any alternative arrangements considered necessary to ensure that the *reliability standard* is maintained.

3.9.5 Application of the Market Price Cap

(a) *Dispatch prices* at *regional reference nodes* must not exceed the *market price cap*.

(b) If *central dispatch* and determination of *dispatch prices* in accordance with rule 3.8, and clauses 3.9.2 and 3.9.3 would otherwise result in a *dispatch price* greater than the *market price cap* at any *regional reference node*, then subject

to clause 3.9.5(c), the *dispatch price* at that *regional reference node* must be set to the *market price cap*.

(c) If the *dispatch price* at any *regional reference node* is set to the *market price cap* under clause 3.9.2 or clause 3.9.5 then *dispatch prices* at all other *regional reference nodes* connected by a *regulated interconnector* or *regulated interconnectors* that have an *energy* flow towards that *regional reference node* must not exceed the product of the *market price cap* multiplied by the average *loss factor* for that *dispatch interval* between that *regional reference node* and the *regional reference node* at which *dispatch prices* have been set to the *market price cap* determined in accordance with clause 3.9.5(d).

(d) *AEMO* must determine the average *loss factors* applicable to clause 3.9.5(c) by reference to the *inter-regional loss factor* equations relating to the relevant *regulated interconnector*.

3.9.6 Market Floor Price

(a) The *market floor price* is a price floor which is to be applied to *dispatch prices*.

(b) The value of the *market floor price* is $-1,000/MWh.

(c) **[Deleted]**

(d) The *market floor price* recommended by the *Reliability Panel* in a review under clause 3.9.3A must be a level which the *Reliability Panel* considers will:

(1) allow the *market* to clear in most circumstances;

(2) not create substantial risks which threaten the overall stability and integrity of the *market*; and

(3) take into account any other matters the *Reliability Panel* considers relevant.

(e) A report of the *Reliability Panel* under clause 3.9.3A must set out the conclusions of its review and the recommendation in relation to the level of the *market floor price* along with supporting information including details of all relevant *market* conditions and circumstances on which the recommendation is based.

3.9.6A Application of the Market Floor Price

(a) *Dispatch prices* at *regional reference nodes* must not be less than the *market floor price*.

(b) If *central dispatch* and determination of *dispatch prices* in accordance with rule 3.8, and clauses 3.9.2 and 3.9.3 would otherwise result in a *dispatch price* less than the *market floor price* at any *regional reference node*, then subject to clause 3.9.6A(c), the *dispatch price* at that *regional reference node* must be set to the *market floor price*.

(c) If the *dispatch price* at any *regional reference node* is set to the *market floor price* under clause 3.9.6A then *dispatch prices* at all other *regional reference nodes* connected by a *regulated interconnector* or *regulated interconnectors* that have an *energy* flow towards that *regional reference node* must be equal to or greater than the product of *market floor price* multiplied by the average *loss factor* for that *dispatch interval* between that *regional reference node* and the *regional reference node* at which *dispatch prices* have been set to the *market floor price* in accordance with clause 3.9.6A.

(d) *AEMO* must determine the average *loss factors* applicable to clause 3.9.6A(c) by reference to the *inter-regional loss factor* equations relating to the relevant *regulated interconnector*.

3.9.7 Pricing for constrained-on scheduled generating units

(a) In the event that a *network constraint* causes a *scheduled generating unit* to be *constrained-on* in any *dispatch interva*l, that *scheduled generating unit* must comply with *dispatch instructions* from *AEMO* in accordance with its availability as *specified* in its *dispatch offer* but may not be taken into account in the determination of the *dispatch price* in that *dispatch interval*.

(b) A *Scheduled Generator* that is *constrained-on* in accordance with clause 3.9.7(a) is not entitled to receive from *AEMO* any compensation due to its *dispatch price* being less than its *dispatch offer price*.

3.10 [Deleted]

3.11 Ancillary Services

3.11.1 Introduction

(a) *Ancillary services* are services that are essential to the management of *power system security*, facilitate orderly trading in electricity and ensure that electricity supplies are of acceptable quality.

(b) *Market ancillary services* are *ancillary services* which are acquired by *AEMO* as part of the *spot market* in accordance with this Chapter 3. The prices for *market ancillary services* are determined using the *dispatch algorithm*.

(c) *Non-market ancillary services* are *ancillary services* which are not acquired by *AEMO* as part of the *spot market*, but under agreements which are entered into following a call for offers in accordance with this rule 3.11. The prices for *non-market ancillary services* are determined in accordance with the relevant *ancillary services agreements*.

3.11.2 Market ancillary services

(a) The *market ancillary services* are:

(1) the *fast raise service*;

(2) the *fast lower service*;

(3) the *slow raise service*;

(4) the *slow lower service*;

(5) the *regulating raise service*;

(6) the *regulating lower service*;

(7) the *delayed raise service*; and

(8) the *delayed lower service*.

(b) *AEMO* must make and *publish* a *market ancillary service specification* containing:

(1) a detailed description of each kind of *market ancillary service*; and

(2) the performance parameters and requirements which must be satisfied in order for a service to qualify as the relevant *market ancillary service* and also when a *Market Participant* provides the relevant kind of *market ancillary service*.

(c) *AEMO* may amend the *market ancillary service specification*, from time to time.

(d) *AEMO* must comply with the *Rules consultation procedures* when making or amending the *market ancillary service specification*.

(e) An amendment to the *market ancillary service specification* must not take effect until at least 30 days after the amendment has been *published*.

3.11.3 Acquisition of non-market ancillary services

(a) *AEMO* must use reasonable endeavours to acquire *non-market ancillary services* in accordance with the remaining relevant provisions of rule 3.11.

(b) The requirement for *AEMO* to acquire *non-market ancillary services* referred to in clause 3.11.3(a) must be met in the following ways:

(1) by *AEMO* setting minimum standards which are to be dealt with in *Registered Participants' connection agreements* for the technical performance of the service; or

(2) by *AEMO* acquiring *ancillary services* in accordance with this rule 3.11 or giving a *direction* in accordance with clause 4.8.9.

(c) *AEMO* must make and *publish* a set of *minimum technical ancillary service standards* that must be met by all *Registered Participants* who have entered into a *connection agreement*.

(d) *AEMO* may amend the *minimum technical ancillary service* standards from time to time.

(e) *AEMO* must comply with the *Rules consultation procedures* when making or amending the *minimum technical ancillary service standards*.

(f) In setting or amending *minimum technical ancillary service standards*, *AEMO* must:

(1) take into account the provisions of *connection agreements* existing at the time of setting or amending such standards;

(2) ensure that proposed *minimum technical ancillary service standards* do not impose more onerous material obligations on parties to existing *connection agreements*, as a whole, than are imposed by such existing *connection agreements*;

(3) take into account and minimise the additional costs overall that may arise from proposed *minimum technical ancillary service standards* for parties to existing *connection agreements* generally; and

(4) take into account the obligations imposed on parties to *connection agreements* by Chapter 5 of the *Rules* and any applicable *derogation*.

(g) The *minimum technical ancillary service standards* are not intended to, nor are to be read or construed as having the effect of:

(1) altering any term of a *connection agreement*;

(2) altering the contractual rights or obligations of any of the parties under a *connection agreement* as between those parties; or

(3) relieving the parties under any such *connection agreement* of their contractual obligations under such agreement or obligations under Chapter 5 of the *Rules*.

(h) An amendment to the *minimum technical ancillary service standards* must not take effect until at least 30 days after the *publication* of the report required under the *Rules consultation procedures*.

(i) *AEMO* is not responsible for payment to a *Registered Participant* for services provided by that *Registered Participant* under a *connection agreement* or under clause 4.9.2(b).

(j) A *Network Service Provider* must advise *AEMO* of all *ancillary services* or similar services to be provided by a *Registered Participant* under a *connection agreement* to which that *Network Service Provider* is a party.

(k) *AEMO* may instruct a *Registered Participant* to provide a *non-market ancillary service* agreed to be provided under a *connection agreement* and any *Registered Participant* so instructed must use reasonable endeavours to comply with any such instruction.

3.11.4 Procedure for determining quantities of network control ancillary services

(a) *AEMO* must develop and *publish* a detailed description of each *network control ancillary service*.

(b) *AEMO* must develop and *publish* a procedure for determining the quantities of each kind of *network control ancillary service* required for *AEMO*:

(1) to achieve the *power system security and reliability standards*; and

(2) where practicable to enhance *network* transfer capability whilst still maintaining a *secure operating state* when, in *AEMO's* reasonable opinion, the resultant expected increase in *network control ancillary service* costs will not exceed the resultant expected increase in benefits of trade from the *spot market*.

(c) *AEMO* may amend the description developed under clause 3.11.4(a) and the procedure referred to in clause 3.11.4(b).

(d) *AEMO* must comply with the *Rules consultation procedures* when making or amending descriptions or procedures under clause 3.11.4.

3.11.4A Guidelines and objectives for acquisition of system restart ancillary services

(a) The objective for *system restart ancillary services* is to minimise the expected economic costs to the *market* in the long term and in the short term, of a *major supply disruption*, taking into account the cost of supplying *system restart ancillary services*, consistent with the *national electricity objective* (the **SRAS objective**).

(b) *AEMO* must use reasonable endeavours to acquire *system restart ancillary services* in accordance with the relevant provisions of clause 3.11.4A.

(c) Each of the guidelines and *SRAS* description which *AEMO* is required to develop and *publish* in accordance with clause 3.11.4A must be:

(1) consistent with the *SRAS* objective;

(2) designed to ensure the *system restart standard* is met; and

(3) designed to ensure that the need for *system restart ancillary services* in each *electrical sub-network* is met, to the extent that it is practicable and reasonable to do so, by *AEMO* entering into *ancillary services agreements* for the provision of *primary restart services*.

(referred to collectively as the ***SRAS* procurement objectives**).

(d) *AEMO* must develop and *publish* a detailed description of each type of *system restart ancillary service* in accordance with the guidelines determined by the *Reliability Panel* under clause 8.8.3(aa)(4), which description must identify:

(1) whether the *system restart ancillary service* is a *primary restart service* or a *secondary restart service*;

(2) the technical and availability requirements of each type of *system restart ancillary service*; and

(3) any other matter considered relevant by *AEMO*,

(the ***SRAS* description**).

(e) In order to demonstrate that there is a reasonable degree of certainty that a *facility* is capable of delivering the relevant *system restart ancillary service* if required to do so, *AEMO* must develop and *publish* guidelines for undertaking:

(1) modelling and assessment of the technical capabilities of *system restart ancillary services* proposed to be submitted as part of a *SRAS* expression of interest or in response to a NMAS invitation to tender;

(2) physical testing of *system restart ancillary services* as required by the *NMAS* tender guidelines under clause 3.11.5(b)(2); and

(3) any other analysis which *AEMO* considers appropriate,

(the ***SRAS* assessment guidelines**).

(f) *AEMO* must develop and *publish* the procedure for determining the number, type and location of *system restart ancillary services* required to be procured for each *electrical sub-network* consistent with the *system restart standard* determined by the *Reliability Panel* (the ***SRAS* quantity guidelines**).

(g) *AEMO* may amend the *SRAS* assessment guidelines, the *SRAS* quantity guidelines and the *SRAS* description.

(h) *AEMO* must comply with the *Rules consultation procedures* when making or amending the *SRAS* assessment guidelines, the *SRAS* quantity guidelines and the *SRAS* description.

3.11.4B Determination of electrical sub-network boundaries

(a) For the purpose of acquiring *system restart ancillary services* and determining and implementing the *system restart plan*, the *power system* is to be divided into *electrical sub-networks*.

(b) *AEMO* must determine the boundaries of the *electrical sub-networks* in accordance with the guidelines determined by the *Reliability Panel* under clause 8.8.3(aa)(5).

(c) *AEMO* must comply with the *Rules consultation procedures* in determining the boundaries of the *electrical sub-networks*.

3.11.5 Tender process for non-market ancillary services

(a) Except as provided in clause 4.8.9, if *AEMO* proposes to acquire a *non-market ancillary service*, *AEMO* must call for offers in accordance with the *NMAS* tender guidelines from persons who are in a position to provide the *non-market ancillary service* so as to have the required effect at a *connection* to a *transmission network*.

(b) *AEMO* must determine and *publish* the *NMAS* tender guidelines. Separate *NMAS* tender guidelines may be prepared in respect of *network control ancillary services* and *system restart ancillary services*. The *NMAS* tender guidelines must contain the following:

(1) a requirement for *AEMO* to call for *NMAS* expressions of interest before issuing an *NMAS* invitation to tender in relation to any required *non-market ancillary services*;

(2) a requirement that a person who is required to provide *SRAS* under an *ancillary services agreement* has the *facility* tested in accordance with:

(i) the *SRAS* assessment guidelines referred to in clause 3.11.4A(e); and

(ii) the timeframes for physical testing referred to in subparagraph (5);

(3) a requirement that a person who is to provide *network control ancillary services* under an *ancillary services agreement* has the *facility* tested in accordance with the *NMAS* tender guidelines;

(4) a requirement for a *Network Service Provider* or other *Registered Participant* to assist a prospective tenderer in identifying and, if possible, resolving issues that would prevent the delivery of effective *system restart ancillary services* proposed by a prospective tenderer;

(5) the timeframes over which *AEMO's* assessment of *NMAS* tenders and physical testing of selected *non-market ancillary services* will occur;

(6) the period for which each *non-market ancillary service* may be contracted;

(7) a requirement for a tenderer to provide data, models and parameters of relevant *plant*, sufficient to facilitate a thorough assessment of the *network* impacts and *power station* impacts of the use of the relevant *non-market ancillary service*;

(8) the minimum terms and conditions of the *ancillary services agreement* that a successful tenderer would be expected to enter into with *AEMO*;

(9) the principles *AEMO* must adopt in assessing *NMAS* tenders; and

(10) any other matter considered appropriate by *AEMO*.

(c) *AEMO* may amend the *NMAS* tender guidelines and must comply with the *Rules consultation procedures* when making or amending the *NMAS* tender guidelines.

(d) A *Registered Participant* is not under any obligation to submit an *NMAS* tender in response to an *NMAS* invitation to tender.

(e) *AEMO* is not under any obligation to accept the lowest priced *NMAS* tender or any *NMAS* tender in response to an *NMAS* invitation to tender.

(f) A *Network Service Provider* must:

(1) negotiate in good faith with a prospective tenderer in respect of issues the *NMAS* tender guidelines require a prospective tenderer to discuss and, if possible, resolve with a *Network Service Provider*; and

(2) participate in, or facilitate, testing of a *system restart ancillary service* required by the *NMAS* tender guidelines where it is reasonable and practicable to do so, and when participating in or facilitating such activities, the *Network Service Provider* will be entitled to recover from the relevant *Registered Participant* all reasonable costs incurred by the *Network Service Provider* and for such purposes the activities of the *Network Service Provider* will be treated as *negotiable services*.

(g) Where a *Registered Participant* submits a *NMAS* tender in response to a *NMAS* invitation to tender and *AEMO* wishes to negotiate an aspect of that *NMAS* tender, *AEMO* and the *Registered Participant* must negotiate in good faith concerning that aspect.

(h) Where the tender is for *network control ancillary services*, in assessing any offers submitted in response to a call for offers under this clause 3.11.5, *AEMO* must seek to acquire the quantity of the relevant kind of *network control ancillary services* determined in accordance with clause 3.11.4 by competitive tender and in accordance with this clause 3.11.5(h). A tender will be deemed to be a competitive tender for a particular *network control ancillary service* if the required quantity of that service determined in accordance with clause 3.11.4 can be supplied from the conforming offers received by *AEMO* with any one conforming offer discarded or all conforming offers from any one party discarded. If a tender process is not deemed to be a competitive tender for a particular *network control ancillary service*, then *AEMO* and those *Registered Participants* that submitted conforming and non-conforming tenders selected by *AEMO*, must negotiate in good faith to agree reasonable terms and conditions for the supply of the relevant kind of *network control ancillary service*, taking into account the need to:

(1) subject to clause 3.11.5(h)(2), so far as practicable minimise the overall cost of supply of that service; and

(2) appropriately remunerate the providers of the relevant *network control ancillary service* for that service.

(i) If *AEMO* and the *Registered Participants* selected by *AEMO* cannot agree on the terms and conditions for the supply of a *network control ancillary service* after 21 *business days* from delivery to the *Registered Participant* of a written notice to negotiate, then either *AEMO* or the *Registered Participant* may refer the matter to an *Adviser* for the determination of a dispute as to those terms and conditions in accordance with rule 8.2.

(j) Subject to clause 3.11.5(k), *AEMO* must not acquire *non-market ancillary services* from any person who is not a *Registered Participant*.

(k) *AEMO* may enter into an agreement to acquire *non-market ancillary services* with a person who is not a *Registered Participant* if that agreement includes a condition for the benefit of *AEMO* that no *ancillary services* will be provided under the agreement until that person becomes a *Registered Participant*.

(l) If *AEMO* calls for offers under clause 3.11.5(a) in respect of a type of *non-market ancillary service*, *AEMO* must give notice to *Registered Participants* when it believes that it has available, under *ancillary services agreements*, a sufficient quantity of that type of *non-market ancillary service* (as determined by applying the procedure developed under clause 3.11.4(b) or clause 3.11.4A(f), whichever is relevant).

(m) Within 5 *business days* of *AEMO* giving a notice under clause 3.11.5(l), *AEMO* must *publish* the total quantity of each kind of *network control ancillary service* acquired by *AEMO* under *ancillary services agreements* under clause 3.11.5.

(n) Within 5 *business days* of *AEMO* giving a notice under clause 3.11.5(l), *AEMO* must *publish*:

(1) the total estimated annual cost for the provision of *system restart ancillary services*, broken down to charges for availability and use, or other factors that *AEMO* considers appropriate for each *electrical sub-network*; and

(2) the number of those services procured for each *electrical sub-network*.

(o) A *Registered Participant* must comply with an *ancillary services agreement* between the *Registered Participant* and *AEMO* under which the *Registered Participant* provides one or more *non-market ancillary services*.

(p) A dispute concerning any aspect, (other than the aspect of price), of a *system restart ancillary services* agreement or a tender conducted by *AEMO* for the acquisition of *system restart ancillary services*, must be dealt with in accordance with rule 8.2.

3.11.6 Procedures for the dispatch of non-market ancillary services by AEMO

(a) *AEMO* must develop procedures for:

(1) dispatching each kind of *non-market ancillary service AEMO* requires in order to maintain the *power system* in a *secure operating state*; and

(2) reporting to *Registered Participants*, on a periodic basis, on the effectiveness of the *dispatch* of *non-market ancillary services* using criteria related to the performance of the *power system* specified in the procedures developed pursuant to clause 3.11.6(a)(1).

(b) *AEMO* must make the procedures developed under this clause 3.11.6 available to the *Registered Participants*.

(c) *AEMO* may amend a procedure developed under this clause 3.11.6, from time to time.

(d) *AEMO* must comply with the *Rules consultation procedures* when making or amending procedures pursuant to clause 3.11.6.

3.11.7 Performance and testing

(a) In addition to the requirements under rule 4.15, a *Market Participant* which has classified a *generating unit* as an *ancillary service generating unit* or a *market load* as an *ancillary service load* must install and maintain in accordance with the standards referred to in clause 3.11.7(b) monitoring equipment to monitor and record the response of the *ancillary service generating unit* or *ancillary service load* to changes in the *frequency* of the *power system.*

(b) *AEMO* must develop, and may amend from time to time, standards which must be met by *Market Participants* in installing and maintaining the equipment referred to in clause 3.11.7(a).

(c) *AEMO* may request a *Market Participant* with an *ancillary service generating unit* or an *ancillary service load* to provide to *AEMO* a report detailing how the relevant facility responded to a particular change or particular changes in the *frequency* of the *power system*. A *Market Participant* must provide a report requested under this clause 3.11.7(c) promptly but, in any event, in no more than 20 *business days* after notice to do so.

(d) *AEMO* may from time to time require a *Registered Participant* which provides a *market ancillary service* under the *Rules* or a *non-market ancillary service* under an *ancillary services agreement* to demonstrate the relevant *plant's* capability to provide the *ancillary service* to the satisfaction of *AEMO* according to standard test procedures. A *Registered Participant* must promptly comply with a request by *AEMO* under this clause.

3.12 Market Intervention by AEMO

3.12.1 Intervention settlement timetable

(a) *AEMO* must use reasonable endeavours to complete and fulfil its obligations set out in clauses 3.12.2, 3.12.3, 3.15.7, 3.15.7A, 3.15.7B, 3.15.8 and 3.15.10C as soon as practicable and no later than:

(1) 100 *business days* after the end of the *AEMO intervention event* or the end of a series of related *AEMO intervention events* if *AEMO* is not required to appoint an independent expert pursuant to clause 3.15.7A; and

(2) 150 *business days* after the end of the *AEMO intervention event* or the end of a series of related *AEMO intervention events* if *AEMO* is required to appoint an independent expert pursuant to clause 3.15.7A.

(b) Subject to clause 3.12.1(a), *AEMO* must *publish* a timetable that sets a date for each of *AEMO's* and the independent expert's obligations pursuant to clauses 3.12.2, 3.12.3, 3.15.7, 3.15.7A, 3.15.7B, 3.15.8 and 3.15.10C, where required (the "*intervention settlement timetable*").

(c) *AEMO* must at least once a month revise and *publish* the *intervention settlement timetable* to reflect any changes to the *intervention settlement timetable.*

3.12.2 Affected Participants and Market Customers entitlements to compensation in relation to AEMO intervention

(a) In respect of each *intervention price trading interval*:

(1) an *Affected Participant* is entitled to receive from *AEMO*, or must pay to *AEMO*, an amount as determined in accordance with this clause 3.12.2 that will put the *Affected Participant* in the position that the *Affected Participant* would have been in regarding the *scheduled generating unit* or *scheduled network service*, as the case may be, had the *AEMO intervention event* not occurred, taking into account solely the items listed in paragraph (j);

(2) a *Market Customer*, other than a *Market Customer* which was the subject of any *direction* that constituted the *AEMO intervention event*, is entitled, in respect of one or more of its *scheduled loads*, to receive an amount calculated by applying the following formula:

$$DC = ((RRP \text{ X } LF) - BidP) \times QD$$

where:

DC (in dollars) is the amount the *Market Customer* is entitled to receive in respect of that *scheduled load* for the relevant *intervention price trading interval*;

RRP (in dollars per MWh) is the *regional reference price* in the relevant *intervention price trading interval* determined in accordance with clause 3.9.3;

LF where the *scheduled load's connection point* is a *transmission connection point*, is the *intra-regional loss factor* at that *connection point* or where the *scheduled load's connection point* is a *distribution network connection point*, is the product of the

distribution loss factor at that *connection point* multiplied by the *intra-regional loss factor* at the *transmission connection point* to which it is assigned;

BidP (in dollars per MWh) is the price of the highest priced *price band* specified in a *dispatch offer* for the *scheduled load* in the relevant *intervention price trading interval;*

QD (in MWh) is the difference between the amount of electricity consumed by the *scheduled load* during the relevant *intervention price trading interval* determined from the *metering data* and the amount of electricity which *AEMO* reasonably determines would have been consumed by the *scheduled load* if the *AEMO intervention event* had not occurred,

provided that if DC is negative for the relevant *intervention price trading interval*, then the adjustment that the *Market Customer* is entitled to claim in respect of that *scheduled load* for that *intervention price trading interval* is zero.

(b) In respect of a single *intervention price trading interval*, an *Affected Participant* or *Market Customer* is not entitled to receive from, or obliged to pay to, *AEMO* an amount pursuant to this clause 3.12.2 if such an amount is less than $5,000.

(c) In respect of each *intervention price trading interval*, *AEMO* must, in accordance with the *intervention settlement timetable*, notify, in writing:

(1) each *Affected Participant* (except *eligible persons*) of:

(i) the estimated level of *dispatch* in MW that its *scheduled network service* or *scheduled generating unit* would have been *dispatched* at had the *AEMO intervention event* not occurred; and

(ii) an amount equal to:

(A) the estimated *trading amount* that it would have received had the *AEMO intervention event* not occurred based on the level of *dispatch* in subparagraph (i), less:

(B) the *trading amount* for that *Affected Participant* (excluding from that *trading amount* the amount referred to in clause 3.15.10C(a)) as set out in its *final statement* provided pursuant to clause 3.15.14 for the *billing period* in which the *intervention price trading interval* occurs;

(2) each *eligible person* of:

(i) the estimated level of flow in MW of all relevant *directional interconnectors* that would have occurred had the *AEMO intervention event* not occurred; and

(ii) an amount equal to:

(A) the estimated amount that person would have been entitled to receive pursuant to clause 3.18.1(b) had the *AEMO intervention event* not occurred based upon the flows referred to in subparagraph (i); less

(B) the actual entitlement of that person under clause 3.18.1(b); and

(3) each *Market Customer*, the amount calculated by *AEMO* in accordance with paragraph (a)(2) for that *Market Customer*.

(d) *AEMO* must include in an *Affected Participant's* or *Market Customer's final statement* provided pursuant to clause 3.15.1 for a *billing period* in which one or more *intervention price trading intervals* occurred:

(1) the amount notified by *AEMO* pursuant to paragraph (c) if the absolute value of such amount is greater than $5,000; and

(2) in all other cases no amount in relation to compensation pursuant to this clause 3.12.2.

(e) If the figure calculated in accordance with paragraph (c) is:

(1) negative, the absolute value of that amount is the amount payable to *AEMO* by the relevant person; and

(2) positive, the absolute value of that amount is the amount receivable from *AEMO* by the relevant person.

(f) Subject to paragraphs (h) and (i), within 7 *business days* of receipt of the notice referred to in paragraph (c) an *Affected Participant* or *Market Customer* may make a written submission to *AEMO* in accordance with paragraph (g) claiming that the amount set out in the notice is greater than, less than, or equal to its entitlement pursuant to paragraph (a)(1) as an *Affected Participant* or paragraph (a)(2) as a *Market Customer*, as the case may be.

(g) A written submission made by an *Affected Participant* or *Market Customer* pursuant to paragraph (f) must:

(1) itemise each component of the claim;

(2) contain sufficient data and information to substantiate each component of the claim;

(3) if the *Affected Participant* claims that the amount calculated by *AEMO* pursuant to paragraphs (c)(1) or (c)(2) is less than the amount the *Affected Participant* is entitled to receive pursuant to paragraph (a)(1), specify the difference between such amounts (such difference being the "*affected participant's adjustment claim"*);

(4) if the *Market Customer* claims that the amount calculated by *AEMO* pursuant to paragraph (c)(3) is less than the amount the *Market Customer* is entitled to receive pursuant to paragraph (a)(2), specify the difference between such amounts (such difference being the "*market customer's additional claim*"); and

(5) be signed by an authorised officer of the *Affected Participant* or *Market Customer* certifying that the written submission is true and correct.

(h) If an *Affected Participant* or *Market Customer* does not deliver to *AEMO* a written submission in accordance with paragraph (f) it shall cease to have an entitlement to compensation under this clause 3.12.2.

(i) In respect of a single *intervention price trading interval* an *Affected Participant* or *Market Customer* may only make a claim pursuant to paragraph (f) in respect of that *intervention price trading interval* if it claims that its entitlement or liability pursuant to this clause 3.12.2 is greater than $5,000.

(j) In determining the amount for the purposes of paragraph (a)(1), the following must, as appropriate, be taken into account:

(1) the direct costs incurred or avoided by the *Affected Participant* in respect of that *scheduled generating unit* or *scheduled network service*, as the case may be, as a result of the *AEMO intervention event* including:

(i) fuel costs in connection with the *scheduled generating unit* or *scheduled network service*;

(ii) incremental maintenance costs in connection with the *scheduled generating unit* or *scheduled network service*; and

(iii) incremental manning costs in connection with the *scheduled generating unit* or *scheduled network service*;

(2) any amounts which the *Affected Participant* is entitled to receive under clauses 3.15.6 and 3.15.6A; and

(3) the *regional reference price published* pursuant to clause 3.13.4(m).

(k) *AEMO* must in accordance with the *intervention settlement timetable* calculate the "*additional intervention claim*" being the total of:

(1) the sum of the *affected participant's adjustment claims* and *market customer's additional claims* in respect of a *AEMO intervention event*, or in respect of, in *AEMO's* reasonable opinion, a series of related *AEMO intervention events*; plus

(2) the total claims by *Directed Participants* pursuant to clauses 3.15.7B(a), 3.15.7B(a1) and 3.15.7B(a2) in respect of that *AEMO intervention event*, or in respect of that series of related *AEMO intervention events*.

(l) *AEMO* must in accordance with the *intervention settlement timetable*:

(1) refer an *affected participant's adjustment claim* or *market customer's additional claim* to an independent expert to determine such claim in accordance with clause 3.12.3 if the claim is equal to or greater than $20,000 and the *additional intervention claim* that includes that claim is equal to or greater than $100,000; and

(2) determine in its sole discretion whether all other *affected participants' adjustment claims* and *market customers' additional claims* are reasonable and if so pay the amounts claimed in accordance with clause 3.15.10C.

(m) If *AEMO* determines pursuant to paragraph (l) that an *affected participant's adjustment claim* or *market customer's additional claim* in respect of a *AEMO intervention event* is unreasonable, it must in accordance with the *intervention settlement timetable:*

(1) advise the *Affected Participant* or *Market Customer*, as the case may be, in writing of its determination including its reasons for the determination; and

(2) refer the matter to an independent expert to determine the claim for compensation in accordance with clause 3.12.3.

(n) For the purposes of clauses 3.15.8 and 3.15.10C(b) any payment pursuant to paragraph (a) must include interest on the sum of that amount less the payment made in accordance with 3.15.10C(a)(1), computed at the average *bank bill rate* for the period from the date on which payment was required to be made under clauses 3.15.16 and 3.15.17 in respect of the *final statement* for the *billing period* in which the *AEMO intervention event* occurred to the date on which payment is required to be made pursuant to clause 3.15.10C.

3.12.3 Role of the Independent Expert in calculating payments in relation to intervention by AEMO

(a) Subject to clause 3.12.3(a1), if a matter is to be referred to an independent expert pursuant to clauses 3.12.2(l), 3.12.2(m) or 3.15.7B, *AEMO* must in accordance with the *intervention settlement timetable publish* a notice of its proposed nominee as independent expert and appoint such nominee.

(a1) If within 3 *business days* of *publication* of *AEMO's* nominee pursuant to clause 3.12.3(a) more than 25% of the *Referred Affected Participants*, *Referred Market Customers* and *Referred Directed Participants* in relation to that *direction* object in writing to *AEMO's* nominee *AEMO* must, as soon as reasonably practicable thereafter, request the *AEMC* to nominate an independent expert.

(a2) If a valid objection pursuant to clause 3.12.3(a1) is made, the *AEMC* must, within 3 *business days* of a written request from *AEMO*, nominate an independent expert to be appointed by *AEMO* for the purposes of this clause 3.12.3.

(b) *AEMO* must provide to the independent expert a copy of all written submissions made by *Referred Affected Participants*, *Referred Market Customers* or *Referred Directed Participants* under clause 3.12.2(f) or 3.15.7B (a).

(b1) To the extent reasonably practicable, all claims arising out of a single *AEMO intervention event* or arising out of, in *AEMO's* reasonable opinion, a series of related *AEMO intervention events*, should be determined by the same independent expert as part of the same process.

(c) *AEMO* must include as part of the independent expert's terms of appointment the following requirements:

(1) In accordance with the *intervention settlement timetable* the independent expert must:

(i) determine and *publish* a draft report setting out:

(A) as appropriate, the total compensation payable by, or receivable by, *Referred Affected Participants* and *Referred Market Customers* under clause 3.12.2(a) pursuant to claims referred to the independent expert pursuant to clauses 3.12.2(l) and 3.12.2(m) in respect of the *intervention price trading interval*;

(B) the total amount of compensation payable to *Referred Directed Participants* pursuant to clause 3.15.7B; and

(C) the methodology and assumptions, if any, used by the independent expert in making the determination in clauses 3.12.3(c)(1)(ii) and 3.12.3(c)(1)(iii);

(ii) notify individual assessments by delivery to each *Referred Affected Participant* and *Referred Market Customer* and to *AEMO* of a draft assessment detailing the amount payable or receivable by that party, as the case may be, pursuant to clause 3.12.2(a); and

(iii) deliver to each *Referred Directed Participant* and to *AEMO* a draft assessment detailing the calculation of the amount of compensation receivable by that party pursuant to 3.15.7B.

(2) The independent expert must call for submissions from all relevant *Referred Affected Participant*s, *Referred Market Customer*s and *Referred Directed Participant*s after *publishing* the draft report and delivering the draft assessment under clause 3.12.3(c)(1).

(3) Before the *publication* of the final report and delivery of the final assessment pursuant to clause 3.12.3(c)(4), the independent expert must:

(i) if requested to do so by a *Referred Affected Participant*, *Referred Market Customer* or *Referred Directed Participant*, within 15 *business days* of the *publication* of the draft report and draft

assessment, meet with *representatives* of the *Referred Affected Participant*, *Referred Market Customer*, or *Directed Participant* to discuss any queries it has in relation to the draft report or draft assessment as appropriate; and

(ii) take into consideration, any further written submissions made by a *Referred Affected Participant*, *Referred Market Customer* or *Referred Directed Participant* in relation to the draft report or draft assessment, as the case may be, if the independent expert receives those submissions within 15 *business days* of the *publication* of the draft report and draft assessment.

(4) The independent expert must in accordance with the *intervention settlement timetable*:

(i) prepare and *publish* a final report;

(ii) prepare and deliver his or her final assessment of the amounts payable or receivable by the relevant party pursuant to clause 3.12.2(a) or 3.15.7B, as the case may be; and

(iii) deliver to *AEMO* a final tax invoice for the services rendered by the independent expert and a copy of all final assessments issued pursuant to clause 3.12.3(c)(ii).

(5) A report prepared under clauses 3.12.3(c)(1)(i) and 3.12.3(c)(4)(i) must not disclose *confidential information*.

(6) If the independent expert requires further information than that contained in a written submission made by the *Referred Affected Participant*, *Referred Market Customer* or *Referred Directed Participant* under clause 3.12.2(f) or 3.15.7B(a), the independent expert may advise the relevant party in writing of the information required.

(7) If the relevant party has not provided that information to the independent expert within 10 *business days* of the date of the request for further information, then the independent expert, acting reasonably, is entitled to make such assumptions concerning that information as he or she thinks appropriate.

(8) The independent expert must enter into, and deliver, a confidentiality deed for the benefit of each *Referred Affected Participant*, *Referred Market Customer* and *Referred Directed Participant* in a form developed by *AEMO* pursuant to clause 3.12.3(e).

(d) A final report and a final assessment of an independent expert prepared in accordance with clause 3.12.3(c)(4) is final and binding.

(e) *AEMO* must in accordance with the *Rules consultation procedures* prepare and *publish* a confidentiality deed for the purposes of this clause 3.12.3.

3.12A Mandatory restrictions

3.12A.1 Restriction offers

(a) *AEMO* must develop, and may vary from time to time, in accordance with the *Rules consultation procedures* a *mandatory restrictions* trading system. The trading system must include:

(1) procedures for the acquisition by *AEMO* of capacity the subject of *restriction offers*;

(2) the standard terms and conditions upon which *AEMO* shall accept a *restriction offer*;

(3) the criteria to be applied by *AEMO* in the appointment of an appropriately qualified independent expert for the purposes of clause 3.12A.7(g)(ii); and

(4) procedures for the rebidding and *dispatch* of capacity the subject of an *accepted restriction offer*.

(b) The *restriction offer procedures* must take into account the following principles:

(1) *AEMO* may accept a *restriction offer* for all or part of the capacity of a *scheduled generating unit* or *scheduled network service*, as recorded in the *bid and offer validation data*~~*registered bid and offer data*~~ for that *scheduled generating unit* or *scheduled network service*.

(2) *AEMO* must use its reasonable endeavours to acquire capacity from valid *restriction offers* or to terminate in whole or part an *accepted restriction offer* in a manner that minimises the estimated *restriction shortfall amount*.

(3) *AEMO* may at any time terminate an *accepted restriction offer* in whole or in part by providing 4 hours notice to the relevant *Scheduled Generator* or *Scheduled Network Service Provider* that an *accepted restriction offer* is so terminated.

(4) The submission of *restriction offers* must be made in the form and by the means set out in procedures developed and *published* by *AEMO* for the purpose of the submission of *restriction offers*.

(5) If a *restriction offer* is made in accordance with the *restriction offer procedures*, *AEMO* must make available to the parties who submitted the *restriction offer* the following information without delay:

(i) acknowledgment of receipt of a valid *restriction offe*r; and

(ii) notification detailing why a *restriction offer* is invalid, if appropriate.

(6) If any details contained within a *restriction offer* are inconsistent with the *bid and offer validation data*~~*registered bid and offer data*~~ provided by the relevant party then *AEMO* has the right to reject that *restriction offer* as invalid.

(7) A valid *restriction offer* must set out for each *trading interval* of a *trading day*:

(i) the price offered in $/MWh or as otherwise permitted by the *restriction offer procedures;* and

(ii) MW amount for that *trading interval* being offered.

(8) *AEMO* must only accept *restriction offers* from *Scheduled Generators* and *Scheduled Network Service Providers* with a *connection point* located in the *region* in which *mandatory restrictions* apply or are proposed to apply.

(c) The standard terms and conditions developed by *AEMO* pursuant to clause 3.12A.1(a)(2) must take into account the following principles:

(1) All capacity the subject of the *restriction offer* must be available for immediate *dispatch* in the *central dispatch* process at all times.

(2) An *accepted restriction offer* is binding and may only be revoked or varied if the *Scheduled Generator* or *Scheduled Network Service Provider* notifies *AEMO* in accordance with the *restriction offer procedures* of a revocation or variation. Immediately upon receipt of such notification *AEMO* must amend the *accepted restriction offer* to reduce the capacity of the *accepted restriction offer* by the notified capacity. Such capacity must not be *dispatched* by *AEMO* pursuant to a *dispatch offer* for such capacity during the remainder of the *trading day* in which the *accepted restriction offer* was revoked or varied in accordance with this clause 3.12.A.1(c) provided that such capacity may be re-offered as a *restriction offer.*

(3) A *restriction offer* may be amended or revoked in accordance with the *restriction offer procedures* at any time prior to it becoming an *accepted restriction offer.*

3.12A.2 Mandatory restrictions schedule

(a) *AEMO* must, within 4 hours of receipt of a formal written notice from a *Jurisdictional Co-ordinator* advising that the relevant *participating jurisdiction* proposes to invoke *mandatory restrictions*:

(1) in consultation with such *participating jurisdiction*, and in accordance with any procedures developed with that *participating jurisdiction*, estimate the effect in MW of the *mandatory restrictions* on the *region's* demand for each *trading interval* of the next *trading day* of the proposed *mandatory restriction period*; and

(2) prepare and deliver to the *Jurisdictional Co-ordinator* a schedule of capacity for each *trading interval* of the next *trading day* of the proposed *mandatory restriction period* which is approximately equal to the estimated reduction in *regional* demand due to the *mandatory restrictions* net of all *scheduled loads* in that *region*.

(b) *AEMO* must regularly in conjunction with the relevant *Jurisdictional Co-ordinator* review the current *mandatory restriction schedule* and when appropriate prepare and deliver to the *Jurisdictional Co-ordinator* a revised schedule of capacity for each *trading interval* of that *trading day* which is approximately equal to the revised estimated reduction in *regional* demand due to the *mandatory restrictions* net of all s*cheduled loads* in that *region*.

(c) *AEMO* may only *publish* a *mandatory restriction schedule* and an amended *mandatory restriction schedule* upon receipt of a formal written notice approving the *mandatory restriction schedule* from the relevant *Jurisdictional Co-ordinator.*

3.12A.3 Acquisition of capacity

(a) *AEMO* must immediately upon *publication* of a *mandatory restriction schedule* or an amended *mandatory restriction schedule* use its reasonable endeavours to acquire, in accordance with the *restriction offer procedures*, capacity to meet the *mandatory restriction schedule* or amended *mandatory restriction schedule* as the case may be.

(b) *AEMO* must terminate in accordance with the *restriction offer procedures* such number of *accepted restriction offers*, in whole or in part, so that the total capacity of existing *accepted restriction offers* as far as practicable equals the amended *mandatory restriction schedule.*

3.12A.4 Rebid of capacity under restriction offers

In each *dispatch interval* when *mandatory restrictions* apply, each *scheduled generating unit* or *scheduled network service* the subject of an *accepted restriction offer* with respect to that *dispatch interval* must rebid the total capacity the subject of such *restriction offer* by varying the respective *dispatch offers* or *network dispatch offers* in accordance with the procedures developed pursuant to clause 3.12A.1(a)(4).

3.12A.5 Dispatch of restriction offers

(a) In a *dispatch interval AEMO* may only *dispatch* the capacity of a *scheduled generating unit* or *scheduled network service* in accordance with the procedures for the *rebidding* and *dispatch* of capacity the subject of an *accepted restriction offer* developed by *AEMO* in consultation with *Registered Participants*. Such procedures must as far as reasonably practical incorporate the following principles:

(i) *dispatch* of *accepted restriction offers* only after all the capacity of *scheduled load*s, *scheduled generating units* and *scheduled network*

services contained in valid *dispatch offers* and *dispatch bids* have been *dispatched*;

(ii) recognise any requirement for advance notice or action for generators to operate at minimum generation, provide advance notice to *loads* or obtain capacity of *market network services* that are or may become the subject of a *AEMO intervention event*;

(iii) be consistent with the price of *accepted restriction offers* in accordance with clause 3.12A.6; and

(iv) minimise the *restriction shortfall amount*.

(b) Notwithstanding the provisions of this clause 3.12A.5, at no time is *AEMO* required to *dispatch* the capacity of a *Scheduled Generator* or *Scheduled Network Service Provider* the subject of an *accepted restriction offer* if such *dispatch* would prevent *AEMO* from meeting its obligations for system security.

3.12A.6 Pricing during a restriction price trading interval

During a *mandatory restriction period*, *dispatch prices* must be determined by the *central dispatch* process based on *dispatch offe*rs, *dispatch bid*s and *network dispatch offers* in accordance with clause 3.9.2, provided that *AEMO* must calculate the *dispatch price* as if the *dispatch offer price* for all capacity the subject of an *accepted restriction offer* was the maximum price permitted by clause 3.8.6(c) and 3.8.6A(i) notwithstanding any other provision of the *Rules*.

3.12A.7 Determination of funding restriction shortfalls

(a) *AEMO* is entitled to the *trading amount* received by *Scheduled Generators* and *Scheduled Network Service Providers* from the *dispatch* of capacity the subject of an *accepted restriction offer* in accordance with 3.15.10B.

(b) *AEMO* must, as soon as reasonably practicable following the end of a *mandatory restriction period*, calculate:

(i) the aggregate amount payable to *AEMO* pursuant to clause 3.12A.7(a) from all *accepted restriction offers* in that *mandatory restriction period*;

(ii) the aggregate amount payable by *AEMO* pursuant to all *accepted restriction offers* in that *mandatory restriction period*; and

(iii) the sum of the amount determined under clause 3.12A.7(b)(i) less the amount determined under clause 3.12A.7(b)(ii) (the *'restriction shortfall amount'*).

(b1) The maximum amount payable to a *Scheduled Generator* or *Market Participant* for any *accepted restriction offer* of that *Scheduled Generator* or *Market Participant* during a *mandatory restriction period* is the aggregate of the maximum possible *spot price* for each *trading interval* within the *mandatory restriction period*, being the *market price cap* or an *administered*

price cap as the case may be, multiplied by the capacity of the *accepted restriction offer* in MWh for each corresponding *trading interval.*

(c) Notwithstanding any other provisions of the *Rules*, the absolute value of the *restriction shortfall amount* must not exceed the sum of the maximum possible *spot price* for a *trading interval*, being the *market price cap* or an *administered price cap* as the case may be, multiplied by the aggregate of the capacity of all *accepted restriction offers* in MWh for that *trading interval* for all *trading intervals* in the *mandatory restriction period.*

(d) Notwithstanding any other provision of the *Rules*, if the *restriction shortfall amount* is capped pursuant to clause 3.12A.7(c) and the *restriction shortfall amount* calculated pursuant to clause 3.12A.7 is a negative number, then the amount payable by *AEMO* pursuant to each *accepted restriction offer* is to be reduced pro-rata until clause 3.12A.7(c) is satisfied.

(e) If the *restriction shortfall amount* is a negative number, *Market Customers* in the relevant *region* must pay to *AEMO* an amount determined in accordance with clause 3.12A.7(f) or 3.12A.7(g).

(f) If the *restriction shortfall amount* is between minus $100,000 and $0, then each *Market Customer* in the relevant *region* must pay to *AEMO* an amount determined in accordance with the following formula:

$$MCP = RSA \quad \text{x} \quad \frac{(AGE)}{(AAGE)}$$

Where:

MCP is the amount payable by a *Market Customer* in accordance with this clause 3.12A.7(f).

RSA is the *restriction shortfall amount*.

AGE is the *adjusted gross energy* of a *Market Customer* in that *region* for the *mandatory restriction period* expressed in MWh.

AAGE is the aggregate of the *adjusted gross energy* of all *Market Customers* in that *region* for the *mandatory restriction period* expressed in MWh.

(g) If the *restriction shortfall amount* is less than minus $100,000:

(i) each *Market Customer* in the relevant *region* must pay to *AEMO* an amount determined in accordance with the following formula:

RCP = (RSA + IE) x (RD/TRD)

Where

RCP is the amount payable to *AEMO* by a *Market Customer* in that *region* following the cessation of the *mandatory restriction period*.

RSA is the *restriction shortfall amount* incurred by *AEMO* upon the cessation of the *mandatory electricity restriction period*.

RD is the *Market Customer's restriction demand reduction*.

TRD is the sum of RD for all *Market Customers* in the relevant *region*.

IE is the amount of the independent expert's final tax invoice delivered to *AEMO* in accordance with clause 3.12A.7(i)(11) plus any amounts payable by *AEMO* on behalf of the independent expert as determined by the *dispute resolution panel* established in accordance with clause 3.12A.7(m); and

(ii) *AEMO* must within 10 days of the end of a *mandatory restriction period* appoint an appropriately qualified independent expert as *AEMO's* agent to determine the *restriction demand reduction* claimed by each *Market Customer* in a *region* for the purposes of clause 3.12A.7(g).

(h) If the *restriction shortfall amount* is a positive number then *AEMO* must pay to *Market Customers* in the relevant *region* an amount equal to:

$$RCRP = RSA \times \frac{(AGE)}{(AAGE)}$$

Where:

RCRP is the payment to be made by *AEMO* to *Market Customers* pursuant to this clause 3.12A.7.

RSA is the *restriction shortfall amount*.

AGE is the *adjusted gross energy* of a *Market Customer* in that *region* for the *mandatory restriction period* expressed in MWh.

AAGE is the aggregate of the *adjusted gross energy* of all *Market Customers* in that *region* for the *mandatory restriction period* expressed in MWh.

(i) When appointing the independent expert under clause 3.12A.7(g), *AEMO* must include as part of the independent expert's terms of appointment the following requirements:

(1) The independent expert must prepare a statement of the principles which the independent expert believes should be followed in determining the *restriction demand reduction* of *Market Customer*s.

(2) Within 5 *business days* of his or her appointment, the independent expert must provide *AEMO* with details of his or her estimated fees and costs.

(3) Within 5 *business days* of his or her appointment, the independent expert must provide the statement prepared under clause 3.12A.7(i)(1) to all *Market Customers* in the relevant *region* and request that each *Market Customer* in the relevant *region* provide him or her with details of the *restriction demand reduction* claimed by that *Market Customer* and such additional information specified by the independent expert to fulfil its obligations.

(4) The independent expert must offer to meet with and consult each *Market Customer* who may be liable to make a payment to *AEMO* pursuant to clause 13.12A.7(g).

(5) The independent expert must within 30 *business days* of his or her appointment or such later date as approved by *AEMO* in its sole discretion:

(i) *publish* a draft report; and

(ii) provide each *Market Customer* in the relevant *region* with a draft statement.

(6) The draft report must contain:

(i) the *restriction shortfall amount* based upon the independent expert's estimated fees and costs; and

(ii) the methodology used by the independent expert in determining the *restriction demand reduction* of each *Market Customer* in a *region.*

The draft report must not contain details pertaining to individual *Market Customers.*

(7) A draft statement provided to a *Market Customer* must contain:

(i) the *Market Customer's restriction demand reduction* as determined by the independent expert;

(ii) the estimated amount payable by that *Market Customer* under clause 3.12A.7(g), based upon the independent experts estimated fees and costs; and

(iii) information showing how the estimated amount referred to in clause 3.12A.7(i)(7)(ii) was calculated.

(8) The independent expert must within 50 *business days* of his or her appointment or such later date as approved by *AEMO* in its sole discretion make any necessary amendments to his or her draft report and draft statements following consultation with *Market Customer*s, and:

(i) *publish* his or her final report; and

(ii) provide each *Market Customer* in the relevant *region* with a final statement.

(9) The independent expert's final report must contain the information set out in clause 3.12A.7(i)(6).

(10) A final statement provided to a *Market Customer* by the independent expert must contain the information set out in clause 3.12A.7(i)(7).

(11) The independent expert must provide *AEMO* with his or her final tax invoice for services rendered at the time of publication of the final report.

(i1) Each *Market Customer* must within 10 *business days* of the independent expert requesting information in accordance with clause 3.12A.7(i)(3) deliver to the independent expert all such information.

(i2) The independent expert may request a *Market Customer* to provide further information that he or she requires to prepare either the draft or final report or a draft or final statement within 5 *business days* of the request being made.

(j) A *Market Customer* must not unreasonably withhold information sought by the independent expert and must use its reasonable endeavours to provide the independent expert with the information required within the relevant timeframe specified in this clause 3.12A.7.

(k) If a *Market Customer* has not provided the independent expert with information required under this clause 3.12A.7 within the specified time period, then the independent expert is entitled to make such assumptions concerning that information as he or she thinks appropriate.

(l) Subject to the review process specified in clause 3.12A.7(m), a determination made by an independent expert appointed under clause 3.12A.7(g) binds all *Market Customer*s.

(m) Following the publication of the independent expert's final report, a *Market Customer* may request the *Adviser* to establish a *dispute resolution panel* to redetermine that *Market Customer's restriction demand reduction* only if the *Market Customer* reasonably believes that the independent expert's determination:

(1) has incorrectly assessed the *restriction demand reduction* of that Market Customer by more than 10%; or

(2) was made negligently or in bad faith.

(n) The determination of a *dispute resolution panel* established under clause 3.12A.7(m):

(1) binds all *Market Customers* and each *Market Customer* must comply with a determination of the *dispute resolution panel*; and

(2) may only order reimbursement of the reasonable fees and expenses incurred by a *Market Customer* in disputing the independent expert's determination and no other amounts.

(o) Any amounts determined by the *dispute resolution panel* as payable by *AEMO* on behalf of the independent expert for the reasonable fees and expenses incurred by a *Market Customer* in disputing the independent expert's determination must be included on the next statement provided under clauses 3.15.14 and 3.15.15.

3.12A.8 Cancellation of a mandatory restriction period

(a) At the cessation time designated in the *mandatory restriction schedul*e, *AEMO* must:

(1) immediately terminate all current *restriction offers*; and

(2) *publish* a notice detailing the termination of all current *restriction offers* following the cancellation of the relevant *mandatory restriction perio*d.

3.12A.9 Review by AEMC

(a) The *AEMC* must, in accordance with clause 3.12A.9(b), conduct a review of the operation of the provisions applicable to *mandatory restrictions* including:

(1) the integration of *restriction offers* and *mandatory restrictions* into the *market*; and

(2) any other matters which the *AEMC* reasonably believes are relevant to the operation of clauses 3.12A.1 to 3.12A.8 and clause 3.15.10B.

(b) The review conducted by the *AEMC* in accordance with clause 3.12A.9(a) must:

(1) include an analysis of:

(i) the accuracy of the forecast demand reduction due to restrictions and the impact any error had on the resulting *spot price*;

(ii) whether the impact on the *spot price* resulting from an error in the forecast demand reduction due to restrictions adversely affects one group of *Scheduled Generators* or *Market Participants* over another group;

(iii) the *restriction offer* prices for contracts accepted by *AEMO* in meeting the *mandatory restriction schedule* including a comparison with the expected revenue the capacity subject to the *restriction offer* would have earned in the *spot market* taking into account the circumstances in which *restriction offers* were made;

(2) be conducted in accordance with the *Rules consultation procedures*; and

(3) commence following the first application of the *mandatory restrictions* where the estimated effect in MW of *mandatory restrictions* on a *region's* demand met or exceeded 10% of that *region's* estimated demand for the same period.

3.13 Market Information

3.13.1 Provision of information

(a) In addition to any specific obligation or power of *AEMO* under the *Rules* to provide information, *AEMO* must make available to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* on request any information concerning the operation of the *market* not defined by the *AEMC* or the *Rules* as confidential or commercially sensitive and may charge a fee reflecting the cost of providing any information under this clause 3.13.1(a).

(b) *AEMO* must make information available to the public on request in respect of the *regional reference price* at any *regional reference node* and, where requested and available, reasons for any significant movements in prices.

3.13.2 Systems and procedures

(a) Information must be provided to *AEMO* and by *AEMO* on the *electronic communication system* unless:

(1) the *electronic communication system* is partially or wholly unavailable, then information will, to the extent of that unavailability, be provided to *AEMO* and by *AEMO* by means of the backup procedures specified by *AEMO* from time to time; or

(2) otherwise approved by *AEMO*.

(b) Information must be provided by using the templates supplied in the *electronic communication system* unless otherwise approved by *AEMO*.

(c) Where approved by *AEMO*, information may be transmitted to and from *AEMO* and the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* concerned in any agreed format.

(d) If possible, information provided to *AEMO* must be *time stamped* by *AEMO* on receipt by *AEMO* of the information by the *electronic communication system* and, if stamped, is deemed to be provided at the time indicated by the *time stamp*.

(e) Information that is *published* by *AEMO* is deemed to be *published* when the information is placed on the *market information bulletin board*.

(f) The *market information bulletin board* must be accessible by *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* via the *electronic communication system* subject to applicable security requirements.

(g) Information *published* or notified to a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must be capable of being reviewed by that *Generator* or *Market Participant* and be capable of being downloaded from the *market information bulletin board* to the relevant *Generator* or *Market Participant* via the *electronic communication system*.

(h) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must notify *AEMO* of, and *AEMO* must *publish*, any *changes* to submitted information within the times prescribed in the *timetable*.

(i) *AEMO* must make a copy of all *changes* to the data available to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* for verification and resubmission by the relevant *Generator* or *Market Participant* as necessary.

(j) All revisions must be provided on the *electronic communication system* and in the same format as the original information.

(k) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* may withhold information from *AEMO* which must otherwise be provided under the *Rules* if:

(1) the information is of a confidential or commercially-sensitive nature and is not information of a kind that, in the reasonable opinion of the *AEMC*, is fundamental to the efficient operation of the *market*; or

(2) disclosure of the information would have the likely effect of causing detriment to the person required to provide it unless, in the reasonable opinion of the *AEMC*, the public benefit resulting from the provision of the information outweighs that detriment.

(l) Nothing in paragraph (k) allows a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to avoid providing information to *AEMO* under the *Rules* where that information is generally available.

3.13.3 Standing data

(a) *AEMO* must establish, maintain, update and *publish*:

(1) a list of all of the *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* and a list of all applications to become a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant*, including *bid and offer validation data*~~the *Scheduled Generator*, *Semi-Scheduled Generator* and *Market Participant* information as set out in schedule 3.1~~;

(2) a list of all of the *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* who will cease to be *Scheduled Generators*, *Semi-Scheduled Generators* or *Market Participants* and the time that each listed *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* will cease to be a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant*;

(3) a list of all of the *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* who are or are going to be suspended and the time at which each listed *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* was suspended or will be suspended.

(b) All *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* must provide *AEMO* with the *bid and offer validation data*~~*registered bid and offer data*~~ relevant to their *scheduled loads*, *scheduled network services* and *generating units* in accordance with schedule 3.1.

(c) All *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* will be required to provide *AEMO* with information as set out below:

(1) forecasts for *connection points* as prescribed in clause 5.6.1; and

(2) *metering* information for *settlements* purposes as prescribed in Chapter 7.

(d) *Network Service Providers* are to maintain a register of data provided by *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* for planning and design purposes in accordance with schedule 5.7 of Chapter 5 and are to provide a copy of this register of data to *AEMO* on request and in a form specified by *AEMO*.

(e) *Network Service Providers* must, without delay, notify and provide *AEMO* with details of any additions or *changes* to the register of data described in clause 3.13.3(d).

(f) Each year, by a date to be specified by *AEMO*, *Network Service Providers* must provide *AEMO* with the following information:

(1) expected *network capability* under normal, *outage* and emergency conditions;

(2) electrical data sufficient to allow *power system* modelling under steady state and dynamic conditions, this data to be made available in hard copy and an acceptable industry standard electronic format approved by *AEMO*; and

(3) operating procedures and practices for *network* operation and maintenance.

(g) *Network Service Providers* must notify *AEMO* of any *changes* to the information provided under clause 3.13.3(f) as soon as practicable.

(h) *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* must notify *AEMO* of any *changes* to *bid and offer validation data*~~*registered bid and offer data*~~ 6 weeks~~one month~~ prior to the implementation of planned *changes* and without unreasonable delay in the event of unplanned *changes*.

(i) *Network Service Providers* must notify *AEMO* of any *changes* or additions to technical data one month prior to the implementation of planned *changes* and without unreasonable delay in the event of unplanned *changes*.

(j) *AEMO* must conduct an annual review of *Scheduled Generator*, *Semi-Scheduled Generator* and *Market Participant* *bid and offer validation data*~~*registered bid and offer data*~~ in consultation with *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* and *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* must advise *AEMO* of any required *changes* to the data.

(k) A *Registered Participant* may request from *AEMO*:

(1) *bid and offer validation data*~~*registered bid and offer data*~~;

(2) information that is reasonably required by the *Registered Participant* to carry out *power system* studies (including load flow and dynamic simulations) for planning and operational purposes; and

(3) operation and maintenance procedures and practices for *transmission network* or *distribution network* operation, developed for the purposes of schedule 5.1 sufficient to enable the *Registered Participant* to carry out *power system* modelling under normal, *outage* and emergency conditions.

(l) If *AEMO* holds information requested under clause 3.13.3(k), *AEMO* must provide the requested information to the *Registered Participant* as soon as practicable, subject to the following requirements:

(1) If *AEMO* holds and is required under this paragraph (l) to provide a *releasable user guide* that *AEMO* received under clause S5.2.4(b)(8), *AEMO* must provide the *releasable user guide* to the *Registered Participant* in an unaltered form.

(2) If *AEMO* holds and is required under this paragraph (l) to provide a form of the model source code that *AEMO* received under clauses S5.2.4(b)(6) and S5.2.4(d) or from any other source, *AEMO* must provide that information:

(i) only in the form of, at *AEMO's* discretion:

(A) compiled information (such as, for example, compiled Fortran code in object code or dynamic link library (DLL) form);

(B) encrypted information; or

(C) a secured format agreed by the provider of the model source code,

unless *AEMO* has the written consent of the person who provided the information to *AEMO* to provide it in another form; and

(ii) in a form that can be interpreted by a software simulation product nominated by *AEMO*.

(3) Any information provided by *AEMO* under clause 3.13.3(l) to a *Registered Participant* must be treated as *confidential information*.

(l1) *AEMO* may charge a fee, except where the information is requested by a *Network Service Provider* under clause 3.13.3(l5), to recover all reasonable costs incurred in providing information to a *Registered Participant* under this clause 3.13.3.

(l2) For the purposes of clause 3.13.3(l), the provider of the model source code is:

(1) the *Generator* if the model source code was received from that *Generator* under clause S5.2.4(b)(6) or S5.2.4(d); or

(2) the person required under the *Rules* to register as a *Generator* in respect of a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more, if the model source code was received from that person under clause S5.2.4(b)(6) or S5.2.4(d); or

(3) the *Generator*, if the model source code was provided to *AEMO* by a *Network Service Provider* and that same *Network Service Provider* advises *AEMO* that the provider of the model source code is the *Generator*; or

(4) the relevant *Network Service Provider*, if that same *Network Service Provider* advises *AEMO* that the provider of the model source code is itself; or

(5) otherwise, the relevant Transmission Network Service Provider.

(l3) If *AEMO* is required under clause 3.13.3(l) to provide information requested under clause 3.13.3(k)(2), *AEMO* may provide:

(1) historical information relating to the operating conditions of the *power system*;

(2) information and data provided to *AEMO* under clauses 3.13.3(f)(1) and 3.13.3(f)(3) and information of the same type provided under clause 3.13.3(g);

(3) *network* dynamic model parameter values obtained under clauses 3.13.3(f)(2) and 3.13.3(g);

(4) model parameter values and load flow data derived from a *releasable user guide*;

(5) a *network* model of the *national grid*, suitable for load flow and fault studies; and

(6) other technical data as listed in Schedules 5.5.3 and 5.5.4.

(l4) Despite clause 3.13.3(l), *AEMO* must not provide information relating to *plant* that is the subject of an *application to connect* or a *connection agreement*, until the later of:

(1) the date when the relevant *connection agreement* is executed; and

(2) three months before the proposed start of commissioning of that *plant*.

(l5) Subject to clause 3.13.3(l6), if a *Transmission Network Service Provider* is responsible for provision of *network* limit advice relating to *power system* stability limits to *AEMO* under clause S5.1.2.3, *AEMO* must, on request from that *Transmission Network Service Provider*, provide all *power system* and *generating system* model information that is reasonably required for planning and operational purposes, if *AEMO* holds that information, including:

(1) functional block diagram information, including information provided to *AEMO* under clause S5.2.4(b)(5);

(2) *generating unit*, *generating system* and *power system* static and dynamic model information, including model parameters and parameter values; and

(3) information provided to *AEMO* in accordance with clause S5.2.4(a).

(l6) If *AEMO* is required to provide information to a *Transmission Network Service Provider* under paragraph (l5), this must not include:

(1) model source code provided to *AEMO* under clauses S5.2.4(b)(6) and S5.2.4(d), except as allowed under clause 3.13.3(l); and

(2) information relating to *plant* that is the subject of an *application to connect* until after the execution of the relevant *connection agreement*.

(l7) Any information provided by *AEMO* under clause 3.13.3(l5) to a *Transmission Network Service Provider* must be treated as *confidential information*.

(m) Where special approvals or exemptions have been granted by *AEMO*, including approval to aggregate *generating units*, *market network services*, *loads* for *central dispatch*, or exemptions from *central dispatch*, details of such special arrangements must be *published* by *AEMO*.

(n) *AEMO* must determine and *publish intra-regional loss factors* in accordance with clause 3.6.2 by 1 April each year and whenever changes occur.

(o) *Network Service Providers* must advise *AEMO* of their *distribution loss factors*, duly authorised by the *AER*, and *AEMO* must *publish* such *distribution loss factors* in accordance with clause 3.6.3(i).

(p) *AEMO* must *publish* on a quarterly basis details of:

(1) *interconnector* transfer capability; and

(2) the discrepancy between *interconnector* transfer capability and the capacity of the relevant *interconnector* in the absence of *outages* on the relevant *interconnector* only,

for each day of the preceding quarter for all *interconnectors*.

(p1) *AEMO* must establish, maintain and *publish* a register which identifies:

(1) the *Registered Participant* to whom any information is provided under clause 3.13.3(l); and

(2) the date on which such information was provided.

Statement of opportunities

(q) By 31 August in each year, *AEMO* must prepare and *publish* at a reasonable charge to cover the cost of production, a *statement of opportunities*, including at least the following information for the subsequent 10 year period:

(1) projections of aggregate MW demand and *energy* requirements for each *region*;

(2) generating capabilities of existing *generating units* and *generating units* for which formal commitments have been made for construction or installation;

(3) planned *plant* retirements;

(4) a summary of *network capabilities* and *constraints* based upon *Annual Planning Reports*; and

(5) operational and economic information about the *market* to assist planning by:

(i) *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants*; and

(ii) potential *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants*.

(r) If after the publication of the most recent *statement of opportunities*, significant new information becomes available to *AEMO* relating to:

(1) projections of aggregate MW demand and *energy* requirements for each *region*; or

(2) generating capabilities of existing *generating units* and *generating units* for which formal commitments have been made for construction or installation; or

(3) planned *plant* retirements,

AEMO must, as soon as practicable, *publish* that information in a descriptive form that is consistent with the *statement of opportunities*.

(s) *AEMO* may by written notice request a *jurisdictional planning body* to provide *AEMO* with information that *AEMO* requires for the preparation of a *statement of opportunities* and the *jurisdictional planning body* must comply with that notice.

(t) As soon as practicable after a *Scheduled Generator,Semi-Scheduled Generator Market Participant* or *Network Service Provider* becomes aware of any information required for *publication* by *AEMO* under paragraph (q), that information must be provided to *AEMO* by that *Scheduled Generator, Market Participant* or *Network Service Provider*.

(u) By 1 November each year, *AEMO* must prepare and provide a report to the *Reliability Panel* on:

(1) the accuracy of the demand forecasts to date in the most recent *statement of opportunities*; and

(2) any improvements made by *AEMO* or other relevant parties to the forecasting process that will apply to the next *statement of opportunities*.

(v) The *Reliability Panel* must *publish* each report provided to it under paragraph (u) within ten *business days* after being provided with that report.

(w) In relation to the *declared transmission system* of an *adoptive jurisdiction*:

(1) *AEMO* must maintain the register referred to in paragraph (d); and

(2) a *declared transmission system operator* must provide *AEMO* with information reasonably required by *AEMO* for maintaining the register and keeping it up to date.

(x) A *jurisdictional planning body* must provide assistance *AEMO* reasonably requests in connection with the preparation of a report under paragraph (u).

3.13.4 Spot market

(a) Each week, in accordance with the *timetable*, *AEMO* must *publish* details of the outcome of the *medium term PASA*.

(b) The details to be *published* by *AEMO* under clause 3.13.4(a) must include the information specified in clause 3.7.2(f).

(c) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* details of the outcome of the *short term PASA* for each *trading interval* covered.

(d) The details of the *short term PASA published* each *day* by *AEMO* under clause 3.13.4(c) must include the information specified in clause 3.7.3(h).

(e) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* a half hourly *pre-dispatch schedule* for the period described in clause 3.8.20(a).

(f) Details of the *pre-dispatch schedule* to be *published* must include the following for each *trading interval* in the period covered:

(1) forecasts of the most probable peak *power system load* plus required *scheduled reserve* for each *region* and for the total *power system*;

(2) forecasts of the most probable *energy* consumption for each *region* and for the total *power system*;

(3) forecast *inter-regional loss factors*;

(4) aggregate *generating plant* availability for each *region* and aggregate availability of each type of *market ancillary service* for each *region*;

(5) projected *supply* surpluses and deficits for each *region*, including shortages of *scheduled reserve* and projected *market ancillary service* surpluses and deficits for each *region*;

(5A) the aggregated MW allowance (if any) made by *AEMO* for generation from *non-scheduled generating systems* in each forecast:

(i) of the most probable peak *power system load* referred to in clause 3.13.4(f)(1);

(ii) referred to in clause 3.13.4(f)(2);

(iii) of aggregate *generating plant* availability referred to in clause 3.13.4(f)(4); and

(iv) of projected *supply* surpluses and deficits referred to in clause 3.13.4(f)(5) but not including shortages of *scheduled reserve* or projected *market ancillary service* surpluses and deficits for each *region*.

(5B) in respect of each forecast:

(i) of the most probable peak *power system load* referred to in clause 3.13.4(f)(1);

(ii) referred to in clause 3.13.4(f)(2);

(iii) of aggregate *generating plant* availability referred to in clause 3.13.4(f)(4); and

(iv) of projected *supply* surpluses and deficits referred to in clause 3.13.4(f)(5) but not including shortages of *scheduled reserve* or projected *market ancillary service* surpluses and deficits for each *region*,

a value that is the sum of that forecast and the relevant aggregated MW allowance (if any) referred to in clause 3.13.4(f)(5A); and

(6) identification and quantification of:

(i) when and where the projected conditions are found to be inadequate;

(ii) any *trading intervals* for which *low reserve* or *lack of reserve* conditions are forecast to apply;

(iii) where a projected *supply* deficit in one *region* can be supplemented by a surplus in a neighbouring *region* (dependent on forecast *interconnector* capacities) and the expected *interconnector flow*;

(iv) forecast *interconnector* transfer capabilities and the projected impact of any *inter-network tests* on those transfer capabilities; and

(v) when and where *network constraints* may become binding on the *dispatch* of *generation* or *load*.

(g) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* forecasts of *spot prices* and *ancillary service prices* at each *regional reference node* for each *trading interval* or *dispatch interval* (as applicable) of the period described in clause 3.8.20(a), with such forecasts being based on the *pre-dispatch schedule* information.

(h) Together with its forecast *spot prices*, *AEMO* must *publish* details of the expected sensitivity of the forecast *spot prices* to changes in the forecast *load* or *generating unit* availability.

(i) In accordance with the *timetable* or more often if there is a *change* in circumstances which in the opinion of *AEMO* results in a significant *change* in forecast *spot price*, or in any event no more than 3 hours after the previous such publication, *AEMO* must prepare and *publish* updated *pre-dispatch schedules* and *spot price forecasts*, including the details specified in clause 3.13.4(f).

(j) If *AEMO* considers there to be a significant change in a forecast *spot price*, *AEMO* must identify and *publish* the cause of such a change in terms of the aggregate *supply* and demand situation and any *network constraints* in or between the affected *region(s)*.

(k) *AEMO* must specify and *publish* its criteria for a significant change in forecast *spot price* for the purposes of activating an update in the *published* forecasts.

(l) Within 5 minutes of each time *AEMO* runs the *dispatch algorithm*, *AEMO* must *publish* the *dispatch price* for each *regional reference node* calculated in accordance with clause 3.9.2 and the *ancillary service price* for each *market ancillary service* for each *regional reference node* calculated in accordance with clause 3.9.2A.

(m) Within 5 minutes of the conclusion of each *trading interval*, *AEMO* must *publish* the *regional reference prices* for each *region* for that *trading interval*.

(n) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* the actual *regional reference prices*, *ancillary service prices*, *regional* and total *interconnected* system *loads* and *energies*, *inter-regional* flows, *inter-regional loss factors* and details of any *network constraints* for each *trading interval* in the previous *trading day*.

(o) **[Deleted]**

(p) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* details of final *dispatch offers*, *dispatch bids* and *market ancillary service offers* received and actual availabilities of *generating units*, *scheduled network services*, *scheduled loads* and *market ancillary services* for the previous *trading day*, including:

(1) the number and times at which *rebids* were made, and the reason provided by the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* for each *rebid* under clause 3.8.22(c)(2);

(2) identification of the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* submitting the *dispatch bid*, *dispatch offer* or *market ancillary offer*;

(3) the *dispatch bid* or *dispatch offer prices*;

(4) quantities for each *trading interval*;

(5) the *ramp rate* of each *generating unit*, *scheduled load* and *scheduled network service* as measured by *AEMO's* telemetry system;

(6) identification of *trading intervals* for which the *plant* was specified as being *inflexible* in accordance with clause 3.8.19 and the reasons provided by the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* in accordance with clause 3.8.19(b)(1);

(7) in respect of a *semi-scheduled generating unit*, the availability of that *generating unit* specified in the relevant *unconstrained intermittent generation forecast* for each *dispatch interval*; and

(8) in respect of *semi-scheduled generating units*, the aggregate of the availability of the *semi-scheduled generating units* referred to in subparagraph (7) in respect of each *region* for each *dispatch interval*.

(q) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* details of:

(1) actual *generation*, *dispatched generation*, *dispatched network service* or *dispatched load* for each *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* and *scheduled load* respectively in each *trading interval* and *dispatch interval*; and

(2) for each *semi-scheduled generating unit* in each *trading interval* and *dispatch interval*, whether or not a condition for setting a *semi-dispatch interval* applied,

for the previous *trading day*.

(r) Each *day*, in accordance with the *timetable*, *AEMO* must publish details of actual *generation* for each *non-scheduled generating unit* or *non-scheduled generating system*, in each *trading interval* for the previous *trading day*.

(s) Where *AEMO publishes* details as referred to in clause 3.13.4(r), the requirement to *publish* applies only to data available to *AEMO*.

(t) *AEMO* may, in *publishing* the details referred to in clause 3.13.4(s), *publish* aggregated information of actual *generation* for *non-scheduled generating units* or *non-scheduled generating systems* that have a *nameplate rating* that is less than 30 MW.

(u) Each time *AEMO* runs the *dispatch algorithm* it must, within 5 minutes, *publish* for the relevant *dispatch interval*:

(1) details of any MW allowance made by *AEMO* for *generation* from *non-scheduled generating systems* in its forecast regional demand;

(2) for each *regional reference node* the sum of the actual *generation* for each *non-scheduled generating unit* or *non-scheduled generating system*; and

(3) for each *regional reference node*, a value that is the sum of the *regional* demand value used by *AEMO* in its *dispatch algorithm* to calculate the *dispatch price* referred to in clause 3.13.4(l) and the sum of the actual *generation* referred to in clause 3.13.4(u)(2).

(v) Where *AEMO publishes* the information referred to in clause 3.13.4(u), the requirement for *AEMO* to *publish* applies only to data available to *AEMO*.

(w) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* details of any operational irregularities arising on the previous *trading day* including, for example, any circumstances in which there was prima facie evidence of a failure to follow *dispatch instructions*.

(x) Each *trading interval*, *AEMO* must, for each *regional reference node*, *publish* the demand for that *trading interval*, both inclusive and exclusive of the aggregate actual *generation* from *non-scheduled generating systems*.

(y) In accordance with the *timetable* and no more than 3 hours after the last such notification, *AEMO* must notify electronically on a confidential basis each *Semi-Scheduled Generator* of the *unconstrained intermittent generation forecast* for its *semi-scheduled generating units* that was taken into account for each *trading interval* of the last *pre-dispatch schedule published* by *AEMO* under paragraph (e).

(z) At intervals to be determined by *AEMO* under rule 3.7A(e), *AEMO* must, in accordance with the *timetable*, *publish* updates to the *congestion information resource.*

3.13.4A Market ancillary services

(a) *AEMO* must each *day*, in accordance with the *timetable*, *publish* a forecast of the requirements for each type of *market ancillary service* for each *region* for each *trading interval* during the period described in clause 3.8.20(a).

(b) *AEMO* must *publish* information describing the key factors which determine the requirement for each type of *market ancillary service* and how they impact on forecast requirements.

(c) *AEMO* must *publish* information detailing any significant changes to the forecast requirement for any *market ancillary service* previously *published* under clause 3.13.4A(a), as soon as reasonably practicable after becoming aware of that information.

3.13.5 Ancillary services contracting by AEMO

(a) *AEMO* must *publish* annually the costs of all of its operations associated with the acquisition of *market ancillary services* and *non-market ancillary services.*

(b) *AEMO* must *publish* annually the quantities and categories of *non-market ancillary services* covered under existing *ancillary services agreements* and the additional quantities of *non-market ancillary services* for which *AEMO* expects to enter into *ancillary services agreements* within the ensuing 12 months.

(c) Information published under clauses 3.13.5(a) or (b) must include:

(1) the costs and quantities associated with each category of *ancillary service* purchased or to be purchased; and

(2) where possible, the *regions* in respect of which costs were or are expected to be incurred and *ancillary services* were or are expected to be provided.

3.13.5A Settlement residue auctions

(a) If *AEMO* conducts an *auction* under rule 3.18, *AEMO* must, as soon as practicable thereafter, make available to all *Registered Participants* a report outlining:

(1) the *auction* clearing prices;

(2) all bids (but not the name of any bidder); and

(3) the proceeds of each such *auction*.

(b) *AEMO* must, as soon as practicable after the *final statements* for a *billing period* have been given to *Market Participants* under clause 3.15.15, make available to all *Registered Participants* a report setting out:

(1) the total *settlements residue*;

(2) the amount of *settlements residue* attributable to each *directional interconnector* (including the amount paid pursuant to the *jurisdictional derogations* in Chapter 9); and

(3) the amount of *settlement residue* attributable to *intra-regional loss factors* for each *region*, for that *billing period*.

(c) *AEMO* may provide copies of its reports under clauses 3.13.5A(a) and (b) to persons other than *Registered Participants*, and may charge a fee for doing so to cover an appropriate share of the costs of preparing the report.

3.13.6 [Deleted]

3.13.6A Report by AEMO

(a) *AEMO* must, as soon as reasonably practicable after issuing a *direction*, *publish* a report outlining:

(1) the circumstances giving rise to the need for the *direction*;

(2) the basis on which it determined the latest time for that *direction* and on what basis that it determined that a *market* response would not have avoided the need for the *direction*;

(3) details of the changes in *dispatch* outcomes due to the *direction*;

(4) the processes implemented by *AEMO* to issue the *direction*;

(5) if applicable, the basis upon which *AEMO* did not follow any or all of the processes set out in rule 4.8 either in whole or in part prior to the issuance of the *direction*;

(6) if applicable, the basis upon which *AEMO* considered it impractical to set *spot prices* and *ancillary service prices* in accordance with clause 3.9.3(b);

(7) details of the adequacy and effectiveness of responses to inquiries made by *AEMO* under clause 4.8.5A(d); and

(8) information regarding any notification by a *Registered Participant* that it will not be able to comply with a *direction* under clause 4.8.9(d).

(b) As soon as reasonably practicable after *AEMO* has, in accordance with clause 3.15.10C, included the amounts arising from a *direction* in a settlement statement provided under clause 3.15.15, *AEMO* must *publish* details of:

(1) the *compensation recovery amount* arising from the *direction* as calculated under clause 3.15.8(a) for the period of the *direction*;

(2) details of the calculation of the regional benefit determined under clause 3.15.8(b1); and

(3) a breakdown of the *compensation recovery amount* by each category of *Registered Participant*, as determined by *AEMO*, in each *region*.

3.13.7 Monitoring of significant variation between forecast and actual prices by AER

(a) The *AER* must, after consulting with the *AEMC*, specify and make available to *Registered Participants* and the public, criteria which the *AER* will use to determine whether there is a significant variation between the *spot price forecast published* by *AEMO* in accordance with clause 3.13.4 and the actual *spot price* in any *trading interval*. The *AER* must, in accordance with these criteria, monitor in each *trading interval* whether any such significant variation has occurred.

(b) The *AER* must prepare and *publish* a report in respect of each three month period commencing on 1 January, 1 April, 1 July and 1 October in each year. The report must:

(1) be *published* no later than 4 weeks after the end of each three month period;

(2) identify and review each occasion when, in accordance with the criteria specified under clause 3.13.7(a), the *AER* considers that a significant price variation has occurred;

(3) state why the *AER* considers that the significant price variation occurred;

(4) be available to members of the public on request; and

(5) be provided to the *AEMC*.

(c) The *ACCC* or the *AEMC* may request the *AER* to report to it on a particular *market* outcome. If the *ACCC* or the *AEMC* makes a request of this type, the *AER* may provide a report on that *market* outcome. The report must review the *market* outcome raised by the *ACCC* or the *AEMC* (as the case may be) and state why the *AER* considers that the *market* outcome occurred.

(d) The *AER* must, within 20 *business days* of the end of a week in which the *spot price* exceeded $5,000/MWh in a *trading interval* or *trading intervals*, prepare and *publish* a report which must for each *trading interval* in which the *spot price* exceeded $5,000/MWh in that week:

(1) describe the significant factors that contributed to the *spot price* exceeding $5,000/MWh, including the withdrawal of *generation* capacity and *network* availability;

(2) assess whether *rebidding* pursuant to clause 3.8.22 contributed to the *spot price* exceeding $5,000/MWh; and

(3) identify the marginal *scheduled generating units* and *semi-scheduled generating units* for the *dispatch intervals* in the relevant *trading interval* and all *scheduled generating units* and *semi-scheduled generating units* for which any *dispatch offer* for the *trading interval* was equal to or greater than $5,000/MWh and compare these *dispatch offers* to relevant *dispatch offers* in previous *trading intervals*.

(e) Where

(1) prices at a *regional reference node* for a *market ancillary service* over a period significantly exceed the relevant *spot price* for *energy;* and

(2) prices for that *market ancillary service* exceed $5,000 for a number of *trading intervals* within that period,

the *AER* must prepare and *publish* a report which:

(3) describes the significant factors that contributed to the *market ancillary service* prices exceeding $5,000/MWh;

(4) identifies any linkages between *spot prices* in the *energy market* and *market ancillary service* prices contributing to the occurrence; and

(5) assesses whether *rebidding* pursuant to clause 3.8.22 contributed to prices exceeding $5,000/Mwh.

3.13.8 Public information

(a) *AEMO* must *publish* on a daily basis the following information for the previous *trading day*:

(1) *regional reference price* by *trading interval*;

(2) *power system load* for each *region* referred to the *regional reference node* by *trading interval*;

(3) *regional* electricity consumption in MWh by *trading interval*;

(4) *inter-regional* power flows by *trading interval*; and

(5) *network constraints* by *trading interval*.

(b) All *market information* that *AEMO* is required to *publish* in accordance with the *Rules* shall also be made available by *AEMO* to persons other than *Registered Participants* using the *electronic communications system* on the fee basis described in clause 8.7.6. *AEMO* may make the *market information* available to persons other than *Registered Participants* using a mechanism other than the *market information bulletin board* on the fee basis described in

clause 8.7.6, so long as that information is also available on the *market information bulletin board*.

(c) *AEMO* must make available for purchase by any party the *statement of opportunities* from the date of *publication* of such statement.

(d) *AEMO* must retain all information provided to it under the *Rules* for at least 6 years in whatever form it deems appropriate for reasonably easy access.

3.13.9 [Deleted]

3.13.10 Market auditor

(a) *AEMO* must appoint one or more *market auditors* to carry out *reviews* of such matters as *AEMO* considers appropriate which must include (but need not be limited to) a *review* of:

(1) the calculations and allocations performed by the *metering system* and *settlements* system;

(2) the billing and information systems;

(3) the scheduling and *dispatch* processes;

(4) the processes for software management;

(5) the *AEMO* procedures and their compliance with the *Rules*.

(b) *AEMO* must ensure that the *market auditor* carries out the *reviews* to be carried out under clause 3.13.10(a) no less than annually.

(c) A *market auditor* shall be an *independent person*.

(d) A *market auditor* must report in writing to *AEMO*. *AEMO* must, after receiving the report, either:

(1) approve the report, and any recommendations made in it, by noting such approval on the report or in a paper attached to the report; or

(2) prepare a separate report setting out the matters dealt with in the report which *AEMO* approves and those matters which *AEMO* does not approve and setting out *AEMO's* reasons for that view.

(e) *AEMO* must *publish* any report received from the *market auditor* together with the material mentioned in clause 3.13.10(d).

3.13.11 [Deleted]

3.13.12 NMI Standing Data

(a) The authority responsible for administering the *jurisdictional electricity legislation* in for each *participating jurisdiction* may provide *AEMO* with a *Jurisdictional NMI Standing Data schedule* setting out the categories of *NMI Standing Data* which:

(1) *Registered Participants* are required by the *participating jurisdiction's* legislation or licensing requirements to provide to *AEMO* in relation to *connection points* in that *participating jurisdiction*; and

(2) *AEMO* must make available to *Market Customers*, or a class of *Market Customers*, on request pursuant to its disclosure obligations under clauses 3.13.12(d) and (e).

Any such schedule must contain the matters set out in clause 3.13.12(c).

(b) A responsible authority may from time to time amend the *Jurisdictional NMI Standing Data schedule* in respect of the relevant *participating jurisdiction*, which amendments must be consistent with the matters set out in clause 3.13.12(c), and must promptly provide the amended schedule to *AEMO*.

(c) A valid *Jurisdictional NMI Standing Data schedule* must contain the following items:

(1) a specification of the categories of *NMI Standing Data* which *AEMO* must provide to *Market Customers*, or a specified class of *Market Customers*, on request, pursuant to its disclosure obligations under clauses 3.13.12(d) and (e), in respect of *connection points* in the relevant *participating jurisdiction*;

(2) details of the *Jurisdictional NMI Standing Data suppliers*, including which *Registered Participants* are required to provide that data in respect of particular *connection points* within that *participating jurisdiction*;

(3) the timetable which the relevant *participating jurisdiction* will implement to ensure *Jurisdictional NMI Standing Data suppliers* supply *NMI Standing Data* in respect of *connection points* in that *participating jurisdiction* to *AEMO*;

(4) the criteria which *AEMO* must use to identify whether *AEMO* must disclose *NMI Standing Data* for *connection points* in that *participating jurisdiction* to particular *Market Customers*, pursuant to its disclosure obligations under clauses 3.13.12(d) and (e);

(5) the purposes connected with the facilitation of the wholesale electricity *market* for which the *Market Customer* may use *NMI Standing Data*;

(6) any additional information or criteria as may be determined by the authority responsible for administering the *jurisdictional electricity legislation* as necessary or appropriate in relation to the obligations of *Jurisdictional NMI Standing Data suppliers* and the release by *AEMO* of

NMI Standing Data for *connection points* in that *participating jurisdiction*.

(d) *AEMO* must:

(1) *publish* the *Jurisdictional NMI Standing Data schedules* and any amendments to those schedules provided to it by the responsible authorities under clauses 3.13.12(a) and (b); and

(2) subject to clause 3.13.12(e), make available to *Market Customers* on request *NMI Standing Data* within the relevant categories in respect of *connection points* in a *participating jurisdiction* described in the *Jurisdictional NMI Standing Data schedule* for that *participating jurisdiction.*

(e) *AEMO* must only provide *NMI Standing Data* under this clause 3.13.12 to a *Market Customer*:

(1) that is a *Market Customer* or a member of a class of *Market Customers* fitting the criteria stated in the relevant *Jurisdictional NMI Standing Data schedule* as being entitled to receive that data;

(2) in accordance with the relevant valid *Jurisdictional NMI Standing Data schedule*; and

(3) for the purposes described in clause 3.13.12(g).

(f) Each *Registered Participant* which is a *Jurisdictional NMI Standing Data supplier* must provide the *NMI Standing Data* to *AEMO* which it is required to provide in accordance with the relevant *Jurisdictional NMI Standing Data schedule*, if any such *Jurisdictional NMI Standing Data schedule* has been provided to *AEMO* under clause 3.13.12(a):

(1) at no charge and in the format reasonably required by *AEMO*; and

(2) after having first done whatever may be required or otherwise necessary under any applicable privacy legislation (including if appropriate making relevant disclosures or obtaining relevant consents from end-use customers) taking into account that *AEMO* will use and disclose the *NMI Standing Data* in accordance with the *Rules*.

(g) *Market Customers* must only use *NMI Standing Data* provided to it by *AEMO* under this clause 3.13.12 for the purposes permitted by the relevant *Jurisdictional NMI Standing Data schedule*.

(h) Where a responsible authority has provided *AEMO* with a *Jurisdictional NMI Standing Data schedule* for the relevant *participating jurisdiction* and a *Registered Participant* which is a *Jurisdictional NMI Standing Data supplier* fails to provide *AEMO* with *NMI Standing Data* in accordance with clause 3.13.12(f) and *AEMO* becomes aware of that failure, then:

(1) *AEMO* must advise the *Registered Participant* that, in its opinion, the *Registered Participant* is failing to comply with clause 3.13.12(f);

(2) if the *Registered Participant* fails to provide *AEMO* with the *NMI Standing Data* within 5 *business days* of the notice provided under clause 3.13.12(h)(1), *AEMO* must notify the *AER* and the relevant responsible authority of the failure and the failure by the *Registered Participant* to provide the *NMI Standing Data* is to be dealt with by the responsible authority under the relevant *participating jurisdiction's* legislation or licensing requirements unless the responsible authority notifies *AEMO* otherwise in accordance with clause 3.13.12(h)(3); and

(3) if, after receiving a notice from *AEMO* under clause 3.13.12(h)(2), the responsible authority notifies *AEMO* that the relevant *participating jurisdiction's* legislation or licensing requirements do not contain a regime which empowers the responsible authority to compel the *Registered Participant* to provide the *NMI Standing Data* to *AEMO*, *AEMO* must notify the *AER* of the failure by the *Registered Participant* to provide the *NMI Standing Data* under clause 3.13.12(f).

(i) Where a responsible authority has provided *AEMO* with a *Jurisdictional NMI Standing Data schedule* for the relevant *participating jurisdiction* and a *Market Customer*, that has been provided with *NMI Standing Data* by *AEMO* under clause 3.13.12(d) in accordance with that schedule, fails to use that *NMI Standing Data* in accordance with clause 3.13.12(g), and *AEMO* becomes aware of that failure, then:

(1) *AEMO* must advise the *Market Customer* that, in its opinion, the *Market Customer* is failing to comply with clause 3.13.12(g);

(2) if the *Market Customer* does not remedy the failure within 5 *business days* of the notice provided under clause 3.13.12(i)(1), *AEMO* must notify the relevant responsible authority of the failure and the failure by the *Market Customer* to use the *NMI Standing Data* in accordance with this clause 3.13.12 is to be dealt with by the responsible authority under the relevant *participating jurisdiction's* legislation or licensing requirements unless the responsible authority notifies *AEMO* otherwise in accordance with clause 3.13.12(i)(3); and

(3) if, after receiving a notice from *AEMO* under clause 3.13.12(i)(2), the responsible authority notifies *AEMO* that the relevant *participating jurisdiction's* legislation or licensing requirements do not contain a regime which empowers the responsible authority to regulate the use of the *NMI Standing Data* by a *Market Customer*, *AEMO* must notify the *AER* of the failure by the *Market Customer* to use the *NMI Standing Data* in accordance with clause 3.13.12(g).

(j) *AEMO* must if requested by a responsible authority:

(1) develop a regime for monitoring and reporting to the responsible authority on requests received by *AEMO* to provide *NMI Standing Data*

to *Market Customers* for *connections points* in the relevant *participating jurisdiction*, in consultation with the responsible authority; and

(2) provide information to the responsible authority in accordance with the monitoring and reporting regime developed under this clause 3.13.12(j).

(k) Nothing in this clause 3.13.12:

(1) requires *AEMO* to make available *NMI Standing Data* if that *NMI Standing Data* has not been provided to *AEMO*;

(2) requires *AEMO* to make available *NMI Standing Data* where the collection, use or disclosure of that information by *AEMO* would breach applicable privacy laws;

(3) precludes *AEMO* from providing *NMI Standing Data* to a *Registered Participant* where the provision of that information is required to give effect to other provisions of the *Rules*;

(4) precludes *AEMO* from disclosing *confidential information* in the circumstances in which the disclosure of *confidential information* is permitted under the *National Electricity Law* or these *Rules*; and

(5) requires *AEMO* to provide information which its software systems cannot provide without modification.

3.13.13 Inter-network tests

(a) *AEMO* must *publish* the *test program* for an *inter-network test* as soon as practicable after determining it under clause 5.7.7(r).

(b) If *AEMO* amends the *test program* for an *inter-network test* it must *publish* details of the amendment.

(c) If *AEMO* proposes to conduct an *inter-network test* it must *publish* the approximate time of the test, giving as much notice as is reasonably practicable.

(d) If the time of an *inter-network test* is changed, *AEMO* must *publish* details of the change.

3.14 Administered Price Cap and Market Suspension

3.14.1 Cumulative Price Threshold and Administered Price Cap

(a) In conjunction with each *participating jurisdiction*, and after consulting *Market Participants* in accordance with the *Rules consultation procedures*, the *AEMC* must develop, authorise and *publish* and may vary from time to time a schedule to specify an *administered price cap* for each *region* to apply to *spot prices* and *market ancillary service prices* and to be used as described in this rule 3.14.

(b) The *administered floor price* for each *region* to apply to *spot prices* and to be used as described in clause 3.14.2 will be the negative of the value of the *administered price cap*.

(c) The *cumulative price threshold* is $150,000 prior to 1 July 2010. Effective from 1 July 2010, the *cumulative price threshold* is $187,500.

3.14.2 Application of Administered Price Cap

(a) **[Deleted]**

(b) *AEMO* must immediately notify all *Market Participants* of the commencement and closing of an *administered price period* under rule 3.14.

(c) A *trading interval* is to be an *administered price period* if in a *region*:

(1) the sum of the *spot price* in the previous 336 *trading intervals*, calculated as if this clause did not apply, exceeds the *cumulative price threshold;*

(1A) the sum of the *ancillary service price* for a *market ancillary service* in the previous 2016 *dispatch intervals*, calculated as if this clause did not apply, exceeds 6 times the *cumulative price threshold*;

(2) the *trading interval* occurs in a *trading day* in which a prior *trading interval* is an *administered price period* under this clause 3.14.2; or

(3) the previous *trading interval* was an *administered price period* and in *AEMO*'s opinion one or more *trading intervals* in the next *business day* will be an *administered price period* and *AEMO* deems, with the consent of the *AER*, the *trading interval* to be an *administered price period.*

(d) During an *administered price period* the procedures for *PASA*, *dispatch*, *spot price* and *ancillary service price* determination are to continue in accordance with the provisions of the *Rules*.

(d1) If, within an *administered price period* triggered because of clauses 3.14.2(c)(1), (2) or (3) in relation to *energy*, the *dispatch price* for the *region* identified in clause 3.14.2(c) calculated as if this clause 3.14.2(d1) did not apply:

(1) exceeds the *administered price cap*, then *AEMO* must set the *dispatch price* to the *administered price cap*; or

(2) is less than the *administered floor price*, *AEMO* must set the *dispatch price* to the *administered floor price*.

(d2) If within an *administered price period* an *ancillary service price* for a *market ancillary service* for the *region* identified in clause 3.14.2(c) calculated as if this clause 3.14.2(d2) did not apply exceeds the *administered price cap*, then *AEMO* must set that *ancillary service price* to the *administered price cap*.

(e) If during an *administered price period* the *dispatch price*:

(1) **[Deleted]**

(2) at any *regional reference node* is set to the *administered price cap* under clause 3.14.2, the *dispatch prices* at all other *regional reference nodes connected* by a *regulated interconnector* or *regulated interconnectors* that have an *energy* flow towards that *regional reference node* must not exceed the product of the *administered price cap* multiplied by the average *loss factor* for that *dispatch interval* between that *regional reference node* and the *regional reference node* at which *dispatch prices* have been set to the *administered price cap* determined in accordance with clause 3.14.2(e)(5).

(3) **[Deleted]**

(4) at any *regional reference node* is set to the *administered floor price* under clause 3.14.2, then *dispatch prices* at all other *regional reference nodes connected* by a *regulated interconnector* or *regulated interconnectors* that have an *energy* flow towards that *regional reference node* must be equal to or greater than the product of the *administered floor price* multiplied by the average *loss factor* for that *dispatch interval* between that *regional reference node* and the *regional reference node* at which *dispatch prices* have been set to the *administered floor price* determined in accordance with clause 3.14.2(e)(5).

(5) *AEMO* must determine the average *loss factors* applicable to clause 3.14.2(e)(2) and 3.14.2(e)(4) by reference to the *inter-regional loss factor* equations relating to the relevant *regulated interconnector*.

3.14.3 Conditions for suspension of the spot market

(a) Subject to clause 3.14.3(b), *AEMO* may declare the *spot market* to be suspended in a *region* when in respect of that *region*:

(1) the *power system* has collapsed to a *black system*;

(2) *AEMO* has been directed by a *participating jurisdiction* to suspend the *market* or operate all or part of the *power system* in a manner contrary to the provisions of the *Rules* following the formal declaration by that *participating jurisdiction* of a state of emergency under its emergency services or equivalent legislation; or

(3) *AEMO* determines that it is necessary to suspend the *spot market* in a *region* because it has become impossible to operate the *spot market* in accordance with the provisions of the *Rules*.

(a1) If *AEMO* declares the *spot market* to be suspended in a *region*, then all *spot prices* and *ancillary service prices* are set in accordance with clause 3.14.5 for that *region*.

(b) *AEMO* must not suspend the *spot market* solely because:

(1) *spot prices* have reached the *market price cap*;

(1A) *spot prices* have reached the *market floor price*;

(2) *AEMO* has issued a *direction*; or

(3) *AEMO* has otherwise intervened in the market under rule 3.12.

(c) *AEMO* must conduct reviews of each occasion when it suspended the *spot market* in order to assess the adequacy of the provision and response of *facilities* or services, and the appropriateness of actions taken to restore or maintain *power system security*.

(d) The report of the review carried out in accordance with clause 3.14.3(c) must be made available to *Registered Participants* and the public.

(e) A *Registered Participant* must co-operate in any such review conducted by *AEMO* (including making available relevant records and information).

(f) A *Registered Participant* must provide to *AEMO* such information relating to the performance of its equipment during and after a suspension of the *spot market* as *AEMO* reasonably requires for the purposes of analysing or reporting on that suspension.

(g) *AEMO* must provide to a *Registered Participant* such information or reports relating to the performance of that *Registered Participant's* equipment during a suspension of the *spot market* as that *Registered Participant* reasonably requests and in relation to which *AEMO* is required to conduct a review under this clause 3.14.3.

3.14.4 Declaration of market suspension

(a) The *spot market* can only be suspended by a declaration by *AEMO* under clause 3.14.3(a) and if the *spot market* is suspended, *AEMO* must notify all *Registered Participants* without delay.

(b) *AEMO* must not declare the *spot market* to be suspended retrospectively.

(c) The *spot market* is to be deemed to be suspended at the start of the *trading interval* in which *AEMO* makes a declaration that the *spot market* is suspended.

(d) Following a declaration by *AEMO* under clause 3.14.3(a), the *spot market* is to remain suspended until *AEMO* declares and informs all *Registered Participants*:

(1) that *spot market* operation is to resume in accordance with this Chapter 3; and

(2) of the *time* at which the *spot market* is to resume.

(e) If *AEMO* declares that the *spot market* is suspended:

(1) *AEMO* may then issue *directions* to *Registered Participants* in accordance with clause 4.8.9; and

(2) *spot prices* and *ancillary service prices* are to be set by *AEMO* in accordance with clause 3.14.5.

(f) *AEMO* must within 10 *business days* following the day on which, in accordance with the notice given by *AEMO* under clause 3.14.4(d), the *spot market* resumed, commence an investigation of that *spot market* suspension.

(g) The investigation must examine and report on the reason for the suspension and the effect that the suspension had on the operation of the *spot market*. *AEMO* must make a copy of the report available to *Registered Participants* and the public as soon as it is practicable to do so.

3.14.5 Pricing during market suspension

(a) If *AEMO* declares that the *spot market* is suspended then, as far as *AEMO* considers it practically and reasonably possible, it must follow the procedures in the *Rules* for *PASA*, *dispatch* and *spot price* and *ancillary service price*, subject to the application of clause 3.14.5.

(b) The *spot price* and the *ancillary service price* during a *trading interval* for which *AEMO* has declared the *spot market* to be suspended is to be determined by *AEMO* in accordance with clause 3.14.5.

(c) Subject to clauses 3.14.5(d), (g) and (j), if the *spot market* is suspended in a *region* then *dispatch* and the determination of *spot prices* and *ancillary service prices* in the *region* where the *spot market* is suspended are to continue in accordance with rules 3.8 and 3.9.

(d) If at any time on or during suspension of the *spot market* in a *region*:

(1) in *AEMO's* reasonable opinion it is not possible to continue *dispatch* and the determination of *spot prices* in the *suspended region* in accordance with rules 3.8 and 3.9;

(2) the *suspended region* is *connected* by an *unconstrained interconnector* to another *region*;

(3) the *dispatch* and determination of *spot prices* and *ancillary service prices* in the other *region* is continuing in accordance with rules 3.8 and 3.9; and

(4) *local market ancillary service requirements* do not apply in the *suspended region*,

AEMO must:

(5) determine the *spot price* in the *suspended region* in accordance with clause 3.14.5(e); and

(6) continue to determine *ancillary service prices* in the *suspended region* in accordance with rules 3.8 and 3.9.

(e) In the circumstances described in clause 3.14.5(d) the *spot price* is to be determined by application of an appropriate *inter-regional loss factor* to the *spot price* in the adjacent *region* referred to in clause 3.14.5(d)(2), such *inter-regional loss factor* being determined by *AEMO* in accordance with the methodology in clause 3.6.2A and the actual flows on the relevant *unconstrained interconnectors*.

(f) If the *spot price* in the *suspended region* is being determined in accordance with clause 3.15.4(e), the *spot price* must continue to be determined in accordance with that clause until the earlier of:

(1) the time that the *spot market* is no longer suspended in the *region*; and

(2) the time that the spot price in the region is required to be determined in accordance with either clause 3.14.5(g) or clause 3.14.5(j).

(g) If at any time during suspension of the *spot market* in a *region*:

(1) either:

(A) *dispatch* and the determination of *spot prices* and *ancillary service prices* is being effected in accordance with rules 3.8 and 3.9; or

(B) the *spot prices* and *ancillary service prices* in the *suspended region* are being determined in accordance with clause 3.14.5(e); and

(2) in *AEMO's* reasonable opinion it is no longer practical to continue *dispatch* and the determination of *spot prices* and *ancillary service prices* in the *suspended region* in accordance with the clauses under which *dispatch*, *spot prices* and *ancillary service prices* are currently being determined; and

(3) in *AEMO's* reasonable opinion a current *pre-dispatch schedule* exists in respect of the *suspended region*,

then *AEMO* must determine the *spot prices* and *ancillary service prices* in the *suspended region* in accordance with clause 3.14.5(h).

(h) In the circumstances described in clause 3.14.5(g), the *spot prices* and *ancillary service prices* in the *suspended region* are set at *AEMO's* forecast *regional reference price* and *ancillary service prices* determined in accordance with the most recently *published pre-dispatch schedule* if it is still current.

(i) If the *spot prices* and *ancillary service prices* in the *suspended region* are being determined in accordance with clause 3.15.4(h), they must continue to be determined in accordance with that clause until the earlier of:

(1) the time that the *spot market* is no longer suspended in the relevant *region*; and

(2) the time that the *spot prices* or the *ancillary service prices* (as the case may be) in the *suspended region* are determined in accordance with clause 3.14.5(j).

(j) If at any time on or during suspension of the *spot market* in a *region*:

(1) either:

(A) *dispatch* and the determination of *spot prices* and *ancillary service prices* is being effected in accordance with rules 3.8 and 3.9; or

(B) the *spot prices* and *ancillary service prices* in the *suspended region* are being determined in accordance with either clause 3.14.5(e) or clause 3.14.5(h); and

(2) in *AEMO's* reasonable opinion it is no longer practical to set the *spot prices* and *ancillary service prices* in the *suspended region* in accordance with either clauses rules 3.8, 3.9, clause 3.14.5(e) or clause 3.14.5(h) (as the case may be),

then *AEMO* must set the *spot prices* and *ancillary service prices* in the *suspended region* at the prices set out in the relevant market suspension pricing schedule developed and published in accordance with clause 3.14.5(l).

(k) If the *spot prices* and *ancillary service prices* in the *suspended region* are being determined in accordance with clause 3.15.4(j), they must continue to be determined in accordance with that clause until the *spot market* is no longer suspended in that *region*.

(l) *AEMO* must:

(1) develop in accordance with the *Rules consultation procedures* a methodology to be used by *AEMO* (**estimated price methodology**) to prepare and update schedules containing reasonable estimates of typical *market* prices during the periods to which the schedules relate (**estimated price schedules**);

(2) develop and update estimated price schedules in accordance with the estimated price methodology and that set out *AEMO's* reasonable estimate of typical *market* prices during periods in which the *spot market* is suspended; and

(3) *publish* the estimated price methodology promptly after it has been developed and *publish* the estimated price schedule at least 14 days prior to the first day to which the schedule relates.

(m) If a *spot price* is set in accordance with clause 3.14.5(g) or clause 3.14.5(j) at a *regional reference node* (**suspension node**), *spot prices* at all other *regional reference nodes connected* by an *interconnector* that has an actual flow towards the suspension node must not exceed the *spot price* in the *suspended region* multiplied by the average *loss factor* between that *regional reference node* and the *suspension node* for that *trading interval*.

(n) *AEMO* must use reasonable endeavours to ensure that any adjustments required to *regional reference prices* so that they do not exceed the limits set by clause 3.14.5(m) are finalised as soon as practicable but in any event by no later than one *business day* following the day on which the *spot market* in the *region* ceased to be suspended.

(o) *AEMO* must calculate the average *loss factor* applicable to clause 3.14.5(m) by reference to the *inter-regional loss factor* equations relating to the relevant *regulated interconnector*.

3.14.6 Compensation due to the application of an administered price, market price cap or market floor price

(a) *Scheduled Generators* may claim compensation from *AEMO* in respect of *generating units* if, due to the application of an *administered price cap* during either an *administered price period* or *market suspension*, the resultant *spot price* payable to *dispatched generating units* in any *trading interval* is less than the price specified in their *dispatch offer* for that *trading interval*.

(a1) A *Scheduled Network Service Provider* may claim compensation from *AEMO* in respect of a *scheduled network service* if, due to the application of an *administered price cap*, the *market price cap*, the *market floor price* or an *administered floor price*, the resultant revenue receivable in respect of *dispatched network services* in any *trading interval* is less than the minimum requirement specified by its *network dispatch offer* for that *trading interval.*

(a2) A *Market Participant* which submitted a *dispatch bid* may claim compensation from *AEMO* in respect of a *scheduled load* if, due to the application of an *administered floor price* during either an *administered price period* or *market suspension*, the resultant *spot price* in any *trading interval* is greater than the price specified in the *dispatch bid* for that *trading interval*.

(a3) In respect of an *ancillary service generating unit* or an *ancillary service load*, a *Market Participant* may claim compensation from *AEMO* if, due to the application of an *administered price cap*, the resultant *ancillary service price* for that *ancillary service generating unit* or *ancillary service load* in any *dispatch interval* is less than the price specified in the relevant *market ancillary service offer*.

(b) Notification of an intention to make a claim under paragraphs (a), (a1), (a2) or (a3) must be submitted to both *AEMO* and the *AEMC* within 5 *business days* of the *trading interval* in which *dispatch prices* were adjusted in accordance with clause 3.9.5 or notification by *AEMO* that an *administered price period* or period of *market suspension* has ended.

(c) The *AEMC* must, in accordance with the *transmission consultation procedures*, develop and *publish* guidelines ('compensation guidelines') that:

(1) identify the objectives of the payment of compensation under this clause as being to maintain the incentive for:

(i) *Scheduled Generators*, *Scheduled Network Service Providers* and other *Market Participants* to invest in *plant* that provides services during peak periods; and

(ii) *Market Participants* to supply *energy* and other services during an *administered price period*;

(2) require the amount of compensation payable in respect of a claim under this clause to be based on:

(i) the costs directly incurred by the claimant due to the application of the *administered price cap*, the *market price cap*, the *market floor price* or the *administered floor price* (as the case may be); and

(ii) the value of any opportunities foregone by the claimant due to the application of the *administered price cap*, the *market price cap*, the *market floor price* or the *administered floor price* (as the case may be);

(3) outline the methodology to be used to calculate the amount of any compensation payable in respect of a claim under this clause, including the methodology for calculating the costs referred to in clause 3.14.6(c)(2)(i) and the value of opportunities foregone referred to in clause 3.14.6(c)(2)(ii); and

(4) set out the information *AEMO* and a claimant must provide to enable a panel established under paragraph (g) to make a recommendation as to compensation under this clause and to enable the *AEMC* to make a determination as to compensation under this clause.

(d) The *AEMC* must request the *Adviser* to establish a three member panel from the group of persons referred to in clause 8.2.2(e) and such other persons as the *Adviser* may choose to appoint under clause 8.2.6A(i) to assist the *AEMC* to develop the compensation guidelines.

(e) The *AEMC* must *publish* the first compensation guidelines by 30 June 2009 and there must be such guidelines in place at all times after that date.

(f) The *AEMC* may from time to time, in accordance with the *transmission consultation procedures*, amend or replace the compensation guidelines.

(g) Following its receipt of a notification under paragraph (b), the *AEMC* must request the *Adviser* to establish a three member panel from the group of persons referred to in clause 8.2.2(e) and such other persons as the *Adviser* may choose to appoint under clause 8.2.6A(i) to make recommendations to the *AEMC* as to whether:

(1) compensation should be payable by *AEMO* in relation to the claim; and

(2) if so, the amount of compensation that should be paid.

(h) The panel must, as soon as practicable but not later than:

(1) 30 *business days* after receiving the information required to be provided to it under the compensation guidelines, give to the *AEMC* a report that sets out its draft recommendations as to the matters referred to in paragraph (g); and

(2) 20 *business days* after the closing date for submissions on that report, give to the *AEMC* a report that sets out its final recommendations as to the matters referred to in paragraph (g).

(i) Not later than 20 *business days* after receiving a report referred to in subparagraph (h)(1), the *AEMC* must *publish*:

(1) that report;

(2) its draft decision as to the matters referred to in paragraph (g); and

(3) an invitation for written submissions to be made to the *AEMC* on that report and the *AEMC's* draft decision.

(j) Any person may make a written submission to the *AEMC* on the report referred to in subparagraph (h)(1) and the *AEMC's* draft decision within the time specified in the invitation referred to in subparagraph (i)(3), which must not be earlier than 20 *business days* after the invitation is *published*.

(k) In preparing a report that sets out its final recommendations, the panel must take into account the submissions made in response to the invitation referred to in subparagraph (i)(3).

(l) In preparing a report under paragraph (h), the panel must apply the compensation guidelines.

(m) In making its draft decision as to the matters referred to in paragraph (g), the *AEMC* must take into account the draft recommendations of the panel.

(n) Not later than 15 *business days* after receiving a report referred to in subparagraph (h)(2), the *AEMC* must *publish*:

(1) that report; and

(2) its final decision as to the matters referred to in paragraph (g).

(o) In making its final decision as to the matters referred to in paragraph (g), the *AEMC* must take into account:

(1) the final recommendations of the panel; and

(2) the submissions made in response to the invitation referred to in subparagraph (i)(3).

(p) In making a draft or final decision under this clause, the *AEMC* must apply the compensation guidelines unless it is satisfied that there are compelling reasons not to do so.

(q) The *AEMC* may recover from a claimant for compensation under this clause any costs that are incurred by the *AEMC* and the panel in carrying out their functions under this clause in respect of that claim. For this purpose the *AEMC* may require the claimant to pay all or a proportion of those costs to the *AEMC* prior to the claim being considered or determined.

3.15 Settlements

3.15.1 Settlements management by AEMO

(a) *AEMO* must facilitate the billing and settlement of payments due in respect of *transactions* under this Chapter 3, including:

(1) *spot market transactions*;

(2) *reallocation transactions*; and

(3) ancillary services transactions under clause 3.15.6A.

(b) *AEMO* must determine the *Participant fees* and the *Market Participants* must pay them to *AEMO* in accordance with the provisions of rule 2.11.

3.15.2 Electronic funds transfer

(a) *AEMO* must ensure that an electronic funds transfer (EFT) facility is provided and made available for all *Market Participants* for the purposes of *settlements* and the collection and payment of all *market* fees.

(b) Unless otherwise authorised by *AEMO*, all *Market Participants* must use the EFT facility provided by *AEMO* under clause 3.15.2(a) for the payment and receipt of amounts due in respect of *transactions* and the payment of *market* fees.

(c) In establishing the EFT facility in accordance with clause 3.15.2(a) *AEMO* must use its reasonable endeavours to ensure that the use of that facility does not impose unnecessary restrictions on the normal banking arrangements of *Market Participants*.

3.15.3 Connection point and virtual transmission node responsibility

(a) For each *market connection point* there is one person that is *financially responsible* for that *connection point*. The person that is *financially responsible* for such a *connection point* is:

(1) the *Market Participant* which has classified the *connection point* as a *market load*;

(2) the *Market Participant* which has classified the *generating unit connected* at that *connection point* as a *market generating unit*; or

(3) the *Market Participant* which has classified the *network service connected* at that *connection point* as a *market network service*.

(b) For each *virtual transmission node* there is one person that is *financially responsible* for that *virtual transmission node*. The person that is *financially responsible* for such a *virtual transmission node* is the *Market Participant* which is the *Local Retailer* for all of the *market connection points* assigned to that *virtual transmission node.*

3.15.4 Adjusted energy amounts - connection points

Where a *connection point* is not a *transmission network connection point*, the *adjusted gross energy* amount for that *connection point* for a *trading interval* is calculated by the following formula:

AGE = ME x DLF

where:

AGE is the *adjusted gross energy* amount to be determined;

ME is the amount of electrical *energy*, expressed in MWh, flowing at the *connection point* in the *trading interval*, as recorded in the *metering data* in respect of that *connection point* and that *trading interval* (expressed as a positive value where the flow is towards the *transmission network connection point* to which the *connection point* is assigned and negative value where the flow is in the other direction); and

DLF is the *distribution loss factor* applicable at that *connection point*.

3.15.5 Adjusted energy - transmission network connection points

Where a *connection point* is a *transmission network connection point*, the *adjusted gross energy* amount for that *connection point* for a *trading interval* is calculated by the following formula:

AGE = ME - AAGE

where:

AGE is the *adjusted gross energy* amount to be determined;

ME is the amount of electrical *energy*, expressed in MWh, flowing at the *connection point* in the *trading interval*, as recorded in the *metering data* in respect of that *connection point* and that *trading interval* (expressed as a positive value where the flow is towards the *transmission network*, and negative value where the flow is in the other direction); and

AAGE is the aggregate of the *adjusted gross energy* amounts for that *trading interval* for each *connection point* assigned to that *transmission network connection point*, for which a *Market Participant* (other than a suspended *Market Participant*) is *financially responsible* (and in that aggregation

positive and negative *adjusted gross energy* amounts are netted out to give a positive or negative aggregate amount).

3.15.5A Adjusted energy – virtual transmission nodes

For each *virtual transmission node*, the *adjusted gross energy* amount for that *virtual transmission node* for a *trading interval* is calculated by the following formula:

AGE = - AAGE

where:

AGE is the *adjusted gross energy* amount to be determined; and

AAGE is the aggregate of the *adjusted gross energy* amounts for that *trading interval* for each *connection point* assigned to that *virtual transmission node* for which a *Market Participant* (other than a suspended *Market Participant*) is *financially responsible* (and in that aggregation positive and negative *adjusted gross energy* amounts are netted out to give a positive or negative aggregate amount).

3.15.6 Spot market transactions

(a) In each *trading interval*, in relation to each *connection point* and to each *virtual transmission node* for which a *Market Participant* is *financially responsible*, a *spot market transaction* occurs, which results in a *trading amount* for that *Market Participant* determined in accordance with the formula:

TA= AGE x TLF x RRP

where

TA is the *trading amount* to be determined (which will be a positive or negative dollar amount for each *trading interval*);

AGE is the *adjusted gross energy* for that *connection point* or *virtual transmission node* for that *trading interval*, expressed in MWh;

TLF for a *transmission network connection point* or *virtual transmission node*, is the *intra-regional loss factor* at that *connection point* or *virtual transmission node* respectively, and for any other *connection point*, is the *intra-regional loss factor* at the *transmission network connection point* or *virtual transmission node* to which it is assigned in accordance with clause 3.6.3(a); and

RRP is the *regional reference price* for the *regional reference node* to which the *connection point* or *virtual transmission node* is assigned, expressed in dollars per MWh.

(b) *AEMO* is entitled to the *trading amount* resulting from a *AEMO intervention event* and, for the purposes of determining *settlement amounts*, any such *trading amount* is not a *trading amount* for the relevant *Market Participant*.

(c) A *Directed Participant* is entitled to the *trading amount* resulting from any service, other than the service the subject of the *AEMO intervention event*, rendered as a consequence of that event.

3.15.6A Ancillary service transactions

(a) In each *trading interval*, in relation to each *enabled ancillary service generating unit* or *enabled ancillary service load*, an ancillary services transaction occurs, which results in a *trading amount* for the relevant *Market Participant* determined in accordance with the following formula:

$$TA = \text{the aggregate of } \frac{EA \times ASP}{(12)} \text{ for each } \textit{dispatch interval} \text{ in a } \textit{trading interval}$$

where:

TA (in $)	=	the *trading amount* to be determined (which is a positive number);
EA (in MW)	=	the amount of the relevant *market ancillary service* which the *ancillary service generating unit* or *ancillary service load* has been *enabled* to provide in the *dispatch interval*; and
ASP (in $ per MW per hour)	=	the *ancillary service price* for the *market ancillary service* for the *dispatch interval* for the *region* in which the *ancillary service generating unit* or *ancillary service load* has been *enabled*.

(b) In each *trading interval*, in relation to each *Market Participant* which provides *non-market ancillary services* under an *ancillary services agreement*, an ancillary services transaction occurs, which results in a *trading amount* for the relevant *Market Participant* determined in accordance with that agreement.

(c) In each *trading interval*, in relation to each *Market Customer*, an ancillary services transaction occurs, which results in a *trading amount* for the *Market Customer* determined in accordance with the following formula:

$$TA = TNCASP \times \frac{TCE}{ATCE} \times -1$$

where:

TA (in $)	=	the *trading amount* to be determined (which is a negative number);
TNCASP (in $)	=	all amounts payable by *AEMO* in respect of the *trading interval* under *ancillary services agreements* in respect of the provision of *NCAS*;

TCE (in MWh)	=	the *customer energy* for the *Market Customer* for the *trading interval*; and
ATCE (in MWh)	=	the aggregate *customer energy* figures for all *Market Customers* for the *trading interval*.

(d) In each *trading interval*, in relation to each *Market Generator*, an ancillary services transaction occurs, which results in a *trading amount* for the *Market Generator* determined in accordance with the following formula:

$$TA = \frac{TSRP}{2} \times \frac{TGE}{ATGE} \times -1$$

where:

TA (in $)	=	the *trading amount* to be determined (which is a negative number);
TSRP (in $)	=	the total of all amounts payable by *AEMO* in respect of the *trading interval* under *ancillary services agreements* in respect of the provision of *system restart ancillary services*;
TGE (in MWh)	=	the *generator energy* for the *Market Generator* for the *trading interval*; and
ATGE (in MWh)	=	the aggregate of the *generator energy* figures for all *Market Generators* for the *trading interval*.

(e) In each *trading interval*, in relation to each *Market Customer*, an ancillary services transaction occurs, which results in a *trading amount* determined in accordance with the following formula:

$$TA = \frac{TSRP}{2} \times \frac{TCE}{ATCE} \times -1$$

where:

TA (in $)	=	the *trading amount* to be determined (which is a negative number);
TSRP (in $)	=	has the meaning given in clause 3.15.6A(d);
TCE (in MWh)	=	the *customer energy* for the *Market Customer* for the *trading interval*; and
ATCE (in MWh)	=	the aggregate of the *customer energy* figures for all *Market Customers* for the *trading interval*.

(f) The total amount calculated by *AEMO* under clause 3.15.6A(a) for each of the *fast raise service*, *slow raise service* or *delayed raise service* in respect of each *dispatch interval* which falls within the *trading interval* must be allocated to each *region* in accordance with the following procedure and the information provided under clause 3.9.2A(b). *AEMO* must:

(1) allocate for each *region* and for each *dispatch interval* within the relevant *trading interval* the proportion of the total amount calculated by *AEMO* under clause 3.15.6A(a) for each of the *fast raise service*, *slow raise service* or *delayed raise service* between *global market ancillary services requirements* and *local market ancillary service requirement* pro-rata to the respective marginal prices for each such service;

(2) calculate for each relevant *dispatch interval* the sum of the costs of acquiring the *global market ancillary service requirements* for all *regions* and the sum of the costs of acquiring each *local market ancillary service requirement* for all *regions*, as determined pursuant to clause 3.15.6A(f)(1); and

(3) allocate for each relevant *dispatch interval* the sum of the costs of the *global market ancillary service requirement* and each *local market ancillary service requirement* calculated in clause 3.15.6A(f)(2) to each *region* as relevant to that requirement pro-rata to the aggregate of the *generator energy* for the *Market Generators* in each *region* during the *trading interval*.

For the purpose of this clause 3.15.6A(f) *RTCRSP* is the sum of:

(i) the *global market ancillary service requirement* cost for that *region*, for all *dispatch intervals* in the relevant *trading interval*, as determined pursuant to clause 3.15.6A(f)(3)*;* and

(ii) all *local market ancillary service requirement* costs for that *region*, for all *dispatch intervals* in the relevant *trading interval*, as determined pursuant to clause 3.15.6A(f)(3).

In each *trading interval*, in relation to each *Market Generator* in a given *region*, an ancillary services transaction occurs, which results in a *trading amount* for that *Market Generator* determined in accordance with the following formula:

$$TA = RTCRSP \times \frac{TGE}{RATGE} \times -1$$

where:

TA (in $)	=	the *trading amount* to be determined (which is a negative number);
RTCRSP (in $)	=	the total of all amounts calculated by *AEMO* as appropriate to recover from the given *region* as calculated in this clause 3.15.6A(f) for the *fast raise service*, *slow raise service* or *delayed raise service* in respect of *dispatch intervals* which fall in the *trading interval*;
TGE (in MWh)	=	the *generator energy* figures for the *Market Generator* in that *region* for the *trading interval*; and

RATGE (in MWh) = the aggregate of the *generator energy* figures for all *Market Generators* in that *region* for the *trading interval*.

(g) The total amount calculated by *AEMO* under clause 3.15.6A(a) for each of the *fast lower service*, *slow lower service* or *delayed lower service* in respect of each *dispatch interval* which falls within the *trading interval* must be allocated to each *region* in accordance with the following procedure and the information provided under clause 3.9.2A(b). *AEMO* must:

(1) allocate for each *region* and for each *dispatch interval* within the relevant *trading interval* the proportion of the total amount calculated by *AEMO* under clause 3.15.6A(a) for each of the *fast lower service*, *slow lower service* or *delayed lower service* between *global market ancillary service requirements* and *local market ancillary service requirement* pro rata to the respective marginal prices of each such service;

(2) calculate for each relevant *dispatch interval* the sum of the costs of acquiring the *global market ancillary service requirements* for all *regions* and the sum of the costs of acquiring each *local market ancillary service requirement* for all *regions*, as determined pursuant to clause 3.15.6A(g)(1); and

(3) allocate for each relevant *dispatch interval* the sum of the costs of the *global market ancillary service requirement* and each *local market ancillary service requirement* calculated in clause 3.15.6A(g)(2) to each *region* as relevant to that requirement pro-rata to the aggregate of the *customer energy* figures for all *Market Customers* in each *region* during the *trading interval*.

For the purpose of this clause 3.15.6A(g) *RTCLSP* is the sum of:

(i) the *global market ancillary service requirement* cost for that *region*, for all *dispatch intervals* in the relevant *trading interval*, as determined pursuant to clause 3.15.6A(g)(3); and

(ii) all *local market ancillary service requirement* costs for that *region*, for all *dispatch intervals* in the relevant *trading interval*, as determined pursuant to clause 3.15.6A(g)(3).

In each *trading interval*, in relation to each *Market Customer* in a given *region*, an ancillary services transaction occurs, which results in a *trading amount* for that *Market Customer* determined in accordance with the following formula:

$$TA = RTCLSP \times \frac{TCE}{RATCE} \times -1$$

where:

TA (in $) = the *trading amount* to be determined (which is a negative number);

RTCLSP (in $)	=	the total of all amounts calculated by *AEMO* as appropriate to recover from the given *region* as calculated in this clause 3.15.6A(g) for the *fast lower service*, *slow lower service* or *delayed lower service* in respect of *dispatch intervals* which fall in the *trading interval*;
TCE (in MWh)	=	the *customer energy* for the *Market Customer* in that *region* for the *trading interval*; and
RATCE (in MWh)	=	the aggregate of the *customer energy* figures for all *Market Customers* in that *region* for the *trading interval*.

(h) The total amount calculated by *AEMO* under paragraph (a) for the *regulating raise service* or the *regulating lower service* in respect of each *dispatch interval* which falls within the *trading interval* must be allocated by *AEMO* to each *region* in accordance with the following procedure and the information provided under clause 3.9.2A(b):

(1) allocate on a pro-rata basis for each *region* and for each *dispatch interval* within the relevant *trading interval* the proportion of the total amount calculated by *AEMO* under paragraph (a) for the *regulating raise service* and *regulating lower service* between *global market ancillary service requirements* and *local market ancillary service requirements* to the respective marginal prices for each such service; and

(2) calculate for each relevant *dispatch interval* the sum of the costs of acquiring the *global market ancillary service requirements* for all *regions* and the sum of the costs of acquiring *local market ancillary service requirements* for all *regions*, as determined under subparagraph (1).

(i) In each *trading interval* in relation to:

(1) each *Market Generator* or *Market Customer* which has *metering* to allow their individual contribution to the aggregate deviation in *frequency* of the *power system* to be assessed, an ancillary services transaction occurs, which results in a *trading amount* for that *Market Generator* or *Market Customer* determined in accordance with the following formula:

$$TA = PTA \times -1$$

and

$$PTA = \text{the aggregate of} \quad \left(TSFCAS \times \frac{MPF}{AMPF} \right)$$

for each *dispatch interval* in the *trading interval* for *global market ancillary service requirements* and *local market ancillary service requirements* where:

TA (in $)	=	the *trading amount* to be determined (which is a negative number);
TSFCAS (in $)	=	the total of all amounts calculated by *AEMO* under paragraph (h)(2) for the *regulating raise service* or the *regulating lower service* in respect of a *dispatch interval*;
MPF (a number)	=	the contribution factor last set by *AEMO* for the *Market Generator* or *Market Customer*, as the case may be, under paragraph (j) for the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*; and
AMPF (a number)	=	the aggregate of the MPF figures for all *Market Participants* for the *dispatch interval* for the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*.

or

(2) in relation to each *Market Customer* for whom the *trading amount* is not calculated in accordance with the formula in subparagraph (1), an ancillary services transaction occurs, which results in a trading amount for that *Market Customer* determined in accordance with the following formula:

$$TA = PTA \times -1$$

and

$$PTA = \text{the aggregate of} \quad \left(TSFCAS \times \frac{MPF}{AMPF} \times \frac{TCE}{ATCE} \right)$$

for each *dispatch interval* in the *trading interval* for *global market ancillary service requirements* and *local market ancillary service requirements* where:

TA (in $)	=	the *trading amount* to be determined (which is a negative number);
TSFCAS (in $)	=	has the meaning given in subparagraph (1);
MPF (a number)	=	the aggregate of the contribution factor set by *AEMO* under paragraph (j) for *Market Customers*, for whom the *trading amount* is not calculated in accordance with the formula in subparagraph (1) for the *region* or *regions* relevant to the *regulating raise service* or the

		regulating lower service;
AMPF (a number)	=	the aggregate of the MPF figures for all *Market Participants* for the *dispatch interval* for the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*;
TCE (in MWh)	=	the *customer energy* for the *Market Customer* for the *trading interval* in the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*; and
ATCE (in MWh)	=	the aggregate of the *customer energy* figures for all *Market Customers*, for whom the *trading amount* is not calculated in accordance with the formula in subparagraph (1), for the *trading interval* for the *region* or *regions* relevant to that *regulating raise service* or *regulating lower service*.

(j) *AEMO* must determine for the purpose of paragraph (i):

(1) a contribution factor for each *Market Participant*; and

(2) notwithstanding the estimate provided in paragraph (nb), if a *region* has or *regions* have operated asynchronously during the relevant *trading interval*, the contribution factors relevant to the allocation of *regulating raise service* or *regulating lower service* to that *region* or *regions*,

in accordance with the procedure prepared under paragraph (k).

(k) *AEMO* must prepare a procedure for determining contribution factors for use in paragraph (j) and, where *AEMO* considers it appropriate, for use in paragraph (nb), taking into account the following principles:

(1) the contribution factor for a *Market Participant* should reflect the extent to which the *Market Participant* contributed to the need for *regulation services*;

(2) the contribution factor for all *Market Customers* that do not have *metering* to allow their individual contribution to the aggregate need for *regulation services* to be assessed must be equal;

(3) for the purpose of paragraph (j)(2), the contribution factor determined for a group of *regions* for all *Market Customers* that do not have *metering* to allow the individual contribution of that *Market Customer* to the aggregate need for *regulation services* to be assessed, must be divided between *regions* in proportion to the total *customer energy* for the *regions*;

(4) the individual *Market Participant's* contribution to the aggregate need for *regulation services* will be determined over a period of time to be determined by *AEMO*;

(5) a *Registered Participant* which has classified a *scheduled generating unit*, *scheduled load*, *ancillary service generating unit* or *ancillary service load* (called a '**Scheduled Participant**') will not be assessed as contributing to the deviation in the *frequency* of the *power system* if within a *dispatch interval:*

(i) the Scheduled Participant achieves its *dispatch* target at a uniform rate;

(ii) the Scheduled Participant is *enabled* to provide a *market ancillary service* and responds to a control signal from *AEMO* to *AEMO's* satisfaction; or

(iii) the Scheduled Participant is not *enabled* to provide a *market ancillary service*, but responds to a need for *regulation services* in a way which tends to reduce the aggregate deviation;

(6) where contributions are aggregated for *regions* that are operating asynchronously during the calculation period under paragraph (i), the contribution factors should be normalised so that the total contributions from any non-synchronised *region* or *regions* is in the same proportion as the total *customer energy* for that *region* or *regions*; and

(7) a *Semi-Scheduled Generator* will not be assessed as contributing to the deviation in the *frequency* of the *power system* if within a *dispatch interval*, the *semi-scheduled generating unit*:

(i) achieves its *dispatch level* at a uniform rate;

(ii) is *enabled* to provide a *market ancillary service* and responds to a control signal from *AEMO* to *AEMO's* satisfaction; or

(iii) is not *enabled* to provide a *market ancillary service*, but responds to a need for *regulation services*. (l)*AEMO* may amend the procedure referred to in clause 3.15.6A(j) from time to time.

(m) *AEMO* must comply with the *Rules consultation procedures* when making or amending the procedure referred to in clause 3.15.6A(k).

(n) *AEMO* must *publish*, in accordance with the *timetable*, the historical data used in determining a factor for each *Market Participant* for the purposes of clauses 3.15.6A(h) and (i) in accordance with the procedure contemplated by clause 3.15.6A(k).

(na) Notwithstanding any other provisions of the *Rules*, *AEMO* must *publish* the factors determined in accordance with clause 3.15.6A(j)(1) at least 10 *business days* prior to the application of those factors in accordance with clauses 3.15.6A(h) and 3.15.6A(i).

(nb) When a *region* is or *regions* are operating asynchronously, *AEMO* must *publish* (where appropriate in accordance with the procedure developed under paragraph (k)), an estimate of the contribution factors referred to in paragraph

(j)(2) to be applied for information purposes only by *Market Participants* for the duration of the separation.

(o) In this clause 3.15.6A:

(1) '*generator energy*' in respect of a *Market Generator* for a *trading interval* means the sum of the *adjusted gross energy* figures calculated for that *trading interval* in respect of that *Market Generator's applicable connection points*, provided that, if the sum of those figures is negative, then the *Market Generator's generator energy* for that *trading interval* is zero;

(2) a *connection point* is an *applicable connection point* of a *Market Generator* if:

(A) the *Market Generator* is *financially responsible* for the *connection point*; and

(B) the *connection point connects* a market *generating unit* to the *national grid*;

(3) '*customer energy'* in respect of a *Market Customer* for a *trading interval* means the sum of the *adjusted gross energy* figures calculated for that *trading interval* in respect of that *Market Customer's relevant connection points*; and

(4) a *connection point* is a *relevant connection point* of a *Market Customer* if:

(A) the *Market Customer* is *financially responsible* for the *connection point*; and

(B) the *load* at that *connection point* has been classified (or is deemed to be classified) as a *market load*.

(p) When *AEMO* dispatches a quantity of *regulating raise service* or *regulating lower service* in addition to the quantity it determines in accordance with the *dispatch algorithm*, *AEMO* must:

(1) for the purposes of paragraphs (f) and (g), include the additional quantity in the cost of *delayed services*; and

(2) for the purposes of paragraphs (h) and (i), exclude the additional quantity in the cost of *regulation services*,

taking into account the requirements in clauses 3.8.1(a) and (b) to maximise the value of *spot market* trading.

3.15.7 Payment to Directed Participants

(a) Subject to clause 3.15.7(b), *AEMO* must pay compensation to *Directed Participants* calculated in accordance with clauses 3.15.7, 3.15.7A and

3.15.7B, as the case may be, for any service which the *Directed Participant* was required to provide in order to comply with the *direction*.

(b) For the purpose of clause 3.15.8 and 3.15.10C the amount of compensation due to a *Directed Participant* pursuant to clause 3.15.7(a) must include interest on the sum of that amount less any payment made in accordance with clause 3.15.10C(a), computed at the average *bank bill rate* for the period beginning on the day on which payment was required to be made under clauses 3.15.16 and 3.15.17 in respect of the *final statement* for the *billing period* in which the *direction* was issued and ending on the day on which payment is required to be made pursuant to clause 3.15.10C.

(c) Subject to clause 3.15.17(d) and clause 3.15.7B, the compensation payable to each *Directed Participant* for the provision of *energy* or *market ancillary services* pursuant to a *direction* is to be determined in accordance with the formula set out below:

DCP = AMP x DQ

where:

DCP = the amount of compensation the *Directed Participant* is entitled to receive;

AMP = the price below which are 90% of the *spot prices* or *market ancillary service prices* (as the case may be) for the relevant service provided by *Scheduled Generators*, *Semi-Scheduled Generators*, *Scheduled Network Service Providers* or *Market Customers* in the *region* to which the *direction* relates, for the 12 months immediately preceding the *trading day* in which the *direction* was issued; and

DQ = is either:

(A) the difference between the total *adjusted gross energy* delivered or consumed by the *Directed Participant* and the total *adjusted gross energy* that would have been delivered or consumed by the *Directed Participant* had the *direction* not been issued; or

(B) the amount of the relevant *market ancillary service* which the *Directed Participant* has been *enabled* to provide in response to the *direction.*

(d) If at the time *AEMO* issues a *direction*, the *Directed Participant* had submitted a valid *dispatch bid*, *dispatch offer* or *rebid* for *dispatch* of the service that is to be *dispatched* in accordance with the *direction*, the *Directed Participant* is entitled to receive compensation for the provision of that service at a price equal to the *price* in that *dispatch bid*, *dispatch offer* or *rebid* as appropriate.

(e) *AEMO* must, in accordance with the *intervention settlement timetable*, advise each *Directed Participant* in writing of the amount the *Directed Participant* is entitled to receive pursuant to clause 3.15.7(c) or clause 3.15.7(d).

3.15.7A Payment to Directed Participants for services other than energy and market ancillary services

(a) Subject to clause 3.15.7(d) and clause 3.15.7B, *AEMO* must compensate each *Directed Participant* for the provision of services pursuant to a *direction* other than *energy* and *market ancillary services*, at the fair payment price of the services determined in accordance with this clause 3.15.7A.

(b) Subject to clause 3.15.7A(e) and clause 3.15.7A(e1), *AEMO* must, in accordance with the *intervention settlement timetable* and any guidelines developed by *AEMO* in accordance with the *Rules consultation procedures*, determine if in *AEMO*'s reasonable opinion, an independent expert could reasonably be expected to determine a fair payment price for the services provided pursuant to the *direction* within a reasonable time period.

(b1) If *AEMO* determines pursuant to clause 3.15.7A(b) that an independent expert could reasonably be expected to determine a fair payment price for the services provided pursuant to the *direction* within a reasonable time period it must as soon as reasonably practicable after making such determination *publish* its determination and, subject to clause 3.15.7A(e1), appoint an independent expert, in accordance with the *intervention settlement timetable*, to determine the fair payment price for the services provided pursuant to the *direction*.

(c) *AEMO* must include as part of the terms of appointment of an independent expert the following requirements:

(1) that the independent expert must, in determining the fair payment price of the relevant service for the purposes of clause 3.15.7A, take into account:

(i) other relevant pricing methodologies in Australia and overseas, including but not limited to:

(A) other electricity markets;

(B) other markets in which the relevant service may be utilised; and

(C) relevant contractual arrangements which specify a price for the relevant service;

(ii) the following principles:

(A) the disinclination of *Scheduled Generators*, *Semi-Scheduled Generators*, *Market Generators*, *Scheduled Network Service Providers* or *Market Customers* to provide the service the subject of the *direction* must be disregarded;

(B) the urgency of the need for the service the subject of the *direction* must be disregarded;

(C) the *Directed Participant* is to be treated as willing to supply at the market price that would otherwise prevail for the directed services the subject of the *direction* in similar demand and supply conditions; and

(D) the fair payment price is the market price for the directed services the subject of the *direction* that would otherwise prevail in similar demand and supply conditions;

(2) that the independent expert must determine and *publish* a draft report, in accordance with the *intervention settlement timetable*, setting out:

(i) a description of the services provided in response to the *direction*;

(ii) the independent expert's draft determination of each fair payment price for the services provided;

(iii) the methodology and assumptions used by the independent expert in making the draft determination of the fair payment price; and

(iv) a request for submissions from interested parties on the matters set out in the draft report;

(3) that the independent expert must, in accordance with the *intervention settlement timetable*, determine the fair payment price for the services provided, taking into account the submissions received, and must prepare and *publish* a final report setting out:

(i) the description of the services provided in response to the *direction*;

(ii) the independent expert's determination of the fair payment price for the services provided;

(iii) the methodology and assumptions used by the independent expert in making the determination of each fair payment price; and

(iv) summaries of the submissions made by interested parties;

(4) that the independent expert must deliver to *AEMO* a final tax invoice for the services rendered at the time he or she *publishes* the final report; and

(5) that a report *published* by the independent expert pursuant to clause 3.15.7A(c) must not disclose *confidential information* or the identity of a *Directed Participant*.

(d) In accordance with the *intervention settlement timetable*, *AEMO* must calculate the compensation payable to the *Directed Participant* using the fair payment price *published* by the independent expert under clause 3.15.7A(c)(3).

(e) The fair payment price determined in accordance with clause 3.15.7A(c)(3) is to be the fair payment price for that service to be applied in all future occurrences where there is a *direction* for that service at any time within a

period of 12 calendar months from the date on which the determination of that price was published.

(e1) *AEMO* must not appoint an independent expert under clause 3.15.7A(b1) in respect of a *direction* for a service in respect of which:

(1) there is a determination of an independent expert in place in accordance with clause 3.15.7A(e) in relation to that service; or

(2) *AEMO* has appointed an independent expert to determine the fair payment price for that service under clause 3.15.7A and the independent expert has not yet made a determination of the fair payment price.

In these circumstances, *AEMO* must apply to the subsequent *direction* the fair payment price for that service determined, or to be determined, by the independent expert.

(f) Within 1 *business day* of calculating the compensation payable pursuant to clause 3.15.7A(a) by application of clause 3.15.7A(e) or pursuant to clause 3.15.7A(d), *AEMO* must advise the relevant *Directed Participant* in writing of the amount of compensation.

(g) The determination of a fair payment price pursuant to clause 3.15.7A(c)(1) and the calculation of compensation payable to *Directed Participants* pursuant to clause 3.15.7A(d) is final and binding.

3.15.7B Claim for additional compensation by Directed Participants

(a) Subject to clauses 3.15.7B(a1) and 3.15.7B(a4), a *Directed Participant* entitled to compensation pursuant to clause 3.15.7 or clause 3.15.7A may, in accordance with the *intervention settlement timetable*, make a written submission to *AEMO* claiming an amount equal to the sum of:

(1) the aggregate of the loss of revenue and additional net direct costs incurred by the *Directed Participant* in respect of a *scheduled generating unit*, *semi-scheduled generating unit* or *scheduled network services*, as the case may be, as a result of the provision of the service under *direction*; less

(2) the amount notified to that *Directed Participant* pursuant to clause 3.15.7(c) or clause 3.15.7A(f); less

(3) the aggregate amount the *Directed Participant* is entitled to receive in accordance with clause 3.15.6(c) for the provision of a service rendered as a result of the *direction.*

(a1) Subject to clause 3.15.7B(a4), if *AEMO* determines pursuant to clause 3.15.7A(a) that an independent expert could not reasonably be expected to determine within a reasonable period of time the relevant fair payment price, a *Directed Participant* may, in accordance with the *intervention settlement timetable*, make a written submission to *AEMO* claiming compensation from *AEMO* for the provision of services under the *direction* equal to:

(1) loss of revenue and additional net direct costs which the *Directed Participant* incurred as a result of the provision of services under the *direction*; and

(2) a reasonable rate of return on the capital employed in the provision of the service determined by reference as far as reasonably practicable to rates of return for the provision of similar services by similar providers of such services.

(a2) Subject to clause 3.15.7B(a4), if a *Directed Participant* entitled to compensation pursuant to clause 3.15.7(d) considers that the amount notified pursuant to clauses 3.15.7(e) is less than the amount it is entitled to receive pursuant to that clause, the *Directed Participant* may, in accordance with the *intervention settlement timetable*, make a written submission to *AEMO* requesting compensation from *AEMO* for that difference.

(a3) For the purposes of the calculation of additional net direct costs pursuant to paragraphs (a)(1) and (a1)(1), the additional net direct costs incurred by the *Directed Participant* in respect of that *scheduled generating unit*, *semi-scheduled generating unit* or *scheduled network services* (as the case may be) includes without limitation:

(1) fuel costs in connection with the relevant *generating unit* or *scheduled network services*;

(2) incremental maintenance costs in connection with the relevant *generating unit* or *scheduled network services*;

(3) incremental manning costs in connection with the relevant *generating unit* or *scheduled network services*;

(4) acceleration costs of maintenance work in connection with the relevant *generating unit* or *scheduled network services*, where such acceleration costs are incurred to enable the *generating unit* or *scheduled network services* to comply with the *direction*;

(5) delay costs for maintenance work in connection with the relevant *generating unit* or *scheduled network services*, where such delay costs are incurred to enable the *generating unit* or *scheduled network services* to comply with the *direction*;

(6) other costs incurred in connection with the relevant *generating unit* or *scheduled network services*, where such costs are incurred to enable the *generating unit* or *scheduled network services* to comply with the *direction*; and

(7) any compensation which the *Directed Participant* receives or could have obtained by taking reasonable steps in connection with the relevant *generating unit* or *scheduled network services* being available.

(a4) In respect of a single *intervention price trading interval*, a *Directed Participant* may only make a claim pursuant to clauses 3.15.7B(a), 3.15.7B(a1) or

3.15.7B(a2) if the amount of the claim in respect of that *intervention price trading interval* is greater than $5,000.

(b) The submissions pursuant to clauses 3.15.7B(a), 3.15.7B(a1) and 3.15.7B(a2) must:

(1) itemise each component of a claim;

(2) contain sufficient data and information to substantiate each component of a claim for loss of revenue and additional direct costs incurred and the reasonable rate of return, as the case may be; and

(3) be signed by an authorised officer of the applicant certifying that the written submission is true and correct.

(c) *AEMO* must, in accordance with the *intervention settlement timetable*:

(1) refer an *affected participant's adjustment claim or market customer's additional claim* to an independent expert to determine such claim in accordance with clause 3.12.3 if the claim is equal to or greater than $20,000 and the *additional intervention claim* that includes that claim is equal to or greater than $100,000; and

(2) determine in its sole discretion if all other claims by a *Directed Participant* in respect of that *direction* pursuant to clauses 3.15.7B(a), 3.15.7B(a1) and 3.15.7B(a2) are reasonable and if so pay the amount claimed in accordance with clause 3.15.10C.

(d) If *AEMO* considers that a claim by a *Directed Participant* under clause 3.15.7B(a) or 3.15.7B(a1) or 3.15.7B(a2) is unreasonable, it must, in accordance with the *intervention settlement timetable*:

(1) advise the *Directed Participant* of its determination in writing, setting out its reasons; and

(2) refer the matter to an independent expert to determine the claim for compensation in accordance with clause 3.12.3.

3.15.8 Funding of Compensation for directions

(a) *AEMO* must, in accordance with the *intervention settlement timetable*, calculate the "*compensation recovery amount*" being:

(1) the sum of:

(i) the total of the compensation payable to *AEMO* by *Affected Participants* and *Market Customers* under clause 3.12.2 in respect of a *direction* for the provision of *energy*; plus

(ii) the total of the amounts retained by *AEMO* pursuant to clause 3.15.6(b) in respect of a *direction* for the provision of *energy*;

(2) less the sum of:

(i) the total of the compensation payable by *AEMO* to *Affected Participants* and *Market Customers* pursuant to clause 3.12.2 in respect of a *direction* for the provision of *energy*; plus

(ii) the total of the compensation payable by *AEMO* to *Directed Participants* pursuant to clause 3.15.7(a) in respect of a *direction* for the provision of *energy*; plus

(iii) the total amount payable by *AEMO* to the independent expert pursuant to clause 3.12.3(c).

(b) *AEMO* must, in accordance with the *intervention settlement timetable*, calculate a figure for each *Market Customer* in each *region* applying the following formula:

$$MCP = \frac{E}{\Sigma E} \times \frac{RB}{\Sigma RB} \times CRA$$

where

MCP is the amount payable or receivable by a *Market Customer* pursuant to this clause 3.15.8(b);

E is the sum of the *Market Customer's adjusted gross energy* amounts at each *connection point* for which the *Market Customer* is *financially responsible* in a *region*, determined in accordance with clauses 3.15.4 and 3.15.5 in respect of the relevant *intervention price trading intervals* excluding any *loads* in respect of which the *Market Customer* submitted a *dispatch bid* for the relevant *intervention price trading interval* in that *region;* and

RB is the regional benefit determined by *AEMO* pursuant to clause 3.15.8(b1) at the time of issuing the *direction*.

CRAis the *compensation recovery amount*.

(b1) *AEMO* must, as soon as practicable following the issuance of a *direction*, determine the relative benefit each *region* received from the issuance of a *direction* in accordance with the *regional benefit directions procedures*.

(b2) *AEMO* must develop in accordance with the *Rules consultation procedures* a procedure to determine the relative benefit each *region* receives from the issuance of a *direction* (the "*regional benefit directions procedures*"). Such procedures must take into account, where applicable to the reason the *direction* was given, the *load* at risk of not being supplied if the *direction* were not issued or the extent of improvement in available *energy* reserve in the *region*, capability to control *voltage* in the *region*, and capability to control *power system frequency* within the *region* and any other relevant matters.

(c) If the figure calculated for a *Market Customer* under clause 3.15.8(b) is negative, the absolute value of that amount is the amount payable by the *Market Customer* to *AEMO* pursuant to clause 3.15.8(b).

(d) Subject to clause 3.15.22, if the figure calculated for a *Market Customer* under clause 3.15.8(b) is positive, such amount is the amount receivable by the *Market Customer* from *AEMO* pursuant to clause 3.15.8(b), subject to the provisions of clause 3.15.22.

(e) *AEMO* must, in accordance with the *intervention settlement timetable*, calculate for each *ancillary service* the subject of a *direction*, the "*ancillary service compensation recovery amount*" being:

(1) the sum of:

(i) the total of the compensation payable to *AEMO* by *Affected Participants* and *Market Customers* under clause 3.12.2 in respect of a *direction* for the provision of that *ancillary service*; plus

(ii) the total of the amounts retained by *AEMO* pursuant to clause 3.15.6(b) in respect of a *direction* for the provision of that *ancillary service*;

(2) less the sum of:

(i) the total of the compensation payable by *AEMO* to *Affected Participants* and *Market Customers* pursuant to clause 3.12.2 in respect of a *direction* for the provision of that *ancillary service*; plus

(ii) the total of the compensation payable by *AEMO* to *Directed Participants* pursuant to clause 3.15.7(a) in respect of a *direction* for the provision of that *ancillary service*; plus

(iii) the total amount payable by *AEMO* to the independent expert pursuant to clause 3.12.3(c), if the *direction* the subject of the independent expert's determination was with respect to that *ancillary service*.

(f) The *trading amount* must be calculated as follows:

(1) subject to clause 3.15.8(f)(2) and (3) *AEMO* must use the appropriate formula set out in clause 3.15.6A(c), (d), (e), (f), (g), (h) or (i) depending on which *ancillary service* was the subject of the *direction*;

(2) TNCASP, TSRP, TCRSP, TCLSP or TSFCAS (as applicable) in the relevant formula is equal to the *ancillary service compensation recovery amount* for the relevant *ancillary service* in respect of the *direction*; and

(3) if TCE, TGE, ATCE or ATGE is used in the relevant formula, then the words 'the *trading interval*' in the definitions of those terms in the

formula are to be read as 'all of the *trading intervals* during which the *direction* applied'.

(g) Any compensation payable by *AEMO* pursuant to clauses 3.12.2 and 3.15.7 not recovered pursuant to clauses 3.15.8(b) and 3.15.8(e) must be recovered from *Registered Participants* in the same proportion as the largest single fixed component of *Participants fees*.

3.15.9 Reserve settlements

(a) *AEMO's* costs incurred in contracting for the provision of *reserves* are to be met by fees imposed on *Market Customers* in accordance with this clause 3.15.9.

(b) Included in the statements to be provided under clauses 3.15.14 and 3.15.15, *AEMO* must give each *Market Participant* a statement setting out:

(1) the aggregate of the amounts payable by *AEMO* under *reserve contracts* in respect of the relevant *billing period*;

(2) any amounts determined as payable by *AEMO*:

(i) by the independent expert under clause 3.12.3; or

(ii) as a result of a *scheduled generating unit*, *scheduled network service* or *scheduled load* under a *scheduled reserve contract* being *dispatched* or *generating units* or *loads* under an *unscheduled reserve contract* being *activated*,

in respect of the relevant *billing period*; and

(3) the aggregate of the amounts receivable by *AEMO* under the *Rules* in respect of *reserve contracts* during the relevant *billing period*.

(c) Separate statements must be provided under paragraph (b):

(1) for *reserve contracts* entered into by *AEMO* specifically in respect of the *Market Participant's region* in accordance with paragraph (d)*;* and

(2) for *reserve contracts* other than those entered into for and allocated to a specific *region* or *regions*.

(d) Where either:

(1) without the intervention in the *market* of *AEMO* a *region* would otherwise, in *AEMO's* reasonable opinion, fail to meet the minimum *power system security and reliability standards*; or

(2) a *region* requires a level of *power system reliability* or *reserves* which, in *AEMO's* reasonable opinion, exceeds the level required to meet the minimum *power system security and reliability standards*,

then *AEMO* must recover its net liabilities, or distribute its net profits, under the terms of *reserve contracts* entered into to meet these requirements, from or to the *Market Customers* in that *region* in accordance with paragraph (e).

(e) In respect of *reserve contracts* entered into by *AEMO, AEMO* must calculate in relation to each *Market Customer* for each *region* in respect of each *billing period* a sum determined by applying the following formula:

$$MCP = \frac{E \text{ x } RRC}{\Sigma \text{E}}$$

where:

MCP is the amount payable by a *Market Customer* for a *region* in respect of a *billing period;*

E is the sum of all that *Market Customer's adjusted gross energy amounts* in a *region* (the **"relevant *region*"**) in each *trading interval* which occurs between 0800 hours and 2000 hours (*EST*) on a *business day* in the *billing period* excluding any *loads* in that *region* in respect of which the *Market Customer* submitted a *dispatch bid* for any such *trading interval;*

RRC is the total amount payable by *AEMO* under *reserve contracts* which relate to the relevant *region* in the *billing period* as agreed under clause 3.20.3(f); and

$\sum$E is the sum of all amounts determined as "E" in accordance with this paragraph (e) in respect of that *region.*

(f) A *Market Customer* is liable to pay *AEMO* an amount equal to the sum calculated under paragraph (e) in respect of that *Market Customer*.

(g) Operational and administrative costs incurred by *AEMO* in arranging for the provision of *reserves*, other than its liabilities under the terms of the *reserve contracts* into which it has entered, are to be recovered by *AEMO* from all *Market Participants* as part of the fees imposed in accordance with rule 2.11.

(h) For the purposes of clause 3.15.19, a re-determination by a panel established under clause 3.12.2 is to be taken to be an agreement between *AEMO* and each of the *Market Participants* and *Scheduled Generators*.

3.15.10 Administered price, market price cap or market floor price compensation payments

(a) In the event that the *AEMC* awards compensation to a *Scheduled Generator, Market Participant* which submitted a *dispatch bid* or *Scheduled Network Service Provider* in accordance with clause 3.14.6, then *AEMO* must determine an amount which shall be payable by all *Market Customers* who purchased electricity from the *spot market* in a region in which the *regional reference price* was affected by the imposition of an *administered price* or the *market*

price cap, or the *market floor price* in the *trading interval* or *trading intervals* in respect of which such compensation has been awarded.

(b) *AEMO* shall determine the amounts payable for each relevant *trading interval* by each of the affected *Market Customers* under clause 3.15.10(a) as follows:

$$\frac{APC \times E_i}{\Sigma E_i}$$

where

APC is the total amount of any compensation payments awarded by the *AEMC* to *Scheduled Generators, Market Participants* which submitted *dispatch bids* or *Scheduled Network Service Providers* in respect of that *trading interval* in accordance with clause 3.14.6.

E_i is the sum of all of the *Market Customer's adjusted gross energy* amounts, determined in accordance with clauses 3.15.4 and 3.15.5, in respect of each *trading interval* in the *billing period* and each *connection point* for which the *Market Customer* is *financially responsible* in any *region* or *regions* affected by the imposition of an *administered price* or the *market price cap* or the *market floor price*.

ΣE_i is the sum of all amounts determined as "E_i" in accordance with this clause 3.15.10 for all *Market Customers* in all *regions* affected by the imposition of an *administered price* or the *market price cap* or the *market floor price* in that *trading interval.*

(c) Within 15 *business days* of being notified by the AEMC that compensation is to be paid to a *Scheduled Generator, Market Participant* which submitted a *dispatch bid* or *Scheduled Network Service Providers* in accordance with clause 3.14.6, *AEMO* shall include in statements provided under clauses 3.15.14 and 3.15.15 separate details of any amounts payable by or to *Market Participants* as determined in accordance with this clause 3.15.10.

3.15.10A Goods and services tax

(a) In this clause 3.15.10A:

"GST" has the meaning given in the GST Act; and

"GST Act" means the *A New Tax System (Goods and Services Tax) Act 1999 (C'th)*;

"supply" and **"taxable supply"** each have the meaning given in the GST Act,

and the definition of *"supply"* in Chapter 10 does not apply.

(b) Despite anything else in the *Rules*, *Participant fees*, *spot prices*, adjustments for *directions*, *reserve settlements*, *administered price cap* compensation payments, system security *direction settlements*, *re-allocation transactions*, compensation, interest, *settlements residues*, *ancillary services settlements*,

settlements residue distributions (including *auction* proceeds), *auction expense fees* and other prices, fees, charges and amounts payable to or by *AEMO*, the *AER* or the *AEMC* in respect of supplies under the *Rules* exclude GST. Accordingly:

(1) where a *Registered Participant* makes a taxable supply to *AEMO*, the *AER* or the *AEMC* under or in connection with the *Rules* on or after 1 July 2000, *AEMO*, the *AER* or the *AEMC* (as applicable) must also pay the *Registered Participant* making the supply an additional amount equal to the consideration payable for the supply multiplied by the applicable GST rate;

(2) where *AEMO*, the *AER* or the *AEMC* makes a taxable supply to a *Registered Participant* under the *Rules* on or after 1 July 2000, the *Registered Participant* must also pay *AEMO*, the *AER* or the *AEMC* (as applicable) an additional amount equal to the consideration payable for the supply multiplied by the applicable GST rate; and

(3) *AEMO* must include in *preliminary statements*, *final statements*, *routine revised statements*, *special revised statements*, statements and invoices issued under the *Rules* the additional amounts contemplated by clauses 3.15.10A(b)(1) and (2).

(c) However, if the additional amount paid or payable to a *Registered participant*, *AEMO*, the *AER* or the *AEMC* under clause 3.15.10A(b) in respect of a taxable supply differs from the actual amount of GST payable by or to the *Registered Participant*, *AEMO*, the *AER* or the *AEMC* (as applicable) under the GST Act in respect of the relevant supply, then adjustments must be made in accordance with clause 3.15.19 so as to ensure the additional amount paid under this clause in respect of the supply is equal to the actual amount of GST payable under the GST Act in respect of the supply.

3.15.10B Restriction contract amounts

(a) If clause 3.12A.7(g) applies then *AEMO* must include in the next statement provided under clauses 3.15.14 and 3.15.15 immediately after the end of the relevant *mandatory restriction period* separate details of amounts payable:

(1) by *Market Customers* in the relevant *region* in which the *mandatory restrictions* apply an amount equal to:

$$EMCP = RSA \quad \text{x} \quad \frac{(AGE)}{(AAGE)}$$

Where:

EMCP is the payment to be made by *Market Customers* to *AEMO*.

RSA is the *restriction shortfall amount*.

AGE is the *adjusted gross energy* of a *Market Customer* in that *region* for the *mandatory restriction period* expressed in MWh.

AAGE is the aggregate of the *adjusted gross energy* of all *Market Customers* in that *region* for the *mandatory restriction period* expressed in MWh;

(2) by *Scheduled Generators* and *Scheduled Network Service Providers* to *AEMO* in accordance with clause 3.12A.7(a); and

(3) the amounts payable by *AEMO* to the *Scheduled Generators* or *Scheduled Network Service Provide*rs pursuant to *accepted restriction offer*s.

(b) Immediately upon the later of the publication of the independent expert's final report in accordance with clause 3.12A.7(i)(8) and the determination of a *dispute resolution panel* pursuant to clause 3.12A.7(m), if any, *AEMO* must include in the next statements provided under clauses 3.15.14 and 3.15.15 separate details of any amounts payable:

(i) by a *Market Customer* equal to the amount as determined in accordance with clause 3.12A.7(g)(i) less the amount determined in accordance with clause 3.15.10B(a)(1), if such number is positive together with interest on such amount calculated by applying the *bank bill rate* on the date of this statement for the period from the date of the statement referred to in clause 3.15.10B(a) to the date of this statement under clause 3.15.10B(b); and

(ii) to a *Market Customer* equal to the amount determined in accordance with clause 3.15.10B(a)(1) less the amount determined in accordance with clause 3.12A.7(g)(i), if such number is positive together with interest on such amount calculated by applying the *bank bill rate* on the date of this statement for the period from the date of the statement referred to in clause 3.15.10B(a) to the date of this statement under clause 3.15.10B(b).

(c) If clauses 3.12A.7(f) or 3.12A.7(h) apply then *AEMO* must include in the next statement provided under clauses 3.15.14 and 3.15.15 immediately after the end of the relevant *mandatory restriction period* separate details of any amounts payable:

(i) by or to *Market Customers* as determined in accordance with clauses 3.12A.7(e) or 3.12A.7(h) respectively;

(ii) by *Scheduled Generators* and *Scheduled Network Service Providers* to *AEMO* in accordance with clause 3.12A.7(a); and

(iii) the amounts payable by *AEMO* to the *Scheduled Generators* or *Scheduled Network Service Provide*rs pursuant to all *accepted restriction offer*s.

3.15.10C Intervention Settlements

(a) *AEMO* must include in the final statement provided under clause 3.15.14 and 3.15.15 for a *billing period* in which a *direction* was issued:

(1) for each *Affected Participant* and *Market Customer* in relation to that *direction* the amount calculated pursuant to clause 3.12.2(c);

(2) for each *Directed Participant* in relation to that *direction* the amount calculated pursuant to clause 3.15.7(c) or clause 3.15.7A(a) by application of clause 3.15.7A(e), as the case may be;

(3) for each *Market Customer* in relation to that *direction* the amount calculated pursuant to clause 3.15.8(b) by application of clause 3.15.8 mutatis mutandis provided that the amount for the purposes of:

(i) clause 3.15.8(a)(1)(i) shall be the total amount payable to *AEMO* by *Affected Participants* and *Market Customers* calculated pursuant to clause 3.12.2(c);

(ii) clause 3.15.8(a)(1)(ii) shall be the amount calculated in accordance with that clause;

(iii) clause 3.15.8(a)(2)(i) shall be the total amount payable by *AEMO* to *Affected Participants* and *Market Customers* calculated pursuant to clause 3.12.2(c);

(iv) clause 3.15.8(a)(2)(ii) shall be the sum of the total amount payable by *AEMO* to *Directed Participants* calculated pursuant to clause 3.15.7(c) and 3.15.7A(a) by application of 3.15.7A(e); and

(v) clause 3.15.8(a)(2)(iii) shall be zero; and

(4) for each *Market Customer* and *Market Generator* in relation to that *direction* an amount calculated pursuant to clause 3.15.8(e) by application of clause 3.15.8 mutatis mutandis provided that for the purposes of clause 3.15.8(f)(2) TNCASP, TSRP, TCRSP, TCLSP and TSFCAS shall be the total compensation payable by *AEMO* for the relevant *ancillary service* calculated in accordance with clause 3.15.7(c) or clause 3.15.7A(a) by application of clause 3.15.7A(e), as the case may be.

(b) *AEMO* must include in the first statement it provides under clauses 3.15.14 and 3.15.15 following a final determination of all total amounts payable or receivable by it pursuant to clause 3.12.2, clause 3.15.7(a) and clause 3.15.8, separate details of the amount:

(1) receivable by each *Directed Participant* pursuant to clause 3.15.7(a) less the amount, if any, paid to that *Directed Participant* pursuant to clause 3.15.10C(a)(2);

(2) receivable by each *Affected Participant* or *Market Customer* pursuant to clause 3.12.2:

(i) less the amount paid to that *Affected Participant* or *Market Customer*, in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(1), if any; or

(ii) plus the amount paid by that *Affected Participant* or *Market Customer* in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(1), if any;

(3) payable by each *Affected Participant* or *Market Customer* pursuant to 3.12.2:

(i) less the amount paid by that *Affected Participant* or *Market Customer*, in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(1), if any; or

(ii) plus the amount paid to that *Affected Participant* or *Market Customer* in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(1), if any;

(4) receivable by each *Market Customer* pursuant to clause 3.15.8(b):

(i) less the amount paid to that *Market Customer* in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(3), if any; or

(ii) plus the amount paid by that *Market Customer* in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(3), if any;

(5) payable by each *Market Customer* pursuant to clause 3.15.8(b):

(i) less the amount paid by that *Market Customer* in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(3), if any; or

(ii) plus the amount paid to that *Market Customer* in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(3), if any;

(6) if an *Affected Participant* or *Market Customer* is not entitled to any compensation pursuant to clause 3.12.2, the amount:

(i) receivable by that person equal to the amount paid by that person pursuant to clause 3.15.10C(a); or

(ii) payable by that person equal to the amount paid to that person pursuant to clause 3.15.10C(a);

(7) payable by each *Market Customer* and *Market Generator* equal to:

(i) the amount payable by the *Market Customer* or *Market Generator*, as the case may be, pursuant to clause 3.15.8(e) by application of clause 3.15.8 mutatis mutandis provided that for the purposes of clause 3.15.8(f)(2) TNCASP, TSRP, TCRSP, TCLSP and TSFCAS shall be the total compensation payable by *AEMO* for the relevant *ancillary service* calculated in accordance with clause 3.15.7A(a); less

(ii) the amount paid by the *Market Customer* or *Market Generator*, as the case may be, in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(4); and

(8) payable by *Registered Participants* pursuant to clause 3.15.8(g).

(c) If on application by the *AER* a court determines, in relation to a *direction*, that a *Directed Participant* has breached clause 4.8.9(c2) then:

(1) the *Directed Participant* shall not be entitled to, and must repay, any compensation plus interest pursuant to clauses 3.15.7, 3.15.7A and 3.15.7B, in relation to that *direction*; and

(2) the *AER* must forward to *AEMO* a written notice of the court's determination.

(3) *AEMO* must include in the first relevant statement it provides under clauses 3.15.14 and 3.15.15 following receipt of the notice from the *AER* issued pursuant to clause 3.15.10C(c)(2) separate details of:

(i) an amount payable to *AEMO* by the *Directed Participant* equal to the total compensation received by that *Directed Participant* in accordance with clauses 3.15.7, 3.15.7A and 3.15.7B plus interest on that total compensation computed at the average *bank bill* rate for the period from the date of payment of such amount to the *Directed Participant* until the date of that first statement;

(ii) an amount payable by *AEMO* to each relevant *Market Customer* calculated by applying clause 3.15.8(b) mutatis mutandis except that:

(A) MCP shall equal the amount receivable by the *Market Customer*; and

(B) CRA shall equal that part of the amount, including interest, calculated pursuant to clause 3.15.10C(c)(3)(i) attributable to the provision of *energy* by the *Directed Participant*; and

(iii) an amount payable by *AEMO* to each relevant *Market Customer* and *Market Generator* calculated by applying clause 3.15.8(f)(2) mutatis mutandis except that:

(A) all *trading amounts* determined by this clause 3.15.10C(c)(3)(iii) shall be positive; and

(B) TNCASP, TSRP, TCRSP, TCLSP, and TSFCAS shall all be an amount equal to that part of the amount, including interest, calculated pursuant to clause 3.15.10C(c)(3)(i) attributable to the provision of the relevant *ancillary service*.

3.15.11 Reallocation transactions

(a) A *reallocation transaction* is a *transaction* undertaken with the consent of two *Market Participants* and *AEMO*, under which *AEMO* credits one *Market Participant* with a positive *trading amount* in respect of a *trading interval*, in consideration of a matching negative *trading amount* debited to the other *Market Participant* in respect of the same *trading interval*.

(b) *Reallocation transactions* may be of any type permitted in the *reallocation procedures*.

(c) A *reallocation transaction* is initiated by a *reallocation request* lodged with *AEMO* by or on behalf of two *Market Participants*.

(d) A *reallocation request* must:

(1) contain the information required by the *reallocation procedures*; and

(2) be lodged with *AEMO* in accordance with the *reallocation procedures* and the timetable for *reallocation requests* as *published* by *AEMO* from time to time (the **reallocation timetable**).

(e) Upon receipt of a *reallocation request AEMO* must register the *reallocation request* within the time specified in the *reallocation procedures* and the reallocation timetable and may impose conditions on that registration as contemplated by the *reallocation procedures*.

(f) After a *reallocation request* has been registered in respect of two *Market Participants*, *AEMO* may deregister the *reallocation request* if:

(1) the *prudential requirements* are not satisfied by either of those *Market Participants*;

(2) either of the *Market Participants* fails to comply with any conditions imposed by *AEMO* in respect of the *reallocation request* at the time it was registered;

(3) both *Market Participants* notify *AEMO* in accordance with the *reallocation procedures* that they require the *reallocation request* to be terminated; or

(4) a *default event* occurs in respect of either of the *Market Participants* and *AEMO* exercises its powers under paragraph (l).

(g) Deregistration of a *reallocation request* prevents *reallocation transactions* occurring in respect of all the *trading intervals* that occur after the time of deregistration.

(h) *AEMO* must not deregister a *reallocation request* under paragraph (f) otherwise than in accordance with the *reallocation procedures*.

(i) The *Market Participants* may agree to reverse the effect of a registered *reallocation request* by lodging a new *reallocation request* in accordance with the *reallocation procedures* and the reallocation timetable.

(j) *AEMO* must include details of *reallocation transactions* in the *settlement statements* issued to all parties to those *reallocation transactions*.

(k) Where there is a registration of a *reallocation request* in respect of a *trading interval* and that *trading interval* has occurred, a *reallocation transaction* occurs in accordance with that *reallocation request*.

(l) If a *default event* occurs in relation to a party to a *reallocation request* when one or more of the *trading intervals* specified in the *reallocation request* has not occurred, *AEMO* may deregister the *reallocation request* by notice given at any time whilst the *default event* is subsisting.

(m) The deregistration under paragraph (l) is effective immediately upon *AEMO* notifying both parties to a *reallocation request* of the deregistration and the deregistration:

(1) is effective for all *trading intervals* commencing after the time specified in the notice, and notwithstanding that the *default event* may be subsequently cured; and

(2) prevents the completion of the requested *reallocation transactions* in the *trading intervals* that commence at or after the time specified in the deregistration notice.

(n) In addition to any other right *AEMO* may exercise following a *default event*, upon deregistration of a *reallocation request AEMO* may redetermine the *maximum credit limit* and *trading limit* for either or both of the parties to the *reallocation request*, having regard to the deregistration that has occurred.

3.15.11A Reallocation procedures

(a) *AEMO* must develop and *publish* procedures in accordance with the *Rules consultation procedures*, to enable *Market Participants* to create and record *reallocation requests* and *reallocation transactions* in accordance with clause 3.15.11 in respect of electricity trading transactions other than those conducted through the *market* and/or establish mutual indemnification arrangements with other operators of markets for electricity-based trading (the "*reallocation procedures*").

(b) *AEMO* may, from time to time and in accordance with the *Rules consultation procedures*, amend or replace the *reallocation procedures*.

(c) Paragraph (b) does not apply to amendments to the *reallocation procedures* that are of a minor or administrative nature and *AEMO* may make such amendments at any time.

(d) *NEMMCO* must develop and *publish* the first *reallocation procedures* by 1 January 2008 and there must be such procedures available at all times after that date.

(e) *AEMO* is not required to meet its obligations under paragraph (a) in any way which increases *AEMO's* risks in the collection of moneys owed to it in accordance with any provisions of the *Rules*.

3.15.12 Settlement amount

(a) Subject to clause 3.15.12(b), for each *billing period AEMO* must calculate a net "*settlement amount*" for each *Market Participant* by aggregating the *trading amounts* resulting for each *Market Participant* from each *transaction* in respect of each *trading interval* occurring in that *billing period* together with *Participant fees* determined in accordance with rule 2.11 and any other amounts payable or receivable by the *Market Participants* in that *billing period* under this Chapter 3. The *settlement amount* will be a positive or negative dollar amount for each *Market Participant*.

(b) *AEMO* may calculate an estimate of the net *settlement amount* for each *Market Participant* (the "*estimated settlement amount*") if, within the time provided for the giving of *preliminary statements* in accordance with clause 3.15.14, *AEMO* is prevented from calculating the net *settlement amount* in accordance with clause 3.15.12(a) by factors which are beyond the control of *AEMO* and which deprive *AEMO* of the relevant data required to calculate the net *settlement amount* (the "*relevant data*"), including:

(1) a failure of:

(i) metering data processing;

(ii) communications; or

(iii) the settlements processing system; and

(2) any other events or circumstances which prevent the calculation of the actual net *settlement amount* by *AEMO*.

(c) *AEMO* must develop the principles and the process to be applied in calculating the *estimated settlement amount*, and make any necessary modifications to those principles and that process, in accordance with the *Rules consultation process*.

3.15.13 Payment of settlement amount

Where the *settlement amount* for a *Market Participant* is negative the absolute value of the *settlement amount* is an amount payable by the *Market Participant* to *AEMO* pursuant to clause 3.15.15. Where the *settlement amount* for a *Market Participant* is positive the *settlement amount* is an amount receivable by the *Market Participant* from *AEMO* pursuant to clause 3.15.15, subject to the provisions of clause 3.15.22.

3.15.14 Preliminary statements

(a) Subject to clause 3.15.14(b), within 5 *business days* after the end of each *billing period*, *AEMO* must give each *Market Participant* a draft of the statement to be given to the *Market Participant* under clause 3.15.15 together with supporting data relating to the *transactions* in that *billing period* and the prices at which electricity was bought and sold by the *Market Participant*.

(b) If *AEMO* calculates an *estimated settlement amount* in accordance with clause 3.15.12(b), *AEMO* must:

(1) when giving a *preliminary statement* in accordance with this clause 3.15.14, provide a detailed report to affected *Market Participants* setting out the basis and calculations used for its estimation; and

(2) if requested to do so by affected *Market Participants*, consult with those *Market Participants* to ascertain whether or not any adjustments are required to the *estimated settlement amount* prior to the giving of a *final statement*.

3.15.15 Final statements

(a) No later than 18 *business days* after the end of each *billing period*, *AEMO* must give to each *Market Participant* a *final statement* stating the amounts payable by the *Market Participant* to *AEMO* or receivable by the *Market Participant* from *AEMO* (subject to clause 3.15.22) in respect of the relevant *billing period*.

(b) Unless *AEMO* has used an *estimated settlement amount* in accordance with clause 3.15.12, the statements issued under this clause 3.15.15 must include supporting data for all amounts payable or receivable.

3.15.15A Use of estimated settlement amounts by AEMO

(a) Subject to clause 3.15.15A(b), if *AEMO* calculates an *estimated settlement amount* in accordance with clause 3.15.12(b), then clauses 3.15.13, 3.15.14 and 3.15.15 will have effect mutatis mutandis by applying the *estimated settlement amount* in place of a *settlement amount* for a *Market Participant* for the purposes of those clauses.

(b) If *AEMO* receives *relevant data*:

(1) after it has given the *preliminary statement* in accordance with clause 3.15.14 but before giving a *final statement*, then it must adjust the *estimated settlement amount* accordingly for the purposes of preparing the *final statement*; or

(2) within 60 days after it has given a *final statement* to which the *relevant data* relates, then *AEMO* must adjust the relevant *estimated settlement amount* accordingly and issue a *revised statement* in accordance with clause 3.15.19(a).

3.15.16 Payment by market participants

On the 20th *business day* after the end of a *billing period*, or 2 *business days* after receiving a statement under clause 3.15.15, whichever is the later, and in accordance with the *timetable* each *Market Participant* must pay to *AEMO* in cleared funds the net amount stated to be payable by that *Market Participant* in that statement whether or not the *Market Participant* continues to dispute the net amount payable.

3.15.17 Payment to market participants

Subject to clause 3.15.22 on the *day* on which *AEMO* is to be paid under clause 3.15.16, *AEMO* must pay to each *Market Participant* in cleared funds the net amount stated to be payable to that *Market Participant* in the relevant statement given to it under clause 3.15.15.

3.15.18 Disputes

(a) In the event of a dispute between a *Market Participant* and *AEMO* concerning either the net amount (including any *estimated settlement amount*) stated in a *preliminary statement* provided under clause 3.15.14 to be payable by or to it or the supporting data, they must each use reasonable endeavours to resolve the dispute within 15 *business days* of the end of the relevant *billing period.*

(b) Disputes in respect of *final statements* or the supporting data provided with them in accordance with clause 3.15.15 must be raised within 6 months of the relevant *billing period*.

(c) Disputes raised under this clause 3.15.18:

(1) can only be raised by a *Market Participant* or *AEMO* issuing a written notice of dispute in the form prescribed by *AEMO*'s *DMS* and otherwise in accordance with rule 8.2;

(2) must be resolved by agreement or pursuant to rule 8.2; and

(3) are, for the purpose of this clause, deemed to have been raised on the day *AEMO* receives the written notice of dispute.

(d) A *Market Participant* that may be materially affected by the outcome of a dispute under clause 3.15.18 may be joined to that dispute by the *Adviser* on request by that *Market Participant* or by *AEMO*.

3.15.19 Revised Statements and Adjustments

(a) Where a dispute about a *final statement* has been either resolved by agreement between *AEMO* and the relevant *Market Participant* ("the Disputant") or determined under rule 8.2 and an adjustment to the *settlement amount* stated in the disputed *final statement* is required, or an adjustment is required under clause 3.15.10A, *AEMO* must:

(1) recalculate the *settlement amount* for that *Market Participant* and each other *Market Participant* who received a *final statement* for the relevant *billing period*:

(i) in accordance with the applicable procedures set out in the *Rules* and,

(ii) taking into account the adjustment;

(2) if the adjustment is required as a result of a dispute and the recalculated *settlement amount* for the Disputant is between 95% and 105% of the relevant *settlement amount*:

(i) calculate for each *Market Participant* the amount by which the relevant *settlement amount* must be adjusted to be equal to the recalculated *settlement amount* after taking into account any *routine* or *special revised statement*; and

(ii) for each *Market Participant* include that amount in the next *routine revised statement* given to those *Market Participants* for the relevant *billing period* practicable and if there is no *routine revised statement*, in accordance with clauses 3.15.19(a)(3)(ii) and (iii).

(3) if the adjustment is required under clause 3.15.10A, or the adjustment is required as a result of a dispute and the recalculated *settlement amount* for the Disputant is less than 95% or more than 105% of the relevant *settlement amount*:

(i) calculate for each *Market Participant* the amount by which the relevant *settlement amount* must be adjusted to be equal to the recalculated *settlement amount* after taking into account any *routine* or *special revised statement*;

(ii) give each *Market Participant* a *special revised statement* for the relevant *billing period* in addition to any *routine revised statement* given under clause 3.15.19(b); and

(iii) give each *Market Participant* a notice advising of the reason why a *settlement statement* was given by *AEMO* under clause 3.15.19(a)(3).

(b) For each *billing period AEMO* must give each *Market Participant* a *routine revised statement* approximately 20 weeks after the relevant *billing period* and approximately 30 weeks after the relevant *billing period*. Each *routine revised statement* must recalculate the *Market Participant's settlement amount* for that *billing period*:

(1) taking into account all amended *metering data*, amended *trading amounts*, amended *Participant fees* and any other amounts payable or receivable by *Market Participants* under this Chapter 3; and

(2) using the most recent version of *AEMO's* settlement calculation software applicable to that *billing period*.

(c) Each *special* and *routine revised statement* issued under this clause must:

(1) state the revised *settlement amount* for the relevant *billing period*;

(2) be issued in accordance with the revised statement policy;

(3) be issued with revised supporting data for the *transactions* for the relevant *billing period* (except in the case of a *special revised statement* dealing with an adjustment required under clause 3.15.10A) and must include supporting data for all amounts payable or receivable.

(d) If *AEMO* has issued a *routine revised statement* or *special revised statement* (the "revised statement") to a *Market Participant* in respect of a *billing period* (the "original *billing period*"), *AEMO* must include in the next *final statement* to the *Market Participant* issued not less than 8 *business days* after the *revised statement* (the "next statement"):

(1) the amount necessary to put the *Market Participant* in the position it would have been in at the time payment was made under clause 3.15.16 or 3.15.17 (as applicable) in respect of the *final statement* for the original *billing period*, if the original *revised statement* had been given as the *final statement* for the *billing period*, but taking into account any adjustments previously made under this clause 3.15.19 as a result of any other *routine revised statement* or *special revised statement* in relation to the original *billing period*; and

(2) interest on the amount referred to in clause 3.15.19(d)(1) computed at the average *bank bill rate* for the period from the date on which payment was required to be made under clauses 3.15.16 and 3.15.17 in respect of the *final statement* for the original *billing period* to the date on which payment is required to be made under those clauses in respect of the next statement.

(e) *AEMO* must develop and publish a policy for *routine* and *special revised statements*. *AEMO* may amend the policy at any time. *AEMO* must develop and amend the policy in accordance with the *Rules consultation procedures.* The policy must include:

(1) a calendar setting out when *routine revised statements* will be issued by *AEMO*;

(2) the process by which the calendar can be amended or varied by *AEMO* and the process by which *Market Participants* are notified of any amendment and variation; and

(3) a transitional process by which *AEMO* will issue any outstanding *routine revised statement*.

3.15.20 Payment of adjustments

(a) Adjustments made and interest calculated and included in a *final statement* under clause 3.15.19 must be paid as part of the *settlement amount* shown on that *final statement* in accordance with either clause 3.15.16 or 3.15.17.

(b) Clause 3.15.22 does not apply to a *final statement* to the extent that the *final statement* incorporates an adjustment amount and interest pursuant to clause 3.15.19.

(c) Disputes in respect of adjustment amounts and interest incorporated into a *final statement* pursuant to clause 3.15.19 must be:

(1) raised within 20 *business days* of the date of the *final statement* that they are incorporated into; and

(2) resolved by agreement or pursuant to the dispute resolution procedures set out in rule 8.2.

3.15.21 Default procedure

(a) Each of the following is a *default event* in relation to a *Market Participant:*

(1) the *Market Participant* does not pay any money due for payment by it under the *Rules* by the appointed time on the due date;

(2) *AEMO* does not receive payment in full of any amount claimed by *AEMO* under any *credit support* in respect of a *Market Participant*, within 90 minutes after the due time for payment of that claim;

(3) the *Market Participant* fails to provide *credit support* required to be supplied under the *Rules* by the appointed time on the due date;

(4) it is unlawful for the *Market Participant* to comply with any of its obligations under the *Rules* or any other obligation owed to *AEMO* or it is claimed to be so by the *Market Participant*;

(5) it is unlawful for any *credit support provider* in relation to the *Market Participant* to comply with any of its obligations under the *Rules* or any other obligation owed to *AEMO* or it is claimed to be so by that *credit support provider*;

(6) an authorisation from a government body necessary to enable the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* to carry on their respective principal business or activities ceases to be in full force and effect;

(7) the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* ceases or threatens to cease to carry on its business or a substantial part of its business;

(8) the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* enters into or takes any action to enter into an arrangement (including a scheme of arrangement), composition or compromise with, or assignment for the benefit of, all or any class of their respective creditors or members or a moratorium involving any of them;

(9) the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* states that it is unable to pay from its own money its debts when they fall due for payment;

(10) a receiver or receiver and manager is appointed in respect of any property of the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant*;

(11) an administrator, provisional liquidator, liquidator, trustee in bankruptcy or person having a similar or analogous function under the laws of any relevant jurisdiction is appointed in respect of the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant*, or any action is taken to appoint any such person;

(12) an application or order is made for the winding up or dissolution or a resolution is passed or any steps are taken to pass a resolution for the winding up or dissolution of the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant*;

(13) A notice under section 601AB(3) of the Corporations Act is given to the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* unless the registration of that *Market Participant* or *credit support provider* is reinstated under section 601AH of the Corporations Act;

(14) the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* dies or is dissolved unless such notice of dissolution is discharged;

(15) the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* is taken to be insolvent or unable to pay its debts under any applicable legislation.

(b) Where a *default event* has occurred in relation to a *Market Participant*, *AEMO* may:

(1) issue a "*default notice*" specifying the alleged default and requiring the *Market Participant* to remedy the default by 1.00 pm (*Sydney time*) the next day following the date of issue of the *default notice*; and/or

(2) if it has not already done so, make claim upon any *credit support* held in respect of the obligations of the *Market Participant* for such amount as *AEMO* determines represents the amount of any money actually or contingently owing by the *Market Participant* to *AEMO* pursuant to the *Rules*.

(c) If the *default event* is not remedied by 1.00 pm (*Sydney time*) the next *day* following the date of issue of the *default notice* or any later deadline agreed to in writing by *AEMO*, or if *AEMO* receives notice from the *defaulting Market Participant* that it is not likely to remedy the default, then *AEMO* may issue a "*suspension notice*" under which *AEMO* notifies the *defaulting Market Participant* of the date and time from which it is suspended from trading, and the extent of that suspension.

(d) At the time of issue of a *suspension notice*, or as immediately thereafter as is practicable, *AEMO* must forward a copy of the *suspension notice* to the *AER* and to each *Market Participant* which is *financially responsible* for a *transmission network connection point* to which is allocated a *connection point* for which the defaulting *Market Participant* is *financially responsible*.

(e) *AEMO* must lift a *suspension notice* if the *default event* is remedied and there are no other circumstances in existence which would entitle *AEMO* to issue a *suspension notice*.

(f) *AEMO* must issue a public announcement that the *Market Participant* has been suspended from the *market* including details of the extent of the suspension, simultaneously with, or at any time after, a *suspension notice* is issued. *AEMO* must issue a public notice promptly after a *suspension notice* is lifted.

(g) From the time of suspension that *AEMO* stipulates in a *suspension notice* to a *Market Participant* the *Market Participant* is ineligible to trade or enter into any *transaction* in the *market* to the extent specified in the notice, until such time that *AEMO* notifies the *Market Participant* and all other *Market Participant*s of the date and time that the suspension has been lifted.

(h) The *defaulting Market Participant* must comply with a *suspension notice*.

(i) Following the issue of a *suspension notice*, *AEMO* may do all or any of the following to give effect to the *suspension notice*:

(1) reject any *dispatch bid* or *dispatch offer* submitted by the *defaulting Market Participant*;

(2) withhold the payment of any amounts otherwise due to the *defaulting Market Participant* under the *Rules*; or

(3) deregister or reject any *reallocation request* to which the *defaulting Market Participant* is a party.

The issue of a *suspension notice* which has not been lifted is a "relevant disconnection event" (ie. an event for which a *Registered Participant's market loads* may be *disconnected*) within the meaning of section 63(2) of the *National Electricity Law*.

(j) Unless provided with instructions from the relevant *participating jurisdiction* or *participating jurisdictions* that a nominated third party is to assume financial responsibility for a suspended *Market Participant*'s obligations under the *Rules* and that person does so, then, following the issue of a *suspension notice*,

AEMO must request the *AER* to seek, and the *AER* must then seek, an order from a court to physically *disconnect market loads* for which the *defaulting Market Participant* is *financially responsible*.

3.15.22 Maximum total payment in respect of a billing period

(a) For the purposes of this clause 3.15.22, the *maximum total payment* in respect of a *billing period* is equal to:

(1) the aggregate of the *energy trading amounts* as determined in accordance with clause 3.15.6 and *reallocation* amounts as determined in accordance with clause 3.15.11 received by *AEMO* from *Market Participants* in accordance with clause 3.15.16 in respect of that *billing period* in accordance with the *timetable* on the latest date for payment by *Market Participants* as described in clause 3.15.16 (called the *payment date*),

plus

(2) if there is one or more *Market Participants* in default, the aggregate amount which *AEMO* is able to obtain from the *credit support* and apply from security deposits provided by the *Market Participants* in default under rule 3.3 on the *payment date* in accordance with the *timetable*,

minus

(3) if there is one or more *Market Participants* in default, the aggregate of amounts payable to *AEMO* by those *Market Participants* in respect of that *billing period* in accordance with clause 3.15.16 but not received in accordance with the *timetable* on the latest date for payment as described in clause 3.15.16 (called the *payment date*),

plus

(4) if there is one or more *Market Participants* in default, the aggregate of *energy trading amounts* and *reallocation* amounts payable to *AEMO* under clauses 3.15.6 and 3.15.11 by those *Market Participants* in respect of that *billing period* in accordance with clause 3.15.16 but not received in accordance with the *timetable* on the latest date for payment as described in clause 3.15.16 (called the *payment date*),

minus

(5) *inter-regional* and *intra-regional settlements* surpluses as determined or allocated by *AEMO* in accordance with the procedure established under clause 3.6.5.

(b) The maximum amount which *AEMO* is required to pay to *Market Participants* in respect of *spot market transactions* or *reallocation transactions* in respect of a *billing period* is equal to the *maximum total payment* in respect of that *billing period*.

(c) If the *maximum total payment* in respect of a *billing period* is not sufficient to meet the aggregate of the net amounts payable by *AEMO* to each of the *Market Participants* to whom payments are to be made in relation to *spot market transactions* or *reallocation transactions* in respect of the *billing period* ("the *aggregate payment due*"), then the aggregate amount payable by *AEMO* to each relevant *Market Participant* for any of these *transactions* in respect of that *billing period* shall be reduced by applying the following formula:

$$AAP = SAP \times \frac{A}{B}$$

where:

AAP is the reduced amount actually payable by *AEMO* to the relevant *Market Participant* in respect of the relevant *billing period*;

SAP is the net amount that would have been payable to the relevant *Market Participant* in respect of *spot market transactions* or *reallocation transactions* in respect of the relevant *billing period* but for the application of this clause 3.15.22;

A is the *maximum total payment* in respect of the *billing period*; and

B is the *aggregate payment due* in respect of the *billing period*.

(d) This clause 3.15.22 applies notwithstanding any other provision of this Chapter.

3.15.23 Maximum total payment in respect of a financial year

(a) If in a *financial year* a *Market Participant* suffers a reduction in payment under clause 3.15.22 the provisions of this clause shall apply to adjust the payments made to each *Market Participant* in the *financial year*.

(b) The ratio of the overall shortfall to the sum of the *aggregate payments due* for a financial year shall be determined by the following formula:

$$SS = \frac{A_1 + C}{B_1}$$

where:

SS is the ratio of the overall shortfall to the sum of the *aggregate payments due* for the *financial year*;

A_1 is the aggregate of the As referred to in clause 3.15.22, being the *maximum total payment* in respect of each *billing period* forming the *financial year;*

B_1 is the aggregate of the Bs referred to in clause 3.15.22, being the *aggregate payment due* in respect of each *billing period* forming the *financial year*; and

C is the aggregated late payments and *credit support* receipts in respect of *defaulting Market Participants* in the *financial year* plus interest received on such amounts under clause 3.15.25.

(c) The shortfall for a *financial year* shall be applied pro rata to each *Market Participant* in the *financial year* by applying the following formula:

$SS_1 = (SAP_1 \quad SS) - AAP_1$

where:

SS_1 is the shortfall or surplus payable by or due to the *Market Participant* in respect of the *financial year;*

SAP_1 is the aggregate of the SAPs referred to in clause 3.15.22 being the net amounts due to the *Market Participant* in respect of each *billing period* forming the *financial year;*

SS is determined in accordance with clause 3.15.23(b); and

AAP_1 is the aggregate of the AAPs referred to in clause 3.15.22, being the reduced amounts payable to the *Market Participant* in respect of each *billing period* forming the *financial year.*

(d) *AEMO* must issue a statement stating the SS_1 amount payable to or receivable by the *Market Participant* in respect of this clause 3.15.23. If SS_1 is positive, such that an amount is payable by *AEMO* it will credit the sum to the *Market Participant's* account in the next *billing period*. If SS_1 is negative, such that an amount is payable by a *Market Participant*, *AEMO* will at its discretion either debit the sum to the *Market Participant* in the next *billing period* or issue an invoice for immediate payment of the amount.

3.15.24 Compensation for reductions under clause 3.15.23

(a) If:

(1) a *Market Participant* suffers a reduction in payment under clause 3.15.23; and

(2) an amount is recovered by *AEMO* after the end of a *financial year* from the person whose default gave rise (in whole or in part) to the reduction, in respect of the default,

then, subject to clause 3.15.24(c), the *Market Participant* is entitled to be paid by *AEMO* out of the amount recovered the amount of the reduction suffered and interest for receiving the amount of the reduction later than it would otherwise have done.

(b) The amount of the interest payable under clause 3.15.24(a) is to be determined in each case by *AEMO*.

(c) If the amount recovered from the person whose default gave rise to the reduction is not sufficient to pay all *Market Participant*s the amounts to which they are entitled under clause 3.15.23 then the amount recovered is to be distributed amongst them pro rata according to the reductions suffered. Such distribution to be made at any time following the end of a *financial year*.

3.15.25 Interest on overdue amounts

(a) A *Market Participant* or *AEMO* must pay interest on any unpaid moneys due and payable by it under this Chapter.

(b) The rate of interest payable under this clause 3.15.25 is the *bank bill rate* calculated as simple interest on a daily basis from the date payment was due, up to and including the date of payment, with interest compounding monthly on the last *day* of each month whilst the unpaid moneys remain outstanding.

3.16 Participant compensation fund

3.16.1 Establishment of Participant compensation fund

(a) *AEMO* must continue to maintain, in the books of the corporation, a fund called the *Participant compensation fund* for the purpose of paying compensation to *Scheduled Generators*, *Semi-Scheduled Generators* and *Scheduled Network Service Providers* as determined by the *dispute resolution panel* for *scheduling errors* under this Chapter 3.

(b) *AEMO* must pay to the *Participant compensation fund* that component of *Participant fees* under rule 2.11 attributable to the *Participant compensation fund*.

(c) The funding requirement for the *Participant compensation fund* for each *financial year* is the lesser of:

(1) $1,000,000; and

(2) $5,000,000 minus the amount which *AEMO* reasonably estimates will be the balance of the *Participant compensation fund* at the end of the relevant *financial year*.

(d) The *Participant compensation fund* is to be maintained by *AEMO* and is the property of *AEMO*.

(e) Any interest paid on money held in the *Participant compensation fund* will accrue to and form part of the *Participant compensation fund*.

(f) *AEMO* must pay from the *Participant compensation fund* all income tax on interest earned by the *Participant compensation fund* and must pay from the *Participant compensation fund* all bank account debit tax, financial institutions duty and bank fees in relation to the *Participant compensation fund*.

(g) Upon ceasing to be a *Scheduled Generator* or a *Semi-Scheduled Generator*, the relevant *Generator* is not entitled to a refund of any contributions made to the *Participant compensation fund*.

(h) Upon ceasing to be a *Scheduled Network Service Provider*, a *Scheduled Network Service Provider* is not entitled to a refund of any contributions made to the *Participant compensation fund*.

3.16.2 Dispute resolution panel to determine compensation

(a) Where a *scheduling error* occurs, a *Market Participant* may apply to the *dispute resolution panel* for a determination as to compensation under this clause 3.16.2.

(b) Where a *scheduling error* occurs, the *dispute resolution panel* may determine that compensation is payable to *Market Participants* and the amount of any such compensation payable from the *Participant compensation fund*.

(c) A determination by the *dispute resolution panel* as to compensation must be consistent with this clause 3.16.2.

(d) A *Scheduled Generator* or *Semi-Scheduled Generator* who receives an instruction in respect of a *scheduled generating unit* or *semi-scheduled generating unit* (as the case may be) to operate at a lower level than the level at which it would have been instructed to operate had the *scheduling error* not occurred, will be entitled to receive in compensation an amount determined by the *dispute resolution panel*.

(e) A *Scheduled Network Service Provider* who receives an instruction in respect of its *scheduled network services* to transfer less *power* on the *scheduled network service* than it would have been instructed to transfer had the *scheduling error* not occurred, will be entitled to receive in compensation an amount determined by the *dispute resolution panel*.

(f) A *Scheduled Generator* or *Semi-Scheduled Generator* who receives a *dispatch instruction* in respect of a *generating unit* to operate at a level consistent with a *dispatch offer price* (with reference to the relevant *regional reference node*) which is higher than the *dispatch price*, due to the operation of clause 3.9.2B, is entitled to receive in compensation an amount determined by the *dispute resolution panel*.

(g) A *Scheduled Network Service Provider* who receives an instruction in respect of its *scheduled network services* to transfer *power* on the *scheduled network service* consistent with a *network dispatch offer price* but receives less net revenue than would be expected under clause 3.8.6A(f) due to adjustment of the *spot price* for a trading interval under clause 3.9.2B, is entitled to receive in compensation an amount determined by the *dispute resolution panel*.

(h) In determining the level of compensation to which *Market Participants* are entitled in relation to a *scheduling error*, the *dispute resolution panel* must:

(1) Where the entitlement to compensation arises under clause 3.16.2(f), determine compensation on the basis of the actual loading level and not the *dispatch instruction* applicable to the relevant *scheduled generating unit* or *semi-scheduled generating unit* for that *dispatch interval*;

(2) Where the entitlement to compensation arises under clause 3.16.2(g), determine compensation on the basis of the actual loading level and not the *dispatch instruction* applicable to the relevant *scheduled network service* for that *dispatch interval*;

(3) Use the *spot price* as determined under rule 3.9, including any *spot prices* that have been adjusted in accordance with clause 3.9.2B;

(4) Take into account the current balance of the *Participant compensation fund* and the potential for further liabilities to arise during the year;

(5) Recognise that the aggregate liability in any year in respect of *scheduling errors* cannot exceed the balance of the *Participant compensation fund* that would have been available at the end of that year if no compensation payments for *scheduling errors* had been made during that year.

(i) The manner and timing of payments from the *Participant compensation fund* are to be determined by the *dispute resolution panel*.

(j) To the maximum extent permitted by law, *AEMO* is not liable in respect of a *scheduling error* except out of the *Participant compensation fund* as contemplated in this clause 3.16.2.

3.17 AEMO Software

3.17.1 Acceptance of software

AEMO must not alter, reconfigure, reprogram or otherwise modify or enhance any computer software required under this Chapter 3 for the operation of the *market* unless such changes have been duly authorised by the *AER.*

3.17.2 [Deleted]

3.18 Settlement Residue Auctions

3.18.1 Settlement residue concepts

(a) An *"auction participation agreement"* is an agreement between *AEMO* and an *eligible person* concerning the participation by the *eligible person* in *auctions*.

(b) A *"settlement residue distribution agreement"* or "*SRD agreement*" is an agreement between *AEMO* and an *eligible person* entered into following an *auction* under which:

(1) *AEMO* agrees to distribute to the *eligible person* a portion of the *settlements residues* allocated to a *directional interconnector* for a period specified in the *SRD agreement;* and

(2) the *eligible person* agrees to pay *AEMO* a certain amount for the right referred to in clause 3.18.1(b)(1).

(c) For the purposes of this rule 3.18:

(1) all the *regulated interconnectors* between any 2 adjacent *regions* are deemed to constitute a single *interconnector*; and

(2) the deemed *interconnector* referred to in clause 3.18.1(c)(1) between any 2 adjacent *regions* consists of 2 *directional interconnectors*, one involving a transfer from *region* A to *region* B, and one involving a transfer from *region* B to *region* A.

(d) Subject to clause 3.18.4, *AEMO* must use the portion of the *settlements residue* allocated to a *directional interconnector* remaining after applying the relevant *jurisdictional derogations* under Chapter 9 (as determined by applying the principles referred to in clause 3.6.5) to make payments under *SRD agreements* in relation to that *directional interconnector* and to recover the *auction expense fees.*

(e) Where a person registered as a *Trader* is required to appoint an agent for the purposes of rule 2.5A(c)(2), *AEMO* and the *Trader* must ensure that the *auction participation agreement* and the *SRD agreement* entered into by the *Trader* and its agent provides that the *Trader* and the agent are jointly and severally liable in relation to the obligations of the *Trader* under those agreements.

3.18.2 Auctions and eligible persons

(a) *AEMO* may conduct *auctions* to determine which *eligible persons* will enter into *SRD agreements* with *AEMO*.

(b) *AEMO* may only enter into *SRD agreements* with persons (called "*eligible persons*") which satisfy the following criteria:

(1) the person is a *Market Customer*, a *Generator* or a *Trader*, or a person seeking to be eligible for registration as a *Trader* under rule 2.5A; and

(2) the person satisfies any criteria specified in the *auction rules*, which criteria must comply with clause 3.18.2(g).

(c) *Auctions* must be conducted in accordance with the *auction rules*.

(d) *AEMO* may, with the approval of the *settlement residue committee*, suspend, or remove a suspension, on conducting *auctions* for one or more *directional interconnectors* for a specified period if *AEMO* believes it is not practicable to conduct those *auctions* or those *auctions* are unlikely to lead to the entry into of *SRD agreements* in relation to all of the *settlements residues* being auctioned.

(e) *AEMO* may, after complying with the *Rules consultation procedures*, cease conducting *auctions*.

(f) If *AEMO* takes any action under clause 3.18.2(d) or (e), then it must post a notice on its website specifying the action taken as soon as practicable after taking it.

(g) Any criteria specified in the *auction rules* concerning persons with whom *AEMO* may enter into *SRD agreements* must not exclude any persons other than those specified in subparagraphs (1) – (6) below and must exclude the persons specified in subparagraphs (1), (2), (5) and (6) below:

(1) persons who have not entered into an *auction participation agreement*;

(2) *Transmission Network Service Providers*;

(3) **[Deleted]**

(4) persons:

(i) who have defaulted on payment obligations under an *auction participation agreement* or a *SRD agreement;* or

(ii) in relation to whom a *default event* has occurred;

(5) any person who *AEMO* considers is acting on behalf of or in concert with a person described in clauses 3.18.2(g)(1)-(2);

(5a) any person who *AEMO* considers is acting on behalf of or in concert with a person described in clause 3.18.2(g)(4); or

(6) any person who would be a “retail client” as defined in section 761G (7) of the Corporations Act 2001 (Cth), if they entered into an *SRD agreement* with *AEMO*.

(h) **[Deleted]**

3.18.3 Auction rules

(a) *AEMO* must develop rules (called "*auction rules*") which set out:

(1) additional criteria which a person must satisfy to be an *eligible person* (which must include, without limitation, criteria requiring the person to enter into an *auction participation agreement* with *AEMO* in a form satisfactory to *AEMO*);

(2) the procedures for conducting *auctions* and the timing of *auctions*;

(3) the mechanism for calculating the *auction* clearing price in respect of each *directional interconnector* for each *auction*;

(4) the mechanism for calculating *auction expense fees;*

(5) the procedures and timetable for billing and settling *auction amounts*; and

(6) the standard form of any *auction participation agreement* referred to in clause 3.18.3(a)(1).

(b) In developing and amending the *auction rules*, *AEMO* must give effect to the following principles:

(1) **[Deleted]**

(2) to the extent reasonably practicable, an *auction* must be structured in a way that maximises the value of the relevant *settlements residue;*

(3) the price for each unit of the *settlements residue* in respect of a *directional interconnector* will be the same for all *SRD agreements* resulting from the same *auction* and will be equal to the *auction* clearing price in respect of the *directional interconnector* for the *auction*; and

(4) enhancing competition and efficiency by promoting interstate trade in electricity.

(c) *AEMO* must make the *auction rules* available to *Registered Participants* and to any other person who requests a copy.

(d) *AEMO* may amend the *auction rules* at any time with the approval of the *settlement residue committee*.

(e) Subject to clause 3.18.3(f), in developing and amending the *auction rules*, *AEMO* must comply with the *Rules consultation procedures*.

(f) *AEMO* need not, provided it has consulted to the extent practicable in the circumstances, comply with the *Rules consultation procedures* in relation to a proposed amendment to the *auction rules* if:

(1) the amendment has the support of at least three-quarters of the members of the *settlement residue committee*; and

(2) *AEMO* considers the amendment is urgent.

3.18.4 Proceeds and fees

(a) *AEMO* must distribute:

(1) subject to clause 3.6.5(a)(4A) and (4B), proceeds from each *auction* in respect of a *directional interconnector*; and

(2) subject to clauses 3.18.4(b) and (c), any portion of the *settlements residue* allocated to the *directional interconnector* which is not the subject of a *SRD agreement*,

to the appropriate *Network Service Providers* in accordance with the principles referred to in clause 3.6.5 in relation to the allocation and distribution of *settlements residue* attributable to *regulated interconnectors*.

(b) The costs and expenses incurred by *AEMO* in establishing and administering the arrangements contemplated by this rule 3.18, in conducting *auctions* under this rule 3.18 and in entering into and administering *auction participation agreements* and *SRD agreements* under this rule 3.18 will be recovered from *settlements residue* by way of *auction expense fees*.

(c) The *auction expense fees* are to be developed by *AEMO* in accordance with the *auction rules* and approved by the *settlement residue committee*, and recovered as follows:

(1) to the extent the *settlements residue* is distributed to *eligible persons* under clause 3.18.1(d), in accordance with the *auction rules*; and

(2) to the extent the *settlements residue* is distributed to *Network Service Providers* under clause 3.18.4(a)(2), as if the *settlements residue* was being distributed to *eligible persons* in accordance with the *auction rules*.

(d) The *auction expense fees* for an *auction* are to be *published* before the *auction*.

(e) *Eligible persons* and *AEMO* must pay *auction amounts* in accordance with the *auction rules*, and, for the avoidance of doubt, amounts payable by *eligible persons* to *AEMO* under *SRD agreements* will not be regarded as amounts payable under the *Rules* for the purposes of rule 3.15.

(f) *AEMO* may nominate an electronic funds transfer facility for the purposes of paying *auction amounts* and, if it does so, *eligible persons*, *Network Service Providers* and *AEMO* must use that facility for paying and receiving a*uction amounts*.

3.18.5 Settlement residue committee

(a) *AEMO* must establish a settlement residue committee.

(b) The functions of the *settlement residue committee* are to:

(1) approve any suspension, or removal of a suspension, imposed by *AEMO* on the conducting of *auctions*;

(2) approve proposed amendments to the *auction rules* developed by *AEMO*;

(3) monitor, review and report on the *auctions* conducted by *AEMO* under this rule 3.18; and

(4) approve the costs and expenses incurred by *AEMO* in conducting *auctions* under this rule 3.18 and in entering into and administrating *auction participation agreements* and *SRD agreements* under this rule 3.18.

(c) The *settlement residue committee* is to consist of:

(1) an employee of *AEMO* appointed by *AEMO*, who will act as chairman of the committee;

(2) a person representing *Generators*;

(3) a person representing *Market Customers*;

(4) a person representing *Transmission Network Service Providers*;

(5) a person representing *Traders*;

(6) a person appointed jointly by the relevant *Ministers* of the *participating jurisdictions*; and

(7) a person appointed by the *AEMC* to represent end use customers of electricity.

(d) *AEMO* may remove the person referred to in clause 3.18.5(c)(1) at any time for any reason.

(e) The persons referred to in clauses 3.18.5(c)(2), (3), (4) and (5) must be appointed and removed by *AEMO* after consultation with the class of *Registered Participants* the person is to represent, and *AEMO* must:

(1) appoint a person agreed to by at least one third in number of the relevant class of *Registered Participants*; and

(2) commence consultation on the removal of such a person if requested to do so by a member of the relevant class of *Registered participants*, and must remove that person if so agreed by at least one third in number of the relevant class of *Registered Participants*.

(f) The *Ministers* of the *participating jurisdictions* acting jointly may remove the person referred to in clause 3.18.5(c)(6) at any time for any reason.

(g) The *AEMC* may remove the person referred to in clause 3.18.5(c)(7) at any time for any reason.

(h) A person holds office as a member of the *settlement residue committee* until that person:

(1) resigns from office;

(2) if the person is the person referred to in clause 3.18.5(c)(1), is removed from office by *AEMO* in accordance with clause 3.18.5(d);

(3) if the person is a person referred to in clauses 3.18.5(c)(2), (3), (4) or (5), is removed from office by *AEMO* in accordance with clause 3.18.5(e)(2);

(4) if the person is the person referred to in clause 3.18.5(c)(6), is removed from office by the *Ministers* of the *participating jurisdictions* in accordance with clause 3.18.5(f); or

(5) if the person is the person referred to in clause 3.18.5(c)(7), is removed from office by the *AEMC* in accordance with clause 3.18.5(g),

and such a person is eligible for re-appointment.

(i) A person may resign as a member of the *settlement residue committee* by giving notice in writing to that effect to *AEMO*.

3.19 Market Management Systems Access Procedures

(a) *AEMO* may develop and *publish Market Management Systems Access Procedures* in consultation with *Registered Participants* in accordance with the *Rules consultation procedures*, which procedures will govern how *Registered Participants* and *Metering Providers* can use the *market management systems*.

(b) *AEMO* may amend the *Market Management Systems Access Procedures* from time to time in consultation with *Registered Participants* in accordance with the *Rules consultation procedures*, and any such amendments must be *published* by *AEMO*.

(c) *AEMO* and all *Registered Participants* and *Metering Providers* must comply with the *Market Management Systems Access Procedures*.

(d) A *Registered Participant* which complies with the *Market Management Systems Access Procedures* and promptly pays all relevant *Participant fees* as and when they fall due has a right to be connected to the *market management systems*.

(e) If a *Registered Participant* fails to comply with the *Market Management Systems Access Procedures*, *AEMO* must:

(1) notify that *Registered Participant* describing the nature of the breach; and

(2) at a time following notification of the breach by *AEMO* under clause 3.19(e)(1) determined by *AEMO* having regard to a balancing of the need to provide a *Registered Participant* with the opportunity to remedy the breach and the nature of the breach, notify the AER that the *Registered Participant* has breached the *Market Management Systems Access Procedures*.

3.20 Reliability and Emergency Reserve Trader

3.20.1 Expiry of reserve and emergency reliability trader

This rule 3.20 expires on the earlier of:

(a) 30 June 2012; or

(b) a date determined by the *AEMC* on the advice of the *Reliability Panel* in accordance with clause 3.20.9.

3.20.2 Reliability and emergency reserve trader

(a) *AEMO* must take all reasonable actions to ensure reliability of *supply* by negotiating and entering into contracts to secure the availability of *reserves* under *reserve contracts* ('reliability and emergency reserve trader' or 'RERT') in accordance with:

(1) this rule 3.20;

(2) where relevant:

(i) clauses 1.11, 3.8.1, 3.8.14, 3.9.3, 3.12, 3.12A.5, 3.15.6, 3.15.9, 4.8.5A and 4.8.5B; and

(ii) any other provision of the *Rules* necessary to exercise the *RERT*;

(3) the *RERT principles*; and

(4) the *RERT guidelines*.

(b) *AEMO* must have regard to the following principles ('RERT principles') in exercising the RERT under paragraph (a):

(1) actions taken should be those which *AEMO* reasonably expects, acting reasonably, to have the least distortionary effect on the operation of the *market*; and

(2) actions taken should aim to maximise the effectiveness of *reserve contracts* at the least cost to end use consumers of electricity.

(c) In having regard to the *RERT principles*, *AEMO* must have regard where relevant to the *RERT guidelines*.

3.20.3 Reserve contracts

(a) *AEMO* may enter into one or more contracts with any person in relation to the capacity of:

(1) *scheduled generating units*, *scheduled network services* or *scheduled loads* (being *scheduled reserve contracts*); and

(2) *unscheduled reserves* (being *unscheduled reserve contracts*).

(b) *AEMO* may determine to enter into *reserve contracts* to ensure that the reliability of *supply* in a *region* or *regions* meets the relevant *power system security and reliability standards* established by the *Reliability Panel* for the *region*.

(c) *AEMO* must consult with persons nominated by the relevant *participating jurisdictions* in relation to any determination to enter into contracts under paragraph (b).

(d) *AEMO* must not enter into, or renegotiate, a *reserve contract* more than nine months prior to the date that *AEMO* reasonably expects that the *reserve* under that contract may be required to ensure reliability of *supply*.

(e) Subject to paragraph (d), *AEMO* may :

(1) enter into *reserve contracts*; or

(2) renegotiate existing *reserve contracts*,

in addition to the contracts already entered into by *AEMO* under this rule 3.20.

(f) In entering into *reserve contracts* under paragraph (b) *AEMO* must agree with the relevant nominated persons referred to in paragraph (c) cost-sharing arrangements between the *regions* for the purpose of clause 3.15.9.

(g) If, at any time *AEMO* determines that it is necessary to commence contract negotiations for the provision of additional *reserves*, *AEMO* must *publish* a notice of its intention to do so.

(h) When contracting for the provision of *scheduled reserves* under *scheduled reserve contracts*, *AEMO* must not enter contracts in relation to capacity of *generating units*, *scheduled network services* or *scheduled loads* for which *dispatch offers* or *dispatch bids* have been submitted or are considered by *AEMO* to be likely to be submitted or be otherwise available for *dispatch* in the *trading intervals* to which the contract relates.

Terms and conditions of a contract

(i) If *AEMO* seeks to enter into a *reserve contract* with a *Registered Participant* then the *Registered Participant* must *negotiate* with *AEMO* in good faith as to the terms and conditions of the contract.

(j) *AEMO* may only enter into a *reserve contract* if the contract contains a provision that the other party to the contract has not and will not otherwise offer the *reserve* the subject of the contract in the *market* for the *trading intervals* to which the contract with *AEMO* relates except in accordance with the contract.

3.20.4 Dispatch pricing methodology for unscheduled reserve contracts

(a) Subject to paragraph (c), *AEMO* must develop in accordance with the *Rules consultation procedures* and *publish* details of the methodology it will use to request that *generating units* or *loads* under *unscheduled reserve contracts* be *activated*.

(b) *AEMO* may develop and *publish* the methodology developed in accordance with this clause 3.20.4 as part of the methodology *AEMO* is required to develop under clause 3.9.3(e).

(c) *AEMO* may make minor and administrative amendments to the methodology developed in accordance with this clause 3.20.4 without complying with the *Rules consultation procedures*.

3.20.5 AEMO's risk management and accounts relating to the reliability safety net

(a) *AEMO* may enter into insurance arrangements with an insurance provider with a view to minimising potential financial losses in respect of *AEMO's RERT* activities described in this rule 3.20.

(b) *AEMO* must ensure that it maintains in its books separate accounts relating to the *RERT* functions and powers granted to *AEMO* under this rule 3.20.

3.20.6 Reporting on RERT by AEMO

(a) If a *scheduled generating unit*, *scheduled network service* or *scheduled load* under a *scheduled reserve contract* with *AEMO* is *dispatched* or *generating units* or *loads* are activated under an *unscheduled reserve contract*, then *AEMO* must, as soon as practicable thereafter, *publish* a report detailing:

(1) the circumstances giving rise to the need for the *dispatch* of *scheduled reserves* or *activation* of *unscheduled reserves*;

(2) the basis on which it determined the latest time for that *dispatch* of *scheduled reserves* or *activation* of *unscheduled reserves* and on what basis it determined that a market response would not have avoided the need for the *dispatch* of *scheduled reserves* or the *activation* of *unscheduled reserves*;

(3) the changes in *dispatch* outcomes due to the *dispatch* of *scheduled reserves* or *activation* of *unscheduled reserves*; and

(4) the processes implemented by *AEMO* to *dispatch* the *scheduled reserves* or *activate* the *unscheduled reserves*,

and if applicable:

(5) reasons why *AEMO* did not follow any or all of the processes set out in rule 4.8 either in whole or in part prior to the *dispatch* of *scheduled reserves* or the *activation* of *unscheduled reserves*; and

(6) the basis upon which *AEMO* considered it impractical to set *spot prices* and *ancillary service prices* in accordance with clause 3.9.3(b).

(b) As soon as reasonably practicable after *AEMO* has, in accordance with clause 3.15.9, included the amounts arising under a *reserve contract* in a *final statement* provided under clause 3.15.15, *AEMO* must *publish* details of:

(1) the payments under the *reserve contract* for the relevant *billing periods*; and

(2) a breakdown of the recovery of those costs by each category of *Market Customer*, as determined by *AEMO*, in each *region*.

(c) Within 30 *days* of the end of each *financial year* in which *AEMO* has exercised the *RERT*, *AEMO* must *publish* a report detailing:

(1) each occasion during the *financial year* on which it intervened to secure the availability of *reserves*;

(2) each occasion during the *financial year* when a *scheduled generating unit*, *scheduled network service* or *scheduled load* under a *scheduled reserve contract* was *dispatched* or *generating units* or *loads* under an *unscheduled reserve contract* were *activated*; and

(3) its costs and finances in connection with its *RERT* activities during the *financial year* according to appropriate accounting standards including profit and loss, balance sheet, sources and applications of funds.

3.20.7 AEMO's exercise of the RERT

(a) Notwithstanding clauses 4.8.5A and 4.8.5B, if *AEMO* considers the latest time for exercising the *RERT* by:

(1) the *dispatch* of *scheduled reserves* it has available under *scheduled reserve contracts*; or

(2) the *activation* of *unscheduled reserves* it has available under *unscheduled reserve contracts*,

has arrived, *AEMO* may *dispatch* such *scheduled reserves* or *activate* such *unscheduled reserves*.

(b) *AEMO* must follow the relevant procedures in this rule 3.20 prior to *dispatching* a *scheduled generating unit*, *scheduled network service* or *scheduled load* the subject of a *scheduled reserve contract* or *activating generating units* or *loads* the subject of an *unscheduled reserve contract* unless it is not reasonably practicable to do so.

(c) Subject to paragraph (b), *AEMO* must only *dispatch* a *scheduled generating unit*, a *scheduled network service* or a *scheduled load* the subject of a *scheduled reserve contract* or activate *generating units* or *loads* the subject of an *unscheduled reserve contract* in accordance with the procedures developed pursuant to paragraph (e).

(d) In order to effect the *dispatch* of a *scheduled generating unit*, *scheduled network service* or *scheduled load* the subject of a *scheduled reserve contract* or the *activation* of *generating units* or *loads* the subject of an *unscheduled reserve contract AEMO* may:

(1) submit, update or vary *dispatch bids* or *dispatch offers* in relation to all or part of such a *scheduled generating unit*, *scheduled network service* or *scheduled load* which is the subject of a *scheduled reserve contract*; or

(2) change other inputs to the *dispatch process* to give effect to the *dispatch* of *scheduled generating units*, *scheduled network services* or *scheduled loads* the subject of a *scheduled revenue contract* or the *activation* of *generating units* or *loads* the subject of an *unscheduled reserve contract*.

(e) *AEMO* must develop, *publish*, and may amend from time to time, in accordance with the *Rules consultation procedures*, procedures for the exercise of the *RERT* under this rule 3.20 that take into account the *RERT principles* and *RERT guidelines*. These procedures must include measures to be adopted in order to reduce the possibility that *generating units* or *loads* likely to be *activated* under *unscheduled reserve contracts* are otherwise engaged at the time the *unscheduled reserve contracts* are entered into by *AEMO*.

(f) When exercising the *RERT* under this rule 3.20, *AEMO* must take into account the *RERT guidelines*.

(g) *NEMMCO* must *publish* the first procedures referred to in paragraph (e) by 30 June 2009.

3.20.8 RERT Guidelines

(a) For the purposes of this rule 3.20, the *Reliability Panel* must develop and *publish* guidelines (the '*RERT guidelines*') for or with respect to:

(1) what information *AEMO* must take into account when deciding whether to exercise the *RERT*;

(2) the relevance of the *RERT principles* to the exercise of the *RERT*;

(3) the actions that *AEMO* may take to be satisfied that the *reserve* that is to be the subject of a *reserve contract* is not available to the *market* through any other arrangement;

(4) the process *AEMO* should undertake in contracting for *reserves* including the process for tendering for contracts for such *reserves*;

(5) any specific or additional assumptions about key parameters that *AEMO* must take into account in assessing the cost effectiveness of exercising the *RERT*;

(6) matters relevant to *AEMO* managing a portfolio of *reserve contracts*; and

(7) additional forecasts that *AEMO* should take into account prior to exercising the *RERT*.

(b) The *Reliability Panel* must develop, *publish* and amend from time to time, the *RERT guidelines* in accordance with clauses 8.8.3(d) – (l).

(c) The *Reliability Panel* must *publish* the first *RERT guidelines* by 30 November 2008 and there must be such guidelines in place at all times after that date.

3.20.9 Review of reserve and emergency reliability trader

(a) The Reliability Panel must, no later than one year prior to the date the RERT is due to expire under clause 3.20.1, complete a review of the RERT ('RERT review') to determine:

(1) whether the *RERT* should expire on the date specified in clause 3.20.1(a); or

(2) whether the *RERT* should expire prior to the date referred to in subparagraph (1) and, if so, that date;

(b) The *Reliability Panel* must conduct the RERT review in accordance with clauses 8.8.3(d) – (l).

(c) The *Reliability Panel* may conduct the review referred to in paragraph (a) as part of the review conducted by the *Reliability Panel* under clause 8.8.3(b).

(d) On receipt of the written report from the RERT review in accordance with clause 8.8.3(j), the *AEMC* may, taking into account the report, make a determination that the *RERT* is to expire and specify the date of expiry.

(e) The *AEMC* must *publish* the determination referred to in paragraph (d).

Schedule 3.1 ~~-~~ – Bid and Offer Validation Data~~Registered Bid and Offer Data~~

(a) The *bid and offer validation data*~~*registered bid and offer data*~~ are the standard data requirements for verification and compilation of *dispatch bids* and *dispatch offers* on the *trading day* schedule.

(b) *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* must notify *AEMO* of their *bid and offer validation data*~~*registered bid and offer data*~~ in accordance with this schedule 3.1 in respect of each of their *scheduled loads*, *semi-scheduled generating units* and *scheduled generating units* at least six weeks prior to commencing participation in the *market*.

(c) *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* must review their *bid and offer validation data*~~*registered bid and offer data*~~ annually in accordance with the *timetable* advised by *AEMO* and provide details of any *changes* to *AEMO*.

(d) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must notify *AEMO* of any proposed change to its *bid and offer validation data* in accordance with clause 3.13.3(h) at least six weeks prior to the date of the proposed change and any proposed change may be subject to audit at *AEMO's* request and must be consistent with *AEMO*'s register of *performance standards* referred to in rule 4.14(n) in respect of the relevant *plant*.

~~(d) *Registered bid and offer data* may be updated by a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* at any time but may be subject to audit at *AEMO's* request.~~

(e) A copy of all *changes* to the data must be returned to each *Scheduled Generator*, *Semi-Scheduled Generator* and *Market Participant* for verification and resubmission by the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* as necessary.

(f) ~~*Registered bid and offer data* may include tolerance levels~~**[Deleted]**~~.~~

Scheduled Generating Unit Data:

Data	Units of Measurement
***Power station* information:**	
power station name	
***Scheduled generating unit* information:** **Note:** Repeat the following items for each *scheduled generating unit* where there are two or more *scheduled generating units* in the *power station*.	
scheduled generating unit name	

Note: This may be the same name as the *power station* name when the *power station* has only one single or aggregated *scheduled generating unit*.	
Dispatchable unit identifier	
maximum *generation* of the *scheduled generating unit*, to which the *scheduled generating unit* may be dispatched.	MW (*generated*)
maximum ramp rate of the *scheduled generating unit*	MW/minute

~~Data~~	~~Units of Measurement~~
~~***Power station* information:***~~	
~~node number/identifier~~	
~~total station registered capacity~~	~~MW~~
~~total station *sent out generation* at registered capacity~~	~~MW~~
~~daily *energy constraint*, if applicable~~	~~MWh per day~~
~~***Generating unit* information:***~~	
~~full *load*~~	~~MW (*generated* and *sent out*)~~
~~normal or technical minimum *load*~~	~~MW (*generated* and *sent out*)~~
~~additional emergency *generation* above registered capacity~~	~~MW~~
~~*maximum ramp rate*~~	~~MW/minute~~
~~response time to full *load* from cold standby~~	~~minutes~~
~~aggregation data~~	
~~capability chart~~	
~~notice to *synchronise*~~	~~minutes~~
~~minimum shutdown time~~	~~minutes~~
~~maximum shutdowns per day~~	

Semi-Scheduled Generating Unit Data:

Data	**Units of Measurement**
***Power station* information:**	

power station name	
***Semi-scheduled generating unit* information:** **Note:** Repeat the following items for each *semi-scheduled generating unit* where there are two or more *semi-scheduled generating units* in the *power station.*	
semi-scheduled generating unit name **Note:** This may be the same name as the *power station* name when the *power station* has only one *semi-scheduled generating unit.*	
Dispatchable unit identifier	
maximum *generation* of the *semi-scheduled generating unit*, to which the *semi-scheduled generating unit* may be dispatched	MW (*generated*)
maximum ramp rate of the *semi-scheduled generating unit*	MW/minute

~~Data~~	~~Units of Measurement~~
~~***Power station* information:***~~	
~~node number/identifier~~	
~~total registered capacity~~	~~MW~~
~~***Generating unit* information~~	
~~capacity~~	~~MW~~
~~*maximum ramp rate*~~	~~MW/minute~~
~~aggregation data~~	

Scheduled Load Data:

Data	**Units of Measurement**
***Load* installation information:**	
load installation name	
***Scheduled load* information:**	

Note: Repeat the following items for each scheduled load where there are two or more scheduled loads.	
scheduled load name **Note:** This may be the same name as the *load* installation name when the *load* installation has only one *scheduled load.*	
Dispatchable unit identifier	
maximum *load* of the *scheduled load*, to which the *scheduled load* may be *dispatched*	MW
maximum ramp rate of the *scheduled load*	MW/minute

Data	Units of Measurement
~~node number/identifier~~	
~~*normally on* or *normally off*~~	
~~*maximum load*~~	~~MW~~
~~daily *energy constraint*, if applicable~~	~~MWh per day~~
~~*maximum ramp rate*~~	~~MW/minute~~
~~aggregation data~~	

Scheduled Network Service Data:

Data	**Units of Measurement**
installation/link name	
Dispatchable Unit Identifier	
connection point identifiers for terminal nodes A and B	
maximum *power transfer capability* to node A	MW
maximum *power transfer capability* to node B	MW
maximum ramp rate of *power transfer capability* of the installation	MW/minute

~~Data~~	~~Units of Measurement~~
~~node number/identifier for *connection points A* and *B*~~	
~~registered *power transfer capability* to node 1 (may be seasonal etc)~~	~~MW~~
~~registered *power transfer capability* to node 2 (may be seasonal etc)~~	~~MW~~
~~additional transient *power transfer capability* in each direction~~	~~MW~~
~~*maximum ramp rates* for transfer (if applicable)~~	~~MW/minute~~
~~loss vs flow as piecewise linear relationships for each direction which, taken together, are convex over the entire range of *power transfer capabilities* in both directions~~	
~~aggregation data~~	

Ancillary Service Generating Unit and Ancillary Service Load Data:

Data	Units of Measurement
***Power station/load* installation information:**	
power station/load installation name	
***Ancillary service generating unit* and *ancillary service load* information** **Note:** Repeat the following items for each *dispatchable unit identifier* where there are two or more of them in the *power station*/installation.	
Unit/*load* name	
Dispatchable unit identifier	
market ancillary service*	
maximum *market ancillary service* capacity*	**MW**
minimum enablement level*	**MW**
maximum enablement level*	**MW**
maximum lower angle*	**Degrees**
maximum upper angle*	**Degrees**

Note:

For those items marked with an asterisk, repeat the block of data for each *market*

ancillary service offered.

Dispatch Inflexibility Profile:

[Deleted]

~~Data~~	~~Units of Measurement~~
~~time for response from receipt of *dispatch* instruction from zero *load*, T1 (see clause 3.8.19(e)(1))~~	~~minutes~~
~~time after T1 required to reach minimum *loading level*, T2 (see clause 3.8.19(e)(2))~~	~~minutes~~
~~time after T2 for which *plant* must operate at or above the minimum *loading level*, T3 (see clause 3.8.19(e)(3))~~	~~minutes~~
~~time required by *plant* to reduce from its minimum *loading level* to zero, T4 (see clause 3.8.19(e)(4))~~	~~minutes~~
~~minimum *loading level* (see clauses 3.8.19(e)(2), (3), (4))~~	~~MW~~

Aggregation Data:

[Deleted]~~Where *dispatch bids* or *dispatch offers* are submitted for aggregated *generating units*, *market network services* or *loads* then, unless otherwise exempted by *AEMO*, each *Scheduled Generator*, *Semi-Scheduled Generator* and *Market Participant* must provide the information required in accordance with this schedule 3.1 for each *generating unit*, *market network service* or *load* included in those *dispatch bids* or *dispatch offers* both separately and in aggregated form.~~

~~*Semi-scheduled generating units* which together are taken to be one *semi-scheduled generating unit* under clause 2.2.7(k) must provide the information required in accordance with this schedule 3.1 for each *generating unit* both separately and in aggregate.~~

Schedule 3.2 - [Deleted]

Schedule 3.3 - Principles for Determination of Maximum Credit Limits & Prudential Margins

This schedule sets out the principles to be followed by *AEMO* in determining the *maximum credit limit* and *prudential margin* for a *Market Participant*.

S3.3.1 Principles for determining maximum credit limits

(a) The *maximum credit limit* should be set on the principle of imposing a guarantee of payment being made to *AEMO* to a level of a *reasonable worst case*.

(b) When calculating the *maximum credit limit AEMO* should have regard to:

(1) impartial objectivity rather than subjectivity, though it is recognised that some key parameters will need to be subjectively estimated from a limited amount of data - the estimation should be as impartial as possible;

(2) the average level and volatility of the *regional reference price* for the *region* for which the *maximum credit limit* is being calculated, measured over a period of time comparable to the frequency of breaches of the *maximum credit limit*;

(3) the pattern of the quantity of electricity recorded in the *metering data* for the *Market Participant*;

(4) the quantity and pattern of the *prospective reallocation* in the immediate future;

(5) the correlation between the metered amounts of electricity and the *regional reference price*;

(6) the length of the *credit period*, which is the number of days from the start of a *billing period* to the end of the *reaction period* taking into account:

(i) the length of the *billing period*;

(ii) the typical time from the end of the *billing period* to the day on which *settlement* for that *billing period* is due to be paid (the *payment period*);

(iii) any current written request from the *Market Participant* to *AEMO* for the *maximum credit limit* to be determined on a *payment period* taken, for the purposes of clause 3.3.8 and not otherwise, to be 14 days; and

(iv) the time from a *default event* to the suspension or other removal of the *defaulting Market Participant* from the *market*, being a period of up to 7 days (the *reaction period*);

(7) the statistical distribution of accrued amounts that may be owed to *AEMO*; and

(8) the degree of confidence that the *maximum credit limit* will be large enough to meet large defaults (i.e. the degree of reasonableness in a *reasonable worst case*).

(c) As far as practicable, this schedule 3.3 must be read and construed as taking into account *market ancillary service transactions* for the calculation of the *maximum credit limit* for the relevant *Market Participant*.

S3.3.2 Principles for determining prudential margins

The value of the *prudential margin* for a *Market Participant* is set on the same principles as the *maximum credit limit* except that:

(1) if the aggregate of all *trading amounts* for the *Market Participant* is a positive amount the quantity and pattern of those *trading amounts* are not taken into account when determining the *prudential margin*;

(2) if the aggregate of all *reallocation amounts* for the *Market Participant* is a positive amount the quantity and pattern of those *reallocation amounts* are not taken into account when determining the *prudential margin*; and

(3) the *prudential margin* is calculated in respect of the *reaction period*.

CHAPTER 5

5. Network Connection

5.1 Statement of Purpose

5.1.1 [Deleted]

5.1.2 Purpose

(a) This Chapter*:*

(1) provides the framework for *connection* to a *transmission network* or a *distribution network* and access to the *national grid*; and

(2) has the following aims:

(i) to detail the principles and guidelines governing *connection* and access to a *network*;

(ii) to establish the process to be followed by a *Registered Participant* or a person intending to become a *Registered Participant* for establishing or modifying a *connection* to a *network* or for altering *generating plant connected* to a *network*;

(iii) to address a *Connection Applicant's* reasonable expectations of the level and standard of *power transfer capability* that the relevant *network* should provide; and

(iv) to establish processes to ensure ongoing compliance with the technical requirements of this Chapter to facilitate management of the *national grid*.

(b) Any person who is not a *Registered Participant* may agree with a *Network Service Provider* to comply with this Chapter as part of a *connection agreement*.

(c) Nothing in the *Rules* is to be read or construed as preventing any person from constructing any *network* or *connection assets*.

(d) Subject to paragraphs (e) and (g), the following *Rules* apply in the application of this Chapter to *transmission services* provided by means of, or in connection with, the *declared transmission system* of an *adoptive jurisdiction*:

(1) a reference to a *Network Service Provider* is, in relation to the provision of *connection services*, to be read as a reference to a *declared transmission system operator*; and

(2) a reference to a *Network Service Provider* is, in relation to the provision of *shared transmission services*, to be read as a reference to *AEMO*.

(e) A reference in any of the following provisions to a *Network Service Provider* will, in relation to the *declared transmission system* of an *adoptive jurisdiction*, be construed as a reference to *AEMO*:

(1) clause 5.2.3(b);

(2) clause 5.6.1;

(3) clause 5.6.2;

(4) clause 5.6.2A (except 5.6.2A(b)(2));

(5) clause 5.7.6;

(6) clause 5.7.7 (except 5.7.7(c));

(7) Schedule 5.1, clause S5.1.2.3;

(8) Schedule 5.3 clause S5.3.5.

(f) A reference in any of the following provisions to a *Transmission Network Service Provider* will, in relation to the *declared transmission system* of an *adoptive jurisdiction*, be construed as a reference to *AEMO*:

(1) clause 5.6.6;

(2) clause 5.6.6A;

(3) clause 5.6.6B;

(g) A reference in any of the following provisions to a *Network Service Provider* will, in relation to the *declared transmission system* of an *adoptive jurisdiction*, be construed as a reference to the relevant *declared transmission system operator*:

(1) clause 5.2.3(d)(12), (e) and (e1)(except 5.2.3(e1)(2));

(2) clause 5.3.4A(c) and (d);

(3) clause 5.9.3;

(4) clause 5.9.4;

(5) clause 5.9.6;

(6) Schedule 5.1, clause S5.1.10.3(a);

(7) Schedule 5.2 clause S5.2.3(a)(8).

5.1.3 Principles

This Chapter is based on the following principles relating to *connection* to the *national grid*:

(a) all *Registered Participants* should have the opportunity to form a *connection* to a *network* and have access to the *network services* provided by the *networks* forming part of the *national grid*;

(b) the terms and conditions on which *connection* to a *network* and provision of *network service* is to be granted are to be set out in commercial agreements on reasonable terms entered into between a *Network Service Provider* and other *Registered Participants*;

(c) the technical terms and conditions of *connection agreements* regarding standards of performance must be established at levels at or above the *minimum access standards* set out in schedules 5.1, 5.2, 5.3 and 5.3a, with the objective of ensuring that the *power system* operates securely and reliably and in accordance with the *system standards* set out in schedule 5.1a;

(d) a *Registered Participant* or person intending to become a *Registered Participant* may request *connection* of a facility, modification of a *connection*, or alteration of *connected plant* at a standard below an *automatic access standard* if the *connection*, modification to the *connection*, or alteration of *connected plant* does not adversely affect:

(1) *power system security*; and

(2) the quality of *supply* to other *Network Users*;

(e) in some jurisdictions separate agreements may be required for *connection services* and *use of system services*; and

(f) the operation of the *Rules* should result in the achievement of:

(1) long term benefits to *Registered Participants* in terms of cost and *reliability* of the *national grid*; and

(2) open communication and information flows relating to *connections* between *Registered Participants* themselves, and between *Registered Participants* and *AEMO*, while ensuring the security of *confidential information* belonging to competitors in the *market*.

5.2 Obligations

5.2.1 Obligations of Registered Participants

(a) All *Registered Participants* must maintain and operate (or ensure their authorised *representatives* maintain and operate) all equipment that is part of their *facilities* in accordance with:

(1) relevant laws;

(2) the requirements of the Rules; and

(3) *good electricity industry practice* and applicable *Australian Standards*.

(b) All *Registered Participants* must ensure that the *connection agreements* to which they are a party require the provision and maintenance of all required *facilities* consistent with *good electricity industry practice* and must operate their equipment in a manner:

(1) to assist in preventing or controlling instability within the *power system*;

(2) comply with the minimum standards *published* pursuant to clause 3.11.4(c);

(3) to assist in the maintenance of, or restoration to, a *satisfactory operating state* of the *power system*; and

(4) to prevent uncontrolled separation of the *power system* into isolated *regions* or partly combined *regions*, *intra-regional transmission* break-up, or *cascading outages*, following any *power system* incident.

5.2.2 Connection agreements

(a) If requested to do so by a *Transmission Network User*, *Distribution Network User*, *AEMO* or the *AER*, a *Network Service Provider* and a *Transmission Network User* or *Distribution Network User* (as the case may be) must document the terms of any *network connection* arrangements made prior to 13 December 1998 and the resulting document will then be deemed to be a *connection agreement* for the purposes of the *Rules*.

(b) The *Rules* apply to:

(1) *connection agreements* made after 13 December 1998;

(2) deemed *connection agreements* under paragraph (a); and

(3) requests to establish *connection* after 13 December 1998.

(c) This Chapter is neither intended to have, nor is it to be read or construed as having, the effect of:

(1) altering any of the terms of a *connection agreement*; or

(2) altering the contractual rights or obligations of any of the parties under the *connection agreement* as between those parties; or

(3) relieving the parties under any such *connection agreement* of their contractual obligations under such an *agreement*.

(d) Notwithstanding the provisions of clause 5.2.2(c), if any obligation imposed or right conferred on a *Registered Participant* by this Chapter is inconsistent with the terms of a *connection agreement* to which the *Rules* apply and the application of the inconsistent terms of the *connection agreement* would adversely affect the quality or security of *network service* to other *Network Users*, the parties to the *connection agreement* must observe the provisions of this Chapter as if they prevail over the *connection agreement* to the extent of the inconsistency.

5.2.3 Obligations of network service providers

(a) To be registered by *AEMO* as a *Network Service Provider*, a person must satisfy the relevant requirements specified in Chapter 2 and submit an application to *AEMO* in such form as *AEMO* may require.

(b) A *Network Service Provider* must comply with the *power system* performance and quality of *supply* standards:

(1) described in schedule 5.1;

(2) in accordance with any *connection agreement* with a *Registered Participant*,

and if there is an inconsistency between schedule 5.1 and such a *connection agreement*:

(3) if compliance with the relevant provision of the *connection agreement* would adversely affect the quality or security of *network service* to other *Network Users*, schedule 5.1 is to prevail;

(4) otherwise the *connection agreement* is to prevail.

(c) Where the provisions of the *connection agreement* vary the technical requirements set out in the schedules to this Chapter, the relevant *Network Service Provider* must report on such variations to *AEMO* on an annual basis. *AEMO* must allow access to such information to all other *Network Service Providers* and the *Network Service Providers* must keep such information confidential.

(d) A *Network Service Provider* must:

(1) review and process *applications to connect* or modify a *connection* which are submitted to it and must enter into a *connection agreement* with each *Registered Participant* and any other person to which it has provided a *connection* in accordance with rule 5.3 to the extent that the *connection point* relates to its part of the *national grid*;

(1A) co-operate with any other *Network Service Provider* who is processing a *connection* enquiry or *application to connect* to allow that *connection* enquiry or *application to connect* to be processed expeditiously and in accordance with rule 5.3;

(2) ensure that, to the extent that a *connection point* relates to its part of the *national grid*, every arrangement for *connection* with a *Registered Participant* or any other arrangement involving a *connection agreement* with that *Network Service Provider* complies with all relevant provisions of the *Rules*;

(3) co-ordinate the design aspects of equipment proposed to be *connected* to its *networks* with those of other *Network Service Providers* in accordance with rule 5.4 in order to seek to achieve *power system* performance requirements in accordance with schedule 5.1;

(4) together with other *Network Service Providers*, arrange for and participate in planning and development of their *networks* and *connection points* on or with those *networks* in accordance with rule 5.6;

(5) permit and participate in inspection and testing of *facilities* and equipment in accordance with rule 5.7;

(6) permit and participate in commissioning of *facilities* and equipment which are to be *connected* to its *network* in accordance with rule 5.8;

(7) advise a *Registered Participant* or other person with whom there is a *connection agreement* upon request of any expected interruption characteristics at a *connection point* on or with its *network* so that the *Registered Participant* or other person may make alternative arrangements for *supply* during such interruptions, including negotiating for an alternative or backup *connection*;

(8) use its reasonable endeavours to ensure that modelling data used for planning, design and operational purposes is complete and accurate and order tests in accordance with rule 5.7 where there are reasonable grounds to question the validity of data;

(9) provide to *AEMO* and other *Network Service Providers* all data available to it and reasonably required for modelling the static and *dynamic performance* of the *power system*;

(10) forward to *AEMO* and other *Network Service Providers* subsequent updates of the data referred to in clause 5.2.3(d)(9) and, to the best of its ability and knowledge, ensure that all data used for the purposes referred to in rule 5.3 is consistent with data used for such purposes by other *Network Service Providers*;

(11) provide to *AEMO* the information required from *Generators* under schedule 5.2 and from *Customers* under schedule 5.3 and from *Market Network Service Providers* under schedule 5.3a in relation to a *connection agreement* and details of any *connection points* with other *Network Service Providers*; and

(12) where *network augmentations*, setting changes or other technical issues arise which could impact across *regional* boundaries, provide *AEMO* with a written report on the impact and its effects.

(e) A *Network Service Provider* must arrange for operation of that part of the *national grid* over which it has control in accordance with instructions given by *AEMO*.

(e1) A *Network Service Provider* must, except in so far as its *market network services* and parts of its *network* which are used solely for the provision of *market network services* are concerned, arrange for:

(1) management, maintenance and operation of its part of the *national grid* such that, in the *satisfactory operating state*, electricity may be transferred continuously at a *connection point* on or with its *network* up to the *agreed capability*;

(2) operation of its *network* such that the fault level at any *connection point* on or with that *network* does not exceed the limits that have been specified in a *connection agreement*;

(3) management, maintenance and operation of its *network* to minimise the number of interruptions to *agreed capability* at a *connection point* on or with that *network* by using *good electricity industry practice*; and

(4) restoration of the *agreed capability* at a *connection point* on or with that *network* as soon as reasonably practicable following any interruption at that *connection point*.

(f) A *Network Service Provider* must comply with *applicable regulatory instruments*.

(g) Each *Network Service Provider* must in respect of new or altered equipment owned, operated or controlled by it for the purpose of providing a *market network service*:

(1) submit an *application to connect* and enter into a *connection agreement* with a *Network Service Provider* in accordance with rule 5.3 prior to that equipment being connected to the *network* of that *Network Service Provider* or altered (as the case may be);

(2) comply with the reasonable requirements of *AEMO* and the relevant *Network Service Provider* in respect of design requirements of equipment proposed to be *connected* to the *network* of that *Network Service Provider* in accordance with rule 5.4 and schedule 5.3a;

(3) provide forecast information to the relevant *Network Service Provider* in accordance with rule 5.6;

(4) permit and participate in inspection and testing of *facilities* and equipment in accordance with rule 5.7;

(5) permit and participate in commissioning of *facilities* and equipment which are to be *connected* to a *network* for the first time in accordance with rule 5.8; and

(6) **[Deleted]**

(7) give notice of intended voluntary permanent *disconnection* in accordance with rule 5.9.

(h) **[Deleted]**

(h1) **[Deleted]**

(h2) **[Deleted]**

(h3) **[Deleted]**

(i) This Chapter is neither intended to require, nor is it to be read or construed as having the effect of requiring, a *Network Service Provider* to permit *connection* to or to *augment* any part of its *network* which is solely used for the provision of *market network services*.

5.2.4 Obligations of customers

(a) Each *Customer* must plan and design its *facilities* and ensure that its *facilities* are operated to comply with:

(1) its *connection agreement* with a *Network Service Provider*;

(2) subject to clause 5.2.4(a)(1), all applicable *performance standards*; and

(3) subject to clause 5.2.4(a)(2), the *system standards.*

(b) A *Customer* must:

(1) submit an *application to connect* in respect of new or altered equipment owned, operated or controlled by the *Customer* and enter into a *connection agreement* with a *Network Service Provider* in accordance with rule 5.3 prior to that equipment being *connected* to the *network* of that *Network Service Provider* or altered (as the case may be);

(2) comply with the reasonable requirements of the relevant *Network Service Provider* in respect of design requirements of equipment proposed to be *connected* to the *network* of that *Network Service Provider* in accordance with rule 5.4 and schedule 5.3;

(3) provide *load* forecast information to the relevant *Network Service Provider* in accordance with rule 5.6;

(4) permit and participate in inspection and testing of *facilities* and equipment in accordance with rule 5.7;

(5) permit and participate in commissioning of *facilities* and equipment which are to be *connected* to a *network* for the first time in accordance with rule 5.8; and

(6) **[Deleted]**

(7) give notice of any intended voluntary permanent *disconnection* in accordance with rule 5.9.

5.2.5 Obligations of Generators

(a) A *Generator* must plan and design its *facilities* and ensure that they are operated to comply with:

(1) the *performance standards* applicable to those *facilities*;

(2) subject to subparagraph (1), its *connection agreement* applicable to those *facilities*; and

(3) subject to subparagraph (2), the *system standards*.

(b) A *Generator* must:

(1) submit an *application to connect* in respect of new *generating plant* owned, operated or controlled by the *Generator*, or to be owned, operated or controlled by the *Generator*, and enter into a *connection agreement* with a *Network Service Provider* in accordance with rule 5.3 prior to that *generating plant* being *connected* to the *network* of that provider;

(2) comply with the reasonable requirements of the relevant *Network Service Provider* in respect of design requirements of *generating plant* proposed to be *connected* to the *network* of that provider in accordance with rule 5.4 and schedule 5.2;

(3) provide *generation* forecast information to the relevant *Network Service Provider* in accordance with rule 5.6;

(4) permit and participate in inspection and testing of *facilities* and equipment in accordance with rule 5.7;

(5) permit and participate in commissioning of *facilities* and equipment which are to be *connected* to a *network* for the first time in accordance with rule 5.8; and

(6) give notice of intended voluntary permanent *disconnection* in accordance with rule 5.9.

5.3 Establishing or Modifying Connection

5.3.1 Process and procedures

(a) For the purposes of this rule 5.3:

establish a connection includes modify an existing *connection* or alter *plant* but does not include alterations to *generating plant* in the circumstances set out in clause 5.3.9.

(b) A *Registered Participant* or person intending to become a *Registered Participant* who wishes to establish a *connection* to a *network* must follow the procedures in this rule 5.3.

(c) Any person wishing to establish a *connection* to a *network* may elect to follow the procedures in this rule 5.3.

(d) A *Generator* wishing to alter *connected generating plant* must comply with clause 5.3.9.

5.3.2 Connection enquiry

(a) A person referred to in clause 5.3.1(b) or (c) who wishes to make an *application to connect* must first make a *connection* enquiry by advising the *Local Network Service Provider* of the type, magnitude and timing of the proposed *connection* to that provider's *network.*

(b) If the information submitted with a *connection* enquiry is inadequate to enable the *Local Network Service Provider* to process the enquiry the provider must within 5 *business days*, advise the *Connection Applicant* what other relevant preliminary information of the kind listed in schedule 5.4 is required before the *connection* enquiry can be further processed.

(c) The *Local Network Service Provider* must advise the *Connection Applicant* within 10 *business days* of receipt of the *connection* enquiry and the further information required in accordance with paragraph (b) if the enquiry would be more appropriately directed to another *Network Service Provider*.

(d) The *Connection Applicant*, notwithstanding the advice received under paragraph (c), may if it is reasonable in all the circumstances, request the *Local Network Service Provider* to process the *connection* enquiry and the provider must meet this request.

(e) Where the *Local Network Service Provider* considers that the *connection* enquiry should be jointly examined by more than one *Network Service Provider*, with the agreement of the *Connection Applicant*, one of those *Network Service Providers* may be allocated the task of liaising with the *Connection Applicant* and the other *Network Service Providers* to process and respond to the enquiry.

(f) A *Network Service Provider* must to the extent that it holds technical information necessary to facilitate the processing of a *connection* enquiry made in accordance with paragraph (a) or an *application to connect* in accordance with clause 5.3.4(a), provide that information to the *Connection Applicant* in accordance with the relevant requirements of schedule 5.1, 5.2, 5.3 or 5.3a.

5.3.3 Response to connection enquiry

(a) In preparing a response to a *connection* enquiry, the *Network Service Provider* must liaise with other *Network Service Providers* with whom it has *connection agreements*, if the *Network Service Provider* believes, in its reasonable opinion, that compliance with the terms and conditions of those *connection agreements* will be affected. The *Network Service Provider* responding to the *connection* enquiry may include in that response the reasonable requirements of any such other *Network Service Providers* for information to be provided by the *Connection Applicant*.

(b) The *Network Service Provider* must:

(1) within 10 *business days* after receipt of the *connection* enquiry and all such additional information (if any) advised under clause 5.3.2(b); or

(2) within 10 *business days* after receipt of a request from the *Connection Applicant* to the *Local Network Service Provider* to process the *connection* enquiry under clause 5.3.2(d),

provide the following information in writing to the *Connection Applicant*:

(3) the identity of other parties that the *Network Service Provider* considers:

(i) will need to be involved in planning to make the *connection* or must be involved under clause 5.3.5(e); and

(ii) must be paid for *transmission services* or *distribution services* in the appropriate jurisdiction;

(4) whether it will be necessary for any of the parties identified in subparagraph (3) to enter into an agreement with the *Connection Applicant* in respect of the provision of *connection* or other *transmission services* or *distribution services* or both, to the *Connection Applicant*;

(5) whether any service the *Network Service Provider* proposes to provide is *contestable* in the relevant *participating jurisdiction*; and

(6) a *preliminary program* showing proposed milestones for *connection* and access activities which may be modified from time to time by agreement of the parties, where such agreement must not be unreasonably withheld.

(b1) The *Network Service Provider* must:

(1) within 20 *business days* after receipt of the *connection* enquiry and all such additional information (if any) advised under clause 5.3.2(b); or

(2) within 20 *business days* after receipt of a request from the *Connection Applicant* to the *Local Network Service Provider* to process the *connection* enquiry under clause 5.3.2(d),

provide the *Connection Applicant* with the following written details of each technical requirement relevant to the proposed *plant*:

(3) the *automatic access standards*;

(4) the *minimum access standards*;

(5) the applicable *plant standards*;

(6) the *negotiated access standards* that will require *AEMO's* involvement in accordance with clause 5.3.4A(c); and

(7) the *normal voltage* level, if that is to change from the *nominal voltage* level.

(b2) A *Registered Participant*, *AEMO* or *interested party* may request the *Reliability Panel* to determine whether, in respect of one or more technical requirements for access, an existing Australian or international standard, or a part thereof, may be adopted as a *plant standard* for a particular class of *plant*.

(b3) Where, in respect of a technical requirement for access, the *Reliability Panel* determines a *plant standard* for a particular class of *plant* in accordance with clause 8.8.1(a)(8) as an acceptable alternative to a particular *minimum access standard* or *automatic access standard*, a *plant* which meets that *plant standard* is deemed to meet the applicable *automatic access standard* or *minimum access standard* for that technical requirement.

(b4) In making a determination in accordance with clause 5.3.3(b2) the *Reliability Panel* must consult *Registered Participants* and *AEMO* using the *Rules consultation procedures*.

(c) Within 20 *business days* after receipt of the *connection* enquiry and all such additional information (if any) advised under clause 5.3.2(b) or, if the *Connection Applicant* has requested the *Local Network Service Provider* to process the *connection* enquiry under clause 5.3.2(d), within 20 *business days* after receipt of that request, the *Network Service Provider* must provide to the *Connection Applicant* written advice of all further information which the *Connection Applicant* must prepare and obtain in conjunction with the *Network Service Provider* to enable the *Network Service Provider* to assess an *application to connect* including:

(1) details of the *Connection Applicant's connection* requirements, and the *Connection Applicant's* specifications of the *facility* to be connected, consistent with the requirements advised in accordance with clause 5.3.3(b1);

(2) details of the *Connection Applicant's* reasonable expectations of the level and standard of service of *power transfer capability* that the *network* should provide;

(3) a list of the technical data to be included with the *application to connect*, which may vary depending on the *connection* requirements and the type, rating and location of the *facility* to be *connected* and will generally be in the nature of the information set out in

schedule 5.5 but may be varied by the *Network Service Provider* as appropriate to suit the size and complexity of the proposed *facility* to be *connected*;

(4) commercial information to be supplied by the *Connection Applicant* to allow the *Network Service Provider* to make an assessment of the ability of the *Connection Applicant* to satisfy the prudential requirements set out in rules 6.6 and 6.7;

(5) the amount of the application fee which is payable on lodgement of an *application to connect*, such amount not being more than necessary to:

(i) cover the reasonable costs of all work anticipated to arise from investigating the *application to connect* and preparing the associated offer to *connect*; and

(ii) meet the reasonable costs anticipated to be incurred by *AEMO* and other *Network Service Providers* whose participation in the assessment of the *application to connect* will be required; and

(6) any other information relevant to the submission of an *application to connect*.

5.3.4 Application for connection

(a) A person who has made a *connection* enquiry under clause 5.3.2 may, following receipt of the responses under clause 5.3.3, make an *application to connect* in accordance with this clause 5.3.4 and clause 5.3.4A.

(b) To be eligible for *connection*, the *Connection Applicant* must submit an *application to connect* containing the information specified in clause 5.3.3(c) and the relevant application fee to the relevant *Network Service Provider*.

(c) The *Connection Applicant* may submit *applications to connect* to more than one *Network Service Provider* in order to receive additional offers to *connect* in respect of *facilities* to be provided that are *contestable*.

(d) To the extent that an application fee includes amounts to meet the reasonable costs anticipated to be incurred by any other *Network Service Providers* or *AEMO* in the assessment of the *application to connect*, a *Network Service Provider* who receives the *application to connect* and associated fee must pay such amounts to the other *Network Service Providers* or *AEMO*, as appropriate.

(e) For each technical requirement where the proposed arrangement will not meet the *automatic access standards* nominated by the *Network Service Provider* pursuant to clause 5.3.3(b1), the *Connection Applicant* must

submit with the *application to connect* a proposal for a *negotiated access standard* for each such requirement to be determined in accordance with clause 5.3.4A.

(f) The *Connection Applicant* may:

(1) lodge separate *applications to connect* and separately liaise with the other *Network Service Providers* identified in clause 5.3.3(b) who may require a form of agreement; or

(2) lodge one *application to connect* with the *Network Service Provider* who processed the *connection* enquiry and require it to liaise with those other *Network Service Providers* and obtain and present all necessary draft agreements to the *Connection Applicant*.

5.3.4A Negotiated access standards

(a) For the purposes of this clause 5.3.4A:

AEMO advisory matter means a matter that relates to *AEMO's* functions under the *National Electricity Law* and a matter in which *AEMO* has a role in schedules 5.1a, 5.1, 5.2, 5.3 and 5.3a.

(b) A *negotiated access standard* must:

(1) be no less onerous than the corresponding *minimum access standard* provided by the *Network Service Provider* under clause 5.3.3(b1)(4);

(2) be set at a level that will not adversely affect *power system security*;

(3) be set at a level that will not adversely affect the quality of *supply* for other *Network Users*; and

(4) in respect of *generating plant*, meet the requirements applicable to a *negotiated access standard* in clauses S5.2.5, S5.2.6, S5.2.7 and S5.2.8.

(c) A *Network Service Provider* must following the receipt of a proposed *negotiated access standard* under clause 5.3.4(e) or paragraph (h), consult with *AEMO* as soon as practicable in relation to *AEMO* advisory matters for that proposed standard.

(d) *AEMO* must within 20 *business day*s following the submission of a proposed *negotiated access standard* under clause 5.3.4(e) or paragraph (h)(3), respond to the *Network Service Provider* in writing in respect of any *AEMO* advisory matters.

(e) A *Network Service Provider* must within 30 *business days* following the receipt of a proposed *negotiated access standard* in accordance with clause

5.3.4(e) or paragraph (h)(3), accept or reject a proposed *negotiated access standard*.

(f) The *Network Service Provider* must reject the proposed *negotiated access standard* if that *connection*, or alteration of the *generating plant* (as the case may be), at the *negotiated access standard* proposed by the *Connection Applicant* would:

(1) on *AEMO's* reasonable advice, adversely affect *power system security*;

(2) in the *Network Service Provider's* reasonable opinion, adversely affect quality of *supply* for other *Network Users*;

(3) in the reasonable opinion of *AEMO* or the *Network Service Provider*, in respect of a *AEMO* advisory matter or a matter allocated to the *Network Service Provider*, respectively, be lower than the corresponding *minimum access standard*; or

(4) in respect of *generating plant*, in *AEMO'*s reasonable opinion, not satisfy paragraph (b)(4).

(g) If a *Network Service Provider* rejects a proposed *negotiated access standard*, the *Network Service Provider* must when rejecting the proposed *negotiated access standard*, advise the *Connection Applicant* of a *negotiated access standard* that the *Network Service Provider* will accept.

(h) The *Connection Applicant* may in relation to a proposed *negotiated access standard* advised by a *Network Service Provide*r in accordance with paragraph (g):

(1) accept the proposed *negotiated access standard*;

(2) reject the proposed *negotiated access standard*;

(3) propose an alternative *negotiated access standard* to be further evaluated in accordance with the criteria in paragraph (b); or

(4) elect to adopt the relevant *automatic access standard* or a corresponding *plant standard*.

(i) An *automatic access standard* or if the procedures in this clause 5.3.4A have been followed a *negotiated access standard*, that forms part of the terms and conditions of a *connection agreement*, is taken to be the *performance standard* applicable to the *connected plant* for the relevant technical requirement.

5.3.5 Preparation of offer to connect

(a) The *Network Service Provider* to whom the *application to connect* is submitted:

(1) at the *automatic access standard* under clause 5.3.4; or

(2) at a *negotiated access standard* that the provider has accepted under clause 5.3.4A(e),

must proceed to prepare an offer to *connect* in response.

(b) The *Network Service Provider* must use its reasonable endeavours to advise the *Connection Applicant* of all risks and obligations in respect of the proposed *connection* associated with planning and environmental laws not contained in the *Rules*.

(c) The *Connection Applicant* must provide such other additional information in relation to the *application to connect* as the *Network Service Provider* reasonably requires to assess the technical performance and costs of the required *connection* and to enable the *Network Service Provider* to prepare an offer to *connect*.

(d) So as to maintain levels of service and quality of *supply* to existing *Registered Participants* in accordance with the *Rules*, the *Network Service Provider* in preparing the offer to *connect* must consult with *AEMO* and other *Registered Participants* with whom it has *connection agreements*, if the *Network Service Provider* believes in its reasonable opinion, that compliance with the terms and conditions of those *connection agreements* will be affected, in order to assess the *application to connect* and determine:

(1) the technical requirements for the equipment to be *connected*;

(2) the extent and cost of *augmentations* and changes to all affected *networks*;

(3) any consequent change in *network service* charges; and

(4) any possible material effect of this new *connection* on the *network power transfer capability* including that of other *networks*.

(e) If the *application to connect* involves the *connection* of *generating units* having a *nameplate rating* of 10 MW or greater to a *distribution network*, the *Distribution Network Service Provider* must consult the relevant *Transmission Network Service Provider* regarding the impact of the *connection* contemplated by the *application to connect* on fault levels, line reclosure protocols, and stability aspects.

(f) The *Transmission Network Service Provider* consulted under paragraph (e) must determine the reasonable costs of addressing those matters for inclusion in the offer to *connect* and the *Distribution Network Service Provider* must make it a condition of the offer to *connect* that the *Connection Applicant* pay these costs.

(g) The *Network Service Provider* preparing the offer to *connect* must include provision for payment of the reasonable costs associated with *remote control equipment* and *remote monitoring equipment* as required by *AEMO* and it may be a condition of the offer to *connect* that the *Connection Applicant* pay such costs.

5.3.6 Offer to connect

(a) Subject to clause 5.3.3(b)(6), the *Network Service Provider* processing the *application to connect* must make an offer to *connect* the *Connection Applicant's facilities* to the *network* within the time period specified in the *preliminary program*.

(a1) The *Network Service Provider* may amend the time period referred to in clause 5.3.6(a) to allow for any additional time taken in excess of the period allowed in the *preliminary program* for the negotiation of *negotiated access standards* in accordance with clause 5.3.4A.

(b) The offer to *connect* must contain the proposed terms and conditions for *connection* to the *network* including:

(1) for each technical requirement identified by the *Network Service Provider* under clause 5.3.3(b1), the *automatic access standard* or the *negotiated access standard* as determined in accordance with clauses 5.3.4 and 5.3.4A; and

(2) the terms and conditions of the kind set out in schedule 5.6,

and must be capable of acceptance by the *Connection Applicant* so as to constitute a *connection agreement.*

(b1) The proposed terms and conditions detailed in the offer to *connect* must be no lower than the applicable *minimum access standards*.

(c) The offer to *connect* must be fair and reasonable and must be consistent with the safe and *reliable* operation of the *power system* in accordance with the *Rules*. Without limitation, unless the parties otherwise agree, to be fair and reasonable an offer to *connect* must offer *connection* and *network services* consistent with schedule 5.1 and (as applicable) schedules 5.2, 5.3 and 5.3a and must not impose conditions on the *Connection Applicant* which are more onerous than those contemplated in schedules 5.1, 5.2, 5.3 or 5.3a.

(c1) An offer to *connect* and the resulting *connection agreement* must be consistent with any minimum standards set by *AEMO* under clause 3.11.4(b)(1).

(d) The *Network Service Provider* must use its reasonable endeavours to provide the *Connection Applicant* with an offer to *connect* in accordance with the reasonable requirements of the *Connection Applicant*, including without limitation, the location of the proposed *connection point* and the level and standard of *power transfer capability* that the *network* will provide.

(e) An offer to *connect* may contain options for *connection* to a *network* at more than one point in a *network* and/or at different levels of service and with different terms and conditions applicable to each *connection point* according to the different characteristics of *supply* at each *connection point*.

(f) Both the *Network Service Provider* and the *Connection Applicant* are entitled to negotiate with each other in respect of the provision of *connection* and any other matters relevant to the provision of *connection* and, if negotiations occur, the *Network Service Provider* and the *Connection Applicant* must conduct such negotiations in good faith.

(g) An offer to *connect* must define the basis for determining *transmission service* charges in accordance with Chapter 6A, including the prudential requirements set out in that Chapter.

(h) An offer to *connect* must define the basis for determining *distribution service* charges in accordance with Chapter 6, including the prudential requirements set out in Part K of Chapter 6.

(i) An offer to *connect* in respect of a *transmission network* must conform with the access arrangements set out in rule 5.4A.

(j) An offer to *connect* in respect of a *distribution network* made to an *Embedded Generator* or a *Market Network Service Provider*, must conform with the relevant access arrangements set out in rule 5.5.

(k) Nothing in the *Rules* is to be read or construed as imposing an obligation on a *Network Service Provider* to effect an extension of a *network* unless that extension is required to effect or facilitate the *connection* of a *Connection Applicant* and the *connection* is the subject of a *connection agreement.*

5.3.7 Finalisation of connection agreements

(a) If a *Connection Applicant* wishes to accept an offer to *connect*, the *Connection Applicant* must negotiate and enter into a *connection agreement* with each relevant *Network Service Provider* identified in accordance with clauses 5.3.3(b)(3) and (4) and in doing so must use its reasonable

endeavours to negotiate in good faith with all parties with which the *Connection Applicant* must negotiate such a *connection agreement*.

(b) The *connection agreement* must include proposed *performance standards* with respect to each of the technical requirements identified in schedules 5.2, 5.3 and 5.3a and each proposed *performance standard* must have been established in accordance with the relevant technical requirement.

(c) The proposed *performance standards* must be based on the *automatic access standard* or, if the procedures in clause 5.3.4A have been followed, the *negotiated access standard*.

(d) The provision of *connection* by any *Network Service Provider* may be made subject to gaining environmental and planning approvals for any necessary *augmentation* or *extension* works to a *network*.

(e) Where permitted by the applicable law in the relevant *participating jurisdiction*, the *connection agreement* may assign responsibility to the *Connection Applicant* for obtaining the approvals referred to in paragraph (d) as part of the project proposal and the *Network Service Provider* must provide all reasonable information and may provide reasonable assistance for a reasonable fee to enable preparation of applications for such approvals.

(f) Subject to paragraph (e), each *connection agreement* must be based on the offer to *connect* as varied by agreement between the parties.

(g) The *Network Service Provider* responsible for the *connection point* and the *Registered Participant* must jointly notify *AEMO* that a *connection agreement* has been entered into between them and forward to *AEMO* relevant technical details of the proposed *plant* and *connection*, including as applicable:

(1) details of all *performance standards* that form part of the terms and conditions of the *connection agreement*;

(2) if a *Generator*, the arrangements for updating the information required under clause S5.2.4(b);

(3) the proposed *metering installation*;

(4) arrangements for the *Metering Provider* to obtain physical access to the *metering installation*; and

(5) the terms upon which a *Registered Participant* is to supply any *ancillary services* under the *connection agreement*.

(h) *AEMO* must, within 20 *business days* of receipt of the notice under paragraph (g), advise the relevant *Network Service Provider* and the *Registered Participant* of whether the proposed *metering installation* is

acceptable for those *metering installations* associated with those *connection points* which are classified as *metering installation* types 1, 2, 3 and 4 as specified in schedule 7.2.

5.3.7A Application for connection to declared shared network

(a) In relation to a *declared transmission system*, the powers, functions and responsibilities of the *Network Service Provider* are divided between *AEMO* and the *declared transmission system operator* as follows:

(1) *AEMO* is the *Network Service Provider* in respect of the provision of *shared transmission services*; and

(2) the relevant *declared transmission system operator* is the *Network Service Provider* in respect of the provision of *connection services*.

(b) If:

(1) a *declared transmission system operator* receives a *connection* inquiry or an *application to connect* to a *declared shared network*; and

(2) the inquiry or application relates in whole or part to the provision of *shared transmission services*;

the *declared transmission system operator* must pass on to *AEMO* the information provided by the applicant in connection with the inquiry or application.

5.3.8 Provision and use of information

(a) The data and information provided under this rule 5.3 is *confidential information* and must:

(1) be prepared, given and used in good faith; and

(2) not be disclosed or made available by the recipient to a third party except as set out in clause 3.13.3 or this clause 5.3.8.

(b) The data and information to be provided under this rule 5.3 may be shared between a *Network Service Provider* and *AEMO* for the purpose of enabling:

(1) the *Network Service Provider* to advise *AEMO* of *ancillary services* or similar services described in clause 3.11.3(j); and

(2) either party to:

(i) assess the effect of a proposed *facility* or proposed alteration to *generating plant* (as the case may be) on:

(A) the performance of the *power system*; or

(B) another proposed *facility* or another proposed alteration;

(ii) assess proposed *negotiated access standards*; or

(iii) determine the extent of any required *augmentation* or *extension*.

(c) A *Network Service Provider* may disclose the data and information to be provided under this rule 5.3 to another *Network Service Provider* if the *Network Service Provider* considers the information or data is materially relevant to that provider for *connection*.

(d) A person intending to disclose information under paragraphs (b) or (c) must first advise the relevant *Connection Applicant* of the extent of the disclosure.

(e) If a *Connection Applicant* or *Network Service Provider* becomes aware of any material change to any information contained in or relevant to an *application to connect*, it must promptly notify the other party in writing of that change.

(f) A *Registered Participant* must, within 5 *business days* of becoming aware that any information provided to *AEMO* in relation to a *performance standard* or other information of a kind required to be provided to *AEMO* under clause 5.3.7 is incorrect, advise *AEMO* of the correct information.

5.3.9 Procedure to be followed by a Generator proposing to alter a generating system

(a) This clause 5.3.9 applies where a *Generator* proposes to alter:

(1) a *connected generating system*; or

(2) a *generating system* for which *performance standards* have been previously accepted by *AEMO*,

in a manner that will affect the performance of the *generating system* relative to any of the technical requirements set out in clauses S5.2.5, S5.2.6, S5.2.7 and S5.2.8.

(b) A *Generator* to which this clause applies, must submit to the *Network Service Provider* with a copy to *AEMO*:

(1) a description of the nature of the alteration and the timetable for implementation;

(2) in respect of the proposed alteration to the *generating system*, details of the *generating unit* design data and *generating unit* setting data in

accordance with the *Generating System Model Guidelines*, *Generating System Design Data Sheet*, or *Generating System Setting Data Sheet*; and

(3) in relation to each relevant technical requirement for which the proposed alteration to the equipment will affect the performance of the *generating system*, the proposed amendments to:

(i) the applicable *automatic access standard*; or

(ii) a proposed *negotiated access standard*.

(c) Clause 5.3.4A applies to a submission by a *Generator* under paragraph (b)(3)(ii).

(d) Without limiting subparagraph (b)(3), for the purposes of that subparagraph (unless *AEMO* and the *Network Service Provider* otherwise agree), a proposed alteration to the equipment specified in column 1 of the table set out below is taken to affect the performance of the *generating system* relative to technical requirements specified in column 2, thereby necessitating a submission under subparagraph (b)(3).

Column 1 **(altered equipment)**	**Column 2** **(clause)**
machine windings	S5.2.5.1, S5.2.5.2, S5.2.8
power converter	S5.2.5.1, S5.2.5.2, S5.2.5.5, S5.2.5.12, S5.2.5.13, S5.2.8
reactive compensation plant	S5.2.5.1, S5.2.5.2, S5.2.5.5, S5.2.5.12, S5.2.5.13
excitation control system	S5.2.5.5, S5.2.5.7, S5.2.5.12, S5.2.5.13
voltage control system	S5.2.5.5, S5.2.5.12, S5.2.5.13
governor *control system*	S5.2.5.7, S5.2.5.11, S5.2.5.14
power *control system*	S5.2.5.11, S5.2.5.14
protection system	S5.2.5.3, S5.2.5.4, S5.2.5.5, S5.2.5.7, S5.2.5.8, S5.2.5.9
auxiliary supplies	S5.2.5.1, S5.2.5.2, S5.2.8
remote control and monitoring system	S5.2.5.14, S5.2.6.1, S5.2.6.2

(e) The *Network Service Provider* may as a condition of considering a submission made under paragraph (b), require payment of a fee to meet the reasonable costs anticipated to be incurred by the provider, other *Network Service Providers* and *AEMO*, in the assessment of the submission.

(f) The *Network Service Provider* must require payment of a fee under paragraph (e) if so requested by *AEMO*.

(g) On payment of the required fee referred to in paragraph (e), the *Network Service Provider* must pay such amounts as are on account of the costs anticipated to be incurred by the other *Network Service Providers* and *AEMO*, as appropriate.

(h) If the application of this clause 5.3.9 leads to a variation to an existing *connection agreement* the *Network Service Provider* and the *Generator* must immediately jointly advise *AEMO*.

5.3.10 Acceptance of performance standards for generating plant that is altered

(a) A *Generator* must not commission altered *generating plant* until the *Network Service Provider* has advised the *Generator* that the provider and *AEMO* are satisfied in accordance with paragraph (b).

(b) In relation to altered *generating plant*, the *Network Service Provider* and *AEMO*, to the extent of *AEMO's* advisory role under clause 5.3.4A, must be satisfied that:

(1) the *Generator* has complied with clause 5.3.9; and

(2) each amended *performance standard* submitted by the *Generator* either meets:

(i) the *automatic access standard* applicable to the relevant technical requirement; or

(ii) the *negotiated access standard* under clause 5.3.4A as applied in accordance with clause 5.3.9(c).

(c) For the purposes of paragraph (a), *AEMO* must advise the *Network Service Provider* as to whether it is satisfied with the matters referred to paragraph (b).

5.4 Design of Connected Equipment

5.4.1 Application

This rule 5.4 applies to new installations and modifications to existing installations that include alterations to existing *generating plant*, after:

(a) 13 December 1998, in the case of installations located in *participating jurisdictions* other than Tasmania; and

(b) 29 May 2005, in the case of installations located in Tasmania.

5.4.2 Advice of inconsistencies

(a) At any stage prior to commissioning the *facility* in respect of a *connection* if there is an inconsistency between the proposed equipment and the *connection agreement* including the *performance standards*, the *Registered Participant* or the person intending to be registered as a *Generator* must:

(1) advise the relevant *Network Service Provider* and, if the inconsistency relates to *performance standards*, *AEMO*, in writing of the inconsistency; and

(2) if necessary, negotiate in good faith with the *Network Service Provider* any necessary changes to the *connection agreement*.

(b) If an inconsistency in a *connection agreement* including a *performance standard* is identified under paragraph (a), the *Registered Participant* or the person intending to be registered as a *Generator* and the *Network Service Provider* must not commission the *facility* in respect of a *connection* unless the *facility* or the *connection agreement* or *performance standard* has been varied to remove the inconsistency.

(c) Nothing in this clause 5.4.2 affects the operation of clause 5.3.6(c1).

5.4.3 Additional information

A *Registered Participant* must provide any additional information in relation to its *plant* or associated equipment as the relevant *Network Service Provider* reasonably requests.

5.4.4 Advice on possible non-compliance

(a) If the relevant *Network Service Provider* reasonably believes that the design of a proposed *facility* has potential to adversely and materially affect the performance of the *power system*, the *Network Service Provider* may require the *Registered Participant* to submit to it specified design information and

drawings to enable the *Network Service Provider* to assess the performance of the *facility* in respect of its interaction with the *power system*:

(1) after the *Registered Participant* has entered into an agreement for the supply of *plant* or associated equipment to be connected; and

(2) when the relevant contractor's designs have progressed to a point where preliminary designs are available but prior to manufacture of equipment.

(b) The *Network Service Provider* must, within 40 *business days* of receipt of such information, use its reasonable endeavours to advise the *Registered Participant* in writing of any design deficiencies which the *Network Service Provider* believes would cause the design to be inconsistent with the *connection agreement* or the *Rules*.

(c) Notwithstanding clause 5.4.4(b), it is the *Registered Participant's* sole responsibility to ensure that all *plant* and equipment associated with the *connection* complies with the *connection agreement* and the *Rules*.

5.4A Access arrangements relating to Transmission Networks

(a) The *Transmission Network Service Provider* referred to in this rule 5.4A is the *Transmission Network Service Provider* required under clause 5.3.3 to process and respond to a *connection* enquiry or required under clause 5.3.5 to prepare an offer to *connect* for the establishment or modification of a *connection* to the *transmission network* owned, controlled or operated by that *Transmission Network Service Provider* or for the provision of *network service*.

(b) If requested by a *Connection Applicant*, whether as part of a *connection* enquiry, application to *connect* or the subsequent negotiation of a *connection* agreement, the *Transmission Network Service Provider* must negotiate in good faith with the *Connection Applicant* to reach agreement in respect of the *transmission network user access* arrangements sought by the *Connection Applicant*.

(c) As a basis for negotiations under paragraph (b):

(1) the *Connection Applicant* must provide to the *Transmission Network Service Provider* such information as is reasonably requested relating to the expected operation of:

(i) its *generating units* (in the case of a *Generator*);

(ii) its *network elements* used in the provision of *network service* (in the case of a *Network Service Provider*); or

(iii) its *plant* (in the case of any other kind of *Connection Applicant*); and

(2) the *Transmission Network Service Provider* must provide to the *Connection Applicant* such information as is reasonably requested to allow the *Connection Applicant* to fully assess the commercial significance of the *transmission network user access* arrangements sought by the *Connection Applicant* and offered by the *Transmission Network Service Provider*.

(d) A *Connection Applicant* may seek *transmission network user access* arrangements at any level of *power transfer capability* between zero and:

(1) in the case of a *Generator*, the *maximum power input* of the relevant *generating units* or group of *generating units*;

(2) in the case of a *Network Service Provider*, the *power transfer capability* of the relevant *network elements*; and

(3) in the case of any other kind of *Connection Applicant*, the *maximum demand* at the *connection point* for the relevant *plant*.

(e) The *Transmission Network Service Provider* must use reasonable endeavours to provide the *transmission network user access* arrangements being sought by the *Connection Applicant* subject to those arrangements being consistent with *good electricity industry practice* considering:

(1) the *connection assets* to be provided by the *Transmission Network Service Provider* or otherwise at the *connection point*; and

(2) the potential *augmentations* or *extensions* required to be undertaken on all affected *transmission networks* or *distribution networks* to provide that level of *power transfer capability* over the period of the *connection agreement* taking into account the amount of *power transfer capability* provided to other *Registered Participants* under *transmission network user access* or *distribution network user access* arrangements in respect of all affected *transmission networks* and *distribution networks*.

(f) The *Transmission Network Service Provider* and the *Connection Applicant* must negotiate in good faith to reach agreement as appropriate on:

(1) the *connection service* charge to be paid by the *Connection Applicant* in relation to *connection assets* to be provided by the *Transmission Network Service Provider*;

(2) in the case of a *Market Network Service Provider*, the service level standards to which the *Market Network Service Provider* requires the

Transmission Network Service Provider to adhere in providing it services;

(3) the *use of system services* charge to be paid:

(i) by the *Connection Applicant* in relation to any augmentations or extensions required to be undertaken on all affected transmission networks and distribution networks; and

(ii) where the *Connection Applicant* is a *Market Network Service Provider*, to the *Market Network Service Provider* in respect of any reduction in the long run marginal cost of *augmenting* the *transmission network* as a result of it being *connected* to the *transmission network*;

(‘*negotiated use of system charges*’); and

(4) the amounts (‘*access charges*’) referred to in paragraphs (g)-(j).

(g) The amount to be paid by the *Connection Applicant* to the *Transmission Network Service Provider* in relation to the costs reasonably incurred by the provider in providing *transmission network user access*.

(h) Where the *Connection Applicant* is a *Generator*:

(1) the compensation to be provided by the *Transmission Network Service Provider* to the *Generator* in the event that the *generating units* or group of *generating units* of the *Generator* are *constrained off* or *constrained on* during a *trading interval*; and

(2) the compensation to be provided by the *Generator* to the *Transmission Network Service Provider* in the event that *dispatch* of the *Generator’s generating units* or group of *generating units* causes another *Generator’s generating units* or group of *generating units* to be *constrained off* or *constrained on* during a *trading interval*.

(i) Where the *Connection Applicant* is a *Market Network Service Provider:*

(1) the compensation to be provided by the *Transmission Network Service Provider* to the *Market Network Service Provider* in the event that the *transmission network user access* is not provided; and

(2) the compensation to be provided by the *Market Network Service Provider* to the *Transmission Network Service Provider* in the event that *dispatch* of the relevant *market network service* causes a *Generator’s generating units* or group of *generating units* to be *constrained off* or *constrained on* during a *trading interval* or causes the *dispatch* of another *market network service* to be *constrained*.

(j) In the case of any other kind of *Connection Applicant*, the compensation to be provided by the *Transmission Network Service Provider* to the *Connection Applicant* in the event that the *transmission network user access* is not provided.

(k) The maximum charge that can be applied by the *Transmission Network Service Provider* in respect of *negotiated use of system charges* for the *transmission network* is a charge that is determined in accordance with Part J of Chapter 6A.

5.5 Access arrangements relating to Distribution Networks

(a) In this rule 5.5:

(1) the *Distribution Network Service Provider* is the *Distribution Network Service Provider* required under clause 5.3.3 to process and respond to a *connection* enquiry or required under clause 5.3.5 to prepare an offer to *connect* for the establishment or modification of a *connection* to the *distribution network* owned, controlled or operated by that *Distribution Network Service Provider* or for the provision of *network service*; and

(2) the references to a *Connection Applicant* are to an *Embedded Generator* or *Market Network Service Provider* who makes a *connection* enquiry under clause 5.3.2 or an application to *connect* under clause 5.3.4 in relation to any *generating units* or group of *generating units*, or any *network elements* used in the provision of *network service*, as the case may be.

(b) If requested by a *Connection Applicant*, whether as part of a *connection* enquiry, application to *connect* or the subsequent negotiation of a *connection agreement*, the *Distribution Network Service Provider* must negotiate in good faith with the *Connection Applicant* to reach agreement in respect of the *distribution network user access* arrangements sought by the *Connection Applicant*.

(c) As a basis for negotiations under paragraph (b):

(1) the *Connection Applicant* must provide to the *Distribution Network Service Provider* such information as is reasonably requested relating to the expected operation of:

(i) its *generating units* (in the case of an *Embedded Generator*); or

(ii) its *network elements* used in the provision of *network service* (in the case of a *Market Network Service Provider*); and

(2) the *Distribution Network Service Provider* must provide to the *Connection Applicant* such information as is reasonably requested to allow the *Connection Applicant* to fully assess the commercial significance of the *distribution network user access* arrangements sought by the *Connection Applicant* and offered by the *Distribution Network Service Provider*.

(d) A *Connection Applicant* may seek *distribution network user access* arrangements at any level of *power transfer capability* between zero and:

(1) in the case of an *Embedded Generator*, the *maximum power input* of the relevant *generating units* or group of *generating unit*s; and

(2) in the case of a *Market Network Service Provider*, the *power transfer capability* of the relevant *network elements*.

(e) The *Distribution Network Service Provider* must use reasonable endeavours to provide the *distribution network user access* arrangements being sought by the *Connection Applicant* subject to those arrangements being consistent with *good electricity industry practice* considering:

(1) the *connection assets* to be provided by the *Distribution Network Service Provider* or otherwise at the *connection point*; and

(2) the potential *augmentations* or *extensions* required to be undertaken on all affected *transmission networks* or *distribution networks* to provide that level of *power transfer capability* over the period of the *connection agreement* taking into account the amount of *power transfer capability* provided to other *Registered Participants* under *transmission network* user access or *distribution network user access* arrangements in respect of all affected *transmission networks* and *distribution networks*.

(f) The *Distribution Network Service Provider* and the *Connection Applicant* must negotiate in good faith to reach agreement as appropriate on:

(1) the *connection service charge* to be paid by the *Connection Applicant* in relation to *connection assets* to be provided by the *Distribution Network Service Provider*;

(2) in the case of a *Market Network Service Provider*, the service level standards to which the *Market Network Service Provider* requires the *Distribution Network Service Provider* to adhere in providing it services;

(3) the *use of system services* charge to be paid:

(i) by the *Connection Applicant* in relation to any *augmentations* or *extensions* required to be undertaken on all affected *transmission networks* and *distribution networks*; and

(ii) where the *Connection Applicant* is a *Market Network Service Provider*, to the *Market Network Service Provider* in respect of any reduction in the long run marginal cost of *augmenting* the *distribution network* as a result of it being *connected* to the *distribution network*,

(‘*negotiated use of system charges’*); and

(4) the following amounts:

(i) the amount to be paid by the *Connection Applicant* to the *Distribution Network Service Provider* in relation to the costs reasonably incurred by the *Distribution Network Service Provider* in providing *distribution network user access*;

(ii) where the *Connection Applicant* is an *Embedded Generator*:

(A) the compensation to be provided by the *Distribution Network Service Provider* to the *Embedded Generator* in the event that the *generating units* or group of *generating units* of the *Embedded Generator* are *constrained off* or *constrained on* during a *trading interval*; and

(B) the compensation to be provided by the *Embedded Generator* to the *Distribution Network Service Provider* in the event that dispatch of the *Embedded Generator’s generating units* or group of *generating units* causes another *Generator’s generating units* or group of *generating units* to be *constrained off* or *constrained on* during a *trading interval*; and

(iii) where the *Connection Applicant* is a *Market Network Service Provider*:

(A) the compensation to be provided by the *Distribution Network Service Provider* to the *Market Network Service Provider* in the event that the *distribution network user access* is not provided; and

(B) the compensation to be provided by the *Market Network Service Provider* to the *Distribution Network Service Provider* in the event that *dispatch* of the relevant *market network service* causes a *Generator’s generating units* or group of *generating units* to be *constrained off* or

constrained on during a *trading interval* or causes the *dispatch* of another *market network service* to be *constrained*.

(g) The maximum negotiated *use of system* charges applied by a *Distribution Network Service Provider* must be in accordance with the applicable requirements of Chapter 6 and the *Negotiated Distribution Service Criteria* applicable to the *Distribution Network Service Provider*.

(h) A *Distribution Network Service Provider* must pass through to a *Connection Applicant* the amount calculated in accordance with paragraph (i) for the locational component of *prescribed TUOS services* that would have been payable by the *Distribution Network Service Provider* to a *Transmission Network Service Provider* had the *Connection Applicant* not been *connected* to its *distribution network (*'avoided charges for the locational component of *prescribed TUOS services*').

(i) To calculate the amount to be passed through to a *Connection Applicant* in accordance with paragraph (h), a *Distribution Network Service Provider* must, if prices for the locational component of *prescribed TUOS services* were in force at the relevant *transmission network connection point* throughout the relevant *financial year*:

(1) determine the charges for the locational component of *prescribed TUOS services* that would have been payable by the *Distribution Network Service Provider* for the relevant *financial year*:

(i) where the *Connection Applicant* is an *Embedded Generator*, if that *Embedded Generator* had not injected any *energy* at its *connection point* during that *financial year*;

(ii) where the *Connection Applicant* is a *Market Network Service Provider*, if the *Market Network Service Provider* had not been *connected* to the *Distribution Network Service Provider's distribution network* during that *financial year*; and

(2) determine the amount by which the charges calculated in subparagraph (1) exceed the amount for the locational component of *prescribed TUOS services* actually payable by the *Distribution Network Service Provider*, which amount will be the relevant amount for the purposes of paragraph (h).

(j) Where prices for the locational component of *prescribed TUOS services* were not in force at the relevant *distribution network connection point* throughout the relevant *financial year*, as referred to in paragraph (i), the *Distribution Network Service Provider* must apply an equivalent procedure to that referred to in paragraph (i) in relation to that component of its *transmission use of system service* charges which is deemed by the relevant

Transmission Network Service Provider to represent the marginal cost of *transmission*, less an allowance for locational signals present in the *spot market*, to determine the relevant amount for the purposes of paragraph (h).

5.6 Planning and Development of Network

5.6.1 Forecasts for connection points to transmission network

(a) The relevant *Network Service Provider* must give at least 40 *business days* written notice to each relevant *Registered Participant* of the annual date by which the *Registered Participant* must provide the relevant *Network Service Provider* with the short and long term electricity *generation*, *market network service* and *load* forecast information listed in schedule 5.7 in relation to each *connection point* which *connects* the *Registered Participant* to a *transmission network* of that *Network Service Provider* and any other relevant information as reasonably required by the *Network Service Provider*.

(b) Details of planned future *generating units*, *market network services* and *loads*, being details regarding the proposed commencing date, *active power capability* and *reactive power capability*, *power transfer capability*, operating times/seasons and special operating requirements, must be given by each relevant *Registered Participant* to the relevant *Network Service Provider* on reasonable request.

(c) Each relevant *Registered Participant* must use reasonable endeavours to provide accurate information under clause 5.6.1(a) which must include details of any factors which may impact on *load* forecasts or proposed *facilities* for *generation* or *market network services*.

(d) If the *Network Service Provider* reasonably believes any forecast information to be inaccurate, the *Network Service Provider* may modify that forecast information and must advise the relevant *Registered Participant* and *AEMO* in writing of this action and the reason for the modification. The *Network Service Provider* is not responsible for any adverse consequences of this action or for failing to modify forecast information under this clause 5.6.1(d).

5.6.2 Network Development

(a1) The terms *Network Service Provider*, *Transmission Network Service Provider* and *Distribution Network Service Provider* when used in this clause 5.6.2 are not intended to refer to, and are not to be read or construed as referring to, any *Network Service Provider* in its capacity as a *Market Network Service Provider*.

(a) Each *Transmission Network Service Provider* and *Distribution Network Service Provider* must analyse the expected future operation of its

transmission networks or *distribution networks* over an appropriate planning period, taking into account the relevant forecast *loads*, any future *generation*, *market network service*, demand side and *transmission* developments and any other relevant data.

(b) Each *Transmission Network Service Provider* must conduct an annual planning review with each *Distribution Network Service Provider connected* to its *transmission network* within each *region*. The annual planning review must:

(1) incorporate the forecast *loads* as submitted or modified in accordance with clause 5.6.1; and

(2) include a review of the adequacy of existing *connection points* and relevant parts of the *transmission system* and planning proposals for future *connection points*; and

(3) take into account the most recent *NTNDP*; and

(4) consider the potential for *augmentations*, or non-*network* alternatives to *augmentations*, that are likely to provide a net economic benefit to all those who produce, consume and transport electricity in the *market*.

(c) Where the need for an *augmentation* or a non-network alternative is identified (either by the annual planning review or independently of that review), the relevant parties must undertake joint planning in order to determine plans for consideration by relevant *Registered Participants, AEMO and interested parties*. For this purpose, the relevant parties are:

(1) for the *declared shared network* of an *adoptive jurisdiction* – the relevant *declared transmission system operator*, the relevant *Distribution Network Service Provider*, *AEMO* and any *interested party* that has informed *AEMO* of its interest in the joint planning process; and

(2) for any other case – the relevant *Network Service Providers*.

(d) The minimum planning period for the purposes of the annual planning review is 5 years for *distribution networks* and 10 years for *transmission* networks.

(e) Each *Network Service Provider* must:

(1) extrapolate the forecasts provided to it by *Registered Participants* for the purpose of planning;

(2) if the analysis required by subparagraph (1) indicates that any relevant technical limits of the *transmission or distribution systems*

will be exceeded, either in normal conditions or following the contingencies specified in schedule 5.1, notify any affected *Registered Participants* and *AEMO* of these limitations; and

(3) notify any affected *Registered Participants* and *AEMO* of the expected time for undertaking proposed corrective action which may consist of:

(i) *dual function assets* or *transmission investment* designed to address limitations in respect of a *distribution network* notified under subparagraph (2); and

(ii) *network* or non *network* corrective action or modifications to *connection facilities*, designed to address the limitations notified under subparagraph (2).

(e1) For corrective action proposals of a kind referred to in paragraph (e)(3)(i), the processes detailed in paragraphs (f), (g1) and (h)-(m) must be conducted jointly by the relevant *Distribution Network Service Provider* and *Transmission Network Service Provider*.

(e2) For corrective action proposals of a kind referred to in paragraph (e)(3)(ii) and notified by a *Distribution Network Service Provider*, the processes detailed in paragraphs (f) and (g), (h)–(m) must be conducted by the relevant *Distribution Network Service Provider*.

(f) Before making the report referred to in paragraph (h), the relevant *Distribution Network Service Provider* or *Network Service Providers* must consult with affected *Registered Participants*, *AEMO* and *interested parties* on the possible options, including but not limited to demand side options, *generation* options and *market network service* options to address the projected limitations of the relevant *distribution system* except that a *Distribution Network Service Provider* does not need to consult on a *network* option which would be a *new small distribution network asset*.

(g) Each *Distribution Network Service Provider* must carry out an economic cost effectiveness analysis of possible options to identify options that satisfy the *regulatory test*, while meeting the technical requirements of schedule 5.1, and where the *Network Service Provider* is required by clause 5.6.2(f) to consult on the option this analysis and allocation must form part of the consultation on that option.

(g1) For corrective action proposals of a kind referred to in paragraph (e)(3)(i), the relevant *Transmission Network Service Provider* and *Distribution Network Service Provider* must carry out an economic cost effectiveness analysis of possible options to identify options that satisfy the *regulatory test*, while meeting the technical requirements of schedule 5.1 and that

analysis and allocation must form part of any consultation required by paragraph (f).

(h) Following conclusion of the process outlined in paragraphs (f) and (g) or (g1), the relevant *Distribution Network Service Provider* or *Network Service Providers* must prepare a report that is to be made available to affected *Registered Participants*, *AEMO* and *interested parties* which:

(1) includes an assessment of all identified options referred to in paragraph (g) or (g1);

(2) includes details of the preferred proposal including:

(i) its economic cost effectiveness analysis in accordance with paragraph (g) or (g1); and

(ii) the consultations conducted for the purposes of paragraph (g) or (g1);

(3) summarises the submissions from the consultations; and

(4) recommends the action to be taken.

(i) *Registered Participants* may dispute the recommendation of the report prepared under clause 5.6.2(h) within 40 *business days* after the report is made available in respect of any proposal that is a *new large distribution network asset* or is reasonably likely to change the *distribution use of system service* charges applicable to that *Registered Participant* by more than 2% at the date of the next price review, based on the assumption that the same approach to *distribution network* pricing is taken for the next review period as that taken for the current review period.

(j) If any *Registered Participant* disputes a recommendation under paragraph (i), the relevant *Distribution Network Service Provider* or *Network Service Providers* and the relevant affected *Registered Participant* must negotiate in good faith to reach agreement on the action to be taken.

(k) Following:

(1) completion of the 40 *business day* period referred to in clause 5.6.2(i) or on resolution of any dispute in accordance with rule 8.2, in relation to proposals to which clause 5.6.2(j) applies; or

(2) completion of the report referred to in clause 5.6.2(h), in relation to any other *network* option recommended by the report,

the relevant *Distribution Network Service Provider* or *Transmission Network Service Provider* must arrange for the *network* options (if any)

recommended by its report made in accordance with clause 5.6.2(h) to be available for service by the agreed time.

(k1) The relevant *Distribution Network Service Provider* or *Transmission Network Service Provider* must, as appropriate, include the cost of the relevant *network* options referred to in paragraph (k) in either:

(1) the calculation of *distribution service* prices determined in accordance with Chapter 6; or

(2) the calculation of *transmission use of system charges*.

(l) If a *use of system service* or the provision of a service at a *connection point* is directly affected by a *transmission network* or *distribution network augmentation*, appropriate amendments to relevant *connection agreements* must be negotiated in good faith between the parties to them.

(m) Where the relevant *Transmission Network Service Provider* or *Distribution Network Service Provider* decides to implement a *generation* option as an alternative to *network augmentation*, the *Network Service Provider* must:

(1) register the *generating unit* with *AEMO* and specify that the *generating unit* may be periodically used to provide a *network* support function and will not be eligible to set *spot prices* when *constrained on* in accordance with clause 3.9.7; and

(2) include the cost of this *network* support service in the calculation of *transmission service* and *distribution service* prices determined in accordance with Chapter 6 or Chapter 6A, as the case may be.

(n) *AEMO* must provide to *Network Service Providers* on request, a copy of any report provided to *AEMO* by a *Network Service Provider* under clause 5.2.3(d)(12). If a *Registered Participant* reasonably considers that it is or may be adversely affected by a development or change in another *region*, the *Registered Participant* may request the preparation of a report by the relevant *Network Service Provider* as to the technical impacts of the development or change. If so requested, the *Network Service Provider* must prepare such a report and provide a copy of it to *AEMO*, the *Registered Participant* requesting the report and, on request, any other *Registered Participant*.

5.6.2A Annual Planning Report

(a) By 30 June each year all *Transmission Network Service Providers* must *publish* an *Annual Planning Report* setting out the results of the annual planning review conducted in accordance with clause 5.6.2(a) and (b).

(b) The *Annual Planning Report* must set out:

(1) the forecast *loads* submitted by a *Distribution Network Service Provider* in accordance with clause 5.6.1 or as modified in accordance with clause 5.6.1(d);

(2) planning proposals for future *connection points*;

(3) a forecast of *constraints* and inability to meet the *network* performance requirements set out in schedule 5.1 or relevant legislation or regulations of a *participating jurisdiction* over 1, 3 and 5 years;

(3a) in respect of information required by subparagraph (3), where an estimated reduction in forecast *load* would defer a forecast *constraint* for a period of 12 months, include:

(i) the year and months in which a *constraint* is forecast to occur;

(ii) the relevant *connection points* at which the estimated reduction in forecast *load* may occur;

(iii) the estimated reduction in forecast *load* in MW needed; and

(iv) a statement of whether the *Transmission Network Service Provider* plans to issue a request for proposals for *augmentation* or a non-network alternative identified by the annual planning review conducted under clause 5.6.2(b) and if so, the expected date the request will be issued;

(4) for all proposed *augmentations* to the *network* the following information, in sufficient detail relative to the size or significance of the project and the proposed operational date of the project:

(i) project/asset name and the month and year in which it is proposed that the asset will become operational;

(ii) the reason for the actual or potential *constraint*, if any, or inability, if any, to meet the *network* performance requirements set out in schedule 5.1 or relevant legislation or regulations of a *participating jurisdiction*, including *load* forecasts and all assumptions used;

(iii) the proposed solution to the *constraint* or inability to meet the *network* performance requirements identified in clause 5.6.2A(b)(4)(ii), if any;

(iv) total cost of the proposed solution;

(v) whether the proposed solution will have a *material inter-network impact*. In assessing whether an *augmentation* to

the *network* will have a *material inter-network impact* a *Transmission Network Service Provider* must have regard to the objective set of criteria *published* by *AEMO* in accordance with clause 5.6.3(b) (if any such criteria have been *published* by *AEMO*); and

(vi) other reasonable *network* and non-*network* options considered to address the actual or potential *constraint* or inability to meet the *network* performance requirements identified in clause 5.6.2A(b)(4)(ii), if any. Other reasonable *network* and non-*network* options include, but are not limited to, *interconnectors*, *generation* options, demand side options, *market network service* options and options involving other *transmission* and *distribution networks*;

(5) the manner in which the proposed *augmentations* relate to the most recent *NTNDP* and the development strategies for current or potential *national transmission flow paths* that are specified in that *NTNDP*.

(6) for all proposed *replacement transmission network assets*:

(i) a brief description of the new *replacement transmission network asset* project, including location;

(ii) the date from which the *Transmission Network Service Provider* proposes that the proposed new *replacement transmission network asset* will become operational;

(iii) the purpose of the proposed new *replacement transmission network asset*;

(iv) a list of any reasonable *network* or non-*network* alternatives to the proposed new *replacement transmission network asset* which are being, or have been, considered by the *Transmission Network Service Provider* (if any). Those alternatives include, but are not limited to, *interconnectors*, *generation* options, demand side options, *market network service* options and options involving other *transmission* or *distribution networks*; and

(v) the *Transmission Network Service Provider's* estimated total capitalised expenditure on the proposed new *replacement transmission network asset*; and

(7) any information required to be included in an *Annual Planning Report* under clause 5.6.5C(c) in relation to a *transmission investment* which is determined to be required to address an urgent and unforeseen *network* issue.

5.6.3 AEMO's obligation to publish information and guidelines and provide advice

(a) In carrying out its *NTP functions*, *AEMO* must:

(1) *publish* an objective set of criteria for assessing whether a proposed *transmission network augmentation* is reasonably likely to have a *material inter-network impact*; and

(2) prepare and *publish augmentation technical reports* on proposed *transmission network augmentations* that are reasonably likely to have a *material inter-network impact*; and

(3) *publish* guidelines to assist *Registered Participants* to determine when an *inter-network test* may be required; and

(4) provide advice to the *AEMC* as requested about the exercise of the *last resort planning power*.

(b) *AEMO* must develop and *publish*, and may vary from time to time, an objective set of criteria for assessing whether a proposed *transmission network augmentation* is reasonably likely to have a *material inter-network impact*. In developing (or varying) the objective set of criteria, *AEMO* must:

(1) proceed in accordance with the *Rules consultation procedures*; and

(2) have regard to:

(i) the relevant guiding objectives and principles provided by the *AEMC*; and

(ii) the advice of *jurisdictional planning representatives*.

(c) The *AEMC* must provide *AEMO* with guiding objectives and principles for the development by *AEMO* of the objective set of criteria for assessing whether or not a proposed *transmission network augmentation* is reasonably likely to have a *material inter-network impact*.

(d) If *AEMO* receives a written request for an *augmentation technical report* on a proposed *transmission network augmentation* that is reasonably likely to have a *material inter-network impact*, or *AEMO* decides in the course of exercising its functions under Chapter 8, Part H, that a proposed *transmission network augmentation* is reasonably likely to have a *material inter-network impact*, *AEMO* must:

(1) immediately undertake a review of all matters referred to it by the *Transmission Network Service Provider* in order to assess the proposed *augmentation*; and

(2) consult with, and take into account the recommendations of, the *jurisdictional planning representatives* in relation to the proposed *augmentation*; and

(3) make a determination as to:

(i) the performance requirements for the equipment to be *connected*; and

(ii) the extent and cost of *augmentations* and changes to all affected *transmission networks*; and

(iii) the possible material effect of the new *connection* on the *network power transfer capability* including that of other *transmission networks*; and

(4) within 90 *business days* of the date of the request or decision (or some other period agreed between the *Transmission Network Service Provider* and *AEMO*), *AEMO* must *publish* an *augmentation technical report* that sets out:

(i) *AEMO's* determination; and

(ii) the reasons for the determination (including a statement of any information and assumptions on which the determination is based).

A request for an *augmentation technical report* on a proposed *transmission network augmentation* must be accompanied by sufficient information to enable *AEMO* to make a proper assessment of the proposed *augmentation* and *AEMO's* reasonable fees covering the direct costs and expenses of preparing the report.

(e) *AEMO* may, for the purpose of preparing an *augmentation technical report*, by written notice request a *Transmission Network Service Provider* to provide *AEMO* with additional information reasonably available to it and the *Transmission Network Service Provider* must comply with the request.

(f) The period for *AEMO* to *publish* an *augmentation technical report* will be automatically extended by the time taken by the *Transmission Network Service Provider* to provide additional information requested by *AEMO*.

(g) If the objective set of criteria developed and published under paragraph (b) is changed after a project assessment draft report has been made available to *Registered Participants* and *AEMO*, the relevant *Transmission Network Service Provider* is entitled to choose whether the new criteria, or the criteria that existed when the project

assessment draft report was made available to *Registered Participants* and *AEMO*, are to be applied.

5.6.4 Last Resort Planning Power

(a) In this clause 5.6.4:

directed party means one or more *Registered Participants* directed by the *AEMC* in accordance with this clause 5.6.4 and may include:

(1) a single Registered Participant;

(2) two or more *Registered Participants* who are directed by the *AEMC* to jointly and co-operatively comply with a direction under paragraph (c).

direction notice is a notice issued under paragraph (i).

Purpose

(b) The purpose of a *last resort planning power* is to ensure timely and efficient *inter-regional transmission* investment for the long term interests of consumers of electricity.

AEMC last resort planning power

(c) The *AEMC* may, in accordance with this clause 5.6.4, direct one or more *Registered Participants*:

(1) to identify a *potential transmission project* and apply the *regulatory investment test for transmission* to that project; or

(2) to apply the *regulatory investment test for transmission* to a *potential transmission project* identified by the *AEMC*.

(d) The *AEMC* must exercise a *last resort planning power*:

(1) consistently with the purpose referred to in paragraph (b); and

(2) in accordance with the *last resort planning power guidelines.*

Advice from AEMO

(e) The *AEMC* may request advice from *AEMO* in relation to the exercise of the *last resort planning power*, in accordance with the *last resort planning power guidelines*.

(f) **[Deleted]**

Relevant considerations

(g) In deciding whether or not to exercise a *last resort planning power* the *AEMC* must take into account:

(1) advice provided by *AEMO*;

(2) the *NTNDP* for the current and the previous year;

(3) *Annual Planning Reports* published by *Transmission Network Service Providers* under clause 5.6.2A; and

(4) other matters that are relevant in all the circumstances.

(h) In deciding whether or not to exercise the *last resort planning power* the *AEMC* must:

(1) identify a problem relating to *constraints* in respect of *national transmission flow paths* between *regional reference nodes* or a *potential transmission project* (**the problem** or **the project**);

(2) make reasonable inquiries to satisfy itself that there are no current processes underway for the application of the *regulatory investment test for transmission* in relation to the problem or the project;

(3) consider whether there are other options, strategies or solutions to address the problem or the project, and must be satisfied that all such other options are unlikely to address the problem or the project in a timely manner;

(4) be satisfied that the problem or the project may have a significant impact on the efficient operation of the *market*; and

(5) be satisfied that but for the *AEMC* exercising the *last resort planning power*, the problem or the project is unlikely to be addressed.

Direction notice

(i) The *AEMC* must exercise a *last resort planning power* by giving a direction notice in writing to a directed party that states:

(1) the relevant action under paragraph (c) that the directed party is required to undertake; and

(2) the *AEMC's* reasons for exercising the *last resort planning power*.

(j) A direction notice given by the *AEMC* under paragraph (i) may specify one or more of the following:

(1) one or more alternative projects which a directed party must consider when applying the *regulatory investment test for transmission* to *potential transmission projects*;

(2) the time period within which the application of the *regulatory investment test for transmission* must be carried out by a directed party; or

(3) consultation and publication requirements that are in addition to those required by the *regulatory investment test for transmission*.

(k) The *AEMC* must *publish* the direction notice referred to in paragraph (i) on its website.

(l) A directed party must comply with:

(1) a direction notice;

(2) the requirements of the *last resort planning power guidelines*; and

(3) the requirements for the application of the *regulatory investment test for transmission*.

(m) If a directed party (an **earlier directed party**) fails to comply with a direction notice, the *AEMC* may:

(1) in accordance with this clause 5.6.4, give a direction notice to a *Registered Participant* other than the earlier directed party; and

(2) inform the *AER* of the earlier directed party's failure to comply with the direction notice.

Annual reporting for last resort planning power

(n) The *AEMC* must report annually on the matters which the *AEMC* has considered during that year in deciding whether or not to exercise the *last resort planning power*, and may include the information in its Annual Report published under s.27 of the Australian Energy Market Commission Establishment Act 2004 (South Australia).

Last resort planning power guidelines

(o) The *AEMC* must develop and *publish* guidelines ('the *last resort planning power guidelines*') for or with respect to:

(1) the processes to be followed by the *AEMC* in exercising the *last resort planning power*;

(2) **[Deleted]**

(3) the advice to be provided to the *AEMC* by *AEMO*, including the terms of reference for any such advice;

(4) the matters that *AEMO* and the *AEMC* may consider in recommending or nominating a person as an appropriate directed party; and

(5) the provision of information to the *AEMC* in relation to the exercise of the *last resort planning power*.

(p) The *AEMC* must develop and *publish* the *last resort planning power guidelines* in accordance with the *transmission consultation procedures*.

(q) The *AEMC* must develop and *publish* the first *last resort planning power guidelines* by 1 January 2008 and there must be such guidelines available at all times after that date.

(r) The *AEMC* may from time to time and in accordance with the *transmission consultation procedures*, amend or replace the *last resort planning power guidelines*.

5.6.5 [Deleted]

5.6.5A Investments subject to the regulatory test

(a) The *AER* must develop and *publish* the *regulatory test* in accordance with this clause 5.6.5A.

(b) The purpose of the *regulatory test* is to identify *new network investments* or non-*network* alternative options that:

(1) maximise the net economic benefit to all those who produce, consume and transport electricity in the *market*; or

(2) in the event the option is necessitated to meet the service standards linked to the technical requirements of schedule 5.1 or in *applicable regulatory instruments*, minimise the present value of the costs of meeting those requirements.

(c) In so far as it relates to paragraph (b)(1), the *regulatory test* must:

(1) be based on a cost-benefit analysis of the future (which includes assessment of reasonable scenarios of future supply and demand conditions):

(i) were the *new network investment* to take place,

compared to the likely alternative option or options,

(ii) were the *new network investment* not to take place;

(2) as a minimum, list or provide for:

(i) the classes of possible benefits that may be included as benefits, and classes of possible benefits that may not be included as benefits;

(ii) the method or methods permitted for estimating the magnitude of the different classes of benefits;

(iii) the classes of possible costs that may be counted as costs, and classes of possible costs that may not be included as costs;

(iv) the method or methods permitted for estimating the magnitude of the different classes of costs; and

(v) the appropriate method and value for specific inputs, where relevant, for determining the discount rate to be applied;

(3) ensure that the identification of the likely alternative option referred to in subparagraph (1) is informed by a consideration of all genuine and practicable alternative options to the proposed *new network investment* without bias regarding:

(i) energy source;

(ii) technology;

(iii) ownership;

(iv) the extent to which the *new network investment* or the non-*network* alternative enables *intra-regional* or *inter-regional* trading of electricity;

(v) whether it is a *network* or non-*network* alternative;

(vi) whether the *new network investment* or non-*network* alternative is intended to be regulated; or

(vii) any other factor;

(4) **[Deleted]**

(5) contain a requirement that where there is more than one likely alternative option to the *new network investment*, and no single alternative option is significantly more likely to occur than the other, then the cost-benefit analysis referred to in subparagraph (1) must be undertaken in relation to each such likely alternative option;

(6) not require the level of analysis to be disproportionate to the scale and size of the *new network investment*;

(7) be capable of predictable, transparent and consistent application; and

(8) provide that alternative options may include (without limitation) *generation*, demand side management, other *network* options, or the substitution of demand for electricity by the provision of alternative forms of energy.

Preparation, publication and amendment of regulatory test and regulatory test application guidelines

(d) At the same time as the *AER publishes* a proposed *regulatory test* under the *distribution consultation procedures*, the *AER* must also *publish* guidelines for the operation and application of the *regulatory test* ('the ***regulatory test* application guidelines**') in accordance with the requirements of this clause 5.6.5A.

(e) The *regulatory test* application guidelines must give effect to and be consistent with this clause 5.6.5A and provide guidance on the operation and application of the *regulatory test*.

(f) The *AER* must develop and *publish* the first *regulatory test* and *regulatory test* application guidelines under this clause 5.6.5A by 31 December 2007 and there must be a *regulatory test* and *regulatory test* application guidelines in force at all times after that date.

(g) The *AER* may, from time to time and in accordance with the *distribution consultation procedures*, amend or replace the *regulatory test* and *regulatory test* application guidelines developed and *published* under this clause, provided that such amendments must be *published* at the same time.

(h) An amendment as referred to in paragraph (g) does not apply to a current application of the *regulatory test* and the *regulatory test* application guidelines under the *Rules* (however described) by a *Network Service Provider*.

5.6.5B Regulatory investment test for transmission

Principles

(a) The *AER* must develop and *publish* the *regulatory investment test for transmission* in accordance with the *transmission consultation procedure* and this clause 5.6.5B.

(b) The purpose of the *regulatory investment test for transmission* is to identify the *credible option* that maximises the present value of net economic benefit

to all those who produce, consume and transport electricity in the *market* (the *preferred option*). For the avoidance of doubt, a *preferred option* may, in the relevant circumstances, have a negative net economic benefit (that is, a net economic cost) where the *identified need* is for *reliability corrective action*.

(c) The *regulatory investment test for transmission* must:

(1) be based on a cost-benefit analysis that is to include an assessment of reasonable scenarios of future supply and demand if each *credible option* were implemented compared to the situation where no option isimplemented;

(2) not require a level of analysis that is disproportionate to the scale and likely impact of each of the *credible options* being considered;

(3) be capable of being applied in a predictable, transparent and consistent manner;

(4) require the *Transmission Network Service Provider* to consider the following classes of market benefits that could be delivered by the *credible option*:

(i) changes in fuel consumption arising through different patterns of *generation dispatch*;

(ii) changes in voluntary *load* curtailment;

(iii) changes in involuntary *load shedding*, with the market benefit to be considered using a reasonable forecast of the value of electricity to consumers;

(iv) changes in costs for parties, other than the *Transmission Network Service Provider*, due to:

(A) differences in the timing of new *plant*;

(B) differences in capital costs; and

(C) differences in the operating and maintenance costs;

(v) differences in the timing of *transmission investment*;

(vi) changes in *network* losses;

(vii) changes in *ancillary services* costs;

(viii) competition benefits;

(ix) any additional option value (where this value has not already been included in the other classes of market benefits) gained or foregone from implementing that *credible option* with respect to the likely future investment needs of the *market*; and

(x) other classes of market benefits that are:

(A) determined to be relevant by the *Transmission Network Service Provider* and agreed to by the *AER* in writing before the date the relevant *project specification consultation report* is made available to other parties under clause 5.6.6; or

(B) specified as a class of market benefit in the *regulatory investment test for transmission*;

(5) require a *Transmission Network Service Provider* to include a quantification of all classes of market benefits which are determined to be material in the *Transmission Network Service Provider's* reasonable opinion;

(6) require a *Transmission Network Service Provider* to consider all classes of market benefits as material unless it can, in the *project assessment draft report* or in respect of a proposed *preferred option* which is subject to the exemption contained in clause 5.6.6(y), in the *project specification consultation report*, provide reasons why:

(i) a particular class of market benefit is likely not to affect materially the outcome of the assessment of the *credible options* under the *regulatory investment test for transmission*; or

(ii) the estimated cost of undertaking the analysis to quantify the market benefit is likely to be disproportionate to the scale, size and potential benefits of each *credible option* being considered in the report;

(7) with respect to the classes of market benefits set out in subparagraphs (4)(ii) and (iii), ensure that, if the *credible option* is for *reliability corrective action*, the quantification assessment required by paragraph (5) will only apply insofar as the market benefit delivered by the *credible option* exceeds the minimum standard required *for reliability corrective action*;

(8) require the *Transmission Network Service Provider* to quantify the following classes of costs:

(i) costs incurred in constructing or providing the *credible option*;

(ii) operating and maintenance costs in respect of the *credible option*;

(iii) the cost of complying with laws, regulations and applicable administrative requirements in relation to the construction and operation of the *credible option*; and

(iv) any other class of costs that are:

(A) determined to be relevant by the *Transmission Network Service Provider* and agreed to by the *AER* in writing before the date the relevant *project specification consultation report* is made available to other parties under clause 5.6.6; or

(B) specified as a class of cost in the *regulatory investment test for transmission*;

(9) provide that any cost or market benefit which cannot be measured as a cost or market benefit to *Generators*, *Distribution Network Service Providers*, *Transmission Network Service Providers* or consumers of electricity may not be included in any analysis under the *regulatory investment test for transmission*;

(10) specify:

(i) the method or methods permitted for estimating the magnitude of the different classes of market benefits;

(ii) the method or methods permitted for estimating the magnitude of the different classes of costs;

(iii) the method or methods permitted for estimating market benefits which may occur outside the *region* in which the *Transmission Network Service Provider's network* is located; and

(iv) the appropriate method and value for specific inputs, where relevant, for determining the discount rate or rates to be applied;

(11) specify that a sensitivity analysis is required of any modelling relating to the cost-benefit analysis; and

(12) reflect that the *credible option* that maximises the present value of net economic benefit to all those who produce, consume or transport electricity in the *market* may, in some circumstances, have a negative net economic benefit (that is, a net economic cost) where the *identified need* is for *reliability corrective action*.

Regulatory investment test for transmission guidelines

(d) At the same time as the *AER* develops and *publishes* a proposed *regulatory investment test for transmission* under the *transmission consultation procedure*, the *AER* must also develop and *publish* guidelines for the operation and application of the *regulatory investment test for transmission* (the *regulatory investment test for transmission application guidelines*) in accordance with the *transmission consultation procedure* and this clause 5.6.5B.

(e) The *regulatory investment test for transmission application guidelines* must:

(1) give effect to and be consistent with this clause 5.6.5B and clauses 5.6.5C, 5.6.5D, 5.6.6, 5.6.6A and 5.6.6AA; and

(2) provide guidance on:

(i) the operation and application of the *regulatory investment test for transmission*;

(ii) the process to be followed in applying the *regulatory investment test for transmission*; and

(iii) how disputes raised in relation to the *regulatory investment test for transmission* and its application will be addressed and resolved.

(f) The *regulatory investment test for transmission application guidelines* must provide guidance and worked examples as to:

(1) what constitutes a *credible option*;

(2) acceptable methodologies for valuing the costs of a *credible option*;

(3) what may constitute an externality under the *regulatory investment test for transmission*;

(4) the classes of market benefits to be considered for the purposes of paragraph (c)(4);

(5) the suitable modelling periods and approaches to scenario development;

(6) the acceptable methodologies for valuing the market benefits of a *credible option* referred to in paragraph (c), including the option value, competition benefits and market benefits that accrue across *regions*;

(7) the appropriate approach to undertaking a sensitivity analysis for the purposes of paragraph (c)(11);

(8) the appropriate approaches to assessing uncertainty and risks; and

(9) when a person is sufficiently committed to a *credible option* for *reliability corrective action* to be characterised as a proponent for the purposes of clause 5.6.5D(b)(7).

(g) The *AER* must develop and *publish* the first *regulatory investment test for transmission* and *regulatory investment test for transmission application guidelines* by 1 July 2010, and there must be a *regulatory investment test for transmission* and *regulatory investment test for transmission application guidelines* in force at all times after that date.

(h) The *AER* may, from time to time, amend or replace the *regulatory investment test for transmission* and *regulatory investment test for transmission application guidelines* in accordance with the *transmission consultation procedures*, provided the *AER publishes* any amendments to, or replacements of, the *regulatory investment test for transmission* or *regulatory investment test for transmission application guidelines* at the same time.

(i) An amendment referred to in paragraph (h) does not apply to a current application of the *regulatory investment test for transmission* and the *regulatory investment test for transmission application guidelines* under the *Rules* by a *Transmission Network Service Provider*.

(j) For the purposes of paragraph (i), a "current application" means any action or process initiated under the Rules which relies on or is referenced to the *regulatory investment test for transmission* and/or the *regulatory investment test for transmission application guidelines* and is not completed at the date of the relevant amendment to the *regulatory investment test for transmission* and/or the *regulatory investment test for transmission application guidelines*.

5.6.5C Investments subject to the regulatory investment test for transmission

(a) A *Transmission Network Service Provider* must apply the *regulatory investment test for transmission* to a proposed *transmission investment* except in circumstances where:

(1) the proposed *transmission investment* is required to address an urgent and unforeseen *network* issue that would otherwise put at risk the *reliability* of the *transmission network* as described in paragraph (b);

(2) the estimated capital cost of the most expensive option to address the relevant *identified need* which is technically and economically feasible is less than $5 million (as varied in accordance with a *cost threshold determination*);

(3) the proposed expenditure relates to maintenance or replacement and is not intended to augment the *transmission network* (including *replacement transmission network assets*)*;*

(4) the maintenance, or replacement expenditure also results in an *augmentation* to the *network*, and the estimated capital cost for the *augmentation* component of the proposed expenditure is less than $5 million (as varied in accordance with a *cost threshold determination*), as allocated by the *Transmission Network Service Provider* in accordance with recognised *cost allocation methodologies* and any applicable *AER* guidelines under rule 6A.19;

(5) the proposed *transmission investment* is an investment undertaken by a *Transmission Network Service Provider* which:

(i) re-routes one or more paths of the *network* for the long term; and

(ii) has a substantial primary purpose other than the need to augment the *network*;

(a *reconfiguration investment*) and which the relevant *Transmission Network Service Provider* reasonably estimates to have an estimated capital cost of less than $5 million (as varied in accordance with a *cost threshold determination*) or which has, or is likely to have, no material impact on *network* users;

(6) the proposed *transmission investment* will be a *dual function asset*;

(7) the proposed *transmission investment* is designed to address limitations in respect of a *distribution network* notified under clause 5.6.2(e)(2);

(8) the proposed *transmission investment* will be a *connection asset*; or

(9) the cost of the proposed *transmission investment* is to be fully recovered through charges in relation to *negotiated transmission services*.

(b) For the purposes of paragraph (a)(1), a proposed *transmission investment* will be required to address an urgent and unforeseen *network* issue that would otherwise put at risk the *reliability* of the *transmission network* if:

(1) it is necessary that the proposed *transmission investment* be operational within 6 months of the *Transmission Network Service Provider* identifying the *identified need*;

(2) the event or circumstances causing the *identified need* was not reasonably foreseeable by, and was beyond the reasonable control of, the *Transmission Network Service Provider*;

(3) a failure to address the *identified need* is likely to materially adversely affect the *reliability* and *secure operating state* of the *transmission network*; and

(4) it is not a *contingent project*.

(c) If a proposed *transmission investment* is determined to be required to address an urgent and unforeseen *network* issue as described in paragraph (b), the *Transmission Network Service Provider* must provide the following information in its next *Annual Planning Report* following the identification of the need for the *transmission investment*:

(1) the date when the proposed *transmission investment* became or will become operational;

(2) the purpose of the proposed *transmission investment*; and

(3) the total cost of the proposed *transmission investment*.

(d) With the exception of *funded augmentations*, for each proposed investment to which the *regulatory investment test for transmission* does not apply in accordance with subparagraphs (a)(1)-(9), the *Transmission Network Service Provider* must ensure, acting reasonably, that the investment is planned and developed at least cost over the life of the investment.

(e) A *Transmission Network Service Provider* must not treat different parts of an integrated solution to an *identified need* as distinct and separate options for the purposes of determining whether the *regulatory investment test for transmission* applies to each of those parts.

5.6.5D Identification of a credible option

(a) A *credible option* is an option (or group of options) that:

(1) addresses the *identified need*;

(2) is (or are) commercially and technically feasible; and

(3) can be implemented in sufficient time to meet the *identified need*,

and is (or are) identified as a *credible option* in accordance with paragraph (b).

(b) In applying the *regulatory investment test for transmission*, a *Transmission Network Service Provider* must consider, in relation to a proposed

transmission investment to address an *identified need* other than those described in clauses 5.6.5C(a)(1)-(9), all options that could reasonably be classified as *credible options*, taking into account:

(1) energy source;

(2) technology;

(3) ownership;

(4) the extent to which the *credible option* enables *intra-regional* or *inter-regional* trading of electricity;

(5) whether it is a *network* or non-*network* option;

(6) whether the *credible option* is intended to be regulated;

(7) whether the *credible option* has a proponent; and

(8) any other factor which the *Transmission Network Service Provider* reasonably considers should be taken into account.

(c) The absence of a proponent does not exclude a *transmission investment* option from being considered a *credible option.*

5.6.5E Review of Costs Thresholds

(a) Every 3 years the *AER* must undertake a review (the *cost threshold review*) of the changes in the input costs used to calculate the estimated capital costs in relation to *replacement transmission network assets* and in relation to *transmission investment* as referred to in the definition of *new network investment* and referred to in clauses 5.6.2A(b)(6), 5.6.5C(a)(2), (4) and (5) and 5.6.6(y)(1) for the purposes of determining whether the amounts:

(1) in relation to *replacement transmission network assets*;

(2) of less than $5 million referred to in clause 5.6.5C(a)(2);

(3) of less than $5 million referred to in clause 5.6.5C(a)(4);

(4) of less than $5 million referred to in clause 5.6.5C(a)(5);

(5) of less than $35 million referred to in clause 5.6.6(y)(1); and

(6) in excess of $5 million in relation to *transmission investment* as referred to in the definition of *new network investment*,

(each a *cost threshold*) need to be changed to maintain the appropriateness of the *cost thresholds* over time by adjusting those *cost thresholds* to reflect

any increase or decrease in the input costs since 1 July 2009 in respect of the first *cost threshold review* and since the date of the previous review in respect of every subsequent *cost threshold review*.

(b) Each *cost threshold review* is to be commenced by the *AER* on 31 July of the relevant year, with the first such review to be initiated in 2012.

(c) Within 6 weeks following the commencement of a *cost threshold review*, the *AER* must *publish* a draft determination outlining:

(1) whether the *AER* has formed the view that any of the *cost thresholds* need to be amended to reflect increases or decreases in the input costs to ensure that the appropriateness of the *cost thresholds* is maintained over time;

(2) its reasons for determining whether the *cost thresholds* need to be varied to reflect increases or decreases in the input costs;

(3) if there is to be a variation in a *cost threshold*, the amount of the new *cost threshold* and the date the new *cost threshold* will take effect; and

(4) its reasons for determining the amount of the new *cost threshold*.

(d) At the same time as it *publishes* the draft determination under paragraph (c), the *AER* must *publish* a notice seeking submissions on the draft determination and which specifies the period within which written submissions can be made (the *cost threshold consultation period*) which must be no less than 5 weeks from the date of the notice.

(e) The *AER* must consider any written submissions received during the *cost threshold consultation period* in making its final determination in respect of the matters outlined in paragraph (c).

(f) The final determination must be made and *published* by the *AER* within 5 weeks following the end of the *cost threshold consultation period* (the *cost threshold determination)*.

5.6.6 Regulatory investment test for transmission procedures

(a) In addition to the procedures to make a *connection* to a *network* in rule 5.3, the *Transmission Network Service Provider* must comply with the access arrangements and procedures set out in this clause 5.6.6 and in clause 5.6.6A.

(b) A *Transmission Network Service Provider* who proposes to make a *transmission investment*, other than an investment of the kind described in clauses 5.6.5C(a)(1)-(9), must consult all *Registered Participants, AEMO* and *interested parties* on the proposed *transmission investment* in accordance with this clause 5.6.6.

Project specification consultation report

(c) A *Transmission Network Service Provider* must prepare a report (the *project specification consultation report*), which must include:

(1) a description of the *identified need;*

(2) the assumptions used in identifying the *identified need* (including, in the case of proposed *reliability corrective action*, why the *Transmission Network Service Provider* considers *reliability corrective action* is necessary);

(3) the technical characteristics of the *identified need* that a non-*network* option would be required to deliver, such as:

(i) the size of *load* reduction or additional supply;

(ii) location; and

(iii) operating profile;

(4) if applicable, reference to any discussion on the description of the *identified need* or the *credible options* in respect of that *identified need* in the most recent *National Transmission Network Development Plan*;

(5) a description of all *credible options* of which the *Transmission Network Service Provider* is aware that address the *identified need*, which may include, without limitation, alternative *transmission* options, *interconnectors*, *generation*, demand side management, *market network services* or other *network* options;

(6) for each *credible option* identified in accordance with subparagraph (5), information about:

(i) the technical characteristics of the *credible option*;

(ii) whether the *credible option* is reasonably likely to have a material *inter-regional impact*;

(iii) the classes of market benefits that the *Transmission Network Service Provider* considers are likely not to be material in accordance with clause 5.6.5B(c)(6), together with reasons of why the *Transmission Network Service Provider* considers that these classes of market benefits are not likely to be material;

(iv) the estimated construction timetable and commissioning date; and

(v) to the extent practicable, the total indicative capital and operating and maintenance costs.

(d) The *Transmission Network Service Provider* must make available to all *Registered Participants*, *AEMO* and other *interested parties* the *project specification consultation report*.

(e) The *Transmission Network Service Provider* must:

(1) provide a summary of the *project specification consultation report* to *AEMO* within 5 *business days* of making the *project specification consultation report*; and

(2) upon request by an *interested party*, provide a copy of the *project specification consultation report* to that person within 3 *business days* of the request.

(f) Within 3 *business days* of receipt of the summary, *AEMO* must *publish* the summary of the *project specification consultation report* on its website.

(g) The *Transmission Network Service Provider* must seek submissions from *Registered Participants*, *AEMO* and *interested parties* on the *credible options* presented, and the issues addressed, in the *project specification consultation report*.

(h) The period for consultation period referred to in paragraph (g) must be not less than 12 weeks from the date that *AEMO publishes* the summary of the *project specification consultation report* on its website.

(i) A *Transmission Network Service Provider* may discharge its obligation under paragraph (d) to make the *project specification consultation report* available by including the *project specification consultation report* as part of its *Annual Planning Report*.

Project assessment draft report

(j) If the *Transmission Network Service Provider* elects to proceed with the proposed *transmission investment*, within 12 months of the end date of the consultation period referred to in paragraph (h), or such longer time period as is agreed in writing by the *AER*, the *Transmission Network Service Provider* must prepare a report (the *project assessment draft report*), having regard to the submissions received, if any, under paragraph (g) and make that report available to all *Registered Participants*, *AEMO* and *interested parties*.

(k) The *project assessment draft report* must include:

(1) a description of each *credible option* assessed;

(2) a summary of, and commentary on, the submissions to the *project specification consultation report*;

(3) a quantification of the costs, including a breakdown of operating and capital expenditure, and classes of material market benefit for each *credible option*;

(4) a detailed description of the methodologies used in quantifying each class of material market benefit and cost;

(5) reasons why the *Transmission Network Service Provider* has determined that a class or classes of market benefit are not material;

(6) the identification of any class of market benefit estimated to arise outside the *Transmission Network Service Provider's region*, and quantification of the value of such market benefits (in aggregate across all *regions*);

(7) the results of a net present value analysis of each *credible option* and accompanying explanatory statements regarding the results;

(8) the identification of the proposed *preferred option*;

(9) for the proposed *preferred option* identified under subparagraph (8), the *Transmission Network Service Provider* must provide:

(i) details of the technical characteristics;

(ii) the estimated construction timetable and commissioning date;

(iii) if the proposed *preferred option* is likely to have a *material inter-regional network impact*, and if the *Transmission Network Service Provider* has received an *augmentation technical report*, that report; and

(iv) a statement and the accompanying detailed analysis that the *preferred option* satisfies the *regulatory investment test for transmission*.

(l) If a *Transmission Network Service Provider* elects to proceed with a proposed *transmission investment* which is *for reliability corrective action*, it can only do so where the proposed *preferred option* has a proponent. The identity of that proponent must be included in the *project assessment draft report.*

(m) A *Transmission Network Service Provider* may discharge its obligation under paragraph (j) to make the *project assessment draft report* available by including the *project assessment draft report* as part of its *Annual Planning Report* provided its *Annual Planning Report* is *published* within 12 months

of the end date of the consultation period required under paragraph (h) or within 12 months of the end of such longer time period as is agreed by the *AER* in writing under paragraph (j).

(n) The *Transmission Network Service Provider* must:

(1) provide a summary of the *project assessment draft report* to *AEMO* within 5 *business days* of making the *project assessment draft report*; and

(2) upon request by an *interested party*, provide a copy of the *project assessment draft report* to that person within 3 *business days* of the request.

(o) Within 3 *business days* of receipt of the summary, *AEMO* must *publish* the summary of the *project assessment draft report* on its website.

(p) The *Transmission Network Service Provider* must seek submissions from *Registered Participants*, *AEMO* and *interested parties* on the *preferred option* presented, and the issues addressed, in the *project assessment draft report*.

(q) The period for consultation referred to in paragraph (p) must be not less than 6 weeks from the date that *AEMO publishes* the summary of the report on its website.

(r) Within 4 weeks after the end of the consultation period required under paragraph (q), at the request of an *interested party*, a *Registered Participant* or *AEMO* (each being a "relevant party" for the purposes of this paragraph), the *Transmission Network Service Provider* must meet with the relevant party if a meeting is requested by two or more relevant parties and may meet with a relevant party if after having considered all submissions, the *Transmission Network Service Provider*, acting reasonably, considers that the meeting is necessary.

Project assessment conclusions report

(s) As soon as practicable after the end of the consultation period on the *project assessment draft report* referred to in paragraph (q), the *Transmission Network Service Provider* must, having regard to the submissions received, if any, under paragraph (p) and the matters discussed at any meetings held, if any, under paragraph (r), prepare and make available to all *Registered Participants*, *AEMO* and *interested parties* and *publish* a report (the *project assessment conclusions report*).

(t) If:

(1) the *Transmission Network Service Provider* is exempt from making a *project assessment draft report* under paragraph (y); and

(2) the *Transmission Network Service Provider* elects to proceed with the proposed *transmission investment*, within 12 months of the end date of the period for consultation referred to in paragraph (h), or within 12 months of the end date of such longer time period as is agreed in writing by the AER,

the *Transmission Network Service Provider* must, having regard to the submissions received, if any, under paragraph (h) as soon as practicable prepare and make available to all *Registered Participants*, *AEMO* and *interested parties* and *publish* a report *(the project assessment conclusions report)*.

(u) The *project assessment conclusions report* must set out:

(3) the matters detailed in the *project assessment draft report* as required under paragraph (k); and

(4) a summary of, and the *Transmission Network Service Provider's* response to, submissions received, if any, from *interested parties* sought under paragraph (p).

(v) The *Transmission Network Service Provider* must:

(1) provide a summary of the *project assessment conclusions report* to *AEMO* within 5 *business days* of making the *project assessment conclusions report*; and

(2) upon request by an *interested party*, provide a copy of the *project assessment conclusions report* to that person within 3 *business days* of the request.

(w) Within 3 *business days* of receipt of the summary, *AEMO* must *publish* the summary of the *project assessment conclusions report* on its website.

(x) A *Transmission Network Service Provider* may discharge its obligation under paragraph (s) and (t) to make the *project assessment conclusions report* available by including the *project assessment conclusions report* as part of its *Annual Planning Report* provided that *Annual Planning Report* is *published* within 4 weeks from the date of making available the *project assessment conclusions report* under paragraph (s) or (t), as the case may be.

Exemption from preparing a project assessment draft report for proposed transmission investments without material market benefits

(y) A *Transmission Network Service Provider* is exempt from paragraphs (j) to (r) if:

(1) the estimated capital cost of the proposed *preferred option* is less than $35 million (as varied in accordance with a *cost threshold determination*);

(2) the *Transmission Network Service Provider* has identified in its *project specification consultation report*:

(i) its proposed *preferred option*;

(ii) its reasons for the proposed *preferred option*; and

(iii) that its proposed *transmission investment* has the benefit of this exemption;

(3) the *Transmission Network Service Provider* considers, in accordance with clause 5.6.5B(c)(6), that the proposed *preferred option* and any *other credible option* in respect of the *identified need* will not have a material market benefit for the classes of market benefit specified in clause 5.6.5B(c)(4) except those classes specified in clauses 5.6.5B(c)(4)(ii) and (iii), and has stated this in its *project specification consultation report*; and

(4) the *Transmission Network Service Provider* forms the view that no submissions were received on the *project specification consultation report* which identified additional *credible options* that could deliver a material market benefit.

(z) The *Transmission Network Service Provider* must address in the *project assessment conclusions report* any issues that were raised in relation to a proposed *preferred option* to which paragraph (y) applies during the consultation on the *project specification consultation report.*

5.6.6A Disputes in relation to application of regulatory investment test for transmission

(a) *Registered Participants*, the *AEMC*, *Connection Applicants*, *Intending Participants*, *AEMO* and *interested parties* may, by notice to the *AER*, dispute conclusions made by the *Transmission Network Service Provider* in the *project assessment conclusions report* in relation to:

(1) the application of the *regulatory investment test for transmission*;

(2) the basis on which the *Transmission Network Service Provider* has classified the *preferred option* as being for *reliability corrective action*; or

(3) the *Transmission Network Service Provider's* assessment regarding whether the *preferred option* will have a *material inter-network*

impact, in accordance with any criteria for a *material inter-network impact* that are in force at the time of the preparation of the *project assessment conclusions report*.

(b) A dispute under this clause 5.6.6A may not be raised in relation to any matters set out in the *project assessment conclusions report* which:

(1) are treated as externalities by the *regulatory investment test for transmission*; or

(2) relate to an individual's personal detriment or property rights.

(c) Within 30 days of the date of *publication* of the *project assessment conclusions report* under clause 5.6.6(s) or (t) (as the case may be), the party disputing a conclusion made in the *project assessment conclusions report* (a *disputing party*) must:

(1) give notice of the dispute in writing setting out the grounds for the dispute (the *dispute notice*) to the *AER*; and

(2) at the same time, give a copy of the *dispute notice* to the relevant *Transmission Network Service Provider*.

(d) Subject to paragraph (e)(3), within 40 days of receipt of the *dispute notice* or within an additional period of up to 60 days where the *AER* notifies *interested parties* that the additional time is required to make a determination because of the complexity or difficulty of the issues involved, the *AER* must either:

(1) reject any dispute by written notice to the person who initiated the dispute if the *AER* considers that the grounds for the dispute are misconceived or lacking in substance; and

(2) notify the *Transmission Network Service Provider* that the dispute has been rejected; or

(3) subject to paragraph (f), make and *publish* a determination:

(i) directing the *Transmission Network Service Provider* to amend the matters set out in the *project assessment conclusions report*; or

(ii) stating that, based on the grounds of the dispute, the *Transmission Network Service Provider* will not be required to amend the *project assessment conclusions report.*

(d1) A *Transmission Network Service Provider* must comply with an *AER* determination made under paragraph (d)(3)(i) within a timeframe specified by the *AER* in its determination.

(e) In making a determination under paragraph (d)(3), the *AER*:

(1) must only take into account information and analysis that the *Transmission Network Service Provider* could reasonably be expected to have considered or undertaken at the time that it performed the *regulatory investment test for transmission*;

(2) must *publish* its reasons for making a determination;

(3) may request further information regarding the dispute from the *disputing party* or the *Transmission Network Service Provider* in which case the period of time for rejecting a dispute or issuing a determination under paragraph (d) is extended by the time it takes the relevant party to provide the requested further information to the *AER*;

(4) may disregard any matter raised by the *disputing party* or the *Transmission Network Service Provider* that is misconceived or lacking in substance; and

(5) where making a determination under subparagraph (d)(3)(i), must specify a reasonable timeframe for the *Transmission Network Service Provider* to comply with the *AER's* direction to amend the matters set out in the *project assessment conclusions report*.

(f) The *AER* may only make a determination under subparagraph (d)(3)(i) if it determines that:

(1) the *Transmission Network Service Provider* has not correctly applied the *regulatory investment test for transmission* in accordance with the *Rules*;

(2) the *Transmission Network Service Provider* has erroneously classified the *preferred option* as being for *reliability corrective action*;

(3) the *Transmission Network Service Provider* has not correctly assessed whether the *preferred option* will have a *material inter-network impact*; or

(4) there was a manifest error in the calculations performed by the *Transmission Network Service Provider* in applying the *regulatory investment test for transmission*.

(g) A *disputing party* or the *Transmission Network Service Provider* (as the case may be) must as soon as reasonably practicable provide any information requested under paragraph (e)(3) to the *AER*.

(h) The relevant period of time in which the *AER* must make a determination under paragraph (d)(3) is automatically extended by the period of time taken by the *Transmission Network Service Provider* or a *disputing party* to

provide any additional information requested by the *AER* under this clause 5.6.6A, provided:

(1) the *AER* makes the request for the additional information at least 7 *business days* prior to the expiry of the relevant period; and

(2) the *Transmission Network Service Provider* or the *disputing party* provides the additional information within 14 *business days* of receipt of the request.

5.6.6AA Determination that proposed transmission investment satisfies the regulatory investment test for transmission

(a) After the expiry of the 30 day period referred to in clause 5.6.6A(c) and where a *preferred option* is not for *reliability corrective action*, the *Transmission Network Service Provider* may request, in writing to the *AER*, that the *AER* make a determination as to whether the *preferred option* satisfies the *regulatory investment test for transmission.*

(b) The *AER*:

(1) must, within 120 *business days* of receipt of the request from the applicant, subject to paragraph (c), make and *publish* a determination, including reasons for its determination;

(2) must use the findings and recommendations in the *project assessment conclusions report* in making its determination under subparagraph (1);

(3) may request further information from the *Transmission Network Service Provider*; and

(4) may have regard to any other matter the *AER* considers relevant.

(c) The relevant period of time in which the *AER* must make a determination under paragraph (b) is automatically extended by the period of time taken by the *Transmission Network Service Provider* to provide any additional information requested by the *AER* under this clause 5.6.6AA, provided:

(1) the *AER* makes the request for the additional information at least 7 *business days* prior to the expiry of the relevant period; and

(2) the *Transmission Network Service Provider* provides the additional information within 14 *business days* of receipt of the request.

Costs determinations

(d) Where the *AER* engages a consultant to assist in making a determination under clauses 5.6.6A and 5.6.6AA, the *AER* may make a costs determination.

(e) Where a costs determination is made, the *AER* may:

(1) render the *Transmission Network Service Provider* an invoice for the costs; or

(2) determine that the costs should:

(i) be shared by all the parties to the dispute, whether in the same proportion or differing proportions; or

(ii) be borne by a party or parties to the dispute other than the *Transmission Network Service Provider* whether in the same proportion or differing proportions; and

(iii) the *AER* may render invoices accordingly.

(f) If an invoice is rendered, the *AER* must specify a time period for the payment of the invoice that is no later than 30 *business days* from the date the *AER* makes a determination under paragraph (d).

5.6.6B Construction of Funded Augmentations

(a) The term *Transmission Network Service Provider* when used in this clause 5.6.6B is not intended to refer to, and is not to be read or construed as referring to, any *Transmission Network Service Provider* in its capacity as a *Market Network Service Provider*.

(b) A *Transmission Network Service Provider* who proposes to construct a *funded augmentation* must make available to all *Registered Participants* and *AEMO* a notice which must set out:

(1) a detailed description of the proposed *funded augmentation*;

(2) all relevant technical details concerning the proposed *funded augmentation*, the impact of the *funded augmentation* on the relevant *transmission network's Transmission Network Users* and the construction timetable and commissioning date for the *funded augmentation*;

(3) an *augmentation technical report* prepared by *AEMO* if, and only if, the *funded augmentation* is reasonably likely to have a *material inter-network impact* and the *Transmission Network Service Provider* has not received consent to proceed with construction from all *Transmission Network Service Providers* whose *transmission networks* are materially affected by the *funded augmentation*. In

assessing whether a *funded augmentation* is reasonably likely to have a *material inter-network impact*, the *Transmission Network Service Provider* must have regard to the objective set of criteria *published* by *AEMO* (if any such criteria have been *published* by *AEMO*).

(c) The *Transmission Network Service Provider* must provide a summary of the notice prepared in accordance with clause 5.6.6B(b) to *AEMO*. Within 3 *business days* of receipt of the summary, *AEMO* must *publish* the summary on its website.

(d) The *Transmission Network Service Provider* must consult with any *interested parties*, in accordance with the *Rules consultation procedures*, on any matter set out in the notice prepared in accordance with clause 5.6.6B(b).

5.6.6C [Deleted]

5.6A National Transmission Planning

5.6A.1 Preliminary consultation

(a) By no later than 30 January each year, *AEMO* must *publish*:

(1) a document that sets out the *NTNDP inputs* that it proposes to use for the preparation or revision of the *NTNDP* for the following calendar year; and

(2) a document (the **statement of material issues**):

(i) summarising the issues *AEMO* considers to be the material issues involved in the preparation or revision of the *NTNDP* for the following calendar year; and

(ii) giving an indication of *AEMO's* preliminary views on how those issues should be resolved.

(b) At the same time as it *publishes* the documents referred to in paragraph (a), *AEMO* must *publish* an invitation for written submissions to be made to *AEMO* within a period (at least 30 *business days*) specified in the invitation on:

(1) the proposed *NTNDP inputs*; and

(2) the content of the *NTNDP* as it applies for the current year, including the location of the current and potential *national transmission flow paths* identified in the *NTNDP*; and

(3) the issues raised in the *statement of material issues*.

(c) A person may make a written submission to *AEMO* on the proposed *NTNDP inputs*, the content of the *NTNDP* as it applies for the current year, or an issue raised in the *statement of material issues* within the period specified in the invitation.

5.6A.2 Publication of NTNDP

(a) By no later than 31 December each year, *AEMO* must *publish* the *NTNDP* for the following year.

(b) In preparing the *NTNDP* that is to be *published* under paragraph (a), *AEMO* must:

(1) take into account the submissions made in response to the invitation referred to in clause 5.6A.1(b); and

(2) consider the following matters:

(i) the quantity of electricity that flowed, the periods in which the electricity flowed, and *constraints* on the *national transmission flow paths* over the previous year;

(ii) the forecast quantity of electricity that is expected to flow, the periods in which the electricity is expected to flow, and the magnitude and significance of future *network losses* and *constraints*, on the current and potential *national transmission flow paths* over the year in which the *NTNDP* is to apply or some other period to which a scenario that is used for the purposes of the *NTNDP* applies;

(iii) the projected capabilities of the *national transmission grid*, and the *network control ancillary services* required to support the existing and future capabilities of the *national transmission grid*, under each of the scenarios that is being used for the purposes of the *NTNDP*;

(iv) relevant intra-jurisdictional developments and any incremental works that may be needed to co-ordinate *national transmission flow path* planning with intra-jurisdictional planning;

(v) such other matters as *AEMO*, in consultation with the *participating jurisdictions*, considers appropriate; and

(3) have regard to the following documents:

(i) the most recent *Annual Planning Reports* that have been *published*;

(ii) the most recent *statement of opportunities* that has been *published*;

(iii) the most recent gas statement of opportunities published under the National Gas Law;

(iv) the current revenue determination for each *Transmission Network Service Provider*;

(v) any other documents that *AEMO* considers relevant.

(c) An *NTNDP* that is published under paragraph (a) must:

(1) consider and assess an appropriate course for the efficient development of the *national transmission grid* for a planning horizon of at least 20 years from the beginning of the year in which the *NTNDP* applies; and

(2) take into account all *transmission elements* which are part of, or materially affect, the transmission capability of any current or potential *national transmission flow paths*; and

(3) identify a range of credible scenarios for the geographic pattern of the demand for, and supply of, electricity for the planning horizon of the *NTNDP*; and

(4) identify the location of current *national transmission flow paths* and specify their transmission capability; and

(5) identify the location of the potential *national transmission flow paths* over the planning horizon of the *NTNDP* under each of the scenarios referred to in subparagraph (3); and

(6) specify a development strategy for each current and potential *national transmission flow path* in accordance with clause 5.6A.3; and

(7) include a summary of the information specified in rule 3.7A in relation to congestion on each current *national transmission flow path*; and

(8) include a consolidated summary of the *augmentations* proposed by each *Transmission Network Service Provider* in the most recent *Annual Planning Reports* they have *published* and an analysis of the manner in which the proposed *augmentations* relate to the *NTNDP* and any previous *NTNDP*; and

(9) summarise the material issues arising from the submissions received in response to the invitation referred to in clause 5.6A.1(b), explain

how those issues have been addressed in the *NTNDP* and give reasons for not addressing any of those issues in the *NTNDP*.

(d) *AEMO* must *publish* the first *NTNDP* (the *NTNDP* for 2011) no later than 31 December 2010.

(e) If, after the *publication* of the most recent *NTNDP*, *AEMO* becomes aware of information that shows the *NTNDP* to be incorrect in a material respect, *AEMO* must *publish* a correction of the *NTNDP* as soon as practicable.

5.6A.3 Development strategies for national transmission flow paths

A development strategy for a current or potential *national transmission flow path* that is specified in accordance with clause 5.6A.2(c)(6) must:

(1) be proposed for each of the scenarios referred to in clause 5.6A.2(c)(3); and

(2) to the extent reasonably practicable and appropriate, be consistent with:

(i) the co-optimisation of *network* and non-*network* investment; and

(ii) the maximisation of net economic benefit to all those who produce, consume and transport electricity to the *market*; and

(iii) the service standards that are linked to the technical requirements of schedule 5.1 or in *applicable regulatory instruments*; and

(3) take into account the following matters:

(i) the current or likely capacity of the *national transmission flow path*, and the need to increase that capacity to relieve current or likely *constraints* and congestion points; and

(ii) technically feasible *network* and non-*network* options (including additional *generation* and demand side options) for relieving current or likely *constraints* or congestion points; and

(iii) possible market benefits associated with each of the options identified under subparagraph (ii); and

(4) include a high level assessment as to:

(i) which of the options, or combination of options, identified under paragraph(3)(ii) provides the most efficient strategy for the development of the *national transmission grid* under each of the scenarios referred to in clause 5.6A.2(c)(3); and

(ii) the manner in which each such option, or combination of options, relates to the overall development of the *power system*.

5.6A.4 NTNDP database

(a) *AEMO* must establish, maintain and make available to the public a database (the *NTNDP database*) that includes *NTNDP inputs* used by it in preparing the most recent *NTNDP*.

(b) The *NTNDP inputs* for an *NTNDP* include:

(1) assumptions made about the cost of fuel used for the generation of electricity (including gas and coal); and

(2) the conversion factors used to relate the consumption of a given quantity of fuel to the production of electricity using that quantity of fuel; and

(3) assumptions about the capital costs associated with the generation of electricity; and

(4) prevailing location of generation capacity; and

(5) assumptions about the price of carbon; and

(6) electricity demand forecasts.

(c) *AEMO* may establish a part of the database for the inclusion of *confidential information*.

(d) A part of the database established for *confidential information* is not to be accessible to the public.

Note

The disclosure of *protected information* to the public may however be authorised under the *National Electricity Law.*

5.6A.5 Jurisdictional planning bodies and jurisdictional planning representatives

(a) A *jurisdictional planning body* must provide assistance *AEMO* reasonably requests in connection with the performance of its *NTP functions*.

(b) If there is no *jurisdictional planning body* or no *jurisdictional planning representative* for a *participating jurisdiction*, *AEMO* may assume the functions of such a body or representative under the *Rules*.

5.7 Inspection and Testing

5.7.1 Right of entry and inspection

(a) If a *Registered Participant* who is party to a *connection agreement* reasonably believes that the other party to the *connection agreement* (being a party who is also a *Registered Participant*) is not complying with a technical provision of the *Rules* and that, as a consequence, the first *Registered Participant* is suffering, or is likely to suffer, a material adverse effect, then the first *Registered Participant* may enter the relevant *facility* at the *connection point* of the other *Registered Participant* in order to assess compliance by the other *Registered Participant* with its technical obligations under the *Rules*.

(b) A *Registered Participant* who wishes to inspect the *facilities* of another *Registered Participant* under clause 5.7.1(a) must give that other *Registered Participant* at least 2 *business days* notice of its intention to carry out an inspection.

(c) A notice given under clause 5.7.1(b) must include the following information:

(1) the name of the *representative* who will be conducting the inspection on behalf of the *Registered Participant*;

(2) the time when the inspection will commence and the expected time when the inspection will conclude; and

(3) the nature of the suspected non-compliance with the *Rules*.

(d) Neither a *Registered Participant* nor *AEMO* may carry out an inspection under this rule 5.7 within 6 *months* of any previous inspection except for the purpose of verifying the performance of corrective action claimed to have been carried out in respect of a non-conformance observed and documented on the previous inspection or (in the case of *AEMO*) for the purpose of reviewing an operating incident in accordance with clause 4.8.15.

(e) At any time when the *representative* of a *Registered Participant* is in another *Registered Participant's facility*, that *representative* must:

(1) cause no damage to the *facility;*

(2) only interfere with the operation of the *facility* to the extent reasonably necessary and approved by the relevant *Registered Participant* (such approval not to be unreasonably withheld or delayed); and

(3) observe "permit to test" access to sites and clearance protocols of the operator of the *facility*, provided that these are not used by the

operator of the *facility* solely to delay the granting of access to site and inspection.

(f) Any *representative* of a *Registered Participant* conducting an inspection under this clause 5.7.1 must be appropriately qualified to perform the relevant inspection.

(g) The costs of inspections under this clause 5.7.1 must be borne by the *Registered Participant* requesting the inspection.

(h) *AEMO* or any of its *representatives* may, in accordance with this rule 5.7, inspect a *facility* of a *Registered Participant* and the operation and maintenance of that *facility* in order to:

(1) assess compliance by the relevant *Registered Participant* with its operational obligations under Chapter 3 or 4, or an *ancillary services agreement*;

(2) investigate any possible past or potential threat to *power system security*; or

(3) conduct any periodic familiarisation or training associated with the operational requirements of the *facility*.

(i) Any inspection under clause 5.7.1(a) or (h) must only be for so long as is reasonably necessary.

(j) Any equipment or goods installed or left on land or in premises of a *Registered Participant* after an inspection conducted under clause 5.7.1 do not become the property of the relevant *Registered Participant* (notwithstanding that they may be annexed or affixed to the relevant land or premises).

(k) In respect of any equipment or goods left on land or premises of a *Registered Participant* during or after an inspection, a *Registered Participant*:

(1) must not use any such equipment or goods for a purpose other than as contemplated in the *Rules* without the prior written approval of the owner of the equipment or goods;

(2) must allow the owner of any such equipment or goods to remove any such equipment or goods in whole or in part at a time agreed with the relevant *Registered Participant*, such agreement not to be unreasonably withheld or delayed; and

(3) must not create or cause to be created any mortgage, charge or lien over any such equipment or goods.

(l) A *Registered Participant* (in the case of an inspection carried out under clause 5.7.1(a)) or *AEMO* (in the case of an inspection carried out under clause 5.7.1(h)) must provide the results of that inspection to the *Registered Participant* whose *facilities* have been inspected, any other *Registered Participant* which is likely to be materially affected by the results of the test or inspection and *AEMO* (in the case of an inspection carried out under clause 5.7.1(a)).

5.7.2 Right of testing

(a) A *Registered Participant*, who has reasonable grounds to believe that equipment owned or operated by a *Registered Participant* with whom it has a *connection agreement* (which equipment is associated with the *connection agreement)* may not comply with the *Rules* or the *connection agreement*, may request testing of the relevant equipment by giving notice in writing to the other *Registered Participant*.

(b) If a notice is given under clause 5.7.2(a) the relevant test is to be conducted at a time agreed by *AEMO*.

(c) The *Registered Participant* who receives a notice under clause 5.7.2(a) must co-operate in relation to conducting tests requested under clause 5.7.2(a).

(d) The cost of tests requested under clause 5.7.2(a) must be borne by the *Registered Participant* requesting the test, unless the equipment is determined by the tests not to comply with the relevant *connection agreement* and the *Rules*, in which case all reasonable costs of such tests must be borne by the owner of that equipment.

(e) Tests conducted in respect of a *connection point* under clause 5.7.2 must be conducted using test procedures agreed between the relevant *Registered Participants*, which agreement is not to be unreasonably withheld or delayed.

(f) Tests under clause 5.7.2 must be conducted only by persons with the relevant skills and experience.

(g) A *Transmission Network Service Provider* must give *AEMO* adequate prior notice of intention to conduct a test in respect of a *connection point* to that *Network Service Provider's network*.

(h) The *Registered Participant* who requests a test under this clause 5.7.2 may appoint a *representative* to witness a test and the relevant *Registered Participant* must permit a *representative* appointed under this clause 5.7.2(h) to be present while the test is being conducted.

(i) A *Registered Participant* who conducts a test must submit a report to the *Registered Participant* who requested the relevant test, *AEMO* and to any

other *Registered Participant* which is likely to be materially affected by the results of the test, within a reasonable period after the completion of the test and the report is to outline relevant details of the tests conducted, including but not limited to the results of those tests.

(j) A *Network Service Provider* may attach test equipment or *monitoring equipment* to *plant* owned by a *Registered Participant* or require a *Registered Participant* to attach such test equipment or *monitoring equipment*, subject to the provisions of clause 5.7.1 regarding entry and inspection.

(k) In carrying out monitoring under clause 5.7.2(j) the *Network Service Provider* must not cause the performance of the monitored *plant* to be *constrained* in any way.

5.7.3 Tests to demonstrate compliance with connection requirements for generators

(a) Each *Generator* must, in accordance with the time frames specified in rule 4.15, provide evidence to any relevant *Network Service Provider* with which that *Generator* has a *connection agreement* and to *AEMO*, that its *generating system* complies with:

(1) the applicable technical requirements of clause S5.2.5; and

(2) the relevant *connection agreement* including the *performance standards*.

(b) **[Deleted]**

(c) If a test required by clause 5.7.3(a) demonstrates that a *generating system* is not complying with one or more technical requirements of clause S5.2.5 or the relevant *connection agreement* or one or more of the *performance standards* then the *Generator* must:

(1) promptly notify the relevant *Network Service Provider* and *AEMO* of that fact; and

(2) promptly notify the *Network Service Provider* and *AEMO* of the remedial steps it proposes to take and the timetable for such remedial work; and

(3) diligently undertake such remedial work and report at monthly intervals to the *Network Service Provider* on progress in implementing the remedial action; and

(4) conduct further tests or monitoring on completion of the remedial work to confirm compliance with the relevant technical requirements or *performance standards* (as the case may be).

(d) If *AEMO* reasonably believes that a *generating system* is not complying with one or more applicable *performance standards* or one or more applicable technical requirements of clause S5.2.5 or the relevant *connection agreement*, *AEMO* may instruct the *Generator* to conduct tests within 25 *business days* to demonstrate that the relevant *generating system* complies with those *performance standards* or technical requirements.

(e) If the tests undertaken in accordance with paragraph (d) provide evidence that the *generating system* continues to comply with those requirements *AEMO* must reimburse the *Generator* for the reasonable expenses incurred as a direct result of conducting the tests.

(f) If *AEMO*:

(1) is satisfied that:

(i) a *generating system* is not complying with the relevant *performance standards* for that system in respect of one or more of the technical requirements contained in S5.2.5, S5.2.6, S5.2.7 or S5.2.8 and the relevant *connection agreement*; or

(ii) a *generating system's* performance is not adequately represented by the applicable analytical model provided under clause 5.7.6(h) or clause S5.2.4; and

(2) holds the reasonable opinion that the performance of the *generating system*, or inadequacy of the applicable analytical model of the *generating system* is or will impede *AEMO's* ability to carry out its role in relation to *power system security*,

AEMO may direct the relevant *Generator* to operate the *generating system* at a particular *generated* output or in a particular mode until the relevant *Generator* submits evidence reasonably satisfactory to *AEMO* that the *generating system* is complying with the relevant *performance standard* and performing substantially in accordance with the applicable analytical model.

(g) Each *Generator* must maintain records for 7 years for each of its *generating systems* and *power stations* setting out details of the results of all technical performance and monitoring conducted under this clause 5.7.3 and make these records available to *AEMO* on request.

5.7.4 Routine testing of protection equipment

(a) A *Registered Participant* must co-operate with any relevant *Network Service Provider* to test the operation of equipment forming part of a *protection system* relating to a *connection point* at which that *Registered Participant* is *connected* to a *network* and the *Registered Participant* must conduct these tests:

(1) prior to the *plant* at the relevant *connection point* being placed in service; and

(2) at intervals specified in the *connection agreement* or in accordance with an asset management plan agreed between the *Network Service Provider* and the *Registered Participant*.

(a1) A *Network Service Provider* must institute and maintain a compliance program to ensure that its *facilities* of the following types, to the extent that the proper operation of a *facility* listed in this clause may affect *power system security*, operate reliably and in accordance with their performance requirements under schedule 5.1:

(1) *protection systems*;

(2) *control systems* for maintaining or enhancing *power system* stability;

(3) *control systems* for controlling *voltage* or *reactive power*; and

(4) *control systems* for *load shedding.*

(a2) A compliance program under clause 5.7.4(a1) must:

(1) include monitoring of the performance of the *facilities*;

(2) to the extent reasonably necessary, include provision for periodic testing of the performance of those *facilities* upon which *power system security* depends;

(3) provide reasonable assurance of ongoing compliance of the *facilities* with the relevant performance requirements of schedule 5.1; and

(4) be in accordance with *good electricity industry practice*.

(a3) A *Network Service Provider* must immediately notify *AEMO* if it reasonably believes that a *facility* of a type listed in clause 5.7.4(a1) does not comply with, or is likely not to comply with, its performance requirements.

(a4) A notice issued under clause 5.7.4(a3) must:

(1) identify the *facility* and the requirement with which the *facility* does not comply;

(2) give an explanation of the reason why the *facility* failed to comply with its performance requirement;

(3) give the date and time when the *facility* failed to comply with its performance requirement;

(4) give the date and time when the *facility* is expected to again comply with its performance requirement; and

(5) describe the expected impact of the failure on the performance of the *Network Service Provider's transmission system* or *distribution system.*

(b) Each *Registered Participant* must bear its own costs of conducting tests under this clause 5.7.4.

5.7.5 Testing by Registered Participants of their own plant requiring changes to normal operation

(a) A *Registered Participant* proposing to conduct a test on equipment related to a *connection point*, which requires a change to the normal operation of that equipment, must give notice in writing to the relevant *Network Service Provider* of at least 15 *business days* except in an emergency.

(b) The notice to be provided under clause 5.7.5(a) must include:

(1) the nature of the proposed test;

(2) the estimated start and finish time for the proposed test;

(3) the identity of the equipment to be tested;

(4) the *power system* conditions required for the conduct of the proposed test;

(5) details of any potential adverse consequences of the proposed test on the equipment to be tested;

(6) details of any potential adverse consequences of the proposed test on the *power system*; and

(7) the name of the person responsible for the co-ordination of the proposed test on behalf of the *Registered Participant*.

(c) The *Network Service Provider* must review the proposed test described in a notice provided under clause 5.7.5(a) to determine whether the test:

(1) could adversely affect the normal operation of the *power system*;

(2) could cause a threat to *power system security*;

(3) requires the *power system* to be operated in a particular way which differs from the way in which the *power system* is normally operated; or

(4) could affect the normal *metering* of *energy* at a *connection point*.

(d) If the *Network Service Provider* determines that the proposed test does fulfil one of the conditions specified in clause 5.7.5(c), then the *Registered Participant* and *Network Service Provider* must seek *AEMO's* approval prior to undertaking the test, which approval must not be unreasonably withheld or delayed.

(e) If, in *AEMO's* reasonable opinion, a test could threaten public safety, damage or threaten to damage equipment or adversely affect the operation of the *power system*, *AEMO* may direct that the proposed test procedure be modified or that the test not be conducted at the time proposed.

(f) *AEMO* must advise *Network Service Providers* of any test which may have a possible effect on normal *metering* of *energy* at a *connection point.*

(g) *AEMO* must advise any other *Registered Participants* who might be adversely affected by a proposed test and consider any reasonable requirements of those *Registered Participants* when approving the proposed test.

(h) The *Registered Participant* who conducts a test under this clause 5.7.5 must ensure that the person responsible for the co-ordination of a test promptly advises *AEMO* when the test is complete.

(i) If *AEMO* approves a proposed test, *AEMO* must use its reasonable endeavours to ensure that *power system* conditions reasonably required for that test are provided as close as is reasonably practicable to the proposed start time of the test and continue for the proposed duration of the test.

(j) Within a reasonable period after any such test has been conducted, the *Registered Participant* who has conducted a test under this clause 5.7.5 must provide the *Network Service Provider* with a report in relation to that test including test results where appropriate.

5.7.6 Tests of generating units requiring changes to normal operation

(a) A *Network Service Provider* may, at intervals of not less than 12 months per *generating system*, require the testing by a *Generator* of any *generating unit connected* to the *network* of that provider in order to determine analytic

parameters for modelling purposes or to assess the performance of the relevant *generating unit* or *generating system* for the purposes of a *connection agreement*, and that provider is entitled to witness such tests.

(b) If *AEMO* reasonably considers that:

(1) the analytic parameters for modelling of a *generating unit* or *generating system* are inadequate; or

(2) available information, including results from a previous test of a *generating unit* or *generating system*, are inadequate to determine parameters for an applicable model developed in accordance with the *Generating System Model Guidelines*, or otherwise agreed with *AEMO* under clause S5.2.4(c)(2),

AEMO may direct a *Network Service Provider* to require a *Generator* to conduct a test under paragraph (a), and *AEMO* may witness such a test.

(c) Adequate notice of not less than 15 *business days* must be given by the *Network Service Provider* to the *Generator* before the proposed date of a test under paragraph (a).

(d) The *Network Service Provider* must use its best endeavours to ensure that tests permitted under this clause 5.7.6 are conducted at a time which will minimise the departure from the *commitment* and *dispatch* that are due to take place at that time.

(e) If not possible beforehand, a *Generator* must conduct a test under this clause 5.7.6 at the next scheduled *outage* of the relevant *generating unit* and in any event within 9 months of the request.

(f) A *Generator* must provide any reasonable assistance requested by the *Network Service Provider* in relation to the conduct of tests.

(f1) If requested by a *Network Service Provider* who required the test under clause 5.7.6(a), a *Generator* must provide to the *Network Service Provider* any relevant information relating to the *plant* which is the subject of a test carried out under this clause 5.7.6, including model source code provided to *AEMO* under clause S5.2.4(b)(6).

(g) Tests conducted under this clause 5.7.6 must be conducted in accordance with test procedures agreed between the *Network Service Provider* and the relevant *Generator* and a *Generator* must not unreasonably withhold its agreement to test procedures proposed for this purpose by the *Network Service Provider*.

(h) A *Generator* must provide the test records obtained from a test under paragraph (a) to the *Network Service Provider*, who must derive the analytical parameters for the applicable model developed in accordance with

the *Generating System Model Guidelines*, or otherwise agreed with *AEMO* under clause S5.2.4(c)(2) and provide them and any new or revised model source code to the relevant *Generator*.

(i) The *Generator*, the *Network Service Provider* and *AEMO* must each bear its own costs associated with tests conducted under this clause 5.7.6 and no compensation is to be payable for financial losses incurred as a result of these tests or associated activities.

5.7.7 Inter-network power system tests

(a) For each kind of development or activity described in the first column of chart 1 below, the *Proponent* is as set out in the second column and the *Relevant Transmission Network Service Provider* ("*Relevant TNSP*") is as set out in the third column, respectively, opposite the description of the development or activity.

Chart 1

No.	**Kind of development or activity**	***Proponent***	***Relevant TNSP***
	column 1	**column 2**	**column 3**
1.	A new *transmission line* between two *networks*, or within a *transmission network*, that is anticipated to have a *material inter-network impact* is commissioned.	*Network Service Provider* in respect of the new *transmission line*.	*Proponent* and the *Transmission Network Service Provider* in respect of any *network* to which the *transmission line* is *connected*.
2.	An existing *transmission line* between two *networks*, or within a *transmission network*, that is anticipated to have a *material inter-network impact* is *augmented* or substantially modified.	*Network Service Provider* in respect of the *augmentation* or modification of the *transmission line*.	*Proponent* and the *Transmission Network Service Provider* in respect of any *network* to which the *transmission line* is *connected*.
3.	A new *generating unit* or *facility* of a *Customer* or a *network* development is commissioned that is anticipated to have a *material inter-network*	*Generator* in respect of the *generating unit* and associated *connection assets*. *Customer* in respect of the	*Transmission Network Service Provider* in respect of any *network* to which the *generating unit*, *facility* or *network* development is *connected* and, if a

No.	**Kind of development or activity**	***Proponent***	***Relevant TNSP***
	column 1	**column 2**	**column 3**
	impact.	*facility* and associated *connection assets*. *Network Service Provider* in respect of the relevant *network*.	*network* development, then also the *Proponent*.
4.	Setting changes are made to any *power system* stabilisers as a result of a *generating unit*, *facility* of a *Customer* or *network* development being commissioned, modified or replaced.	*Generator* in respect of the *generating unit*. *Customer* in respect of the *facility*. *Network Service Provider* in respect of the relevant *network*.	*Transmission Network Service Provider* in respect of any *transmission network* to which the *generating unit*, *facility* or *network* development is *connected*.
5.	Setting changes are made to any *power system* stabilisers as a result of a decision by *AEMO*, which are not covered by item 4 in this chart.	*AEMO*.	None.
6.	*AEMO* determines that a test is required to verify the performance of the *power system* in light of the results of planning studies or simulations or one or more system incidents.	*AEMO*.	None.

(b) A *Registered Participant*, not being a *Transmission Network Service Provider*, determined in accordance with clause 5.7.7(a) to be a *Proponent* for a development or activity detailed in chart 1, may require the *Relevant TNSP* corresponding to that development or activity to undertake on their behalf their obligations as the *Proponent* and, where the *Relevant TNSP* receives a written request to undertake those obligations, the *Relevant TNSP* must do so.

(c) Where, in this clause 5.7.7, there is a reference to a *Proponent* that reference includes a *Relevant TNSP* required in accordance with clause 5.7.7(b) to undertake the obligations of another *Registered Participant*.

(d) If a *Relevant TNSP* is required by a *Registered Participant* in respect of a *scheduled generating unit*, a *semi-scheduled generating unit*, a *scheduled load* or a *market network service*, any of which have a *nameplate rating* in excess of 30 MW, to act as a *Proponent* in accordance with clause 5.7.7(b), that *Relevant TNSP* is entitled to recover all reasonable costs incurred from the *Registered Participant* that required the *Relevant TNSP* to act as the *Proponent*.

(e) A *Registered Participant* wishing to undertake a development or conduct an activity listed in item 1, 2, 3 or 4 of chart 1 must notify *AEMO* not less than 80 *business days* before the *transmission line*, *generating unit*, *facility* or *network* development is planned to be commissioned, modified or replaced, giving details of the development or activity.

(f) If *AEMO* receives a notice under clause 5.7.7(e), then it must provide a copy of the notice to each *jurisdictional planning representative* and consult with each *jurisdictional planning representative* about the potential impact of the development or activity.

(g) *AEMO* or the *Relevant TNSP* for a development or activity may notify the *Proponent* of the development or activity that *AEMO* or the *Relevant TNSP* believes an *inter-network test* is required for that development or activity.

(h) *AEMO* or the *Relevant TNSP* may only give a notice under clause 5.7.7(g) if:

(1) *AEMO* or the *Relevant TNSP* considers that the development or activity may have a material impact on the magnitude of the *power transfer capability* of more than one *transmission network* and, in the circumstances, an *inter-network test* is required; or

(2) an *inter-network test* is required having regard to guidelines *published* under clause 5.7.7(k) and the surrounding circumstances.

(i) If the *Relevant TNSP* gives a notice under clause 5.7.7(g), then it must also promptly give a copy of the notice to *AEMO*.

(j) A *Registered Participant* undertaking a development or activity listed in chart 1 must provide information reasonably requested by *AEMO* or the *Relevant TNSP* for making an assessment under this clause.

(k) *AEMO* may develop, *publish* and amend from time to time, in accordance with the *Rules consultation procedures*, a set of guidelines to assist

Registered Participants to determine when an *inter-network test* may be required.

(l) *AEMO* and the *Relevant TNSP* must consider any relevant guidelines in determining whether an *inter-network test* is required.

(m) If *AEMO* or the *Relevant TNSP* gives notice under clause 5.7.7(g), then the *Proponent* must, in consultation with *AEMO*, prepare a draft *test program* for the *inter-network test* and provide it to *AEMO*, each *jurisdictional planning representative* and the *Relevant TNSP* (if the *Relevant TNSP* gave the notice).

(n) However, if *AEMO* determines that an *inter-network test* is required for a reason contemplated in item 5 or 6 of chart 1, then it must prepare a draft *test program* for the *inter-network test* in consultation with the *jurisdictional planning representatives* and provide that draft *test program* to each *jurisdictional planning representative*.

(o) If a *jurisdictional planning representative* considers that any changes should be made to a draft *test program*, the *jurisdictional planning representative* must, within 10 *business days* after being provided with the draft *test program*, make a recommendation to *AEMO* that identifies the changes it proposes should be made to the draft *test program*.

(p) *AEMO* must:

(1) *publish* a copy of the draft *test program* and any relevant changes recommended by any *jurisdictional planning representative* and invite interested *Registered Participants* to make written submissions; and

(2) only accept as valid submissions received not later than the closing date for submissions specified in the notice *publishing* the copy of the draft *test program* (not to be less than 14 days after the date of *publication*); and

(3) provide the *jurisdictional planning representatives* with copies of all valid submissions and seek any further recommendations they may have.

(q) *AEMO* must determine and *publish* in accordance with clause 3.13.13 the *test program* for an *inter-network test* after taking into account the recommendations of the *jurisdictional planning representatives* and any valid submissions received from *Registered Participants*.

(r) In determining the *test program*, *AEMO* must so far as practicable have regard to the following principles:

(1) *power system security* must be maintained in accordance with Chapter 4; and

(2) the variation from the *central dispatch* outcomes that would otherwise occur if there were no *inter-network test* should be minimised; and

(3) the duration of the tests should be as short as possible consistently with test requirements and *power system security*; and

(4) the test facilitation costs to be borne by the *Proponent* under paragraph (aa) should be kept to the minimum consistent with this paragraph.

(s) **[Deleted]**

(t) An *inter-regional test* must not be conducted within 20 *business days* after *AEMO publishes* the *test program* for the *inter-network test* determined by *AEMO* under clause 5.7.7(r).

(u) The *Proponent* in respect of an *inter-network test* must seek to enter into agreements with other *Registered Participants* to provide the test facilitation services identified in the *test program* in order to ensure that the *power system* conditions required by the *test program* are achieved.

(v) If the *Proponent* approaches another *Registered Participant* seeking to enter into an agreement under clause 5.7.7(u) then the *Proponent* and the *Registered Participant* must negotiate in good faith concerning the provision of the relevant test facilitation service.

(w) If:

(1) a *Proponent* approaches another *Registered Participant* as described in clause 5.7.7(v); and

(2) the *Proponent* and the other *Registered Participant* have not agreed the terms and conditions to be included in the agreement under which the *Registered Participant* will provide the test facilitation service requested within 15 *business days* of the approach,

then those terms and conditions must be determined in accordance with rule 8.2 and a dispute of this type is deemed to fall within clause 8.2.5(c)(2).

(x) If the dispute concerns the price which the *Proponent* is to pay for a test facilitation service, then it must be resolved applying the following principles:

(1) the other *Registered Participant* is entitled to recover the costs it incurs, and a reasonable rate of return on the capital it employs, in

providing the test facilitation service, determined taking into account the additional costs associated with:

(i) maintaining the equipment necessary to provide the test facilitation service;

(ii) any labour required to operate and maintain the equipment used to provide the test facilitation service; and

(iii) any materials consumed when the test facilitation service is utilised; and

(2) the other *Registered Participant* is entitled to be compensated for any commercial opportunities foregone by providing the test facilitation service.

(y) When the terms and conditions are determined in accordance with rule 8.2 under this clause 5.7.7, then the *Proponent* and the other *Registered Participant* must enter into an agreement setting out those terms and conditions.

(z) If *AEMO* is not the *Proponent* in respect of an *inter-network test*, the *Proponent* must:

(1) prior to the scheduled date of the *inter-network test*, confirm to *AEMO* that the test facilitation services identified in the *test program* will be available to be utilised, who will be providing them and the operational arrangements for utilising them;

(2) provide sufficient information to enable *AEMO* to utilise the test facilitation services in conducting the *inter-network test*; and

(3) respond promptly to any queries *AEMO* raises with the *Proponent* concerning the availability of the test facilitation services and *AEMO's* ability to utilise those services in conducting the *inter-network tests*.

(aa) The *Proponent* in respect of an *inter-network test* must bear all of the following costs associated with that *inter-network test*:

(1) any amounts payable under an agreement under which test facilitation services are provided;

(2) the *Proponent's* own costs associated with the *inter-network test* and in negotiating and administering the agreements referred to in clause 5.7.7(u); and

(3) if the *Proponent* is not *AEMO* and the amount of *settlements residue* on any *directional interconnector* for a *trading interval* during which

there is an impact on *central dispatch* outcomes as a result of the *inter-network test* is negative, then the *Proponent* must enter into an agreement with *AEMO* to pay that amount to *AEMO*.

(ab) If the *Proponent* is *AEMO* and the amount of *settlements residue* on any *directional interconnector* for a *trading interval* during which there is an impact on *central dispatch* outcomes as a result of the *inter-network test* is negative, then *AEMO* must adjust that residue to be zero and must recover the amount as provided for in clause 2.11.3(b)(2A).

(ac) *AEMO* must establish operational conditions to achieve the particular *power transfer* levels for each stage of the *inter-network test* as contemplated by the *test program*:

(1) utilizing where practicable and economic to do so the test facilitation services identified in the *test program*; and

(2) otherwise, by applying to the minimum extent necessary to fulfil the test requirements, *inter-network testing constraints*.

(ad) An *inter-network test* must be coordinated by an officer nominated by *AEMO* who has authority to stop the test or any part of it or vary the procedure within pre-approved guidelines determined by *AEMO* if that officer considers any of these actions to be reasonably necessary.

(ae) Each *Registered Participant* must:

(1) cooperate with *AEMO* in planning, preparing for and conducting *inter-regional tests*;

(2) act in good faith in respect of, and not unreasonably delay, an *inter-network test*; and

(3) comply with any instructions given to it by *AEMO* under clause 5.7.7(af).

(af) *AEMO* may utilise test facilitation services under agreements entered into by the *Proponent* under this clause 5.7.7 during an *inter-network test* in order to achieve operational conditions on the *power system* which are reasonably required to achieve valid test results.

5.8 Commissioning

5.8.1 Requirement to inspect and test equipment

(a) A *Registered Participant* must ensure that any of its new or replacement equipment is inspected and tested to demonstrate that it complies with relevant *Australian Standards*, the *Rules* and any relevant *connection*

agreement prior to or within an agreed time after being *connected* to a *transmission network* or *distribution network*, and the relevant *Network Service Provider* is entitled to witness such inspections and tests.

(b) The *Registered Participant* must produce test certificates on demand by the relevant *Network Service Provider* showing that the equipment has passed the tests and complies with the standards set out in clause 5.8.1(a) before *connection* to a *network*, or within an agreed time thereafter.

5.8.2 Co-ordination during commissioning

A *Registered Participant* seeking to *connect* to a *network* must co-operate with the relevant *Network Service Provider*(s) and *AEMO* to develop procedures to ensure that the commissioning of the *connection* and *connected facility* is carried out in a manner that:

(a) does not adversely affect other *Registered Participants* or affect *power system security* or quality of *supply* of the *power system*; and

(b) minimises the threat of damage to any other *Registered Participant's* equipment.

5.8.3 Control and protection settings for equipment

(a) Not less than 3 months prior to the proposed commencement of commissioning by a *Registered Participant* of any new or replacement equipment that could reasonably be expected to alter performance of the *power system* (other than replacement by identical equipment), the *Registered Participant* must submit to the relevant *Network Service Provider* sufficient design information including proposed parameter settings to allow critical assessment including analytical modelling of the effect of the new or replacement equipment on the performance of the *power system*.

(b) The *Network Service Provider* must:

(1) consult with other *Registered Participants* and *AEMO* as appropriate; and

(2) within 20 *business days* of receipt of the design information under clause 5.8.3(a), notify the *Registered Participant* and *AEMO* of any comments on the proposed parameter settings for the new or replacement equipment.

(c) If the *Network Service Provider's* comments include alternative parameter settings for the new or replacement equipment, then the *Registered Participant* must notify the *Network Service Provider* that it either accepts

or disagrees with the alternative parameter settings suggested by the *Network Service Provider*.

(d) The *Network Service Provider* and the *Registered Participant* must negotiate parameter settings that are acceptable to them both and if there is any unresolved disagreement between them, the matter must be referred to *AEMO* whose decision must be given within 20 *business days* of referral of the dispute and, once a decision is given, it is to be final.

(e) The *Registered Participant* and the *Network Service Provider* must co-operate with each other to ensure that adequate grading of protection is achieved so that faults within the *Registered Participant's facility* are cleared without adverse effects on the *power system*.

5.8.4 Commissioning program

(a) Prior to the proposed commencement of commissioning by a *Registered Participant* of any new or replacement equipment that could reasonably be expected to alter performance of the *power system*, the *Registered Participant* must advise the relevant *Network Service Provider* and *AEMO* in writing of the commissioning program including test procedures and proposed test equipment to be used in the commissioning.

(b) Notice under clause 5.8.4(a) must be given not less than 3 months prior to commencement of commissioning for a *connection* to a *transmission network* and not less than 1 month prior to commencement of commissioning for a *connection* to a *distribution network*.

(c) The relevant *Network Service Provider* and *AEMO* must, within 15 *business days* of receipt of such advice under clause 5.8.4(a), notify the *Registered Participant* either that they:

(1) agree with the proposed commissioning program; or

(2) require changes to it in the interest of maintaining *power system security*, safety or quality of *supply*.

(d) If the relevant *Network Service Provider* or *AEMO* require changes to the proposed commissioning program, then the parties must co-operate to reach agreement and finalise the commissioning program within a reasonable period.

(e) A *Registered Participant* must not commence the commissioning until the commissioning program has been finalised and the relevant *Network Service Provider* and *AEMO* must not unreasonably delay finalising a commissioning program.

5.8.5 Commissioning tests

(a) The relevant *Network Service Provider* and/or *AEMO* has the right to witness commissioning tests relating to new or replacement equipment that could reasonably be expected to alter performance of the *power system* or the accurate *metering* of *energy*.

(b) The relevant *Network Service Provider* must, within a reasonable period of receiving advice of commissioning tests, notify the *Registered Participant* whose new or replacement equipment is to be tested under this clause 5.8.5 whether or not it:

(1) wishes to witness the commissioning tests; and

(2) agrees with the proposed commissioning times.

(c) A *Registered Participant* whose new or replacement equipment is tested under this clause 5.8.5 must submit to the relevant *Network Service Provider* the commissioning test results demonstrating that a new or replacement item of equipment complies with the *Rules* or the relevant *connection agreement* or both to the satisfaction of the relevant *Network Service Provider*.

(d) If the commissioning tests conducted in relation to a new or replacement item of equipment demonstrates non-compliance with one or more requirements of the *Rules* or the relevant *connection agreement* then the *Registered Participant* whose new or replacement equipment was tested under this clause 5.8.5 must promptly meet with the *Network Service Provider* to agree on a process aimed at achievement of compliance of the relevant item with the *Rules*.

(e) On request by a *Network Service Provider*, *AEMO* may direct that the commissioning and subsequent *connection* of the *Registered Participant's* equipment must not proceed if the relevant equipment does not comply with the requirements described in clause 5.8.1(a).

5.9 Disconnection and Reconnection

5.9.1 Voluntary disconnection

(a) Unless agreed otherwise and specified in a *connection agreement*, a *Registered Participant* must give to the relevant *Network Service Provider* notice in writing of its intention to permanently *disconnect* a *facility* from a *connection point*.

(b) A *Registered Participant* is entitled, subject to the terms of the relevant *connection agreement*, to require voluntary permanent *disconnection* of its equipment from a *network* in which case appropriate operating procedures

necessary to ensure that the *disconnection* will not threaten *power system security* must be implemented in accordance with clause 5.9.2.

(c) The *Registered Participant* must pay all costs directly attributable to the voluntary *disconnection* and *decommissioning*.

5.9.2 Decommissioning procedures

(a) In the event that a *Registered Participant's facility* is to be permanently *disconnected* from a *network*, whether in accordance with clause 5.9.1 or otherwise, the *Network Service Provider* and the *Registered Participant* must, prior to such *disconnection* occurring, follow agreed procedures for *disconnection*.

(b) The *Network Service Provider* must notify *AEMO* and any *Registered Participants* with whom it has a *connection agreement* if it believes, in its reasonable opinion, the terms and conditions of such a *connection agreement* will be affected by procedures for *disconnection* or proposed procedures agreed with any other *Registered Participant.* The parties must negotiate any amendments to the procedures for *disconnection* or the *connection agreement* that may be required.

(c) Any *disconnection* procedures agreed to or determined under clause 5.9.2(a) must be followed by all relevant *Network Service Providers* and *Registered Participants*.

5.9.3 Involuntary disconnection

(a) *AEMO* may direct a *Network Service Provider* to, or a *Network Service Provider* may (either on its own initiative or in accordance with a direction from *AEMO*), *disconnect* a *Registered Participant's facilities* from a *network*, or a *Registered Participant's market loads*, in the following circumstances:

(1) pursuant to a direction for a *disconnection* made by a court under section 62 or 63 of the *National Electricity Law* or pursuant to regulations made under section 44AAG of the Trade Practices Act 1974 (Cth);

(2) during an emergency in accordance with clause 5.9.5;

(3) in accordance with the *National Electricity Law*; or

(4) in accordance with the provisions of the *Registered Participant's connection agreement.*

(b) In all cases of *disconnection* by a *Network Service Provider* at *AEMO's* direction during an emergency in accordance with clause 5.9.5, *AEMO* must

undertake a review under clause 4.8.15 and *AEMO* must then provide a report to the *Registered Participant*, the *AEMC* and the *AER* advising of the circumstances requiring such action.

(c) A *Network Service Provider* that has received a direction from *AEMO* under this clause 5.9.3 must comply with that direction promptly.

5.9.4 Direction to disconnect

(a) Where a *disconnection* is made pursuant to clause 5.9.3(a)(1), neither *AEMO* nor the relevant *Network Service Provider* is liable in any way for any loss or damage suffered or incurred by the *Registered Participant* by reason of the *disconnection* and neither *AEMO* nor the relevant *Network Service Provider* is obliged for the duration of the *disconnection* to fulfil any agreement to convey electricity to or from the *Registered Participant's facility.*

(b) A *Registered Participant* must not bring proceedings against *AEMO* or a *Network Service Provider* to seek to recover any amount for any loss or damage described in clause 5.9.4(a).

(c) *Transmission service* charges and *distribution service* charges must be paid by a *Registered Participant* whose *facilities* have been *disconnected* under this clause 5.9.4 as if any *disconnection* had not occurred.

(d) A *Network Service Provider* that has received a direction from *AEMO* to *disconnect* a *Registered Participant's facilities* in the circumstances described in clause 5.9.3(a)(1) must comply with that direction promptly.

5.9.4A Notification of disconnection

If the *AER* applies to a court for a direction, under section 62 or 63 of the *National Electricity Law* or pursuant to regulations made under section 44AAG of the Trade Practices Act 1974 (Cth), that a *Registered Participant's market loads* be *disconnected*, the *AER* must promptly notify *AEMO* and the *participating jurisdictions* which the *AER* considers may be affected.

5.9.5 Disconnection during an emergency

(a) Where *AEMO* may direct a *Network Service Provider* to *disconnect* a *Registered Participant's facilities* during an emergency under the *Rules* or otherwise, then *AEMO* may:

(1) require the relevant *Registered Participant* to reduce the *power transfer* at the proposed point of *disconnection* to zero in an orderly manner and then direct a *Network Service Provider* to *disconnect* the *Registered Participant's facility* by automatic or manual means; or

(2) direct a *Network Service Provider* to immediately *disconnect* the *Registered Participant's facilities* by automatic or manual means where, in *AEMO's* reasonable opinion, it is not appropriate to follow the procedure set out in clause 5.9.5(a)(1) because action is urgently required as a result of a threat to safety of persons, hazard to equipment or a threat to *power system security*.

(b) A *Network Service Provider* that has received a direction from *AEMO* under this clause 5.9.5 must comply with that direction promptly.

5.9.6 Obligation to reconnect

(a) Either *AEMO* (by directing the *Network Service Provider*) or the relevant *Network Service Provider* (either on its own initiative or in accordance with a direction from *AEMO*) must reconnect a *Registered Participant's facilities* to a *transmission network* or *distribution network* at a reasonable cost to the *Registered Participant* as soon as practicable if:

(1) *AEMO* is reasonably satisfied that there no longer exists an emergency due to which the *Registered Participant's facilities* were *disconnected* under clause 5.9.5;

(2) *AEMO* is reasonably satisfied that there no longer exists a reason for the *disconnection* under the *National Electricity Law* or the *Registered Participant's connection agreement*;

(3) one of the following occurs:

(i) a breach of the *Rules* giving rise to the *disconnection* has been remedied;

(ii) where the breach is not capable of remedy, compensation has been agreed and paid by the *Registered Participant* to the affected parties or, failing agreement, the amount of compensation payable has been determined in accordance with the dispute resolution procedure in rule 8.2 and that amount has been paid;

(iii) where the breach is not capable of remedy and the amount of compensation has not been agreed or determined, assurances for the payment of reasonable compensation have been given to the satisfaction of *AEMO*, the *Network Service Provider* and the parties affected; or

(iv) the *Registered Participant* has taken all necessary steps to prevent the re-occurrence of the breach and has delivered binding undertakings to *AEMO* or the *Network Service Provider* that the breach will not re-occur.

(b) In carrying out its obligations under clause 5.9.6(a), *AEMO* must, to the extent practicable, arrange for the implementation of an equitable sharing of the reconnection of *facilities* across *interconnected regions* up to the *power transfer capability* of the *network* and, in performing these obligations within a *region*, both *AEMO* and the relevant *Network Service Provider* must, to the extent practicable, give priority to reconnection of a *region's sensitive loads.*

(c) A *Network Service Provider* that has received a direction from *AEMO* under this clause 5.9.6 must comply with that direction promptly.

Schedule 5.1a - System standards

S5.1a.1 Purpose

The purpose of this schedule is to establish *system standards* that:

(a) are necessary or desirable for the safe and reliable operation of the *facilities* of *Registered Participants*;

(b) are necessary or desirable for the safe and reliable operation of equipment;

(c) could be reasonably considered *good electricity industry practice*; and

(d) seek to avoid the imposition of undue costs on the industry or *Registered Participants*.

A *Registered Participant* should not, by virtue of this schedule, rely on *system standards* being fully complied with at a *connection point* under all circumstances. However, a *Registered Participant* should expect to be reasonably informed of circumstances where the standard of *supply* at its *connection points* will not conform to the *system standards*.

Except for standards of *frequency* and system stability, a *Registered Participant* should have the opportunity to negotiate or renegotiate relevant terms of a *connection agreement* (including relevant charges), to improve the standard of *supply* to the level of the *system standard*.

The *system standards* are set out below.

S5.1a.2 Frequency

The *frequency operating standards* are *system standards* and are as determined by the *Reliability Panel* and *published* by the *AEMC*.

S5.1a.3 System stability

The *power system* should remain in synchronism and be stable:

(a) **Transient stability:** following any *credible contingency event*; and

(b) **Oscillatory stability:** in the absence of any *contingency event*, for any level of *inter-regional* or *intra-regional* power transfer up to the applicable operational limit; and

(c) **Voltage stability:** stable *voltage* control must be maintained following the most severe *credible contingency event*.

For the purposes of clause S5.1a.3 a *credible contingency event* includes the application of a fault (other than a three-phase fault) to any part of the *power system* and de-energisation of the faulted element within the allowable clearance time applicable to that element according to clause S5.1a.8.

The halving time of any *inter-regional* or *intra-regional* oscillation, being the time for the amplitude of an oscillation to reduce by half, should be less than 10 seconds. To allow for planning and operational uncertainties, the *power system* should be planned and operated to achieve a halving time of 5 seconds.

S5.1a.4 Power frequency voltage

Except as a consequence of a *contingency event*, the *voltage* of *supply* at a *connection point* should not vary by more than 10 percent above or below its *normal voltage*, provided that the *reactive power* flow and the *power factor* at the *connection point* is within the corresponding limits set out in the *connection agreement*.

As a consequence of a *credible contingency event*, the *voltage* of *supply* at a *connection point* should not rise above its *normal voltage* by more than a given percentage of *normal voltage* for longer than the corresponding period shown in Figure S5.1a.1 for that percentage.

As a consequence of a *contingency event*, the *voltage* of *supply* at a *connection point* could fall to zero for any period.

Figure S5.1a.1

S5.1a.5 Voltage fluctuations

The *voltage* fluctuation level of *supply* should be less than the "compatibility levels" set out in 1 of *Australian Standard* AS/NZS 61000.3.7:2001. To facilitate the application of this standard *Network Service Providers* must establish “planning levels” for their *networks* as provided for in the *Australian Standard.*

The following principles apply to the use of the shared network:

(a) the sharing between *Network Users* of the capability of *connection assets* to withstand *voltage* fluctuations is to be managed by *Network Service Providers* in accordance with the provisions of clause S5.1.5 of schedule 5.1; and

(b) to the extent practicable, the costs of managing or abating the impact of *voltage* fluctuations in excess of the costs which would result from the application of an *automatic access standard* are to be borne by those *Network Users* whose *facilities* cause the *voltage* fluctuations.

S5.1a.6 Voltage waveform distortion

Harmonic *voltage* distortion level of *supply* should be less than the “compatibility levels” defined in Table 1 of *Australian Standard* AS/NZS 61000.3.6:2001. To facilitate the application of this standard *Network Service Providers* must establish “planning levels” for their *networks* as provided for in the *Australian Standard.*

The following principles apply to the use of the shared network:

(a) the sharing between *Network Users* of the capability of *connection assets* to absorb or mitigate harmonic *voltage* distortion is to be managed by *Network Service Providers* in accordance with the provisions of clause S5.1.6 of schedule 5.1; and

(b) to the extent practicable, the costs of managing or abating the impact of harmonic distortion in excess of the costs which would result from the application of an *automatic access standard* are to be borne by those *Network Users* whose *facilities* cause the harmonic *voltage* distortion.

S5.1a.7 Voltage unbalance

Except as a consequence of a *contingency event*, the average *voltage* unbalance, measured at a *connection point*, should not vary by more than the amount set out in column 2 of Table S5.1a.1, when determined over a 30-minute averaging period.

As a consequence of a *credible contingency event*, the average *voltage* unbalance, measured at a *connection point*, should not vary by more than the amount set out

in column 3 of Table S5.1a.1, when determined over a 30-minute averaging period.

The average *voltage* unbalance, measured at a *connection point*, should not vary by more than the amount set out in column 4 of Table S5.1a.1 for the relevant nominal *supply voltage*, when determined over a 10-minute averaging period.

The average *voltage* unbalance, measured at a *connection point*, should not vary more often than once per hour by more than the amount set out in column 5 of Table S5.1a.1 for the relevant nominal *supply voltage*, when determined over a 1-minute averaging period.

For the purpose of this clause, *voltage* unbalance is measured as negative sequence voltage.

Table S5.1a.1

Nominal supply voltage (kV)	**Maximum negative sequence voltage (% of nominal voltage)**			
Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**
	no contingency event	**credible contingency event**	**general**	**once per hour**
	30 minute average	**30 minute average**	**10 minute average**	**1 minute average**
more than 100	0.5	0.7	1.0	2.0
more than 10 but not more than 100	1.3	1.3	2.0	2.5
10 or less	2.0	2.0	2.5	3.0

S5.1a.8 Fault clearance times

(a) Faults anywhere within the *power system* should be cleared sufficiently rapidly that:

(1) the *power system* does not become unstable as a result of faults that are *credible contingency events*;

(2) *inter-regional* or *intra-regional power transfers* are not unduly *constrained*; and

(3) consequential equipment damage is minimised.

(b) The *fault clearance time* of a primary *protection system* for a *short circuit fault* of any *fault type* anywhere:

(1) within a *substation*;

(2) within *connected plant*; or

(3) on at least the half of a power line nearer to the *protection system*,

should not exceed the relevant time in column 2 of Table S5.1a.2 for the nominal *voltage* that applies at the fault location.

(c) The *fault clearance time* of a primary *protection system* for a *short circuit fault* of any *fault type* anywhere on the remote portion of a power line for which the near portion is protected by a primary *protection system* under clause S5.1a8(b) should not exceed the relevant time in column 3 of Table S5.1a.2 for the nominal *voltage* that applies at the fault location.

(d) The *fault clearance time* of a *breaker fail protection system* or similar back-up *protection system* for a *short circuit fault* of any *fault type* should not exceed the relevant time in column 4 of Table S5.1a.2 for the nominal *voltage* that applies at the fault location.

(e) The owner of the faulted element may require shorter *fault clearance times* to minimise *plant* damage.

(f) The allowable *fault clearance times* specified in Table S5.1a.2 apply in accordance with the provisions of clause S5.1.9 to *facilities* constructed or modified on or after the *performance standards commencement date*.

(g) For *facilities* other than those referred to in clause S5.1a.8(f), the applicable allowable *fault clearance times* must be derived by the relevant *Network Service Provider* from the existing capability of each *facility* on the *performance standards commencement date*.

Table S5.1a.2

Nominal voltage at fault location(kV)	**Time(milliseconds)**		
Column 1	**Column 2**	**Column 3**	**Column 4**
400kV and above	80	100	175
at least 250kV but less than 400kV	100	120	250
more than 100kV but less than 250kV	120	220	430

less than or equal 100 kV	As necessary to prevent *plant* damage and meet stability requirements

Schedule 5.1 - Network Performance Requirements to be Provided or Co-ordinated by Network Service Providers

S5.1.1 Introduction

This schedule describes the planning, design and operating criteria that must be applied by *Network Service Providers* to the *transmission networks* and *distribution networks* which they own, operate or control. It also describes the requirements on *Network Service Providers* to institute consistent processes to determine the appropriate technical requirements to apply for each *connection* enquiry or *application to connect* processed by the *Network Service Provider* with the objective that all *connections* satisfy the requirements of this schedule.

The criteria and the obligations of *Registered Participants* to implement them, fall into two categories, namely:

(a) those required to achieve adequate levels of *network power transfer capability* or quality of *supply* for the common good of all, or a significant number of, *Registered Participants*; and

(b) those required to achieve a specific level of *network service* at an individual *connection point.*

A *Network Service Provider* must:

(1) fully describe the quantity and quality of *network services* which it agrees to provide to a person under a *connection agreement* in terms that apply to the *connection point* as well as to the *transmission or distribution system* as a whole;

(2) ensure that the quantity and quality of those *network services* are not less than could be provided to the relevant person if the *national grid* were planned, designed and operated in accordance with the criteria set out in this clause S5.1.1 and recognising that levels of service will vary depending on location of the *connection point* in the *network*; and

(3) observe and apply the relevant provisions of the *system standards* in accordance with this schedule 5.1.

To the extent that this schedule 5.1 does not contain criteria which are relevant to the description of a particular *network service*, the *Network Service Provider* must describe the *network service* in terms which are fair and reasonable.

This schedule includes provisions for *Network Service Providers* and *Registered Participants* to negotiate the criteria to apply to a *connection* within defined ranges between a lower bound (*minimum access standard*) and an upper bound (*automatic access standard*). All criteria which are intended to apply to a

connection must be recorded in a *connection agreement*. Where it is intended to apply a *negotiated access standard* in accordance with clause 5.3.4A of the *Rules*, the *Network Service Provider* must first be satisfied that the application of the *negotiated access standard* will not adversely affect other *Registered Participants*.

S5.1.2 Network reliability

S5.1.2.1 Credible contingency events

Network Service Providers must plan, design, maintain and operate their *transmission networks* and *distribution networks* to allow the transfer of power from *generating units* to *Customers* with all *facilities* or equipment associated with the *power system* in service and may be required by a *Registered Participant* under a *connection agreement* to continue to allow the transfer of power with certain facilities or *plant* associated with the *power system* out of service, whether or not accompanied by the occurrence of certain faults (called "*credible contingency events*").

The following *credible contingency events* and practices must be used by *Network Service Providers* for planning and operation of *transmission networks* and *distribution networks* unless otherwise agreed by each *Registered Participant* who would be affected by the selection of *credible contingency events*:

(a) The *credible contingency events* must include the *disconnection* of any single *generating unit* or *transmission line*, with or without the application of a single circuit two-phase-to-ground solid fault on lines operating at or above 220 kV, and a single circuit three-phase solid fault on lines operating below 220 kV. The *Network Service Provider* must assume that the fault will be cleared in primary protection time by the faster of the duplicate protections with installed intertrips available. For existing *transmission lines* operating below 220 kV but above 66 kV a two-phase to earth fault criterion may be used if the modes of operation are such as to minimise the probability of three-phase faults occurring and operational experience shows this to be adequate, and provided that the *Network Service Provider* upgrades performance when the opportunity arises.

(b) For lines at any *voltage* above 66 kV which are not protected by an overhead earth wire and/or lines with tower footing resistances in excess of 10 ohms, the *Network Service Provider* may extend the criterion to include a single circuit three-phase solid fault to cover the increased risk of such a fault occurring. Such lines must be examined individually on their merits by the relevant *Network Service Provider*.

(c) For lines at any *voltage* above 66 kV a *Network Service Provider* must adopt operational practices to minimise the risk of slow fault clearance in

case of inadvertent closing on to earths applied to equipment for maintenance purposes. These practices must include but not be limited to:

(1) Not leaving lines equipped with intertrips alive from one end during maintenance; and

(2) *Off-loading* a three terminal (tee connected) line prior to restoration, to ensure switch on to fault *facilities* are operative.

(d) The *Network Service Provider* must ensure that all *protection systems* for lines at a *voltage* above 66 kV, including associated intertripping, are well maintained so as to be available at all times other than for short periods (not greater than eight hours) while the maintenance of a *protection system* is being carried out.

S5.1.2.2 Network service within a region

The following paragraphs of this section set out minimum standards for certain *network services* to be provided to *Registered Participants* by *Network Service Providers* within a *region*. The amount of *network* redundancy provided must be determined by the process set out in clause 5.6.2 of the *Rules* and is expected to reflect the grouping of *generating units*, their expected capacity factors and availability and the size and importance of *Customer* groups.

The standard of service to be provided at each *connection point* must be included in the relevant *connection agreement*, and must include a *power transfer capability* such as that which follows:

(a) In the *satisfactory operating state*, the *power system* must be capable of providing the highest reasonably expected requirement for *power transfer* (with appropriate recognition of diversity between individual peak requirements and the necessity to withstand *credible contingency events*) at any time.

(b) During the most critical single element *outage* the *power transfer* available through the *power system* may be:

(1) zero (single element *supply*);

(2) the defined capacity of a backup *supply*, which, in some cases, may be provided by another *Network Service Provider*;

(3) a nominated proportion of the normal *power transfer capability* (eg 70 percent); or

(4) the normal *power transfer capability* of the *power system* (when required by a *Registered Participant*).

In the case of clauses S5.1.2.2(b)(2) and (3) the available capacity would be exceeded sufficiently infrequently to allow maintenance to be carried out on each *network* element by the *Network Service Provider*. A *connection agreement* may state the expected proportion of time that the normal capability will not be available, and the capability at those times, taking account of specific design, locational and seasonal influences which may affect performance, and the random nature of element *outages*.

A *connection agreement* may also state a conditional *power transfer capability* that allows for both circuits of a double circuit line or two closely parallel circuits to be out of service.

S5.1.2.3 Network service between regions

The *power transfer capability* between *regions* must be determined by the process set out in rules 5.6 and 5.6A.

The following paragraphs of this section set out a framework within which *Network Service Providers* must describe to *AEMO* the levels of *network service* that apply for *power transfer* between *regions*. In cases where *power transfer capability* is determined by stability considerations on the *power system* (refer to clause S5.1.8 of this schedule) it is expected that line *outages* within *transmission networks* within a region will weaken the *network* so as to result in reduced *power transfer capability* even in the absence of *outages* of the lines between *regions*.

(a) In the *satisfactory operating state* the *power transfer capability* between *regions* is defined by a multi-term equation for each *connection* between *regions* which takes account of all *power system* operating conditions which can significantly impact on performance. The majority of these operating conditions are the result of *market* operation and are outside the control of the *Network Service Provider*. In the *satisfactory operating state* the *network* must be planned by the *Network Service Provider* and operated by *AEMO* to withstand the impact of any *single contingency* with severity less than the *credible contingency events* stated in clause S5.1.2.1.

(b) During critical single element *outages* reduced *power transfer capabilities* will apply. In those cases where *outage* of the remaining element will result in breaking of the *connection* between the *regions AEMO* must provide for the effect on *power system frequency* in the separate *transmission systems* following this event when determining the maximum *power transfer*.

S5.1.3 Frequency variations

A *Network Service Provider* must ensure that within the *extreme frequency excursion tolerance limits* all of its *power system* equipment will remain in service unless that equipment is required to be switched to give effect to *load shedding* in accordance with clause S5.1.10, or is required by *AEMO* to be switched for operational purposes.

Sustained operation outside the *extreme frequency excursion tolerance limits* need not be taken into account by *Network Service Providers* in the design of *plant* which may be *disconnected* if this is necessary for the protection of that *plant*.

S5.1.4 Magnitude of power frequency voltage

A *Transmission Network Service Provider* must plan and design its *transmission system* and equipment for control of *voltage* such that the minimum steady state *voltage* magnitude, the maximum steady state *voltage* magnitude and variations in *voltage* magnitude are consistent with the levels stipulated in clause S5.1a.4 of the *system standards*.

(a) The *Network Service Provider* must determine the *automatic access standard* for the *voltage* of *supply* at the *connection point* such that the *voltage* may vary in accordance with clause S5.1a.4 of the *system standards*.

(b) The *Network Service Provider* must determine the *minimum access standard* for the *voltage of supply* at the *connection point* such that the *voltage* may vary:

(1) as a consequence of a *credible contingency event* in accordance with clause S5.1a.4; and

(2) otherwise, between 95 percent and 105 percent of the target *voltage*.

(c) For the purposes of clause S5.1.4(b) the target *voltage* must be determined as follows:

(1) if the *connection point* is connected to a *transmission line* (but not through a *transformer*), the *Network Service Provider* must determine the target *voltage* in consultation with *AEMO* taking into account the capability of existing *facilities* that are subject to that *supply voltage*; and

(2) otherwise, *Network Users* that share the same *supply voltage* must jointly determine the target *voltage* which may be specified to vary with aggregate *loading level*;

provided that at all times the *supply voltage* remains between 90 percent and 110 percent of the normal voltage determined in accordance with clause S5.1a.4 except as a consequence of a *contingency event.*

(d) For the purposes of this clause, the *voltage* of *supply* is measured as the *RMS phase voltage.*

Where the independent control of *voltage* at the *connection point* is possible without adverse impact on *voltage* control at another *connection point*, the *Network Service Provider* must make reasonable endeavors to meet the request.

The target *voltage* and any agreement to a target range of *voltage* magnitude must be specified in the relevant *connection agreement*. The agreement may include a different target range in the *satisfactory operating state* and after a *credible contingency event* (and how these target ranges may be required to vary with *loading*).

A *Network Service Provider* must ensure that each *facility* that is part of its *transmission network* or *distribution network* is capable of continuous uninterrupted operation in the event that variations in *voltage* magnitude occur due to faults external to the *facility*. The design of a *facility* should anticipate the likely time duration and magnitude of variations in the power-*frequency* phase *voltages* which may arise dependent on the nature and location of the fault.

S5.1.5 Voltage fluctuations

A *Network Service Provider* must use reasonable endeavours to design and operate its *transmission system* or *distribution system* and include conditions in *connection agreements* in relation to the permissible variation with time of the power *generated* or *load* taken by a *Network User* to ensure that other *Network Users* are supplied with a power-*frequency voltage* which fluctuates to an extent that is less than the levels stipulated in accordance with the provisions of clause S5.1a.5 of the *system standards* and this clause S5.1.5.

In accordance with AS/NZS 61000.3.7:2001 and guidelines published by *Standards Australia* and applying the assumption that *Customers* will comply with their obligations under schedule 5.3, a *Network Service Provider* must determine "Planning Levels" for *connection points* on their *network* in order to maintain *voltage* fluctuation levels for all supply points to customers supplied from their *network* below the "Compatibility Levels" defined in Table 1 of AS/NZS 61000.3.7:2001.

The *Network Service Provider* must allocate emission limits in response to a *connection* enquiry or an *application to connect* and evaluate the acceptability for *connection* of fluctuating sources as follows:

(a) *Automatic access standard:* the *Network Service Provider* must allocate emission limits no more onerous than the lesser of the acceptance levels determined in accordance with either of the stage 1 or the stage 2 evaluation procedures defined in AS/NZS 61000.3.7:2001.

(b) *Minimum access standard:* subject to clause S5.1.5(c), the determination by the *Network Service Provider* of acceptable emission limits must be undertaken in consultation with the party seeking *connection* using the stage 3 evaluation procedure defined in AS/NZS61000.3.7:2001.

(c) In respect of each new *connection* at a level of performance below the *automatic access standard* the *Network Service Provider* must include provisions in the relevant *connection agreement* requiring the *Network User*

if necessary to meet the *system standards* or allow connection of other *Network Users* to either upgrade to the *automatic access standard* or fund the reasonable cost of the works necessary to mitigate their effect of connecting at a standard below the *automatic access standard*.

(d) If for existing customer *connections* the level of *voltage* fluctuation is, or may be, exceeded as a result of a proposed new *connection*, the *Network Service Provider* must, if the cause of that excessive level cannot be remedied by enforcing the provisions of existing *connection agreements*, undertake all reasonable works necessary to meet the technical standards in this schedule or to permit the proposed new *connection* within the requirements stated in this clause.

For other than a new *connection* in accordance with the preceding paragraph, the responsibility of a *Network Service Provider* for excursions in *voltage* fluctuations above the levels defined above is limited to *voltage* fluctuations caused by *network plant* and the pursuit of all reasonable measures available under the *Rules* and its *connection agreements*.

S5.1.6 Voltage harmonic or voltage notching distortion

A *Network Service Provider* must use reasonable endeavours to design and operate its *network* and include conditions in *connection agreements* to ensure that the effective harmonic *voltage* distortion at any point in the *network* will be limited to less than the levels stipulated in accordance with the provisions of clause S5.1a.6 of the *system standards* and this clause S5.1.6.

In accordance with AS/NZS 61000.3.6:2001 and guidelines published by *Standards Australia* and applying the assumption that *Customers* will comply with their obligations under schedule 5.3 *Network Service Providers* must determine "Planning Levels" for *connection points* on their *network* in order to maintain harmonic *voltage* distortion for all supply points to customers supplied from their *network* below the "Compatibility Levels" defined in Table 1 of AS/NZS 61000.3.6:2001.

The *Network Service Provider* must allocate emission limits to a connection enquiry or an *application to connect* and must evaluate the acceptability for *connection* of distorting sources as follows:

(a) *Automatic access standard*: the *Network Service Provider* must allocate emission limits no more onerous than the lesser of the acceptance levels determined in accordance with either of the stage 1 or the stage 2 evaluation procedures defined in AS/NZS 61000.3.6:2001.

(b) *Minimum access standard*: subject to clause S5.1.6(c), the determination by the *Network Service Provider* of acceptable emission limits must be undertaken in consultation with the party seeking *connection* using the Stage 3 evaluation procedure defined in AS/NZS61000.3.6:2001.

(c) In respect of each new *connection* at a level of performance below the *automatic access standard* the *Network Service Provider* must include provisions in the relevant *connection agreement* requiring the *Network User* if necessary to meet the *system standards* or allow connection of other *Network Users* to either upgrade to the *automatic access standard* or fund the reasonable cost of the works necessary to mitigate their effect of connecting at a standard below the *automatic access standard*.

(d) If for existing customer *connections* the level of harmonic *voltage* distortion is, or may be, exceeded as a result of a proposed new *connection*, the *Network Service Provider* must, if the cause of that excessive level cannot be remedied by enforcing the provisions of existing *connection agreements*, undertake all works necessary to meet the technical standards in this schedule or to permit a proposed new *connection* within the *automatic access standard* defined in clause S5.3.8 and the requirements stated in this clause.

For other than a new *connection* in accordance with the preceding paragraph, the responsibility of a *Network Service Provider* for harmonic *voltage* distortion outside the range defined above is limited to harmonic *voltage* distortion caused by *network plant* and the pursuit of all measures available under the *Rules* and its *connection agreements*.

S5.1.7 Voltage unbalance

(a) A *Transmission Network Service Provider* must balance the effective impedance of the phases of its *network*, and a *Distribution Network Service Provider* must balance the current drawn in each phase at each of its *connection points*, so as to achieve average levels of negative sequence *voltage* at all *connection point*s that are equal to or less than the values set out in Table S5.1a.1 as determined in accordance with the accompanying provisions of clause S5.1a.7 of the *system standards.*

(b) A *Network Service Provider* must include conditions in *connection agreements* to ensure that a *Connection Applicant* will balance the current drawn in each phase at each of its *connection points* so as to achieve:

(1) for those *Network Users* listed in clause S5.3(a): the levels permitted in accordance with clause S5.3.6 of schedule 5.3;

(2) for *Market Network Service Providers*: the levels permitted in accordance with clause S5.3a.9 of schedule 5.3a;

(3) otherwise: the average levels of negative sequence *voltage* at each of its *connection points* that are equal to or less than the values set out in Table S5.1a.1 and the accompanying provisions of clause S5.1a.7 of the *system standards.*

The responsibility of the *Network Service Provider* for *voltage* unbalance outside the ranges defined above is limited to *voltage* unbalance caused by the *network* and the pursuit of all measures available under the *Rules* and its *connection agreements.*

(c) A *Network Service Provider* must include conditions in *connection agreements* to ensure that each *Generator* will balance:

(1) the *voltage generated* in each phase of its *generating system*; and

(2) when not generating, the current drawn in each phase,

in order to achieve average levels of negative sequence *voltage* at each of the *generating system connection points* due to phase imbalances within the *generating plant* that are not more than the values determined by the *Network Service Provider* to achieve average levels of negative sequence *voltage* at the *connection points* of other *Network Users* in accordance with clause S5.1a.7.

(d) When including conditions under paragraph (c), the *Network Service Provider* must have regard to the capabilities of the relevant *generating plant* technology.

S5.1.8 Stability

In conforming with the requirements of the *system standards*, the following criteria must be used by *Network Service Providers* for both planning and operation:

For stable operation of the *national grid*, both in a *satisfactory operating state* and following any *credible contingency events* described in clause S5.1.2.1:

(a) the *power system* will remain in synchronism;

(b) damping of *power system* oscillations will be adequate; and

(c) *voltage* stability criteria will be satisfied.

Damping of *power system* oscillations must be assessed for planning purposes according to the design criteria which states that *power system damping* is considered adequate if after the most critical *credible contingency event*, simulations calibrated against past performance indicate that the halving time of the least damped electromechanical mode of oscillation is not more than five seconds.

To assess the damping of *power system* oscillations during operation, or when analysing results of tests such as those carried out under clause 5.7.7 of the *Rules*, the *Network Service Provider* must take into account statistical effects. Therefore, the *power system damping* operational performance criterion is that at a given

operating point, real-time monitoring or available test results show that there is less than a 10 percent probability that the halving time of the least damped mode of oscillation will exceed ten seconds, and that the average halving time of the least damped mode of oscillation is not more than five seconds.

The *voltage* control criterion is that stable *voltage* control must be maintained following the most severe *credible contingency event*. This requires that an adequate *reactive power* margin must be maintained at every *connection point* in a *network* with respect to the *voltage* stability limit as determined from the *voltage*/reactive *load* characteristic at that *connection point*. Selection of the appropriate margin at each *connection point* is at the discretion of the relevant *Network Service Provider*, subject only to the requirement that the margin (expressed as a capacitive *reactive power* (in MVAr)) must not be less than one percent of the maximum fault level (in MVA) at the *connection point*.

In planning a *network* a *Network Service Provider* must consider *non-credible contingency events* such as *busbar* faults which result in tripping of several circuits, uncleared faults, double circuit faults and multiple contingencies which could potentially endanger the stability of the *power system*. In those cases where the consequences to any *network* or to any *Registered Participant* of such events are likely to be severe disruption a *Network Service Provider* and/or a *Registered Participant* must install emergency controls within the *Network Service Provider's* or *Registered Participant's* system or in both, as necessary, to minimise disruption to any *transmission* or *distribution network* and to significantly reduce the probability of cascading failure.

A *Registered Participant* must co-operate with a *Network Service Provider* to achieve stable operation of the *national grid* and must use all reasonable endeavours to negotiate with the *Network Service Provider* regarding the installation of emergency controls as described in the previous paragraph. The cost of installation, maintenance and operation of the emergency controls must be borne by the *Network Service Provider* who is entitled to include this cost when calculating the *Transmission Customer use of system* price.

S5.1.9 Protection systems and fault clearance times

Network Users

(a) A *Network Service Provider* must determine the *automatic access standard* and *minimum access standard* that applies to the protection zone of each *protection system* in relation to the *connection point* and the *plant* to be *connected*, as follows:

(1) The *automatic access standard* for *fault clearance time* for any *fault type* is the lesser of the *system standard* set out in clause S5.1a.8 that applies to the highest nominal *voltage* within the *protection system's* protection zone and the corresponding *minimum access standard*

determined under clause S5.1.9(a)(2) or clause S5.1.9(a)(3) as applicable.

(2) The *minimum access standard* for *fault clearance time* of a primary *protection system* is:

(i) for a *fault type* that constitutes a *credible contingency event* in the relevant protection zone, the longest time such that a *short circuit fault* of that *fault type* that is cleared in that time would not cause the *power system* to become unstable when operating at any level of *inter-regional* or *intra-regional power transfer* that would be permissible (taking into account all other limiting criteria) if the *fault clearance time* for such a *fault* at the *connection point* were the *system standard* set out in clause S5.1a.8 that applies to the nominal *voltage* at the *connection point*; and

(ii) for a *fault type* that does not constitute a *credible contingency event* in the relevant protection zone:

(A) if a two phase to ground fault in that protection zone constitutes a *credible contingency event*, the corresponding *fault clearance time* for a two phase to ground *short circuit fault* in that protection zone as determined under clause S5.1.9(a)(2)(i); and

(B) otherwise, the shortest of the *fault clearance times* for a two phase to ground *short circuit fault* in each adjoining protection zone (excluding *transformer* protection zones and dead zones) as determined under clause S5.1.9(a)(2)(i) or clause S5.1.9(e).

(3) The *minimum access standard* for *fault clearance time* of a *breaker fail protection system* or similar back-up *protection system* is the longest time such that a *short circuit fault* of any *fault type* that is cleared in that time–would not damage any part of the *power system* (other than the faulted element) while the fault current is flowing or being interrupted.

(b) The negotiation of access standards in relation to paragraph (a) must involve *AEMO* under clause 5.3.4A(c) of the *Rules*.

Transmission systems and distribution systems

(c) Subject to clauses S5.1.9(k) and S5.1.9(l), a *Network Service Provider* must provide sufficient primary *protection systems* and back-up *protection systems* (including *breaker fail protection systems*) to ensure that a fault of any *fault type* anywhere on its *transmission system* or *distribution system* is

automatically *disconnected* in accordance with clause S5.1.9(e) or clause S5.1.9(f).

(d) If the *fault clearance time* determined under clause S5.1.9(e) of a primary *protection system* for a two phase to ground *short circuit fault* is less than 10 seconds, the primary *protection system* must have sufficient redundancy to ensure that it can clear *short circuit faults* of any *fault type* within the relevant *fault clearance time* with any single protection element (including any communications facility upon which the *protection system* depends) out of service.

(e) The *fault clearance time* of a primary *protection system* of a *Network Service Provider* must not exceed:

(1) for any *fault type* that constitutes a *credible contingency event* in the relevant protection zone, the longest time such that a *short circuit fault* of that *fault type* that is cleared in that time would not cause the *power system* to become unstable when operating at any level of *inter-regional* or *intra-regional power transfer* that would be permissible (taking into account all other limiting criteria) if the *fault clearance time* for such a fault in that protection zone were the relevant *system standard* set out in clause S5.1a.8; and

(2) for any *fault type* that does not constitute a *credible contingency event* in the relevant protection zone:

(i) if a two phase to ground fault in that protection zone is a *credible contingency event*, the corresponding *fault clearance time* for a two phase to ground fault in that protection zone as determined under clause S5.1.9(e)(1); and

(ii) otherwise, the shortest of the *fault clearance times* for a two phase to ground fault in each adjoining protection zone (excluding *transformer* protection zones and dead zones) as determined under clauses S5.1.9(a)(2)(i), S5.1.9(e)(1)or S5.1.9(e)(2)(i).

(f) The *fault clearance time* of each *breaker fail protection system* or similar back-up *protection system* of a *Network Service Provider* must be such that a *short circuit fault* of any *fault type* that is cleared in that time would not damage any part of the *power system* (other than the faulted element) while the fault current is flowing or being interrupted.

(g) A *Network Service Provider* must demonstrate to *AEMO* that each *fault clearance time* for a primary *protection system* that is longer than the relevant *system standard* set out in clause S5.1a.8 and is less than 10 seconds would not cause or require an *inter-regional* or *intra-regional power transfer capability* to be reduced.

(h) A *Network Service Provider* must include in each *connection agreement* entered into after the *performance standards commencement date*:

(1) the *fault clearance times* for each *fault type* of each of its *protection systems* that could reasonably be expected to interrupt *supply* to or from the relevant *connection point*; and

(2) an agreement to not increase those *fault clearance times* without the prior written agreement of the other party.

(i) *Network Service Providers* must coordinate and cooperate with *Network Users* to implement *breaker fail* protection for circuit breakers provided to isolate the *Network User's facility* from the *Network Service Provider's facilities*.

(j) Where practicable and economic to achieve, new network investment should meet the *system standard* for *fault clearance times* as specified in clause S5.1a.8 for two phase to ground *short circuit faults*.

(k) A primary *protection system* may clear faults other than *short circuit faults* slower than the relevant *fault clearance time*, provided that such faults would be cleared sufficiently promptly to not adversely impact on *power system security* compared with its operation for the corresponding *short circuit fault*. In the case of a fault within equipment at a station, the corresponding *short circuit fault* is to be taken as a two phase to ground *short circuit fault* at the external connections of the equipment.

(l) *Protection systems* may rely on *breaker fail protection systems* or other back-up *protection systems* to completely clear faults of any *fault type* that:

(1) occur within a *substation* between a protection zone and a circuit breaker adjacent to that protection zone that is required to open to clear the fault (a "dead zone"); and

(2) remain connected through a power line or *transformer* after operation of a primary *protection system*,

provided that the relevant *Network Service Provider* assesses that the likelihood of a fault occurring within the dead zone is not greater than the likelihood of a fault occurring on *busbars*.

(m) For the purposes of this clause S5.1.9, a *credible contingency event* includes any event that clause S5.1.2.1 requires a *Network Service Provider* to consider as a *credible contingency event*.

(n) The provisions of clause S5.1.9(d) apply to *facilities* constructed or modified on or after the *performance standards commencement date*.

(o) For *facilities* other than those referred to in clause S5.1.9(n), the requirement for primary *protection system* redundancy must be derived by the *Network Service Provider* from the existing capability of each *facility* on the *performance standards commencement date*.

S5.1.10 Load and network control facilities

S5.1.10.1 General

Each *Network Service Provider* in consultation with *AEMO* must ensure that:

(a) sufficient *load* is under the control of underfrequency relays where required to ensure that in the event of the sudden, unplanned simultaneous occurrence of multiple *contingency events*, the *power system frequency* does not move outside the *extreme frequency excursion tolerance limits*;

(b) where determined to be necessary, sufficient *load* is under the control of undervoltage relays to minimize or reduce the risk of voltage collapse on the occurrence of multiple *contingency events*; and

(c) there is sufficient *load* under manual or automatic control either locally or from remotely located *control centres* to allow the *load shedding procedures* to be implemented on instruction from *AEMO* to enable *AEMO* to maintain *power system security*.

A *Network Service Provider* may require *load shedding* arrangements to be installed to cater for abnormal operating conditions.

Arrangements for *load shedding* must be agreed between *Transmission Network Service Providers* and *connected Distribution Network Service Providers* and may include the opening of circuits in either a *transmission* or *distribution network*.

The *Transmission Network Service Provider* must specify, in the *connection agreement*, control and monitoring requirements to be provided by a *Distribution Network Service Provider* for *load shedding facilities*.

S5.1.10.2 Distribution Network Service Providers

A *Distribution Network Service Provider* must:

(a) provide, install, operate and maintain *facilities* for *load shedding* in respect of any *connection point* at which the maximum *load* exceeds 10MW in accordance with clause 4.3.5 of the *Rules*;

(b) in accordance with the provisions of the relevant *connection agreement*, co-operate with the *Transmission Network Service Provider*s in conducting periodic functional testing of the *facilities*, which must not require *load* to be *disconnected*;

(c) apply underfrequency settings to relays as determined by *AEMO* in consultation with the *Network Service Provider*; and

(d) apply undervoltage settings to relays as notified by the *Transmission Network Service Provider* in accordance with clause S5.1.10.3(b).

S5.1.10.3 Transmission Network Service Providers

Transmission Network Service Providers must:

(a) conduct periodic functional tests of the *load shedding facilities*; and

(b) notify *Distribution Network Service Providers* regarding the settings of undervoltage *load* shed relays as determined by *AEMO* in consultation with the *Transmission Network Service Provider*.

S5.1.11 Automatic reclosure of transmission or distribution lines

Where *automatic reclose equipment* is provided on *transmission lines* or *distribution lines*, check or blocking *facilities* must be applied to the *automatic reclose equipment* in those circumstances where there is any possibility of the two ends of the *transmission line* or *distribution line* being *energised* from sources that are not in synchronism.

S5.1.12 Rating of transmission lines and equipment

For operational purposes each *Network Service Provider* must, on reasonable request, advise *AEMO* of the maximum current that may be permitted to flow (under conditions nominated by *AEMO*) through each *transmission line*, *distribution line* or other item of equipment that forms part of its *transmission system* or *distribution system*.

This maximum current is called a "*current rating*" of the *transmission line*, *distribution line* or item of equipment notwithstanding that it may be determined by equipment associated with its *connection* to the *power system* (including switchgear, droppers, current *transformers* and *protection systems*).

AEMO may request for a *transmission line*, *distribution line* or other item of equipment:

(a) a continuous *current rating*, being the level of current that is permitted to flow in that item of equipment for an indefinite period; and

(b) one or more short term *current ratings* for a period of time nominated by *AEMO* after consultation with the *Network Service Provider*, being the level of current that is permitted to flow in that item of equipment for that period of time if the current had been less than the corresponding continuous

current rating for a reasonable prior period taking into account the thermal properties of the item of equipment.

The *Network Service Provider* may be required by *AEMO* to advise different *current ratings* to be applied under nominated conditions including, without limitation:

(a) ambient weather conditions;

(b) seasons and/or times of *day*;

(c) ratios of the current during an emergency to the current prior to the emergency (taking into account pre-contingent loading history where applicable); and

(d) period of loading at the nominated level.

A *Transmission Network Service Provider* is entitled to advise *AEMO* of short term *current ratings* which may apply for nominated periods of time to the relevant *transmission line* or item of equipment provided that these ratings do not materially affect the safety of the *transmission line* or item of equipment, or the safety of persons. Short-term ratings for *transmission lines* or items of equipment may be implemented by a methodology or algorithm in a format agreed with *AEMO*.

S5.1.13 Information to be provided

A *Network Service Provider* must, in response to a *connection* enquiry or an *application to connect* made in accordance with clause 5.3.2 of the *Rules*, provide the *connection applicant* electrical design information relevant to the nominal point of *connection* in accordance with a relevant requirement of schedules 5.2, 5.3 or 5.3a.

Schedule 5.2 - Conditions for Connection of Generators

S5.2.1 Outline of requirements

(a) This schedule sets out details of additional requirements and conditions that *Generators* must satisfy as a condition of *connection* of a *generating system* to the *power system*.

(b) This schedule does not apply to any *generating system* that is:

(1) subject to an exemption from registration under clause 2.2.1(c); or

(2) eligible for exemption under any guidelines issued under clause 2.2.1(c),

and which is *connected* or intended for use in a manner the *Network Service Provider* considers is unlikely to cause a material degradation in the quality of *supply* to other *Network Users*.

(c) This schedule also sets out the requirements and conditions which subject to clause 5.2.5 of the *Rules*, are obligations on *Generators*:

(1) to co-operate with the relevant *Network Service Provider* on technical matters when making a new *connection*; and

(2) to provide information to the *Network Service Provider* or *AEMO*.

(d) The equipment associated with each *generating system* must be designed to withstand without damage the range of operating conditions which may arise consistent with the *system standards*.

(e) *Generators* must comply with the *performance standards* and any attached terms or conditions of agreement agreed with the *Network Service Provider* or *AEMO* in accordance with a relevant provision of schedules 5.1a or 5.1.

(f) This schedule does not set out arrangements by which a *Generator* may enter into an agreement or contract with *AEMO* to:

(1) provide additional services that are necessary to maintain *power system security*; or

(2) provide additional services to facilitate management of the *market*.

(g) This schedule provides for *automatic access standards* and the determination of *negotiated access standards* derived from *minimum access standards* which once determined, must be recorded together with the *automatic access standards* in a *connection agreement* and registered with *AEMO* as *performance standards*.

S5.2.2 Application of Settings

A *Generator* must only apply settings to a *control system* or a *protection system* that are necessary to comply with performance requirements of this schedule 5.2 if the settings have been approved in writing by the relevant *Network Service Provider* and, if the requirement is one that would involve *AEMO* under clause 5.3.4A(c) of the *Rules*, also by *AEMO*. A *Generator* must not allow its *generating unit* to *supply* electricity to the *power system* without such prior approval.

If a *Generator* seeks approval from the *Network Service Provider* to apply or change a setting, approval must not be withheld unless the *Network Service Provider* or, if the requirement is one that would involve *AEMO* under clause 5.3.4A(c) of the *Rules*, *AEMO*, reasonably determines that the changed setting would cause the *generating unit* to not comply with the relevant *performance standard* or cause an *inter-regional* or *intra-regional power transfer capability* to be reduced.

If the *Network Service Provider* or, if the requirement is one that would involve *AEMO* under clause 5.3.4A(c) of the *Rules*, *AEMO*, reasonably determines that a setting of a *generating unit's control system* or *protection system* needs to change to comply with the relevant *performance standard* or to maintain or restore an *inter-regional* or *intra-regional power transfer capability*, the *Network Service Provider* or *AEMO* (as applicable) must consult with the relevant *Generator*, and the *Network Service Provider* may request in writing that a setting be applied in accordance with the determination.

The *Network Service Provider* may also request a test to verify the performance of the relevant *plant* with the new setting. The *Network Service Provider* must provide *AEMO* with a copy of its request to a *Generator* to apply a setting or to conduct a test.

A *Generator* who receives such a request must arrange for the notified setting to be applied as requested and for a test to be conducted as requested. After the test, the *Generator* must, on request, provide both *AEMO* and the *Network Service Provider* with a report of a requested test, including evidence of its success or failure. Such a report of a test is *confidential information*.

A *Generator* must not change a setting requested by the *Network Service Provider* without its prior written agreement. If the *Network Service Provider* requires a *Generator* to change a setting within 18 months of a previous request, the *Network Service Provider* must pay the *Generator* its reasonable costs of changing the setting and conducting the tests as requested.

S5.2.3 Technical matters to be coordinated

(a) A *Generator* and the relevant *Network Service Provider* must use all reasonable endeavours to agree upon relevant technical matters in respect of

each new or altered *connection* of a *generating system* to a *network* including:

(1) design at the *connection point*;

(2) physical layout adjacent to the *connection point*;

(3) primary protection and backup protection (clause S5.2.5);

(4) control characteristics (clause S5.2.5);

(5) communications *facilities* (clause S5.2.6);

(6) insulation co-ordination and lightning protection (paragraph (b));

(7) fault levels and fault clearance (clause S5.2.8);

(8) switching and *isolation* facilities (clause S5.2.8*)*;

(9) interlocking and *synchronising* arrangements; and

(10) *metering installation*s.

(b) A *Generator* must ensure that in designing a *generating system's* electrical *plant*, including any *substation* for the *connection* of the *generating system* to the *network*, to operate at the same *nominal voltage* as at the *connection point*:

(1) the *plant* complies with the relevant *Australian Standards* unless a provision of these *Rules* allows or requires otherwise;

(2) the earthing of the *plant* complies with the ENA EG1-2006: Substation Earthing Guide to reduce step and touch potentials to safe levels;

(3) the *plant* is capable of withstanding, without damage the *voltage* impulse levels specified in the *connection agreement*;

(4) the insulation levels of the *plant* are co-ordinated with the insulation levels of the *network* to which the *generating system* is *connected* as specified in the *connection agreement*; and

(5) safety provisions in respect of the *plant* comply with requirements applicable to the *participating jurisdiction* in which the *generating system* is located, as notified by the *Network Service Provider*.

(c) If no relevant *Australian Standard* exists for the purposes of paragraph (b)(1), the *Generator* must agree with the *Network Service Provider* for the *Generator* to comply with another relevant standard.

S5.2.4 Provision of information

(a) A *Generator* or person who is negotiating a *connection agreement* with a *Network Service Provider* must promptly on request by *AEMO* or the *Network Service Provider* provide all data in relation to that *generating system* specified in schedule 5.5.

(b) A *Generator*, or person required under the *Rules* to register as the *Generator* in respect of a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more, by the earlier of:

(1) the day on which an *application to connect* is made under clause 5.3.4(a);

(2) the day on which amendments to *performance standards* are submitted under rule 4.14(p) or clause 5.3.9(b);

(3) three months before commissioning of a *generating system* or planned alteration to a *generating system*; or

(4) 5 *business days* before commissioning of a *generating system* alteration that is repairing *plant* after a *plant* failure, if *plant* performance after the alteration will differ from performance prior to the *plant* failure,

must provide:

(5) to *AEMO* and the relevant *Network Service Providers* (including the relevant *Transmission Network Service Provider* in respect of an *embedded generating unit*) the following information about the *control systems* of the *generating system*:

(i) a set of functional block diagrams, including all functions between feedback signals and *generating system* output;

(ii) the parameters of each functional block, including all settings, gains, time constants, delays, deadbands and limits; and

(iii) the characteristics of non-linear elements,

with sufficient detail for *AEMO* and *Network Service Providers* to perform load flow and dynamic simulation studies;

(6) to *AEMO*, model source code associated with the model in subparagraph (5) in an unencrypted form suitable for at least one of the software simulation products nominated by *AEMO* and in a form that would allow conversion for use with other software simulation products by *AEMO*;

(7) [**Deleted**]

(8) to *AEMO* and the relevant *Network Service Providers* (including the relevant *Transmission Network Service Provider* in respect of an *embedded generating unit*) a *releasable user guide.*

(c) The information provided under paragraph (b) must:

(1) encompass all *control systems* that respond to *voltage* or *frequency* disturbances on the *power system*, and which are either integral to the *generating units* or otherwise part of the *generating system*, including those applying to *reactive power* equipment that forms part of the *generating system;* and

(2) conform with the applicable models developed in accordance with the *Generating System Model Guidelines*, or an alternative model agreed with *AEMO* to be necessary to adequately represent the *generating plant* to carry out load flow and dynamic simulations.

(d) The *Generator* must provide to *AEMO* information that updates the information provided under clause S5.2.4(b) and must provide to the relevant *Network Service Providers* information that updates the information provided under clause S5.2.4(b)(5):

(1) within 3 months after commissioning tests or other tests undertaken in accordance with clause 5.7.3 are completed;

(2) when the *Generator* becomes aware that the information is incomplete, inaccurate or out of date; or

(3) on request by *AEMO* or the relevant *Network Service Provider*, where *AEMO* or the relevant *Network Service Provider* considers that the information in incomplete, inaccurate or out of date.

(d1) A *Generator* is only required to provide new information under clause S5.2.4(d) to the extent that it is different to the information previously provided under clause S5.2.4(b).

(e) For the purposes of clause S5.2.4(e1), a *Connection Applicant* must be registered as an *Intending Participant* in accordance with rule 2.7.

(e1) For the purposes of clause 5.3.2(f), the technical information that a *Network Service Provider* must, if requested, provide to a *Connection Applicant* in respect of a proposed *connection* for a *generating system* includes:

(1) the highest expected single phase and three phase fault levels at the *connection point* with the *generating system* not *connected*;

(2) the clearing times of the existing *protection systems* that would clear a fault at the location at which the new *connection* would be *connected* into the existing *transmission system* or *distribution system*;

(3) the expected limits of *voltage* fluctuation, harmonic *voltage* distortion and *voltage* unbalance at the *connection point* with the *generating system* not *connected*;

(4) technical information relevant to the *connection point* with the *generating system* not *synchronised* including equivalent source impedance information, sufficient to estimate fault levels, *voltage* fluctuations, harmonic *voltage* distortion (for harmonics relevant to the *generating system*) and *voltage* unbalance; and

(5) information relating to the performance of the *national grid* that is reasonably necessary for the *Connection Applicant* to prepare an *application to connect*, including:

(i) a model of the *power system*, including relevant *considered projects* and the range of expected operating conditions, sufficient to carry out load flow and dynamic simulations; and

(ii) information on *inter-regional* and *intra-regional power transfer capabilities* and relevant *plant* ratings.

(f) All information provided under this clause S5.2.4 must be treated as *confidential information*.

S5.2.5 Technical requirements

S5.2.5.1 Reactive power capability

Automatic access standard

(a) The *automatic access standard* is a *generating system* operating at:

(1) any level of *active power* output; and

(2) any *voltage* at the *connection point* within the limits established under clause S5.1a.4 without a *contingency event*,

must be capable of supplying and absorbing continuously at its *connection point* an amount of *reactive power* of at least the amount equal to the product of the *rated active power* of the *generating system* and 0.395.

Minimum access standard

(b) The *minimum access standard* is no capability is required to supply or absorb *reactive power* at the *connection point*.

Negotiated access standard

(c) When negotiating a *negotiated access standard*, the *Generator* and the *Network Service Provider*:

(1) must subject to any agreement under paragraph (d)(4), ensure that the *reactive power capability* of the *generating system* is sufficient to ensure that all relevant *system standards* are met before and after *credible contingency events* under normal and planned *outage* operating conditions of the *power system*, taking into account at least existing projects and *considered projects*;

(2) may negotiate either a range of *reactive power* absorption and supply, or a range of *power factor*, at the *connection point*, within which the *plant* must be operated; and

(3) may negotiate a limit that describes how the *reactive power capability* varies as a function of *active power* output due to a design characteristic of the *plant*.

(d) If the *generating system* is not capable of the level of performance established under paragraph (c)(1) the *Generator*, depending on what is reasonable in the circumstances, must:

(1) pay compensation to the *Network Service Provider* for the provision of the deficit of *reactive power* (supply and absorption) from within the *network*;

(2) install additional equipment *connecting* at the *generating system's connection point* or another location, to provide the deficit of *reactive power* (supply and absorption), and such equipment is deemed to be part of the *generating system*;

(3) reach a commercial arrangement with a *Registered Participant* to provide the deficit of *reactive power* (supply and absorption); or

(4) if the inability to meet the performance level only occurs for particular operating conditions, agree to and document as part of the proposed *negotiated access standard*, operational arrangements by which the *plant* can achieve an agreed level of performance for those operating conditions.

(e) The *Generator* may select one or more options referred to in paragraph (d).

General requirements

(f) An *access standard* must record the agreed value for *rated active power* and where relevant the method of determining the value.

(g) An *access standard* for consumption of *energy* by a *generating system* when not supplying or absorbing *reactive power* under an *ancillary services agreement* is to be established under clause S5.3.5 as if the *Generator* were a *Market Customer*.

S5.2.5.2 Quality of electricity generated

(a) For the purpose of this clause S5.2.5.2 in respect of a *synchronous generating unit*, AS 1359.101 and IEC 60034-1 are *plant standards* for harmonic *voltage* distortion.

Automatic access standard

(b) The *automatic access standard* is a *generating system* when generating and when not generating must not produce at any of its *connection points* for *generation*:

(1) *voltage* fluctuation greater than the limits allocated by the *Network Service Provider* under clause S5.1.5(a);

(2) harmonic *voltage* distortion greater than the emission limits specified by a *plant standard* under paragraph (a) or allocated by the *Network Service Provider* under clause S5.1.6(a); and

(3) *voltage* unbalance greater than the limits allocated by the *Network Service Provider* in accordance with clause S5.1.7(c).

Minimum access standard

(c) The *minimum access standard* is a *generating system* when generating and when not generating must not produce at any of its *connection points* for *generation*:

(1) *voltage* fluctuations greater than limits determined under clause S5.1.5(b);

(2) harmonic *voltage* distortion more than the lesser of the emission limits determined by the relevant *Network Service Provider* under clause S5.1.6(b) and specified by a *plant standard* under paragraph (a); and

(3) *voltage* unbalance more than limits determined under clause S5.1.7(c).

Negotiated access standard

(d) A *negotiated access standard* negotiated under this clause S5.2.5.2 must not prevent the *Network Service Provider* meeting the *system standards* or contractual obligations to existing *Network Users*.

S5.2.5.3 Generating unit response to frequency disturbances

(a) For the purposes of this clause S5.2.5.3:

normal operating frequency band, **operational frequency tolerance band**, or **extreme frequency excursion tolerance limits** are references to the widest range specified for those terms for any condition (including an "island" condition) in the *frequency operating standards* that apply to the *region* in which the *generating unit* is located.

stabilisation time and **recovery time** mean the longest times allowable for *system frequency* to remain outside the operational frequency tolerance band and the normal operating frequency band, respectively, for any condition (including an "island" condition) in the *frequency operating standards* that apply to the region in which the *generating unit* is located.

transient frequency limit and **transient frequency time** mean the values of 47.5 Hz and 9 seconds respectively, or such other values determined by the *Reliability Panel*.

Automatic access standard

(b) The *automatic access standard* is a *generating system* and each of its *generating units* must be capable of *continuous uninterrupted operation* for *frequencies* in the following ranges:

(1) the lower bound of the extreme frequency excursion tolerance limits to the lower bound of the operational frequency tolerance band for at least the stabilisation time;

(2) the lower bound of the operational frequency tolerance band to the lower bound of the normal operating frequency band, for at least the recovery time including any time spent in the range under subparagraph (1);

(3) the normal operating frequency band for an indefinite period;

(4) the upper bound of the normal operating frequency band to the upper bound of the operational frequency tolerance band, for at least the recovery time including any time spent in the range under subparagraph (5); and

(5) the upper bound of the operational frequency tolerance band to the upper bound of the extreme frequency excursion tolerance limits for at least the stabilisation time,

unless the rate of change of *frequency* is outside the range of –4 Hz to 4 Hz per second for more than 0.25 seconds or such other range as determined by the *Reliability Panel* from time to time.

N**ote:** The automatic access standard is illustrated in the following diagram. To the extent of any inconsistency between the diagram and paragraph (b), paragraph (b) prevails.

Minimum access standard

(c) The *minimum access standard* is a *generating system* and each of its *generating units* must be capable of *continuous uninterrupted operation* for *frequencies* in the following ranges:

(1) the lower bound of the extreme frequency excursion tolerance limits to the transient frequency limit for at least the transient frequency time;

(2) the transient frequency limit to the lower bound of the operational frequency tolerance band for at least the stabilisation time;

(3) the lower bound of the operational frequency tolerance band to the lower bound of the normal operating frequency band for at least the recovery time including any time spent in the ranges under subparagraphs (1) and (2);

(4) the normal operating frequency band for an indefinite period;

(5) the upper bound of the normal operating frequency band to the upper bound of the operational frequency tolerance band for at least the recovery time including any time spent in the ranges under subparagraph (6) unless the *generating system* has a *protection system* to trip a *generating unit* if the *frequency* exceeds a level agreed with *AEMO*; and

(6) in respect of a *generating system*:

(i) of 30 MW or more; and

(ii) that does not have a *protection system* to trip the *generating unit* if the *frequency* exceeds a level agreed with *AEMO*,

the upper bound of the operational frequency tolerance band to the upper bound of the extreme frequency excursion tolerance limits (including an "island" condition) for at least the transient frequency time,

unless the rate of change of *frequency* is outside the range of -1 Hz to 1 Hz per second for more than one second or such other range as determined by the *Reliability Panel* from time to time.

Note: The minimum access standard is illustrated in the following diagram. To the extent of any inconsistency between the diagram and paragraph (c), paragraph (c) prevails.

Negotiated access standard

(d) A *negotiated access standard* can be accepted by the *Network Service Provider* provided that *AEMO* and the *Network Service Provider* agree that:

(1) the *negotiated access standard* is as close as practicable to the *automatic access standard* while respecting the need to protect the *plant* from damage;

(2) the *frequency* would be unlikely to fall below the lower bound of the operational frequency tolerance band as a result of over-frequency tripping of *generating units*; and

(3) there would be no material adverse impact on quality of *supply* to other *Network Users* or *power system security*.

(e) *AEMO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.3.

S5.2.5.4 Generating system response to voltage disturbances

Automatic access standard

(a) The *automatic access standard* is a *generating system* and each of its *generating units* must be capable of *continuous uninterrupted operation* where a *power system* disturbance causes the *voltage* at the *connection point* to vary within the following ranges:

(1) *voltages* over 110% for the durations permitted under clause S5.1a.4;

(2) 90% to 110% of *normal voltage* continuously;

(3) 80% to 90% of *normal voltage* for a period of at least 10 seconds; and

(4) 70% to 80% of *normal voltage* for a period of at least 2 seconds.

Minimum access standard

(b) The *minimum access standard* is a *generating system* including all operating *generating units* must be capable of *continuous uninterrupted operation* where a *power system* disturbance causes the *voltage* at the *connection point* to vary in the range of 90% to 110% of *normal voltage*, provided that the ratio of *voltage* to *frequency* (as measured at the *connection point* and expressed as percentage of *normal voltage* and a percentage of 50 Hz) does not exceed:

(1) a value of 1.15 for more than two minutes; or

(2) a value of 1.10 for more than 10 minutes.

Negotiated access standard

(c) In negotiating a *negotiated access standard*, a *generating system* and each of its operating *generating units* must be capable of *continuous uninterrupted operation* for the range of *voltages* specified in the *automatic access standard* except where *AEMO* and the *Network Service Provider* agree that:

(1) the *negotiated access standard* is as close as practicable to the *automatic access standard* while respecting the need to protect the *plant* from damage;

(2) the *generating plant* that would be tripped as a result of any *voltage* excursion within levels specified by the *automatic access standard*, is not more than 100 MW or a greater limit based on what *AEMO* and the *Network Service Provider* both consider to be reasonable in the circumstances; and

(3) there would be no material adverse impact on the quality of *supply* to other *Network Users* or *power system security*.

(d) In carrying out assessments of proposed *negotiated access standards* under this clause S5.2.5.4, *AEMO* and the *Network Service Provider* must at a minimum, take into account:

(1) the expected performance of existing *networks* and *considered projects*;

(2) the expected performance of existing *generating plant* and other relevant projects; and

(3) any corresponding *performance standard* (or where no *performance standard* has been registered, the *access standard*) that allows *generating plant* to trip for *voltage* excursions in ranges specified under the *automatic access standards*.

(e) *AEMO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.4.

General requirement

(f) The *access standard* must include any operational arrangements necessary to ensure the *generating system* and each of its *generating units* will meet its agreed performance levels under abnormal *network* or *generating system* conditions.

S5.2.5.5 Generating system response to disturbances following contingency events

(a) In this clause S5.2.5.5 a fault includes:

(1) a fault of the relevant type having a metallic conducting path; and

(2) a fault of the relevant type resulting from reclosure onto a fault by the operation of *automatic reclose equipment*.

Automatic access standard

(b) The *automatic access standard* is:

(1) a *generating system* and each of its *generating units* must remain in *continuous uninterrupted operation* for a disturbance caused by an event that is:

(i) a *credible contingency event* other than a fault referred to in subparagraph (iv);

(ii) a three phase fault in a *transmission system* cleared by all relevant primary *protection systems*;

(iii) a two phase to ground, phase to phase or phase to ground fault in a *transmission system* cleared in:

(A) the longest time expected to be taken for a relevant *breaker fail protection system* to clear the fault; or

(B) if a *protection system* referred to in subparagraph (A) is not installed, the greater of the time specified in column 4 of Table S5.1a.2 (or if none is specified, 430 milliseconds) and the longest time expected to be taken for all relevant primary *protection systems* to clear the fault; and

(iv) a three phase, two phase to ground, phase to phase or phase to ground fault in a *distribution network* cleared in:

(A) the longest time expected to be taken for the *breaker fail protection system* to clear the fault; or

(B) if a *protection system* referred to in subparagraph (A) is not installed, the greater of 430 milliseconds and the longest time expected to be taken for all relevant primary *protection systems* to clear the fault,

provided that the event is not one that would *disconnect* the *generating unit* from the *power system* by removing *network elements* from service; and

(2) subject to any changed *power system* conditions or energy source availability beyond the *Generator's* reasonable control, a *generating system* and each of its *generating units*, in respect of the types of fault described in subparagraphs (1)(ii) to (iv), must supply to or absorb from the *network*:

(i) to assist the maintenance of *power system voltages* during the application of the fault, capacitive reactive current of at least the greater of its pre-disturbance reactive current and 4% of the maximum continuous current of the *generating system* including all operating *generating units* (in the absence of a disturbance) for each 1% reduction (from its pre-fault level) of *connection point voltage* during the fault;

(ii) after *disconnection* of the faulted element, *reactive power* sufficient to ensure that the *connection point voltage* is within the range for *continuous uninterrupted operation* under clause S5.2.5.4; and

(iii) from 100 milliseconds after *disconnection* of the faulted element, *active power* of at least 95% of the level existing just prior to the fault.

Minimum access standard

(c) The *minimum access standard* is:

(1) a *generating system* and each of its *generating units* must remain in *continuous uninterrupted operation* for the disturbance caused by an event that is:

(i) a *credible contingency event* other than a fault referred to in subparagraph (iii);

(ii) a single phase to ground, phase to phase or two phase to ground fault in a *transmission system* cleared in the longest time expected to be taken for all relevant primary *protection systems* to clear the fault unless *AEMO* and the *Network Service Provider* agree that:

(A) the total reduction of *generation* in the *power system* due to that fault would not exceed 100 MW;

(B) there is unlikely to be an adverse impact on quality of *supply* to other *Network Users*; and

(C) there is unlikely to be a material adverse impact on *power system security*; and

(iii) a single phase to ground, phase to phase or two phase to ground fault in a *distribution network*, cleared in the longest time expected to be taken for all relevant primary *protection systems* to clear the fault, unless *AEMO* and the *Network Service Provid*er agree that:

(A) the total reduction of *generation* in the *power system* due to that fault would not exceed 100 MW;

(B) there is unlikely to be a material adverse impact on quality of *supply* to other *Network Users*; and

(C) there is unlikely to be a material adverse impact on *power system security*,

provided that the event is not one that would *disconnect* the *generating unit* from the *power system* by removing *network elements* from service; and

(2) subject to any changed *power system* conditions or energy source availability beyond the *Generator's* reasonable control after *disconnection* of the faulted *element*, each *generating system* must, in respect of the types of fault described in subparagraphs (1)(ii) and (iii), deliver to the *network*, *active power* and supply or absorb leading or lagging *reactive power*, sufficient to ensure that the *connection point voltage* is within the range for *continuous uninterrupted operation* agreed under clause S5.2.5.4.

Negotiated access standard

(d) In carrying out assessments of proposed *negotiated access standards* under this clause S5.2.5.5, the *Network Service Provider* and *AEMO* must take into account, without limitation:

(1) the expected performance of:

(i) existing *networks* and *considered projects*;

(ii) existing *generating plant* and other relevant projects; and

(iii) *control systems* and *protection systems*, including auxiliary systems and *automatic reclose equipment*; and

(2) the expected range of *power system* operating conditions.

(e) A proposed *negotiated access standard* may be accepted if the *connection* of the *plant* at the proposed access level would not cause other generating *plant* or *loads* to trip as a result of an event, when they would otherwise not have tripped for the same event.

(f) *AEMO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.5.

General requirement

(g) The *access standard* must include any operational arrangements to ensure the *generating system* including all operating *generating units* will meet its agreed performance levels under abnormal *network* or *generating system* conditions.

S5.2.5.6 Quality of electricity generated and continuous uninterrupted operation

Minimum access standard

The *minimum access standard* is a *generating system* including each of its operating *generating units* and *reactive plant*, must not *disconnect* from the *power system* as a result of *voltage* fluctuation, harmonic *voltage* distortion and *voltage*

unbalance conditions at the *connection point* within the levels specified in clauses S5.1a.5, S5.1a.6 and S5.1a.7.

S5.2.5.7 Partial load rejection

(a) For the purposes of this clause S5.2.5.7 **minimum load** means minimum *sent out generation* for continuous stable operation.

(b) This clause S5.2.5.7 does not apply to an *asynchronous generating unit*.

Automatic access standard

(c) The *automatic access standard* is a *generating unit* must be capable of *continuous uninterrupted operation* during and following a *power system load* reduction of 30% from its predisturbance level or equivalent impact from separation of part of the *power system* in less than 10 seconds, provided that the *loading level* remains above minimum load.

Minimum access standard

(d) The *minimum access standard* is a *generating unit* must be capable of *continuous uninterrupted operation* during and following a *power system load* reduction of 5% or equivalent impact from separation of part of the *power system* in less than 10 seconds provided that the *loading level* remains above minimum load.

Negotiated access standard

(e) If in accordance with clause 5.3.4A the *Generator* and the *Network Service Provider* determine a *negotiated access standard* is to apply, the *Network Service Provider* must consult *AEMO* to ensure that the *negotiated access standard* does not materially adversely affect *power system security*.

(f) *AEMO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.7.

General requirements

(g) The actual partial load rejection performance must be recorded in the *access standards*.

S5.2.5.8 Protection of generating systems from power system disturbances

Minimum access standard

(a) The *minimum access standard* is:

(1) subject to subparagraph (2) and paragraph (e), for a *generating system* or any of its *generating units* that is required by a *Generator* or *Network Service Provider* to be automatically *disconnected* from the *power system* in response to abnormal conditions arising from the *power system*, the relevant *protection system* or *control system* must not *disconnect* the *generating system* for:

(i) conditions for which it must remain in *continuous uninterrupted operation*; or

(ii) conditions it must withstand under the *Rules*; and

(2) a *generating system* with a *nameplate rating* of 30MW or more, or *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more, *connected* to a *transmission system* must have *facilities* to automatically and rapidly reduce its *generation*:

(i) by at least half, if the *frequency* at the *connection point* exceeds a level nominated by *AEMO* (not less than the upper limit of the *operational frequency tolerance band*) and the duration above this *frequency* exceeds a value nominated by *AEMO* where the reduction may be achieved:

(A) by reducing the output of the *generating system* within 3 seconds, and holding the output at the reduced level until the *frequency* returns to within the *normal operating frequency band*; or

(B) by disconnecting the *generating system* from the *power system* within 1 second; or

(ii) in proportion to the difference between the *frequency* at the *connection point* and a level nominated by *AEMO* (not less than the upper limit of the *operational frequency tolerance band*), such that the *generation* is reduced by at least half, within 3 seconds of the *frequency* reaching the upper limit of the *extreme frequency excursion tolerance limits*.

Negotiated access standard

(b) *AEMO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.8.

General requirements

(c) *AEMO* or the *Network Service Provider* may require that an *access standard* include a requirement for the *generating system* to be automatically *disconnected* by a local or remote control scheme whenever the part of the

network to which it is *connected* has been *disconnected* from the *national grid*, forming an island that *supplies* a *Customer*.

(d) The *access standard* must include specification of conditions for which the *generating unit* or *generating system* must trip and must not trip.

(e) Notwithstanding clauses S5.2.5.3, S5.2.5.4, S5.2.5.5, S5.2.5.6 and S5.2.5.7, a *generating system* may be automatically *disconnected* from the *power system* under any of the following conditions:

(1) in accordance with an *ancillary services agreement* between the *Generator* and *AEMO*;

(2) where a *load* that is not part of the *generating system* has the same *connection point* as the *generating system* and *AEMO* and the *Network Service Provider* agree that the *disconnection* would in effect be under-frequency *load shedding*;

(3) where the *generating system* is automatically *disconnected* under paragraph (a) or clause S5.2.5.9;

(4) where the *generating system* is automatically *disconnected* under clause S5.2.5.10 due to a failure of the *generating plant*; or

(5) in accordance with an agreement between the *Generator* and a *Network Service Provider* (including an agreement in relation to an emergency control scheme under clause S5.1.8) to provide a service that *AEMO* agrees is necessary to maintain or restore *power system security* in the event of a specified *contingency event*.

(f) The *Network Service Provider* is not liable for any loss or damage incurred by the *Generator* or any other person as a consequence of a fault on either the *power system*, or within the *Generator*'s *facility*.

S5.2.5.9 Protection systems that impact on power system security

Automatic access standard

(a) The *automatic access standard* is:

(1) subject to clauses S5.1.9(k) and S5.1.9(l), primary *protection systems* must be provided to *disconnect* from the *power system* any faulted element in a *generating system* and in protection zones that include the *connection point* within the applicable *fault clearance time* determined under clause S5.1.9(a)(1);

(2) each primary *protection system* must have sufficient redundancy to ensure that a faulted element within its protection zone is *disconnected*

from the *power system* within the applicable *fault clearance time* with any single protection element (including any communications *facility* upon which that *protection system* depends) out of service; and

(3) *breaker fail protection systems* must be provided to clear faults that are not cleared by the circuit breakers controlled by the primary *protection system* within the applicable *fault clearance time* determined under clause S5.1.9(a)(1).

(b) In relation to an *automatic access standard* under this clause S5.2.5.9, the *Generator* must provide redundancy in the primary *protection systems* under paragraph (a)(2) and provide *breaker fail protection systems* under paragraph (a)(3) if *AEMO* or the *Network Service Provider* consider that a lack of these *facilities* could result in:

(1) a material adverse impact on *power system security* or quality of *supply* to other *Network Users*; or

(2) a reduction in *inter-regional* or *intra-regional power transfer capability*,

through any mechanism including:

(3) consequential tripping of, or damage to, other *network* equipment or *facilities* of other *Network Users*, that would have a *power system security* impact; or

(4) instability that would not be detected by other *protection systems* in the *network*.

Minimum access standard

(c) The *minimum access standard* is:

(1) subject to clauses S5.1.9(k) and S5.1.9(l), *protection systems* must be provided to *disconnect* from the *power system* any faulted element within a *generating system* and in protection zones that include the *connection point* within the applicable *fault clearance time* determined under clause S5.1.9(a)(2); and

(2) if a *fault clearance time* determined under clause S5.1.9(a)(2) for a protection zone is less than 10 seconds, a *breaker fail protection system* must be provided to clear from the *power system* any fault within that protection zone that is not cleared by the circuit breakers controlled by the primary *protection system* within the applicable *fault clearance time* determined under clause S5.1.9(a)(3).

Negotiated access standard

(d) *AEMO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.9.

General requirements

(e) The *Network Service Provider* and the *Generator* must cooperate in the design and implementation of *protection systems* to comply with this clause S5.2.5.9, including cooperation on:

(1) the use of *current transformer* and *voltage transformer* secondary circuits (or equivalent) of one party by the *protection system* of the other;

(2) tripping of one party's circuit breakers by a *protection system* of the other party; and

(3) co-ordination of *protection system* settings to ensure inter-operation.

(f) The *protection system* design referred to in paragraphs (a) and (c) must:

(1) be coordinated with other *protection systems*;

(2) avoid consequential *disconnection* of other *Network Users' facilities*; and

(3) take into account existing obligations of the *Network Service Provider* under *connection agreements* with other *Network Users*.

S5.2.5.10 Protection to trip plant for unstable operation

Automatic access standard

(a) The *automatic access standard* is:

(1) a *synchronous generating unit* must have a *protection system* to *disconnect* it promptly when a condition that would lead to pole slipping is detected in order to prevent pole slipping or other conditions where a *generating unit* causes *active power*, *reactive power* or *voltage* at the *connection point* to become unstable as assessed in accordance with the *power system* stability guidelines established under clause 4.3.4(h); and

(2) an *asynchronous generating unit* must have a *protection system* to *disconnect* it promptly for conditions where the *active power*, *reactive power* or *voltage* at the *connection point* becomes unstable as assessed in accordance with the guidelines for *power system* stability established under clause 4.3.4(h).

Minimum access standard

(b) The *minimum access standard* is a *generating unit* must not cause a *voltage* disturbance at the *connection point* due to sustained unstable behaviour of more than the maximum level specified in Table 7 of *Australian Standard* AS/NZS 61000.3.7:2001.

Negotiated access standard

(c) If the *Network Service Provider* and the *Generator* agree, a *protection system* may also trip any other part of the *generating system* in order to cease the instability.

(d) Notwithstanding paragraph (c), a *protection system* must be provided in the *access standard* to trip the affected *generating unit* where:

(1) the *Network Service Provider* considers it necessary to prevent consequential tripping of, or damage to, other *generating units*, *network* equipment or other *Network Users' facilities*, or

(2) *AEMO* considers it necessary to prevent unstable operation having an adverse impact on *power system security*.

(e) *AEMO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.10

S5.2.5.11 Frequency control

(a) For the purpose of this clause S5.2.5.11:

maximum operating level means in relation to:

(1) a *non-scheduled generating unit*, the maximum *sent out generation* consistent with its *nameplate rating*;

(2) a *scheduled generating unit* or *semi-scheduled generating unit*, the maximum *sent out generation* (but not emergency *generation)* consistent with its *registered bid and offer data*~~consistent with its *registered bid and offer data*~~;

(3) a *non-scheduled generating system*, the combined maximum *sent out generation* consistent with the *nameplate ratings* of its in-service *generating units*; and

(4) a *scheduled generating system* or *semi-scheduled generating system*, the combined maximum *sent out generation* (but not emergency *generation*) of its in-service *generating units*~~, consistent with its *registered bid and offer data*~~.

minimum operating level means in relation to:

(1) a *non-scheduled generating unit*, its minimum *sent out generation* for continuous stable operation;

(2) a *scheduled generating unit* or *semi-scheduled generating unit*, its minimum *sent out generation* for continuous stable operation consistent with its *registered bid and offer data*;

(3) a *non-scheduled generating system*, the combined *minimum operating level* of its in-service *generating units*; and

(4) a *scheduled generating system* or *semi-scheduled generating system*, the combined minimum *sent out generation* of its in-service *generating units*, consistent with its *registered bid and offer data*.

pre-disturbance level means in relation to a *generating unit* and a *frequency* disturbance, the *generating unit's* level of output just before the *system frequency* first exceeds the upper or lower limit of the *normal operating frequency band* during the *frequency* disturbance.

system frequency means the *frequency* of the *transmission system* or *distribution system* to which the *generating unit* or *generating system* is *connected*.

Automatic access standard

(b) The *automatic access standard* is:

(1) a *generating system's active power* transfer to the *power system* must not:

(i) increase in response to a rise in system frequency; or

(ii) decrease in response to a fall in system frequency;

(2) a *generating system* must be capable of automatically reducing its *active power* transfer to the *power system*:

(i) whenever the system frequency exceeds the upper limit of the *normal operating frequency band*;

(ii) by an amount that equals or exceeds the least of:

(A) 20% of its maximum operating level times the *frequency* difference between system frequency and the upper limit of the *normal operating frequency band*;

(B) 10% of its maximum operating level; and

(C) the difference between the *generating unit's* pre-disturbance level and minimum operating level, but zero if the difference is negative; and

(iii) sufficiently rapidly for the *Generator* to be in a position to offer measurable amounts of lower services to the *spot market* for *market ancillary services*; and

(3) a *generating system* must be capable of automatically increasing its *active power* transfer to the *power system*:

(i) whenever the system frequency falls below the lower limit of the *normal operating frequency band*;

(ii) by the amount that equals or exceeds the least of:

(A) 20% of its maximum operating level times the percentage *frequency* difference between the lower limit of the *normal operating frequency band* and system frequency;

(B) 5% of its maximum operating level; and

(C) one third of the difference between the *generating unit's* maximum operating level and pre-disturbance level, but zero if the difference is negative; and

(iii) sufficiently rapidly for the *Generator* to be in a position to offer measurable amounts of raise services to the *spot market* for *market ancillary services*.

Minimum access standard

(c) The *minimum access standard* is a *generating system* under relatively stable input energy, *active power* transfer to the *power system* must not:

(1) increase in response to a rise in system frequency; and

(2) decrease more than 2% per Hz in response to a fall in system frequency.

Negotiated access standard

(d) A *Generator* proposing a *negotiated access standard* in respect of paragraph (c)(2) must demonstrate to *AEMO* that the proposed increase and decrease in *active power* transfer to the *power system* are as close as practicable to the *automatic access standard* for that *plant*.

(e) The *negotiated access standard* must record the agreed values for maximum operating level and minimum operating level, and where relevant the

method of determining the values and the values for a *generating system* must take into account its in-service *generating units*.

(f) *AEMO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.11.

General requirements

(g) Each *control system* used to satisfy this clause S5.2.5.11 must be *adequately damped*.

(h) The amount of a relevant *market ancillary service* for which the *plant* may be registered must not exceed the amount that would be consistent with the *performance standard* registered in respect of this requirement.

S5.2.5.12 Impact on network capability

Automatic access standard

(a) The *automatic access standard* is a *generating system* must have *plant* capabilities and *control systems* that are sufficient so that when *connected* it does not reduce any *inter-regional* or *intra-regional power transfer capability* below the level that would apply if the *generating system* were not *connected*.

Minimum access standard

(b) The *minimum access standard* is a *generating system* must have *plant* capabilities, *control systems* and operational arrangements sufficient to ensure there is no reduction in:

(1) the ability to *supply Customer load* as a result of a reduction in *power transfer capability*; and

(2) *power transfer capabilities* into a region by more than the combined *sent out generation* of its *generating units*.

Negotiated access standard

(c) In carrying out assessments of proposed *negotiated access standards* under this clause S5.2.5.12, the *Network Service Provider* and *AEMO* must take into account:

(1) the expected performance of:

(i) existing *networks* and *considered projects*;

(ii) existing *generating plant* and other relevant projects; and

(iii) *control systems* and *protection systems*, including *automatic reclose equipment*; and

(2) the expected range of *power system* operating conditions.

(d) The *negotiated access standard* must include:

(1) *control systems* to minimise any reduction in *power transfer capabilities*; and

(2) operational arrangements, including curtailment of the *generating system's* output if necessary to ensure that the *generating plant* is operated in a way that meets at least the *minimum access standard* under abnormal *network* and *generating system* conditions, so that *power system security* can be maintained.

(e) A *negotiated access standard* under this clause S5.2.5.12 must detail the *plant* capabilities, *control systems* and operational arrangements that will be maintained by the *Generator*, notwithstanding that change to the *power system*, but not changes to the *generating system*, may reduce the efficacy of the *plant* capabilities, *control systems* and operational arrangements over time.

(f) *AEMO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.12.

General requirement

(g) If a *Network Service Provider* considers that *power transfer capabilities* of its *network* would be increased through provision of additional *control system facilities* to a *generating system* (such as a *power system* stabiliser), the *Network Service Provider* and the *Generator* may negotiate for the provision of such additional *control system facilities* as a commercial arrangement.

S5.2.5.13 Voltage and reactive power control

(a) For the purpose of this clause S5.2.5.13:

rise time means in relation to a step response test or simulation of a *control system*, the time taken for an output quantity to rise from 10% to 90% of the maximum change induced in that quantity by a step change of an input quantity.

settling time means in relation to a step response test or simulation of a *control system*, the time measured from initiation of a step change in an input quantity to the time when the magnitude of error between the output quantity and its final settling value remains less than 10% of:

(1) if the sustained change in the quantity is less than half of the maximum change in that output quantity, the maximum change induced in that output quantity; or

(2) the sustained change induced in that output quantity.

static excitation system means in relation to a *synchronous generating unit*, an *excitation control system* that does not use rotating machinery to produce the field current.

Automatic access standard

(b) The *automatic access standard* is:

(1) a *generating system* must have *plant* capabilities and *control systems* sufficient to ensure that:

(i) *power system* oscillations, for the frequencies of oscillation of the *generating unit* against any other *generating unit*, are *adequately damped*;

(ii) operation of the *generating system* does not degrade the damping of any critical mode of oscillation of the *power system*; and

(iii) operation of the *generating system* does not cause instability (including hunting of *tap-changing transformer control systems*) that would adversely impact other *Registered Participants*;

(2) a *control system* must have:

(i) for the purposes of disturbance monitoring and testing, permanently installed and operational, monitoring and recording *facilities* for key variables including each input and output; and

(ii) *facilities* for testing the *control system* sufficient to establish its dynamic operational characteristics;

(3) a *synchronous generating system* must have an *excitation control system* that:

(i) regulates *voltage* at the *connection point* or another agreed location in the *power system* (including within the *generating system*) to within 0.5% of the setpoint;

(ii) is able to operate the stator continuously at 105% of *nominal voltage* with *rated active power* output;

(iii) regulates *voltage* in a manner that helps to support *network voltages* during faults and does not prevent the *Network Service Provider* from achieving the requirements of clause S5.1a.3 and S5.1a.4;

(iv) allows the *voltage* setpoint to be continuously controllable in the range of at least 95% to 105% of *normal voltage* at the *connection point* or the agreed location, without reliance on a *tap-changing transformer*;

(v) has limiting devices to ensure that a *voltage* disturbance does not cause the *generating unit* to trip at the limits of its operating capability;

(vi) has an excitation ceiling *voltage* of at least:

(A) for a static excitation system, 2.3 times; or

(B) for other *excitation control systems*, 1.5 times,

the excitation required to achieve *generation* at the *nameplate rating* for rated *power factor*, rated speed and *nominal voltage*;

(vii) has *settling times* for a step change of *voltage* setpoint or *voltage* at the location agreed under subparagraph (i) of:

(A) generated *voltage* less than 2.5 seconds for a 5% *voltage* disturbance with the *generating unit* not *synchronised*;

(B) *active power*, *reactive power* and *voltage* less than 5.0 seconds for a 5% *voltage* disturbance with the *generating unit synchronised*, from an operating point where the *voltage* disturbance would not cause any limiting device to operate; and

(C) in respect of each limiting device, *active power*, *reactive power* and *voltage* less than 7.5 seconds for a 5% *voltage* disturbance with the *generating unit synchronised*, when operating into a limiting device from an operating point where a *voltage* disturbance of 2.5% would just cause the limiting device to operate;

(viii) is able to increase field *voltage* from rated field *voltage* to the excitation ceiling *voltage* in less than:

(A) 0.05 second for a static excitation system; or

(B) 0.5 second for other *excitation control systems*;

(ix) has a *power system* stabiliser with sufficient flexibility to enable damping performance to be maximised, with characteristics as described in paragraph (c); and

(x) has reactive current compensation settable for boost or droop; and

(4) a *generating system*, other than one comprised of *synchronous generating units*, must have a *voltage control system* that:

(i) regulates *voltage* at the *connection point* or an agreed location in the *power system* (including within the *generating system*) to within 0.5% of its setpoint;

(ii) regulates *voltage* in a manner that helps to support *network voltages* during faults and does not prevent the *Network Service Provider* from achieving the requirements of clauses S5.1a.3 and S5.1a.4;

(iii) allows the *voltage* setpoint to be continuously controllable in the range of at least 95% to 105% of *normal voltage* at the *connection point* or agreed location in the *power system*, without reliance on a *tap changing transformer*;

(iv) has limiting devices to ensure that a *voltage* disturbance does not cause the *generating unit* to trip at the limits of its operating capability;

(v) with the *generating system connected* to the *power system*, has *settling times* for *active power*, *reactive power* and *voltage* due to a step change of *voltage* setpoint or *voltage* at the location agreed under clause subparagraph (i), of less than:

(A) 5.0 seconds for a 5% *voltage* disturbance with the *generating system connected* to the *power system*, from an operating point where the *voltage* disturbance would not cause any limiting device to operate; and

(B) 7.5 seconds for a 5% *voltage* disturbance with the *generating system connected* to the *power system*, when operating into any limiting device from an operating point where a *voltage* disturbance of 2.5% would just cause the limiting device to operate;

(vi) has *reactive power* rise time, for a 5% step change in the *voltage* setpoint, of less than 2 seconds;

(vii) has a *power system* stabiliser with sufficient flexibility to enable damping performance to be maximised, with characteristics as described in paragraph (c); and

(viii) has reactive current compensation.

(c) A *power system* stabiliser provided under paragraph (b) must have:

(1) for a *synchronous generating unit*, measurements of rotor speed and *active power* output of the *generating unit* as inputs, and otherwise, measurements of *power system frequency* and *active power* output of the *generating unit* as inputs;

(2) two washout filters for each input, with ability to bypass one of them if necessary;

(3) sufficient (and not less than two) lead-lag transfer function blocks (or equivalent number of complex poles and zeros) with adjustable gain and time-constants, to compensate fully for the phase lags due to the *generating plant*;

(4) an output limiter, which for a *synchronous generating unit* is continually adjustable over the range of –10% to +10% of stator *voltage*;

(5) monitoring and recording *facilities* for key variables including inputs, output and the inputs to the lead-lag transfer function blocks; and

(6) *facilities* to permit testing of the *power system* stabiliser in isolation from the *power system* by injection of test signals, sufficient to establish the transfer function of the *power system* stabiliser.

Minimum access standard

(d) The *minimum access standard* is:

(1) a *generating system* must have *plant* capabilities and *control systems*, including, if appropriate, a *power system* stabiliser, sufficient to ensure that:

(i) *power system* oscillations, for the frequencies of oscillation of the *generating unit* against any other *generating unit*, are *adequately damped*;

(ii) operation of the *generating unit* does not degrade:

(A) any mode of oscillation that is within 0.3 nepers per second of being unstable, by more than 0.01 nepers per second; and

(B) any other mode of oscillation to within 0.29 nepers per second of being unstable; and

(iii) operation of the *generating unit* does not cause instability (including hunting of *tap-changing transformer control systems*) that would adversely impact other *Registered Participants*;

(2) a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more must have *facilities* for testing its *control systems* sufficient to establish their dynamic operational characteristics;

(3) a *generating unit* or *generating system* must have *facilities*:

(i) where the *connection point nominal voltage* is 100 kV or more, to regulate *voltage* in a manner that does not prevent the *Network Service Provider* from achieving the requirements of clauses S5.1a.3 and S5.1a.4; or

(ii) where the *connection point nominal voltage* is less than 100 kV, to regulate *voltage* or *reactive power* or *power factor* in a manner that does not prevent the *Network Service Provider* from achieving the requirements of clauses S5.1a.3 and S5.1a.4,

and sufficient to achieve the performance agreed in respect of clauses S5.2.5.1, S5.2.5.2, S5.2.5.3, S5.2.5.4, S5.2.5.5, S5.2.5.6 and S5.2.5.12;

(4) a *synchronous generating unit*, that is part of a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more, must have an *excitation control system* that:

(i) regulates *voltage*, *power factor* or *reactive power* as agreed with the *Network Service Provider* and *AEMO*;

(ii) has excitation ceiling *voltage* of at least 1.5 times the excitation required to achieve *generation* at the *nameplate rating* for rated *power factor*, rated speed and *nominal voltage*;

(iii) subject to co-ordination under paragraph (i), has a *settling time* of less than 5.0 seconds for a 5% *voltage* disturbance with the *generating unit* synchronised, from an operating point where such a *voltage* disturbance would not cause any limiting device to operate; and

(iv) has over and under excitation limiting devices sufficient to ensure that a *voltage* disturbance does not cause the *generating unit* to trip at the limits of its operating capability; and

(5) a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more and which are *asynchronous generating units*, must have a *control system* that:

(i) regulates *voltage*, *power factor* or *reactive power* as agreed with the *Network Service Provider* and *AEMO*;

(ii) subject to co-ordination under subparagraph (i), has a settling time less than 7.5 seconds for a 5% *voltage* disturbance with the *generating unit* electrically connected to the *power system* from an operating point where such a *voltage* disturbance would not cause any limiting device to operate; and

(iii) has limiting devices to ensure that a *voltage* disturbance would not cause the *generating unit* to trip at the limits of its operating capability.

Negotiated access standard

(e) If a *generating system* cannot meet the *automatic access standard*, the *Generator* must demonstrate to the *Network Service Provider* why that standard could not be reasonably achieved and propose a *negotiated access standard*.

(f) The *negotiated access standard* proposed by the *Generator* under paragraph (e) must be the highest level that the *generating system* can reasonably achieve, including by installation of additional dynamic *reactive power* equipment, and through optimising its *control systems*.

(g) *AEMO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.13.

General requirements

(h) A limiting device provided under paragraphs (b) and (c) must:

(1) not detract from the performance of any *power system* stabiliser; and

(2) be co-ordinated with all *protection systems*.

(i) The *Network Service Provider* may require that the design and operation of the *control systems* of a *generating unit* or *generating system* be coordinated with the existing *voltage control systems* of the *Network Service Provider* and of other *Network Users*, in order to avoid or manage interactions that would adversely impact on the *Network Service Provider* and other *Network Users*.

(j) Any requirements imposed by the *Network Service Provider* under paragraph (i) must be recorded in the *access standard*.

(k) The assessment of impact of the *generating units* on *power system* stability and damping of *power system* oscillations shall be in accordance with the guidelines for *power system* stability established under clause 4.3.4(h).

S5.2.5.14 Active power control

(a) The *automatic access standard* is a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more must have an *active power control system* capable of:

(1) for a *scheduled generating unit* or a *scheduled generating system*:

(i) maintaining and changing its *active power* output in accordance with its *dispatch instructions*; and

(ii) ramping its *active power* output linearly from one level of *dispatch* to another;

(2) subject to energy source availability, for a *non-scheduled generating unit* or *non-scheduled generating system*:

(i) automatically reducing or increasing its *active power* output within 5 minutes, at a constant rate, to or below the level specified in an instruction electronically issued by a *control centre*, subject to subparagraph (iii);

(ii) automatically limiting its *active power* output, to below the level specified in subparagraph (i); and

(iii) not changing its *active power* output within 5 minutes by more than the raise and lower amounts specified in an instruction electronically issued by a *control centre*; and

(3) subject to energy source availability, for a *semi-scheduled generating unit* or a *semi-scheduled generating system*:

(i) automatically reducing or increasing its *active power* output within 5 minutes at a constant rate, to or below the level specified in an instruction electronically issued by a *control centre*;

(ii) automatically limiting its *active power* output, to or below the level specified in subparagraph (i);

(iii) not changing its *active power* output within 5 minutes by more than the raise and lower amounts specified in an instruction electronically issued by a *control centre*; and

(iv) ramping its *active power* output linearly from one level of *dispatch* to another.

Minimum access standard

(b) The *minimum access standard* is a *generating system* comprised of *generating unit*s with a combined *nameplate rating* of 30 MW or more must have an *active power control system* capable of:

(1) for a *scheduled generating unit* or a *scheduled generating system*, maintaining and changing its *active power* output in accordance with its *dispatch instructions*;

(2) for a *non-scheduled generating system*:

(i) reducing its *active power* output, within 5 minutes, to or below the level required to manage *network* flows that is specified in a verbal instruction issued by the *control centre*;

(ii) limiting its *active power* output, to or below the level specified in subparagraph (i);

(iii) subject to energy source availability, ensuring that the change of *active power* output in a 5 minute period does not exceed a value specified in a verbal instruction issued by the *control centre*; and

(iv) being upgraded to receive electronic instructions from the *control centre* and fully implement them within 5 minutes; and

(3) for a *semi-scheduled generating unit* or a *semi-scheduled generating system*, maintaining and changing its *active power* output in accordance with its *dispatch instructions*.

Negotiated access standard

(c) A *negotiated access standard* may provide that if the number or frequency of verbal instructions becomes difficult for a *control centre* to manage, *AEMO* may require the *Generator* to upgrade its *facilities* to receive electronic instructions and fully implement them within 5 minutes.

(d) The *negotiated access standard* must document to *AEMO's* satisfaction any operational arrangements necessary to manage *network* flows that may include a requirement for the *generating system* to be operated in a manner that prevents its output changing within 5 minutes by more than an amount specified by a *control centre*.

(e) *AEMO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.14.

General requirements

(f) Each *control system* used to satisfy the requirements of paragraphs (a) and (b) must be *adequately damped*.

S5.2.6 Monitoring and control requirements

S5.2.6.1 Remote Monitoring

Automatic access standard

(a) The *automatic access standard* is a:

(1) *scheduled generating unit;*

(2) *scheduled generating system*;

(3) *non-scheduled generating unit* with a *nameplate rating* of 30 MW or more;

(4) *non-scheduled generating system* with a combined *nameplate rating* of 30 MW or more;

(5) *semi-scheduled generating unit*; or

(6) *semi-scheduled generating system*,

must have *remote monitoring equipment* to transmit to *AEMO's control centres* in real time in accordance with rule 4.11 the quantities that *AEMO* reasonably requires to discharge its *market* and *power system security* functions set out in Chapters 3 and 4.

(b) The quantities referred to under paragraph (a) that *AEMO* may request include:

(1) in respect of a *generating unit* with a *nameplate rating* of 30 MW or more:

(i) current, *voltage*, *active power* and *reactive power* in respect of *generating unit* stators or power conversion systems (as applicable);

(ii) the status of all switching devices that carry the *generation*; and

(iii) *tap-changing transformer* tap position;

(2) in respect of a *generating system* that includes a *generating unit* with a *nameplate rating* of less than 30 MW:

(i) its connected status, *tap-changing transformer* tap position and *voltages*;

(ii) *active power* and *reactive power* aggregated for groups of identical *generating units*;

(iii) either the number of identical *generating units* operating or the operating status of each non-identical *generating unit*; and

(iv) *active power* and *reactive power* for the *generating system;*

(3) in respect of an auxiliary supply system with a capacity of 30 MW or more associated with a *generating unit* or *generating system*, *active power* and *reactive power*;

(4) in respect of *reactive power* equipment that is part of a *generating system* but not part of a particular *generating unit*, its *reactive power*;

(5) in respect of a wind farm type of *generating system*:

(i) wind speed;

(ii) wind direction;

(iii) ambient temperature; and

(6) any other quantity that *AEMO* reasonably requires to discharge its *market* and *power system security* functions as set out in Chapters 3 and 4.

Minimum access standard

(c) The *minimum access standard* is a:

(1) *scheduled generating unit*;

(2) *scheduled generating system*;

(3) *non-scheduled generating system* with a combined *nameplate rating* of 30 MW or more;

(4) *semi-scheduled generating unit*; or

(5) *semi-scheduled generating system*,

must have *remote monitoring equipment* to transmit to *AEMO's control centres* in real time:

(6) the *active power* output of the *generating unit* or *generating system* (as applicable);

(7) if *connected* to a *transmission system*, the *reactive power* output of the *generating unit* or *generating system* (as applicable); and

(8) if a wind farm type of *generating system*:

(i) number of units operating;

(ii) wind speed; and

(iii) wind direction,

in accordance with rule 4.11.

Negotiated access standard

(d) *AEMO* may advise on matters relating to *negotiated access standards* under this clause S5.2.6.1.

S5.2.6.2 Communications equipment

Automatic access standard

(a) The *automatic access standard* is a *Generator* must:

(1) provide and maintain two separate telephone *facilities* using independent telecommunications service providers, for the purposes of operational communications between the *Generator's* responsible operator under clause 4.11.3(a) and *AEMO's control centre*; and

(2) provide electricity supplies for *remote monitoring equipment* and *remote control equipment* installed in relation to its *generating system* capable of keeping such equipment available for at least 3 hours following total loss of *supply* at the *connection point* for the relevant *generating unit*.

Minimum access standard

(b) The *minimum access standard* is a *Generator* must:

(1) provide and maintain a telephone facility for the purposes of operational communications between the *Generator's* responsible operator under clause 4.11.3(a) and *AEMO's control centre*; and

(2) provide electricity supplies for *remote monitoring equipment* and *remote control equipment* installed in relation to its *generating system* capable of keeping such equipment available for at least 1 hour following total loss of *supply* at the *connection point* for the relevant *generating unit*.

Negotiated access standard

(c) A *negotiated access standard* must include, where the *Network Service Provider* or *AEMO* reasonably require, a back-up telephone facility be independent of commercial telephone service providers, and the *Network Service Provider* must provide and maintain the separate facility on a cost-recovery basis only through the charge for *connection*.

(d) A *negotiated access standard* must include that a *Generator* must provide communications paths (with appropriate redundancy) from the *remote monitoring equipment* or *remote control equipment* installed for each of its g*enerating systems* as appropriate, to a communications interface in a location reasonably acceptable to the *Network Service Provider* at the relevant *generation* facility.

(e) Communications systems between the communications interface under paragraph (d) and the *control centre* must be the responsibility of the *Network Service Provider* unless otherwise agreed by the *Generator* and the *Network Service Provider*.

(f) A *negotiated access standard* must include that the *Generator* provide accommodation and secure power supplies for communications *facilities* provided by the *Network Service Provider* under this clause S5.2.6.2.

(g) *AEMO* may advise on matters relating to *negotiated access standards* under this clause S5.2.6.2.

S5.2.7 Power station auxiliary supplies

In cases where a *generating system* takes its auxiliary supplies via a *connection point* through which its *generation* is not transferred to the *network*, the *access standards* must be established under clause S5.3.5 as if the *Generator* were a *Market Customer*.

S5.2.8 Fault current

Automatic access standard

(a) The *automatic access standard* is:

(1) the contribution of the *generating system* to the fault current on the *connecting network* through its *connection point* must not exceed the contribution level that will ensure that the total fault current can be safely interrupted by the circuit breakers of the *connecting network* and safely carried by the *connecting network* for the duration of the applicable *breaker fail protection system fault clearance times*, as specified for the relevant *connection point* by the *Network Service Provider*;

(2) a *generating system's connected plant* must be capable of withstanding fault current through the *connection point* up to the higher of:

(i) the level specified in clause S5.2.4(e1)(1) ; and

(ii) the highest level of current at the *connection point* that can be safely interrupted by the circuit breakers of the *connecting network* and safely carried by the *connecting network* for the duration of the applicable *breaker fail protection system fault clearance times*, as specified by the *Network Service Provider*; and

(3) a circuit breaker provided to isolate a *generating unit* or *generating system* from the *network* must be capable of breaking, without damage or restrike, the maximum fault currents that could reasonably be expected to flow through the circuit breaker for any fault in the *network* or in the *generating unit* or *generating system*, as specified in the *connection agreement*.

Minimum access standard

(b) The *minimum access standard* is:

(1) the *generating system* does not need to limit fault current contribution;

(2) a *generating system's connected plant* must be capable of withstanding fault current through the *connection point* up to the level specified in clause S5.2.4(e1)(1) ; and

(3) a circuit breaker provided to isolate a *generating unit* or *generating system* from the *network* must be capable of breaking, without damage or restrike, the maximum fault currents that could reasonably be expected to flow through the circuit breaker for any fault in the *network* or in the *generating unit* or *generating system*, as specified in the *connection agreement*.

Negotiated access standard

(c) In negotiating a *negotiated access standard*, the *Network Service Provider* must consider alternative *network* configurations in the determination of the applicable fault current level and must prefer those options that maintain an equivalent level of service to other *Network Users* and which, in the opinion of the *Generator*, impose the least obligation on the *Generator*.

(d) In carrying out assessments of proposed *negotiated access standards* under this clause S5.2.8, the *Network Service Provider* must take into account, without limitation:

(1) the expected performance of existing *networks* and *considered projects*;

(2) the expected performance of existing *generating plant* and other relevant projects; and

(3) the expected range of *power system* operating conditions.

Schedule 5.3 - Conditions for Connection of Customers

S5.3.1a Introduction to the schedule

(a) This schedule applies to the following classes of *Network User*:

(1) a *First-Tier Customer* in respect of its *first-tier load*;

(2) a *Second-Tier Customer* in respect of its *second-tier load*;

(3) a *Market Customer* in respect of its *market load*;

(4) a *Non-Registered Customer* in respect of *supply* it takes from a *network*; and

(5) a *Distribution Network Service Provider* in respect of its *distribution network.*

(b) For the purposes of this schedule 5.3 the term "*Network Service Provider"* must be interpreted to mean the *Network Service Provider* with whom the *Connection Applicant* has sought, or is seeking, a *connection* in accordance with clause 5.3.2 of the *Rules*.

(c) All *Network Users* must comply with the requirements for the establishment of *performance standards* in accordance with provisions contained in schedule 5.1a for *system standards* or schedule 5.1 for *Network Service Providers* and this schedule 5.3 for *Customers*.

(d) If the *Connection Applicant* is a *Registered Participant* in relation to the proposed *connection*, the *Network Service Provider* may include as terms and conditions of the *connection agreement* any provision of this schedule that is expressed as an obligation on a *Network User*. If the *Connection Applicant* is not a *Registered Participant* in relation to the proposed *connection*, the *Network Service Provider* must include as terms and conditions of the *connection agreement*:

(1) each provision of this schedule that is expressed as an obligation on a *Network User*; and

(2) each agreed *performance standard* and an obligation to comply with it.

(e) The purpose of this schedule is to:

(1) describe the information that must be exchanged for the *connection* enquiry and *application to connect* processes described in rule 5.3 of the *Rules*;

(2) establish the *automatic access standards* and *minimum access standards* that will apply to the process of negotiating access standards under clause 5.3.4A of the *Rules*; and

(3) establish obligations to apply prudent design standards for the *plant* to be *connected.*

S5.3.1 Information

(a) Before a *Network User connects* any new or additional equipment to a *network*, the *Network User* must submit the following kinds of information to the *Network Service Provider*:

(1) a single line diagram with the protection details;

(2) *metering system* design details for any metering equipment being provided by the *Network User*;

(3) a general arrangement locating all the equipment on the site;

(4) a general arrangement for each new or altered *substation* showing all exits and the position of all electrical equipment;

(5) type test certificates for all new switchgear and *transformers*, including measurement *transformers* to be used for *metering* purposes in accordance with Chapter 7 of the *Rules*;

(6) earthing details;

(7) the proposed methods of earthing cables and other equipment to comply with the regulations of the relevant *participating jurisdiction*;

(8) *plant* and earth grid test certificates from approved test authorities;

(9) a secondary injection and trip test certificate on all circuit breakers;

(10) certification that all new equipment has been inspected before being *connected* to the *supply*; and

(11) operational arrangements.

(b) For the purposes of clause 5.3.2(f) of the *Rules*, the technical information that a *Network Service Provider* must, if requested, provide to a *Connection Applicant* in respect of the proposed *connection* includes:

(1) the highest expected single phase and three phase fault levels at the *connection point* without the proposed *connection*;

(2) the clearing times of the existing *protection systems* that would clear a fault at the location at which the new *connection* would be connected into the existing *transmission system* or *distribution system*;

(3) the expected limits of *voltage* fluctuation, harmonic *voltage* distortion and *voltage* unbalance at the *connection point* without the proposed *connection*;

(4) technical information relevant to the *connection point* without the proposed *connection* including equivalent source impedance information, sufficient to estimate fault levels, *voltage* fluctuations, harmonic *voltage* distortion and *voltage* unbalance; and

(5) any other information or data not being *confidential information* relating to the performance of the *Network Service Provider's facilities* that is reasonably necessary for the *Connection Applicant* to prepare an *application to connect*;

except where the *Connection Applicant* agrees the *Network Service Provider* may provide alternative or less detailed technical information in satisfaction of this clause S5.3.1.(b).

S5.3.2 Design standards

A *Network User* must ensure that:

(a) the electrical *plant* in its *facility* complies with the relevant *Australian Standards* as applicable at the time of first installation of that electrical *plant* in the *facility*;

(b) circuit breakers provided to isolate the *Network User's facilities* from the *Network Service Provider's facilities* are capable of breaking, without damage or restrike, fault currents nominated by the *Network Service Provider* in the relevant *connection agreement*; and

(c) new equipment including circuit breakers provided to isolate the *Network User's facilities* from the *Network Service Provider's facilities* is capable of withstanding, without damage, power *frequency voltage*s and impulse levels nominated by the *Network Service Provider* to apply at the *connection point* in accordance with the relevant provisions of the *system standards* and recorded in the relevant *connection agreement*.

S5.3.3 Protection systems and settings

A *Network User* must ensure that all *connections* to the *network* are protected by protection devices which effectively and safely *disconnect* any faulty circuit automatically within a time period specified by the *Network Service Provider* in accordance with the following provisions:

(a) The *automatic access standard* is:

(1) Primary *protection systems* must be provided to *disconnect* any faulted element from the *power system* within the applicable *fault clearance time* determined under clause S5.1.9(a)(1), but subject to clauses S5.1.9(k) and S5.1.9(l).

(2) Each primary *protection system* must have sufficient redundancy to ensure that a faulted element within its protection zone is *disconnected* from the *power system* within the applicable *fault clearance time* with any single protection element (including any communications facility upon which that *protection system* depends) out of service.

(3) *Breaker fail protection systems* must be provided to clear faults that are not cleared by the circuit breakers controlled by the primary *protection system*, within the applicable *fault clearance time* determined under clause S5.1.9(a)(1).

(b) The *minimum access standard* is:

(1) Primary *protection systems* must be provided to *disconnect* from the *power system* any faulted element within their respective protection zones within the applicable *fault clearance time* determined under clause S5.1.9(a)(2), but subject to clauses S5.1.9(k) and S5.1.9(l).

(2) If a *fault clearance time* determined under clause S5.1.9(a)(2) for a protection zone is less than 10 seconds, a *breaker fail protection system* must be provided to clear from the *power system* any fault within that protection zone that is not cleared by the circuit breakers controlled by the primary *protection system*, within the applicable *fault clearance time* determined under clause S5.1.9(a)(3).

(c) The *Network Service Provider* and the *Network User* must cooperate in the design and implementation of *protection systems* to comply with this clause, including cooperation with regard to:

(1) the use of *current transformer* and *voltage transformer* secondary circuits (or equivalent) of one party by the *protection system* of the other;

(2) tripping of one party's circuit breakers by a *protection system* of the other party; and

(3) co-ordination of *protection system* settings to ensure inter-operation.

Before the *Network User's* installation is *connected* to the *Network Service Provider's transmission or distribution system* the *Network User's protection system* must be tested and the *Network User* must submit the appropriate test certificate to the *Network Service Provider*.

The application of settings of the protection scheme must be undertaken in accordance with clause S5.3.4.

S5.3.4 Settings of protection and control systems

A *Network User* must only apply settings to a *control system* or a *protection system* that are necessary to comply with performance requirements of this schedule 5.3 if the settings have been approved in writing by the *Network Service Provider* and, if the requirement is one that would involve *AEMO* under clause 5.3.4A(c) of the *Rules*, also by *AEMO*. A *Network User* must not allow its *plant* to take *supply* of electricity from the *power system* without such prior approval.

If a *Network User* seeks approval from the *Network Service Provider* to apply or change a setting, approval must not be withheld unless the *Network Service Provider* or, if the requirement is one that would involve *AEMO* under clause 5.3.4A(c) of the *Rules*, *AEMO*, reasonably determines that the changed setting would cause the *plant* to not comply with the relevant *performance standard* or cause an *inter-regional* or *intra-regional power transfer capability* to be reduced.

If the *Network Service Provider* or, if the requirement is one that would involve *AEMO* under clause 5.3.4A(c) of the *Rules*, *AEMO*, reasonably determines that a setting of a *control system* or *protection system* of the *plant* needs to change to comply with the relevant *performance standard* or to maintain or restore an *inter-regional* or *intra-regional power transfer capability*, the *Network Service Provider* or *AEMO* (as applicable) must consult with the *Network User*, and the *Network Service Provider* may request in writing that a setting be applied in accordance with the determination.

The *Network Service Provider* may also request a test to verify the performance of the relevant *plant* with the new setting.

A *Network User* who receives such a request must arrange for the notified setting to be applied as requested and for a test to be conducted as requested. After the test, the *Network User* must, on request, provide both *AEMO* and the *Network Service Provider* with a report of a requested test, including evidence of its success or failure. Such a report of a test is *confidential information*.

A *Network User* must not change a setting requested by the *Network Service Provider* without its prior written agreement. If the *Network Service Provider* requires a *Network User* to change a setting within 18 months of a previous request, the *Network Service Provider* must pay the *Network User* its reasonable costs of changing the setting and conducting the tests as requested.

S5.3.5 Power factor requirements

Automatic access standard: For *loads* equal to or greater than 30 percent of the *maximum demand* at the *connection point* the *power factor*s for *Network Users* and for *distribution networks connected* to another *transmission network* or *distribution network* are shown in Table S5.3.1:

Table S5.3.1

Permissible Range	
Supply Voltage (nominal)	**Power Factor Range**
> 400 kV	0.98 lagging to unity
250 kV - 400 kV	0.96 lagging to unity
50 kV - 250 kV	0.95 lagging to unity
1 kV < 50 kV	0.90 lagging to 0.90 leading

For *load* less than 30 percent of the *maximum demand* at the *connection point* a *Network Service Provider* may accept a *power factor* outside the range stipulated in Table S5.3.1 provided this does not cause the *system standards* to be violated.

Minimum access standard: A *Network Service Provider* may permit a lower lagging or leading *power factor* where the *Network Service Provider* is advised by *AEMO* that this will not detrimentally affect *power system security* or reduce *intra-regional* or *inter-regional power transfer capability.*

General:

If the *power factor* falls outside the relevant *performance standard* over any critical *loading* period nominated by the *Network Service Provider*, the *Network User* must, where required by the *Network Service Provider* in order to maintain satisfactory *voltage* levels at the *connection point* or to restore *intra-regional* or *inter-regional power transfer capability*, take action to ensure that the *power factor* falls within range as soon as reasonably practicable. This may be achieved by installing additional *reactive plant* or reaching a commercial agreement with the *Network Service Provider* to install, operate and maintain equivalent *reactive plant* as part of the *connection assets* or by alternative commercial arrangements with another party.

A *Registered Participant* who installs *shunt capacitors* to comply with *power factor* requirements must comply with the *Network Service Provider's* reasonable requirements to ensure that the design does not severely attenuate audio *frequency* signals used for *load* control or operations, or adversely impact on harmonic *voltage* levels at the *connection point.*

S5.3.6 Balancing of load currents

A *Network Service Provider* may require a *connected Registered Participant's load* to be balanced across all phases in order to maintain the negative sequence *voltage* at each *connection point* at less than or equal to the limits set out in Table S5.1a.1 of the *system standards* for the applicable nominal *supply voltage* level.

Automatic access standard: A *Network User* must ensure that:

(a) for *connections* at 30 kV or higher *voltage*, the current in any phase is not greater than 102 percent or less than 98 percent of the average of the currents in the three phases; and

(b) for *connections* at *voltages* less than 30 kV, that the current in any phase is not greater than 105 percent or less than 95 percent of the average of the currents in the three phases.

Minimum access standard: Where agreed with the relevant *Network Service Provider* and subject to any specific conditions imposed, a *Network User* may cause current unbalance greater than that specified in the *automatic access standard* provided the *Network User* does not cause the limits specified in clause S5.1a.7 to be exceeded at any point in the *network*.

General:

The limit to *load* current unbalance must be included in the *connection agreement* and is subject to verification of compliance by the *Network Service Provider*.

Where these requirements cannot be met the *Registered Participant* may enter into a commercial arrangement with the *Network Service Provider* for the installation of equipment to correct the phase unbalance. Such equipment must be considered as part of the *connection assets* for the *Registered Participant*.

The limit to *load* current unbalance must be included in the *connection agreement* and is subject to verification of compliance by the *Network Service Provider*.

S5.3.7 Voltage fluctuations

(a) *Automatic access standard*: The *voltage* fluctuations caused by variations in *loading level* at the *connection point*, including those arising from *energisation*, de-energisation or other operation of *plant*, must not exceed the limits determined under clause S5.1.5(a).

(b) *Minimum access standard*: The *voltage* fluctuations caused by variations in *loading level* at the *connection point*, including those arising from *energisation*, de-energisation or other operation of *plant*, must not exceed the limits determined under clause S5.1.5(b).

The *voltage* fluctuation emission limits and any specified conditions must be included in the *connection agreement*, and are subject to verification of compliance by the *Network Service Provider*.

S5.3.8 Harmonics and voltage notching

(a) *Automatic access standard*: The harmonic *voltage* distortion caused by non-linearity, commutation of power electronic equipment, harmonic resonance and other effects within the *plant*, must not exceed the limits determined under clause S5.1.6(a).

(b) *Minimum access standard*: The harmonic *voltage* distortion caused by non-linearity, commutation of power electronic equipment, harmonic resonance and other effects within the *plant*, must not exceed the limits determined under clause S5.1.6(b).

The harmonic *voltage* distortion emission limits and any special conditions must be included in the *connection agreement*, and is subject to verification of compliance by the *Network Service Provider*.

S5.3.9 Design requirements for Network Users' substations

A *Network User* must comply with the following requirements applicable to the design, station layout and choice of equipment for a *substation*:

(a) safety provisions must comply with requirements applicable to the *participating jurisdiction* notified by the *Network Service Provider*;

(b) where required by the *Network Service Provider*, appropriate interfaces and accommodation must be incorporated for communication *facilities*, remote monitoring and control and protection of *plant* which is to be installed in the *substation*;

(c) a *substation* must be capable of continuous uninterrupted operation with the levels of *voltage*, harmonics, unbalance and *voltage* fluctuation specified in the *system standards* as modified in accordance with the relevant provisions of schedule 5.1;

(d) earthing of primary *plant* in the *substation* must be in accordance with the Electricity Supply Association of Australia Safe Earthing Guide and must reduce step and touch potentials to safe levels;

(e) *synchronisation facilities* or reclose blocking must be provided if a *generating unit* is *connected* through the *substation*;

(f) secure electricity supplies of adequate capacity must be provided for *plant* performing communication, monitoring, control and protection functions;

(g) *plant* must be tested to ensure that the *substation* complies with the approved design and specifications as included in a *connection agreement*;

(h) the protection equipment required would normally include protection schemes for individual items of *plant*, back-up arrangements, auxiliary DC supplies and instrumentation *transformers*; and

(i) insulation levels of *plant* in the *substation* must co-ordinate with the insulation levels of the *network* to which the *substation* is *connected* as nominated in the *connection agreement*.

S5.3.10 Load shedding facilities

Network Users who are *Market Customers* and who have expected peak demands in excess of 10MW must provide automatic *interruptible load* in accordance with clause 4.3.5 of the *Rules*.

Load shedding procedures may be applied by *AEMO* in accordance with the provisions of clause 4.3.2 of the *Rules* for the shedding of all *loads* including *sensitive loads*.

Schedule 5.3a - Conditions for connection of Market Network Services

S5.3a.1a Introduction to the schedule

This schedule sets out obligations of *Market Network Service Providers* who *connect* to either a *transmission network* or a *distribution network*. It represents the requirements to be met for access to a *network*. Particular provisions may be varied by the *Network Service Provider* under the provisions of the *Rules* for the application of *minimum access standards* and *automatic access standards.*

This schedule includes specific provisions for the determination of *automatic access standards* and *negotiated access standards* derived from *minimum access standards* which, once determined, must be recorded together with the *automatic access standards* in a *connection agreement* and registered with *AEMO* as *performance standards.*

In this schedule, the term "*Network Service Provider*" applies only to the *Network Service Provider* with whom the *Market Network Service Provider* has lodged, or is considering lodging, an *application to connect*.

(a) The schedule includes, in respect of each *market network service*, provisions regarding the capability to:

(1) automatically control the transfer of real power at the *connection point* for any given set of *system* conditions within the limits permitted under the *Rules*;

(2) respond to control requirements under expected normal and abnormal conditions;

(3) comply with general requirements to meet quality of *supply* obligations in accordance with clauses S5.3a.9, S5.3a.10 and S5.3a.11 and to maintain security of *supply* to other *Registered Participants*; and

(4) automatically *disconnect* itself when necessary to prevent any damage to the *market network service facilities* or threat to *power system security*.

(b) This schedule also sets out the requirements and conditions, which (subject to clause 5.2.3 of the *Rules*) are obligations of *Market Network Service Providers* to:

(1) co-operate with the relevant *Network Service Provider* on technical matters when making a new *connection*;

(2) provide information to the *Network Service Provider* or *AEMO;* and

(3) observe and apply the relevant provisions of the *system standards* contained in schedule 5.1a in relation to the planning, design and operation of its *market network service facilities*.

(c) This schedule does not set out arrangements by which a *Market Network Service Provider* may enter into an agreement or contract with *AEMO* to:

(1) provide additional services that are necessary to maintain *power system security*; or

(2) provide additional service to facilitate management of the *market*.

S5.3a.1 Provision of Information

(a) Before a *Market Network Service Provider connects* any new or additional equipment to a *network*, the *Market Network Service Provider* must submit the following kinds of information to the *Network Service Provider*:

(1) a single line diagram with the protection details;

(2) *metering system* design details for any metering equipment being provided by the *Market Network Service Provider*;

(3) a general arrangement locating all relevant equipment on the site;

(4) a general arrangement for each new or altered *substation* showing all exits and the position of all electrical equipment;

(5) type test certificates for all new switchgear and *transformers*, including measurement *transformers* to be used for *metering* purposes in accordance with Chapter 7 of the *Rules*;

(6) earthing details;

(7) the proposed methods of earthing cables and other equipment to comply with the regulations of the relevant *participating jurisdiction*;

(8) *plant* and earth grid test certificates from approved test authorities;

(9) a secondary injection and trip test certificate on all circuit breakers;

(10) certification that all new equipment has been inspected before being *connected* to the *supply*; and

(11) operational arrangements.

(b) For the purposes of clause 5.3.2(f) of the *Rules*, the technical information that a *Network Service Provider* must, if requested, provide to a *Connection*

Applicant in respect of the proposed *connection* of a *market network service facility* includes:

(1) the highest expected single phase and three phase fault levels at the *connection point* without the proposed *connection*;

(2) the clearing times of the existing *protection systems* that would clear a fault at the location at which the new *connection* would be connected into the existing *transmission system* or *distribution system*;

(3) the expected limits of *voltage* fluctuation, harmonic *voltage* distortion and *voltage* unbalance at the *connection point* without the proposed *connection*;

(4) technical information relevant to the *connection point* without the proposed *connection* including equivalent source impedance information, sufficient to estimate fault levels, *voltage* fluctuations, harmonic *voltage* distortion and *voltage* unbalance; and

(5) any other information or data not being *confidential information* relating to the performance of the *Network Service Provider's facilities* that is reasonably necessary for the *Connection Applicant* to prepare an *application to connect*;

except where the *Connection Applicant* agrees the *Network Service Provider* may provide alternative or less detailed technical information in satisfaction of this clause S5.3a.1(b).

S5.3a.2 Application of settings

A *Market Network Service Provider* must only apply settings to a *control system* or a *protection system* that are necessary to comply with performance requirements of this schedule 5.3a if the settings have been approved in writing by the *Network Service Provider* and, if the requirement is one that would involve *AEMO* under clause 5.3.4A(c) of the *Rules*, also by *AEMO*. A *Market Network Service Provider* must not allow its *market network service facilities* to take electricity from the *power system* without such prior approval.

If a *Market Network Service Provider* seeks approval from the *Network Service Provider* to apply or change a setting, approval must not be withheld unless the *Network Service Provider* or, if the requirement is one that would involve *AEMO* under clause 5.3.4A(c) of the *Rules*, *AEMO*, reasonably determines that the changed setting would cause the *market network service facilities* to not comply with the relevant *performance standard* or cause an *inter-regional* or *intra-regional power transfer capability* to be reduced.

If the *Network Service Provider* or, if the requirement is one that would involve *AEMO* under clause 5.3.4A(c) of the *Rules*, *AEMO*, reasonably determines that a

setting of a *market network service facility's control system* or *protection system* needs to change to comply with the relevant *performance standard* or to maintain or restore an *inter-regional* or *intra-regional power transfer capability*, the *Network Service Provider* or *AEMO* (as applicable) must consult with the *Market Network Service Provider*, and may request in writing that a setting be applied in accordance with the determination.

The *Network Service Provider* may also request a test to verify the performance of the relevant *plant* with the new setting. The *Network Service Provider* must provide *AEMO* with a copy of its request to a *Market Network Service Provider* to apply a setting or to conduct a test.

A *Market Network Service Provider* who receives such a request must arrange for the notified setting to be applied as requested and for a test to be conducted as requested. After the test, the *Market Network Service Provider* must, on request, provide both *AEMO* and the *Network Service Provider* with a report of a requested test, including evidence of its success or failure. Such a report of a test is *confidential information*.

A *Market Network Service Provider* must not change a setting requested by the *Network Service Provider* without its prior written agreement. If the *Network Service Provider* requires a *Market Network Service Provider* to change a setting within 18 months of a previous request, the *Network Service Provider* must pay the *Market Network Service Provider* its reasonable costs of changing the setting and conducting the tests as requested.

S5.3a.3 Technical matters to be co-ordinated

A *Market Network Service Provider* and the relevant *Network Service Provider* must use all reasonable endeavours to agree upon the following matters in respect of each new or altered *connection* of a *market network service facility* to a *network*:

(a) design at the *connection point*;

(b) physical layout adjacent to the *connection point*;

(c) primary protection and backup protection (clause S5.3a.6);

(d) control characteristics (clause S5.3a.4);

(e) communications and alarms (clause S5.3a.4);

(f) insulation co-ordination and lightning protection;

(g) fault levels and *fault clearance times*;

(h) switching and *isolation facilities*;

(i) interlocking arrangements; and

(j) *metering installations* as described in Chapter 7 of the *Rules*.

S5.3a.4 Monitoring and control requirements

S5.3a.4.1 Remote Monitoring

(a) *Automatic access standard*:

(1) Each *market network service facility* must have *remote monitoring equipment* to transmit to *AEMO's control centres* in real time, the quantities that *AEMO* reasonably requires to discharge its *market* and *power system security* functions as set out in Chapters 3 and 4 of the *Rules* respectively.

(2) The quantities may include such data as current, *voltage*, *active power*, *reactive power*, operational limits and critical temperatures in respect of *connection points* and power conversion systems.

(b) *Minimum access standard*:

(1) Each *market network service facility* must have *remote monitoring equipment* to transmit to *AEMO's control centres* in real time:

(A) *connection point active power* flow, *reactive power* flow and *voltage*;

(B) *active power*, *reactive power* and *voltage* for AC power lines, *transformers* and *busbars*, and power and *voltage* (or alternatively current) for DC power lines; and

(C) the status of circuit breakers.

(c) The negotiation of access standards in relation to this clause S5.3a.4.1 must involve *AEMO* under clause 5.3.4A(c) of the *Rules*.

S5.3a.4.2 [Deleted]

S5.3a.4.3 Communications equipment

A *Market Network Service Provider* must provide electricity *supplies* for *remote monitoring equipment* and *remote control equipment* installed in relation to its *market network service facilities* capable of keeping such equipment available for at least three hours following total loss of *supply* at the *connection point* for the relevant *market network service facility*.

A *Market Network Service Provider* must provide communications paths (with appropriate redundancy) from the *remote monitoring equipment* or *remote control equipment* installed at any of its *market network service facilities* to a communications interface in a location reasonably acceptable to the *Network Service Provider* at the relevant *connection point*. Communications systems between this communications interface and the *control centre* are the responsibility of the *Network Service Provider* unless otherwise agreed by the *Market Network Service Provider* and the *Network Service Provider*.

Telecommunications between *Network Service Providers* and *Market Network Service Providers* for *operational communications* must be established in accordance with the requirements set down below.

(a) Primary Speech Facility

The relevant *Network Service Provider* must provide and maintain equipment by means of which routine and emergency control telephone calls may be established between the *Market Network Service Provider's* responsible Engineer/Operator and *AEMO*.

The *facilities* to be provided, including the interface requirement between the *Network Service Provider's* equipment and the *Market Network Service Provider's* equipment, must be specified by the *Network Service Provider*.

The costs of the equipment must be recovered by the *Network Service Provider* only through the charge for *connection.*

(b) Back-up Speech Facility

Where the *Network Service Provider* or *AEMO* reasonably determines that a back-up speech *facility* to the primary *facility* is required, the *Network Service Provider* must provide and maintain a separate telephone link or radio installation on a cost-recovery basis only through the charge for *connection.*

The *Network Service Provider* is responsible for radio system planning and for obtaining all necessary radio licences.

S5.3a.5 Design standards

A *Market Network Service Provider* must ensure that:

(a) the electrical *plant* in its *facility* complies with the relevant *Australian Standards* as applicable at the time of first installation of that electrical *plant* in the *facility*;

(b) circuit breakers provided to isolate the *Market Network Service Provider's facilities* from the *Network Service Provider's facilities* are capable of breaking, without damage or restrike, fault currents nominated by the *Network Service Provider* in the relevant *connection agreement*; and

(c) all new equipment including circuit breakers provided to isolate the *Market Network Service Provider's facilities* from the *Network Service Provider's facilities* is capable of withstanding, without damage, power *frequency voltages* and impulse levels nominated by the *Network Service Provider* in accordance with the relevant provisions of the *system standards* and recorded in the relevant *connection agreement*.

S5.3a.6 Protection systems and settings

A *Market Network Service Provider* must ensure that all *connections* to the *network* are protected by protection devices which effectively and safely *disconnect* any faulty circuit automatically within a time period specified by the *Network Service Provider* in accordance with the following provisions:

(a) The *automatic access standard* is:

(1) Primary *protection systems* must be provided to *disconnect* any faulted element from the *power system* within the applicable *fault clearance time* determined under clause S5.1.9(a)(1), but subject to clauses S5.1.9(k) and S5.1.9(l).

(2) Each primary *protection system* must have sufficient redundancy to ensure that a faulted element within its protection zone is *disconnected* from the *power system* within the applicable *fault clearance time* with any single protection element (including any communications facility upon which that *protection system* depends) out of service.

(3) *Breaker fail protection systems* must be provided to clear faults that are not cleared by the circuit breakers controlled by the primary *protection system*, within the applicable *fault clearance time* determined under clause S5.1.9(a)(1).

(b) The *minimum access standard* is:

(1) Primary *protection systems* must be provided to *disconnect* from the *power system* any faulted element within their respective protection zones within the applicable *fault clearance time* determined under clause S5.1.9(a)(2), but subject to clauses S5.1.9(k) and S5.1.9(l).

(2) If a *fault clearance time* determined under clause S5.1.9(a)(2) for a protection zone is less than 10 seconds, a *breaker fail protection system* must be provided to clear from the *power system* any fault within that protection zone that is not cleared by the circuit breakers

controlled by the primary *protection system*, within the applicable *fault clearance time* determined under clause S5.1.9(a)(3).

(c) The *Network Service Provider* and the *Market Network Service Provider* must cooperate in the design and implementation of *protection systems* to comply with this clause, including cooperation with regard to:

(1) the use of *current transformer* and *voltage transformer* secondary circuits (or equivalent) of one party by the *protection system* of the other;

(2) tripping of one party's circuit breakers by a *protection system* of the other party; and

(3) co-ordination of *protection system* settings to ensure inter-operation.

The *Market Network Service Provider* must ensure that the protection settings of its protective equipment grade with the *Network Service Provider's transmission system* or *distribution system* protection settings. Similarly the grading requirements of fuses must be co-ordinated with the *Network Service Provider*. The *Market Network Service Provider* must provide details of the protection scheme implemented by the *Market Network Service Provider* to the *Network Service Provider* and must liaise with the *Network Service Provider* when determining gradings and settings.

The application of settings of the protection scheme must be undertaken in accordance with clause S5.3a.2.

Before the *Market Network Service Provider's* installation is *connected* to the *Network Service Provider's transmission or distribution system* the *Market Network Service Provider's protection system* must be tested and the *Market Network Service Provider* must submit the appropriate test certificate to the *Network Service Provider*.

S5.3a.7 [Deleted]

S5.3a.8 Reactive power capability

Subject to the access standards stated in this clause S5.3a.8, if additional *reactive support* is required as a result of the *connection* or operation of the *network elements* which provide a *market network service* then the requisite *reactive support* must be supplied or paid for by the *Market Network Service Provider*.

Additional reactive support is required if, at rated power output as measured at the *connection point* of the *market network service* the *market network service* has a lagging power factor of less than 0.9 or a leading power factor of less than 0.95.

Automatic access standard: For power export, at rated power output and target *network voltage* as determined in accordance with clause S5.1a.4 of the *system standards* when measured at the *connection point* of the *market network service*, the *market network service* must be capable of operation in the range from a lagging power factor of 0.9 to a leading power factor of 0.95. For power import, the power factor must satisfy the requirements of clause S5.3.5 of schedule 5.3.

Minimum access standard: With the agreement of *AEMO* and the *Network Service Provider*, a power factor capability less than that defined by the *automatic access standard* may be provided if the requirements of the *system standards* are satisfied under all operating conditions of the *market network service*.

S5.3a.9 Balancing of load currents

A *Network Service Provider* may require a *Market Network Service Provider's power transfer* to be balanced at a *connection point* in order to maintain the negative sequence *voltage* at each connection point at less than or equal to the limits set out in Table S5.1a.1 of the *system standards* for the applicable nominal *supply voltage* level.

Automatic access standard: A *Market Network Service Provider* must ensure that for *connections* at 11kV or higher *voltage*, the current in any phase drawn by its equipment from the *Network Service Provider's network* is not greater than 102 percent or less than 98 percent of the average of the currents in the three phases.

Minimum access standard: Where agreed with the relevant *Network Service Provider* and subject to any specific conditions imposed, a *Market Network Service Provider* may cause current unbalance greater than that specified in the *automatic access standard* provided the *Market Network Service Provider* does not cause the limits specified in clause S5.1a.7 of the *system standards* to be exceeded at any point in the *network*.

Where these requirements cannot be met the *Market Network Service Provider* may enter into a commercial arrangement with the *Network Service Provider* for the installation of equipment to correct the phase unbalance. Such equipment must be considered as part of the *connection assets* for the *Market Network Service Provider*.

The limit to *power transfer* current unbalance must be included in the *connection agreement* and is subject to verification of compliance by the *Network Service Provider*.

S5.3a.10 Voltage fluctuations

(a) *Automatic access standard*: The *voltage* fluctuations caused by variations in *loading level* at the *connection point*, including those arising from

energisation, de-energisation or other operation of *plant*, must not exceed the limits determined under clause S5.1.5(a).

(b) *Minimum access standard*: The *voltage* fluctuations caused by variations in *loading level* at the *connection point*, including those arising from *energisation*, de-energisation or other operation of *plant*, must not exceed the limits determined under clause S5.1.5(b).

The *voltage* fluctuation emission limits and any specified conditions must be included in the *connection agreement*, and are subject to verification of compliance by the *Network Service Provider*.

S5.3a.11 Harmonics and voltage notching

(a) *Automatic access standard*: The harmonic *voltage* distortion caused by non-linearity, commutation of power electronic equipment, harmonic resonance and other effects within the *plant*, must not exceed the limits determined under clause S5.1.6(a).

(b) *Minimum access standard*: The harmonic *voltage* distortion caused by non-linearity, commutation of power electronic equipment, harmonic resonance and other effects within the *plant*, must not exceed the limits determined under clause S5.1.6(b).

A *Market Network Service Provider* must ensure that all of its *plant connected* to a *transmission network* or *distribution network* is capable of withstanding the effects of harmonic levels produced by that *plant* plus those imposed from the *network*.

The harmonic *voltage* distortion emission limits and any special conditions must be included in the *connection agreement*, and are subject to verification of compliance by the *Network Service Provider*.

S5.3a.12 Design requirements for Market Network Service Providers' substations

A *Market Network Service Provider* must comply with the following requirements applicable to the design, station layout and choice of equipment for a *substation*:

(a) safety provisions must comply with requirements applicable to the *participating jurisdiction* notified by the *Network Service Provider*;

(b) where required by the *Network Service Provider*, appropriate interfaces and accommodation must be incorporated for communication *facilities*, remote monitoring and control and protection of *plant* which is to be installed in the *substation*;

(c) a *substation* must be capable of continuous uninterrupted operation with the levels of *voltage*, harmonics, unbalance and *voltage* fluctuation specified in the *system standards* as modified in accordance with the relevant provisions of schedule 5.1;

(d) earthing of primary *plant* in the *substation* must be in accordance with the Electricity Supply Association of Australia Safe Earthing Guide and must reduce step and touch potentials to safe levels;

(e) *synchronisation facilities* or reclose blocking must be provided if necessary;

(f) secure electricity supplies of adequate capacity must be provided for *plant* performing communication, monitoring, control and protection functions;

(g) *plant* must be tested to ensure that the *substation* complies with the approved design and specifications as included in a *connection agreement*;

(h) the protection equipment required would normally include protection schemes for individual items of *plant*, back-up arrangements, auxiliary DC supplies and instrumentation *transformers*; and

(i) insulation levels of *plant* in the *substation* must co-ordinate with the insulation levels of the *network* to which the *substation* is *connected* as nominated in the *connection agreement*.

S5.3a.13 Market network service response to disturbances in the power system

(a) Each *market network service* must be capable of continuous uninterrupted operation during the occurrence of:

(1) *power system frequency* within the *frequency operating standards*; or

(2) the range of *voltage* variation conditions permitted by the *system standards*.

(b) The equipment associated with each *market network service* must be designed to withstand without damage or reduction in life expectancy the harmonic distortion and *voltage* unbalance conditions determined to apply in accordance with the provisions of schedule 5.1, clauses S5.1.6 and S5.1.7, respectively, at the *connection point*.

S5.3a.14 Protection of market network services from power system disturbances

(a) *Minimum access standard*: If a *Connection Applicant* requires that its *market network service facility* be automatically *disconnected* from the *power system* in response to abnormal conditions arising from the *power*

system, the relevant *protection system* or *control system* must not *disconnect* the *facility* for conditions under which it must continuously operate or must withstand under a provision of the *Rules*.

(b) There is no *automatic access standard* for this technical requirement.

(c) For the purposes of this clause S5.3a.14, the abnormal conditions include:

(1) *frequency* outside the *extreme frequency excursion tolerance limits*;

(2) sustained and uncontrollable DC current beyond a short term current rating for the period assigned to that rating;

(3) DC *voltage* above the *voltage* maximum rating or sustained below any lower limit for stable operation;

(4) *voltage* to *frequency* ratio beyond *a transformer* magnetic flux based *voltage* to *frequency* rating;

(5) sustained *voltage* fluctuations at the *connection point* beyond the level determined under clause S5.1.5(a);

(6) sustained harmonic *voltage* distortion at the *connection point* beyond the level determined under clause S5.1.6(a);

(7) sustained negative phase sequence *voltage* at the *connection point* beyond the level determined under clause S5.1.7(a); and

(8) any similar condition agreed between the *Market Network Service Provider* and *AEMO* after consultation with each relevant *Network Service Provider*.

(d) The negotiation of access standards in relation to this clause S5.3a.14 must involve *AEMO* under clause 5.3.4A(c) of the *Rules*.

(e) The *Network Service Provider* is not liable for any loss or damage incurred by the *Market Network Service Provider* or any other person as a consequence of a fault on either the *power system*, or within the *Market Network Service Provider's facility*.

Schedule 5.4 - Information to be Provided with Preliminary Enquiry

The following items of information are required to be submitted with a preliminary enquiry for *connection* or modification of an existing *connection*:

(a) Type of *plant* - (eg. gas turbine *generating unit*; rolling mill, etc.).

(b) Preferred site location - (listing any alternatives in order of preference as well).

(c) Maximum power *generation* or demand of whole *plant* - (maximum MW and/or MVA, or average over 15 minutes or similar).

(d) Expected *energy* production or consumption (MWh per month).

(e) *Plant* type and configuration - (eg. number and type of *generating units* or number of separate production lines).

(f) Nature of any disturbing *load* (size of disturbing component MW/MVAr, duty cycle, nature of power electronic *plant* which may produce harmonic distortion).

(g) Technology of proposed *generating unit* (e.g. *synchronous generating unit*, induction generator, photovoltaic array, etc).

(h) When *plant* is to be in service - (eg. estimated date for each *generating unit*).

(i) Name and address of enquirer, and, if relevant, of the party for whom the enquirer is acting.

(j) Other information may be requested by the *Network Service Provider*, such as amount and timing of power required during construction or any auxiliary power requirements.

Schedule 5.5 - Technical Details to Support Application for Connection and Connection Agreement

S5.5.1 Introduction to the schedule

Various sections of the *Rules* require that *Registered Participants* submit technical data to the *Network Service Provider*. This schedule lists the range of data which may be required. The actual data required will be advised by the *Network Service Provider*, and will form part of the technical specification in the *connection agreement*. These data will also be made available to *AEMO* and to other *Network Service Provider*s by the *Network Service Provider* at the appropriate time.

S5.5.2 Categories of data

Data is coded in categories, according to the stage at which it is available in the build-up of data during the process of forming a *connection* or obtaining access to a *network*, with data acquired at each stage being carried forward, or enhanced in subsequent stages, eg. by testing.

Preliminary system planning data

Preliminary system planning data is required for submission with the *application to connect*, to allow the *Network Service Provider* to prepare an offer of terms and conditions for a *connection agreement* and to assess the requirement for, and effect of, *network augmentation* or *extension* options. Such data is normally limited to the items denoted as Standard Planning Data (S) in the *Generating System Model Guidelines*, *Generating System Design Data Sheet*, *Generating System Setting Data Sheet* and in schedules 5.5.3 to 5.5.5.

The *Network Service Provider* may, in cases where there is reasonable doubt as to the viability of a proposal, require the submission of other data before making an offer to *connect* or to amend a *connection agreement*.

Registered system planning data

Registered system planning data is the class of data which will be included in the *connection agreement* signed by both parties. It consists of the preliminary system planning data plus those items denoted in the attached schedules as Detailed Planning Data (D). The latter must be submitted by the *Registered Participant* in time for inclusion in the *connection agreement*.

Registered data

Registered Data consists of data validated and agreed between the *Network Service Provider* and the *Registered Participant*, such data being:

(a) prior to actual *connection* and provision of access, data derived from manufacturers' data, detailed design calculations, works or site tests etc. (R1); and

(b) after connection, data derived from on-system testing (R2).

All of the data will, from this stage, be categorised and referred to as Registered Data; but for convenience the schedules omit placing a higher ranked code next to items which are expected to already be valid at an earlier stage.

S5.5.3 Review, change and supply of data

Data will be subject to review at reasonable intervals to ensure its continued accuracy and relevance. The *Network Service Provider* must initiate this review. A *Registered Participant* may *change* any data item at a time other than when that item would normally be reviewed or updated by submission to the *Network Service Provider* of the revised data, together with authentication documents, eg. test reports.

The *Network Service Provider* must supply data relating to its system to other *Network Service Provider*s for planning purposes and to other *Registered Participants* and *AEMO* as specified in the various sections of the *Rules*, including through the *statement of opportunities*.

S5.5.4 Data Requirements

Schedules 5.5.3 to 5.5.5 cover the following data areas:

(a) schedule 5.5.3 - Network Plant Technical Data. This comprises fixed electrical parameters.

(b) schedule 5.5.4 - Plant and Apparatus Setting Data. This comprises settings which can be varied by agreement or by direction of the *Network Service Provider* or *AEMO*.

(c) schedule 5.5.5 - *Load* Characteristics. This comprises the estimated design parameters of *loads*.

The documents and schedules applicable to each class of *Registered Participant* are as follows:

(a) *Generators*: the *Generating System Model Guidelines*, *Generating System Design Data Sheet* and *Generating System Setting Data Sheet*;

(b) *Customers* and *Network Service Providers*: schedules 5.5.3 and 5.5.4; and

(c) *Customers:* schedule 5.5.5.

S5.5.5 Asynchronous generating unit data

A *Generator* that *connects* a *generating system*, that is an *asynchronous generating unit*, must be given exemption from complying with those parts of the *Generating System Model Guidelines*, *Generating System Design Data Sheet* and *Generating System Setting Data Sheet* that are determined by the *Network Service Provider* to be not relevant to such *generating systems*, but must comply with those parts of schedules 5.5.3, 5.5.4, and 5.5.5 that are relevant to such *generating systems*, as determined by the *Network Service Provider*.

S5.5.6 Generating units equal to or smaller than 30MW data

A *Generator* that *connects* a *generating unit* equal to or smaller than 30 MW or a number of *generating units* totalling less than 30 MW to a *connection point* to a *distribution network* will usually be required to submit less registered system planning data and less registered data than is indicated in the *Generating System Model Guidelines*, *Generating System Design Data Sheet* and *Generating System Setting Data Sheet*. In general these data will be limited to confirmation of the preliminary system planning data, marked (S), but other data must be supplied if reasonably required by the *Network Service Provider* or *AEMO*.

Codes:

S = Standard Planning Data

D = Detailed Planning Data

R = Registered Data (R1 pre-*connection*, R2 post-*connection*)

S5.5.7 Generating System Design Data Sheet, Generating System Setting Data Sheet and Generating System Model Guidelines

(a) *NEMMCO* must, subject to paragraph (b), develop and *publish* by 1 March 2008, in accordance with the *Rules consultation procedures:*

(1) a *Generating System Design Data Sheet* describing, for relevant technologies, the *generating system* design parameters of *generating units* and *generating systems* including *plant* configurations, impedances, time constants, non-linearities, ratings and capabilities, to be provided under clauses S5.2.4 and this schedule 5.5;

(2) a *Generating System Setting Data Sheet* describing, for relevant *generation* and *control system* technologies, the *protection system* and *control system* settings of *generating units* and *generating systems* including configurations, gains, time constants, delays, deadbands, non-linearities and limits, to be provided under clauses S5.2.4 and this schedule 5.5; and

(3) *Generating System Model Guidelines* describing, for relevant *generation* and *control system* technologies, *NEMMCO's* requirements when developing mathematical models for *generating units* and *generating systems*, including the impact of their *control systems* and *protection systems* on *power system security*,

and there must be a *Generating System Design Data Sheet*, *Generating System Setting Data Sheet* and *Generating System Model Guidelines* in place at all times after that date.

(b) When developing and *publishing* the *Generating System Design Data Sheet*, *Generating System Setting Data Sheet* and *Generating System Model Guidelines* under paragraph (a), *NEMMCO* must have regard to the purpose of developing and *publishing* the sheets and guidelines which is to:

(1) allow *generating units* and *generating systems* to be mathematically modelled by *NEMMCO* in load flow and dynamic stability assessments with sufficient accuracy to permit:

(i) the *power system* operating limits for ensuring *power system security* to be quantified with the lowest practical safety margins;

(ii) proposed *access standards* and *performance standards* of *generating units* and *generating systems* to be assessed; and

(iii) settings of *control systems* and *protection systems* of *generating units*, *generating systems* and *networks* to be assessed and quantified for maximum practical performance of the *power system;* and

(2) identify for each type of data its category in terms of clause S5.5.2.

(c) Any person may submit a request (with written reasons) to *AEMO* to amend the *Generating System Design Data Sheet*, *Generating System Setting Data Sheet* or the *Generating System Model Guidelines* and *AEMO* must conduct the *Rules consultation procedures* in relation to the request.

(d) *AEMO* can make amendments requested under paragraph (c) or otherwise to the *Generating System Design Data Sheet*, *Generating System Setting Data Sheet* or the *Generating System Model Guidelines* without conducting the *Rules consultation procedures* if the amendment is minor or administrative in nature.

(e) *AEMO* may at the conclusion of the *Rules consultation procedures* under paragraph (c) or otherwise under paragraph (d), amend the relevant data sheet or guidelines (if necessary).

Schedule 5.5.1 - [Deleted]

Schedule 5.5.2 - [Deleted]

Schedule 5.5.3 - Network and plant technical data of equipment at or near connection point

Data Description	Units	Data Category
Voltage Rating		
Nominal v*oltage*	kV	S, D
Highest *voltage*	kV	D
Insulation Co-ordination		
Rated lightning impulse withstand *voltage*	kVp	D
Rated short duration power *frequency* withstand *voltage*	kV	D
Rated Currents		
Circuit maximum current	kA	S, D
Rated Short Time Withstand Current	kA for seconds	D
Ambient conditions under which above current applies	Text	S,D
Earthing		
System Earthing Method	Text	S, D
Earth grid rated current	kA for seconds	D
Insulation Pollution Performance		
Minimum total creepage	mm	D
Pollution level	Level of *IEC* 815	D
Controls		
Remote control and data transmission	Text	D

Data Description	Units	Data Category
arrangements		
Metering Provided by Customer		
Measurement *transformer* ratios:		D
Current transformers	A/A	D
Voltage transformers	V/kV	D
Measurement *Transformer* Test Certification details	Text	R1
Network Configuration		
Operation Diagrams showing the electrical circuits of the existing and proposed main *facilities* within the *Registered Participant's* ownership including *busbar* arrangements, phasing arrangements, earthing arrangements, switching *facilities* and operating *voltage*s.	Single line Diagrams	S, D, R1
Network Impedance		
For each item of *plant*: details of the positive, negative and zero sequence series and shunt impedance, including mutual coupling between physically adjacent elements.	% on 100 MVA base	S, D, R1
Short Circuit Infeed to the Network		
Maximum generator 3-phase short circuit infeed including infeeds from *generating units connected* to the *Registered Participant's system*, calculated by method of AS 3851 (1991).	kA symmetrical	S, D, R1
The total infeed at the instant of fault (including contribution of induction motors).	kA	D, R1
Minimum zero sequence impedance of *Registered Participant's network* at *connection point*.	% on 100 MVA base	D, R1
Minimum negative sequence impedance of *Registered Participant's network* at *connection point*.	% on 100 MVA base	D, R1

Data Description	Units	Data Category
Load Transfer Capability:		
Where a *load*, or group of *loads*, may be fed from alternative *connection points*:		
Load normally taken from *connection point* X	MW	D, R1
Load normally taken from *connection point* Y	MW	D, R1
Arrangements for transfer under planned or fault *outage* conditions	Text	D
Circuits Connecting Embedded Generating Units to the Network:		
For all g*enerating units*, all connecting lines/cables, *transformers* etc.		
Series Resistance	% on 100 MVA base	D, R
Series Reactance	% on 100 MVA base	D, R
Shunt Susceptance	% on 100 MVA base	D, R
Normal and short-time emergency ratings	MVA	D,R
Technical Details of *generating units* and *generating systems* as per the *Generating System Design Data Sheet*, *Generating System Setting Data Sheet* and the *Generating System Model Guidelines* where such details are not *confidential information*		
Transformers* at *connection points:		
Saturation curve	Diagram	R
Equipment associated with DC Links		
Number of poles	MVA	D,R
Converters per station	Quantity	D,R
Reactive Power consumption of converters	MCAr	D,R
Location and Rating of A.C. Filters	MVAr	D,R
Location and Rating of Shunt Capacitors	MVAr	D,R

Data Description	Units	Data Category
Location and Rating of Smoothing *Reactor*	MVAr	D,R
Location and Rating of DC Filter	MVAr	D,R

Schedule 5.5.4 - Network Plant and Apparatus Setting Data

Data Description	Units	Data Category
Protection Data for Protection relevant to Connection Point:		
Reach of all protections on *transmission lines*, or cables	ohms or % on 100 MVA base	S, D
Number of protections on each item	Text	S, D
Total fault clearing times for near and remote faults	ms	S, D, R1
Line reclosure sequence details	Text	S, D, R1
Tap Change Control Data:		
Time delay settings of all *transformer* tap changers.	Seconds	D, R1
Reactive Compensation:		
Location and Rating of individual *shunt reactors*	MVAr	D, R1
Location and Rating of individual *shunt capacitor* banks	MVAr	D, R1
Capacitor bank capacitance	microfarads	D
Inductance of switching *reactor* (if fitted)	millihenries	D
Resistance of capacitor plus *reactor*	Ohms	D
Details of special controls (e.g. Point-on-wave switching)	Text	D
For each shunt reactor or capacitor bank:		
Method of switching	Text	S
Details of automatic control logic such that	Text	D, R1

Data Description	Units	Data Category
operating characteristics can be determined		
FACTS Installation:		
Data sufficient to enable static and dynamic performance of the installation to be modelled	Text, diagrams control settings	S, D, R1
Transmission line flow control device	Text,	D
Details of the operation of the control device under normal operation conditions (including startup and shutdown of the line) and during a fault (close up and remote)	diagrams	
Models for the control device and transmission line appropriate for load flow, small signal stability and transient stability analysis	Text, diagrams	D
Capability of the line flow control device	KA, MVA, MW	D
Details of the rate of change of flow capability of the control device	Text	D
Details of the capability of the control device to provide frequency and voltage control	Text	D
Description of possible failure modes of control device	Text	D
Details of performance of the control device under disturbance conditions including changes in AC frequency, variations in AC system voltages and Ac system waveform distortion.	Text	D
For DC control devices, contribution to the AC system short circuit level	KA, MVA	D

Schedule 5.5.5 - Load Characteristics at Connection Point

Data Description	Units	Data Category
For all Types of Load		
Type of *Load*	Text	S

Data Description	Units	Data Category
eg controlled rectifiers or large motor drives		
For Fluctuating Loads		
Cyclic variation of *active power* over period	Graph MW/time	S
Cyclic variation of *reactive power* over period	Graph MVAr/time	S
Maximum rate of change of *active power*	MW/s	S
Maximum rate of change of *reactive power*	MVAr/s	S
Shortest Repetitive time interval between fluctuations in active and *reactive power* reviewed annually	s	S
Largest Step Change:		
In *active power*	MW	S
In *reactive power*	MVAr	S

Schedule 5.6 - Terms and Conditions of Connection agreements

The *connection agreements* must contain the specific conditions that have been agreed to for *connection* and access to the *transmission* or *distribution network*, including but not limited to:

(a) details of the *connection point* including the *distribution network coupling points* where appropriate;

(b) *metering* arrangements and adjustments for losses where the point of *metering* is significantly different to the *connection point*;

(c) authorised demand which may be taken or supplied at the *connection point* (under specified conditions);

(c1) details of each *access standard* agreed between the *Network Service Provider* and the *Registered Participant* and all related conditions of agreement resulting from the application of any access provisions contained in schedule 5.1 for *Network Service Providers*, or schedule 5.2 for *Generators*, or schedule 5.3 for *Customers*, or schedule 5.3a for *Market Network Service Providers*;

(d) *connection service* charges;

(e) payment conditions;

(f) duration and termination conditions of the *connection agreement*;

(g) terms, conditions and *constraints* that have been agreed to for *connection* to the *network* to protect the legitimate interest of the *Network Service Provider*s including rights to *disconnect* the *Registered Participant* for breach of commercial undertakings;

(h) details of any agreed standards of *reliability* of *transmission service* or *distribution service* at the *connection point*s or within the *network*;

(i) testing intervals for *protection systems* associated with the *connection point*;

(j) agreed protocols for maintenance co-ordination;

(k) where an expected *load*, to be connected to a *network*, has a *peak load* requirement in excess 10 MW, the provision, installation, operation and maintenance of automatic *load* shedding facilities for 60 percent of the *load* at anytime; and

(l) terms and conditions of access to the *metering installation* for the *Metering Provider*.

The *connection agreements* may include other technical, commercial and legal conditions governing works required for the *connection* or *extension* to the *network* which the parties have negotiated and agreed to. The circumstances under which the terms of the *connection agreement* would require renegotiation may also be included.

Schedule 5.7 - Annual Forecast Information for Planning Purposes

This schedule sets out the information in respect of each *connection point* that must be provided to the relevant *Network Service Provider* by each *Registered Participant* that has a *connection point* to a *transmission network* of that *Network Service Provider*.

Data Description	Units	Time Scale	Data Category
At each *connection point* to a *transmission network*, a forecast of:			
Annual Maximum *Active power* - Winter	MW	years 1-10	Annual
Coincident *Reactive Power* - Winter	MVAr	years 1-10	Annual
Annual Maximum *Active power* - Summer	MW	years 1-10	Annual
Coincident *Reactive Power* - Summer	MVAr	years 1-10	Annual
Forecast *load* diversity between each *connection point* to the *network* (winter and summer)	%	years 1-5	Annual
Load Profiles:			
The following forecast daily *profile*s of *connection point* half-hourly average active and reactive *loads* are required, net of all *generating plant*:			
Day of the peak summer and winter MW *peak load* at *connection point*	MW and MVAr	years 1-5	Annual
Day of *network* peak summer and winter MW *load* (as specified)	MW and MVAr	years 1-5	Annual

Data Description	**Units**	**Time Scale**	**Data Category**
Each July, October, January, April under average conditions representing:			
(a)weekdays	MW and MVAr	years 1-5	Annual
(b)Saturdays	MW and MVAr	years 1-5	Annual
(c)Sundays/holidays	MW and MVAr	years 1-5	Annual
Day of the *network* minimum demand (as specified)	MW and MVAr	years 1-5	Annual
Undispatched *generation*:			
For each *connection point* to the *network* the following information is required:			
No. of g*enerating unit*s	No.	years 1-5	Annual
Capacity of each *generating unit*	MW (*sent out*)	years 1-5	Annual
Daily/Seasonal Operating characteristics	Text	years 1-5	Annual
Expected output at time of peak *network* Winter *load* (as specified)	MW	years 1-5	Annual
Expected output at time of peak *network* Summer *load* (as specified)	MW	years 1-5	Annual

CHAPTER 10

10. GLOSSARY

AARR

The *aggregate annual revenue requirement* for *prescribed transmission services.*

abnormal conditions

A condition described in clause 4.2.3A(a).

above-standard system shared transmission service

A *shared transmission service* that exceeds the requirements referred to in paragraph (a)(1) or (2) of the definition of *negotiated transmission service* principally as a consequence of investments that have *system-wide benefits*.

ACCC

Australian Competition and Consumer Commission as established under the Trade Practices Act 1974 (Cth).

acceptable credit criteria

The credit criteria defined in clause 3.3.3.

acceptable credit rating

The credit rating determined by *AEMO* under clause 3.3.4.

accepted restriction offer

A *restriction offer* accepted by *AEMO* in accordance with the *restriction offer procedures.*

access charge

For a *Transmission Network Service Provider* - an amount described in clause 5.4A(g)-(j).

For a *Distribution Network Service Provider* - in respect of access to:

(a) *negotiated distribution services* which would have been *negotiated distribution services* regardless of the operation of clause 6.24.2(c), an amount described in clause 5.5(f)(4); and

(b) *negotiated distribution services* which would have been treated as *negotiated transmission services* were it not for the operation of clause 6.24.2(c), an amount described in clause 5.4A(g)-(j).

access standard

Either an *automatic access standard* or a *negotiated access standard* for a particular technical requirement as recorded in a *connection agreement*.

Accredited Service Provider category

A category of registration of a *Metering Provider* established by *AEMO* under S7.4.2(b) as a consequence of requirements of a *participating jurisdiction* to install *metering installations*.

accumulated energy data

The data that results from the measurement of the flow of electricity in a power conductor where the data represents a period in excess of a *trading interval*. The measurement is carried out at a *metering point*.

activate, activated, activation

The operation of a *generating unit* (other than a *scheduled generating unit*) at an increased *loading level* or reduction in demand (other than a *scheduled load*) undertaken in response to a request by *AEMO* in accordance with an *unscheduled reserve contract*.

active energy

A measure of electrical energy flow, being the time integral of the product of *voltage* and the in-phase component of current flow across a *connection point*, expressed in watthour (Wh).

active power

The rate at which *active energy* is transferred.

active power capability

The maximum rate at which *active energy* may be transferred from a *generating unit* to a *connection point* as specified or proposed to be specified in a *connection agreement* (as the case may be).

additional intervention claim

Has the meaning given in clause 3.12.2(k).

adequately damped

In relation to a *control system*, when tested with a step change of a feedback input or corresponding reference, or otherwise observed, any oscillatory response at a *frequency* of:

(a) 0.05 Hz or less, has a damping ratio of at least 0.4;

(b) between 0.05 Hz and 0.6 Hz, has a halving time of 5 seconds or less (equivalent to a damping coefficient –0.14 nepers per second or less); and

(c) 0.6 Hz or more, has a damping ratio of at least 0.05 in relation to a *minimum access standard* and a damping ratio of at least 0.1 otherwise.

ADJR Act

The Administrative Decisions (Judicial Review) Act 1977 (Cth).

adjusted gross energy

The *energy* adjusted in accordance with clause 3.15.5 (for a *transmission network connection point*) or clause 3.15.5A (for a *virtual transmission node*) or clause 3.15.4 (for any other *connection point*).

administered floor price

A price floor to apply to a *regional reference price*, with the levels of the price floor being administered under clause 3.14.1 and the circumstances under which it can be invoked by *AEMO* being determined as set out in clause 3.14.2.

administered price cap

A price cap to apply to a *dispatch price*, *regional reference price* or *ancillary service price*, with the levels of the price cap being set in accordance with clause 3.14.1 and the circumstances under which it can be invoked by *AEMO* being determined as set out in clause 3.14.2.

administered price period

A period declared by *AEMO*, in accordance with clause 3.14.2, in which an *administered price cap* may be invoked.

Adviser

The Dispute Resolution Adviser specified in clause 8.2.2(a).

Adviser referral notice

A notice referring a dispute to the *Adviser* for the purposes of clause 8.2.5.

AEMC

The Australian Energy Market Commission, which is established under section 5 of the Australian Energy Market Commission Establishment Act 2004 (SA).

AEMO

National Electricity Market Management Company Limited A.C.N. 072 010 327.

AEMO co-ordinating centre

The control centre from which *AEMO* conducts *market* related activities and the coordination of the operation of the *national grid.*

AEMO intervention event

An event where *AEMO* intervenes in the *market* under the *Rules* by:

(a) issuing a *direction* in accordance with clause 4.8.9; or

(b) exercising the *reliability and emergency reserve trader* in accordance with rule 3.20 by:

(1) *dispatching scheduled generating units*, *scheduled network services* or *scheduled loads* in accordance with a *scheduled reserve contract*; or

(2) *activating loads* or *generating units* under an *unscheduled reserve contract*.

AEMO power system security responsibilities

The responsibilities described in clause 4.3.1.

AER

The Australian Energy Regulator, which is established by section 44AE of the Trade Practices Act 1974 (Cth).

affected participant's adjustment claim

Has the meaning given in clause 3.12.2(g)(3).

Affected Participant

(a) In respect of a particular *direction* in an *intervention price trading interval*:

(1) a *Scheduled Generator* or *Scheduled Network Service Provider*:

(i) which was not the subject of the *direction*, that had its *dispatched* quantity affected by that *direction*; or

(ii) which was the subject of the *direction*, that had its *dispatched* quantity for other *generating units* or other services which were not the subject of that *direction* affected by that *direction*, however, the *Scheduled Generator* or *Scheduled Network Service Provider* is only an *Affected Participant* in respect of those *generating units* and services which were not the subject of that *direction*; or

(2) an *eligible person* entitled to receive an amount from *AEMO* pursuant to clause 3.18.1(b)(1) where there has been a change in flow of a *directional interconnector*, for which the *eligible person* holds units

for the *intervention price trading interval*, as a result of the *direction*; and

(b) in relation to the exercise of the *RERT* under rule 3.20:

(1) a *Scheduled Generator* or *Scheduled Network Service Provider*:

(i) whose *plant* or *scheduled network service* was not *dispatched* under a *scheduled reserve contract*, that had its *dispatched* quantity affected by the *dispatch* of *plant* or *scheduled network service* under that *scheduled reserve contract*; and

(ii) who was not the subject of *activation* under an *unscheduled reserve contract*, that had its *dispatched* quantity affected by the *activation* of *generating units* or *loads* under that *unscheduled reserve contract*;

(2) a *Scheduled Generator* or *Scheduled Network Service Provider* whose *plant* or *scheduled network service* was *dispatched* under a *scheduled reserve contract*, that had its *dispatched* quantity for other *generating units* or other services which were not *dispatched* under the *scheduled reserve contract* affected by that *dispatch* of *plant* or *scheduled network service* under that *scheduled reserve contract*, however, the *Scheduled Generator* or *Scheduled Network Service Provider* is only an *Affected Participant* in respect of those *generating units* and services which were not *dispatched* under that *scheduled reserve contract*; or

(3) an *eligible person* entitled to receive an amount from *AEMO* pursuant to clause 3.18.1(b)(1) where there has been a change in flow of a *directional interconnector*, for which the *eligible person* holds units for the *intervention price trading interval*, as a result of the *dispatch* of *plant* or *scheduled network service* under a *scheduled reserve contract* or the *activation* of *generating units* or *loads* under an *unscheduled reserve contract*.

agency data collection system

The system used by the operator of an *agency metering database* to collect, process and transfer the *metering data* from a *meter* to the *AEMO settlements* process.

agency metering database

A *metering database* which is operated under a service level agreement with *AEMO*.

aggregate annual revenue requirement

For *prescribed transmission services*, the meaning in clause 6A.22.1 and for any other service, the calculated total annual revenue to be earned by an entity for a defined class or classes of service.

aggregate payment due

The aggregate of the net amounts payable by *AEMO* to each of the *Market Participants* to whom payments are to be made in relation to *spot market transactions* or *reallocation transactions* in respect of a *billing period* determined in accordance with clause 3.15.22(c).

agreed capability

In relation to a *connection point*, the capability to receive or send out power for that *connection point* determined in accordance with the relevant c*onnection agreement*.

alternative control service

A *distribution service* that is a *direct control service* but not a *standard control service*.

alternative network constraint formulation

A *network constraint* equation formulation used by *AEMO* other than a *fully co-optimised network constraint formulation*.

Amending Rule

A Rule made by the *AEMC* under section 103 of the *National Electricity Law* on and from the date of commencement of the operation of that Rule, or parts of that Rule.

ancillary service fees

The fees determined by *AEMO* under Chapter 2 in relation to *ancillary services.*

ancillary service generating unit

A *generating unit* which has been classified in accordance with Chapter 2 as an *ancillary service generating unit.*

ancillary service load

A *market load* which has been classified in accordance with Chapter 2 as an *ancillary service load.*

ancillary service price

In respect of a *dispatch interval*, for a *market ancillary service*, the common clearing price for the *market ancillary service* determined in accordance with clause 3.9.

Ancillary Service Provider

A person who engages in the activity of owning, controlling or operating a *generating unit* or *market load* classified in accordance with Chapter 2 as an *ancillary service generating unit* or *ancillary service load*, as the case may be.

ancillary services

Market ancillary services and *non-market ancillary services.*

ancillary services agreement

An agreement under which a *Registered Participant* agrees to provide one or more *non-market ancillary services* to *AEMO*.

annual building block revenue requirement

The amount representing the revenue requirement of a *Transmission Network Service Provider* for each *regulatory year* of a *regulatory control period* calculated in accordance with clause 6A.5.4.

Annual Planning Report

A report prepared by a *Transmission Network Service Provider* under clause 5.6.2A(a).

annual revenue requirement

An amount representing revenue for a *Distribution Network Service Provider*, for each *regulatory year* of a *regulatory control period*, calculated in accordance with Part C of Chapter 6.

annual service revenue requirement

Has the meaning set out in clause 6A.22.2.

apparent power

The square root of the sum of the squares of the *active power* and the *reactive power*.

applicable regulatory instruments

All laws, regulations, orders, licences, codes, determinations and other regulatory instruments (other than the *Rules*) which apply to *Registered Participants* from time to time, including those applicable in each *participating jurisdiction* as listed below, to the extent that they regulate or contain terms and conditions relating to access to a *network*, *connection* to a *network*, the provision of *network services*, *network service* price or *augmentation* of a *network*.

(1) New South Wales:

(a) the Electricity Supply Act 1995 ("ES Act");
(b) all regulations made and licences ("Licences") issued under the ES Act;
(c) the Independent Pricing and Regulatory Tribunal Act 1992 ("IPART Act");
(d) all regulations and determinations made under the IPART Act;
(e) all regulatory instruments applicable under the Licences; and

(f) the Commercial Arbitration Act 1984.

(2) Victoria:

(a) the Electricity Industry Act 2000 ("EI Act");
(b) all regulations made and licences ("Licences") issued under the EI Act;
(c) the Essential Services Commission Act 2001 ("ESCV Act");
(d) all regulations and determinations made under the ESCV Act;
(e) all regulatory instruments applicable under the Licences; and
(f) the Tariff Order made under section 158A(1) of the Electricity Industry Act 1993 and continued in effect by clause 6(1) of Schedule 4 to the Electricity Industry (Residual Provisions) Act 1993, as amended or varied in accordance with section 14 of the EI Act.

(3) South Australia:

(a) the Electricity Act 1996;
(b) all regulations made and licences ("Licences") issued under the Electricity Act;
(c) the Essential Services Commission Act 2002 ("ESCSA Act");
(d) all regulations and determinations made under the ESCSA Act;
(e) all regulatory instruments applicable under the Licences; and
(f) the Electricity Pricing Order made under section 35B of the Electricity Act.

(4) Australian Capital Territory:

(a) the Utilities Act 2000;
(b) all regulations made and licences ("Licences") issued under the Utilities Act;
(c) the Independent Competition and Regulatory Commission Act 1997 ("ICRC Act");
(d) all regulations and determinations made under the ICRC Act; and
(e) all regulatory instruments applicable under the Licences.

(5) Queensland:

(a) the Electricity Act 1994;
(b) all regulations made and authorities and special approvals ("Licences") granted under the Electricity Act;
(c) the Queensland Competition Authority Act 1997 ("QCA Act");
(d) all regulations and determinations made under the QCA Act;
(e) all regulatory instruments applicable under the Licences; and
(f) the Gladstone Power Station Agreement Act 1993 and associated agreements.

(6) Tasmania:

(a) the Electricity Supply Industry Act 1995;
(b) all regulations made and licences ("Licences") issued under the Electricity Supply Industry Act;

(c) all regulatory instruments under the Electricity Supply Industry Act or the Licences (including, without limitation, determinations of the Tasmanian Electricity Regulator under the Electricity Supply Industry (Price Control) Regulations); and

(d) the Tasmanian Electricity Code issued under section 49A of the Electricity Supply Industry Act.

application to connect

An application made by a *Connection Applicant* in accordance with clause 5.3 for *connection* to a *network* and/or the provision of *network services* or modification of a *connection* to a *network* and/or the provision of *network services*.

approved pass through amount

In respect of a *positive change event* for a *Transmission Network Service Provider*:

(a) the amount which the *AER* determines should be passed through to *Transmission Network Users* under clause 6A.7.3(d)(2); or

(b) the amount which the *AER* is taken to have determined under clause 6A.7.3(e)(1),

as the case may be.

In respect of a *positive change event* for a *Distribution Network Service Provider*:

(a) the amount the *AER* determines should be passed through to *Distribution Network Users* under clause 6.6.1(d)(2); or

(b) the amount the *AER* is taken to have determined under clause 6.6.1(e)(3),

as the case may be.

approved pricing proposal

A *pricing proposal* approved by the *AER*.

ASRR

The *annual service revenue requirement.*

asynchronous generating unit

A *generating unit* that is not a *synchronous generating unit*.

attributable connection point cost share

Has the meaning set out in clause 6A.22.4.

attributable cost share

Has the meaning set out in clause 6A.22.3.

auction

A *settlement residue* auction held under clause 3.18.

auction amounts

All amounts:

(1) payable to *AEMO* or *eligible persons* under *SRD agreements*; or

(2) distributed to *Network Service Providers* under clause 3.18.4; or

(3) recovered by *AEMO* under clause 3.18.4 or the *auction rules*.

auction expense fees

The costs and expenses incurred by *AEMO* referred to in clause 3.18.4(b).

auction participation agreement

Has the meaning given in clause 3.18.1(a).

auction rules

The rules developed by *AEMO* under clause 3.18.3, as amended from time to time in accordance with that clause.

augmentation

Has the meaning given in the *National Electricity Law*.

augmentation technical report

A report on *augmentation* under clause 5.6.3

Australian Standard (AS)

The most recent edition of a standard publication by Standards Australia (Standards Association of Australia).

Authority

Any government, government department, instrumentality, *Minister*, agency, statutory authority or other body in which a government has a controlling interest, and includes the *AEMC*, *AEMO*, the *AER* and the *ACCC* and their successors.

automatic access standard

In relation to a technical requirement of access, a standard of performance, identified in a schedule of Chapter 5 as an automatic access standard for that

technical requirement, such that a *plant* that meets that standard would not be denied access because of that technical requirement.

automatic generation control system (AGC)

The system into which the *loading levels* from economic *dispatch* will be entered for *generating units* operating on automatic generation control in accordance with clause 3.8.21(d).

automatic reclose equipment

In relation to a *transmission line* or *distribution line*, the equipment which automatically recloses the relevant line's circuit breaker(s) following their opening as a result of the detection of a fault in the *transmission line* or the *distribution line* (as the case may be).

available capacity

The total MW capacity available for *dispatch* by a *scheduled generating unit*, *semi-scheduled generating unit* or *scheduled load* (i.e. maximum plant availability) or, in relation to a specified *price band*, the MW capacity within that *price band* available for *dispatch* (i.e. availability at each price band).

average electrical energy loss

The volume-weighted average of the *electrical energy losses* incurred in each *trading interval* over all *trading intervals* in a defined period of time

average loss factor

A multiplier used to describe the *average electrical energy loss* for electricity used or transmitted.

avoided Customer TUOS charges

The charges described in rule 5.5(h).

B2B Communications

Communications between *Local Retailers*, *Market Customers* and *Distribution Network Service Providers* relating to an end-user or *supply* to an end-user provided for in the *B2B Procedures*.

B2B Data

Data relating to *B2B Communications*.

B2B Decision

A decision of *AEMO* to approve or not approve an *Information Exchange Committee Recommendation*.

B2B Determination Dispute

A dispute in relation to either a *B2B Decision* or an *Information Exchange Committee Recommendation*.

B2B e-Hub

An electronic information exchange platform established by *AEMO* to facilitate *B2B Communications*.

B2B Objective

The benefits from *B2B Communications* to *Local Retailers*, *Market Customers* and *Distribution Network Service Providers* as a whole should outweigh the detriments to *Local Retailers*, *Market Customers* and *Distribution Network Service Providers* as a whole.

B2B Principles

The following principles:

(a) *B2B Procedures* should provide a uniform approach to *B2B Communications* in *participating jurisdictions* in which there are no *franchise customers*;
(b) *B2B Procedures* should detail operational and procedural matters and technical requirements that result in efficient, effective and reliable *B2B Communications*;
(c) *B2B Procedures* should avoid unreasonable discrimination between *Local Retailers*, *Market Customers* and *Distribution Network Service Providers*; and
(d) *B2B Procedures* should protect the confidentiality of commercially sensitive information.

B2B Procedures

Procedures prescribing the content of, the processes for, and the information to be provided to support, *B2B Communications*.

B2B Procedures Change Pack

A document consisting of:

(a) a *B2B Proposal*;
(b) a report setting out an overview of the likely impact of the *B2B Proposal* on *AEMO*, *Local Retailers*, *Market Customers* and *Distribution Network Service Providers*;
(c) draft *B2B Procedures* (incorporating proposed changes in mark up, where appropriate); and
(d) an issues paper explaining why the *B2B Proposal* is being presented.

B2B Proposal

A proposal for *B2B Procedures*, or a *change* to the *B2B Procedures*, which is the subject of consultation by the *Information Exchange Committee*.

bank bill rate

On any *day*, the rate determined by *AEMO* (having regard to such market indicators as *AEMO* in its discretion selects) to be the market rate as at 10.00 am on that *day* (or if not a *business day*, on the previous *business day*) for Australian dollar denominated bank accepted bills of exchange having a tenor of 30 *days*.

bid and offer validation data

Data submitted by *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* to *AEMO* in relation to their *scheduled loads*, *scheduled generating units*, *semi-scheduled generating units* and *scheduled market network services* in accordance with schedule 3.1.

billing period

The period of 7 *days* commencing at the start of the *trading interval* ending 12.30 am Sunday.

black start capability

A capability that allows a *generating unit*, following its *disconnection* from the *power system*, to be able to deliver electricity to either:

(a) its *connection point*; or

(b) a suitable point in the *network* from which *supply* can be made available to other *generating units*,

without taking *supply* from any part of the *power system* following *disconnection*.

black system

The absence of *voltage* on all or a significant part of the *transmission system* or within a *region* during a *major supply disruption* affecting a significant number of customers.

breaker fail

In relation to a *protection system*, that part of the *protection system* that protects a *Market Participant's facilities* against the non-operation of a circuit breaker that is required to open.

breaker fail protection system

A *protection system* that protects a *facility* against the non-operation of a circuit breaker that is required to open to clear a fault.

building block determination

The component of a distribution determination relevant to the regulation of *standard control services* (See rule 6.3).

building block proposal

For a *Distribution Network Service Provider*, the part of the provider's *regulatory proposal* relevant to the regulation of *standard control services* (See clause 6.3.1).

busbar

A common *connection point* in a *power station switchyard* or a *transmission network substation*.

business day

A *day* other than a Saturday, Sunday or a *day* which is lawfully observed as a national public holiday on the same *day* in each of the *participating jurisdictions*.

call amount

The amount determined pursuant to the formula in clause 3.3.11 for the purposes of a *call notice* where the *outstandings* of a *Market Participant* exceed its *trading limit*.

call notice

A notice issued by *AEMO* pursuant to clause 3.3.11 where the *outstandings* of a *Market Participant* exceed its *trading limit*.

capacitor bank

Electrical equipment used to generate *reactive power* and therefore support *voltage* levels on *distribution* and *transmission lines* in periods of high *load*.

capital expenditure criteria

For a *Transmission Network Service Provider* – the matters listed in clause 6A.6.7(c)(1)–(3).

For a *Distribution Network Service Provider* – the matters listed in clause 6.5.7(c)(1)–(3).

capital expenditure factors

For a *Transmission Network Service Provider* – the factors listed in clause 6A.6.7(e)(1)–(10).

For a *Distribution Network Service Provider* – the factors listed in clause 6.5.7(e)(1)–(10).

capital expenditure objectives

For a *Transmission Network Service Provider* – the objectives set out in clause 6A.6.7(a).

For a *Distribution Network Service Provider* – the objectives set out in clause 6.5.7(a).

cascading outage

The occurrence of an uncontrollable succession of *outages*, each of which is initiated by conditions (e.g. instability or overloading) arising or made worse as a result of the event preceding it.

categories of prescribed transmission services

For the purposes of pricing for *prescribed transmission services*:

(a) *prescribed entry services*;

(b) *prescribed exit services*;

(c) *prescribed common transmission services*; and

(d) *prescribed TUOS services*.

central dispatch

The process managed by *AEMO* for the *dispatch* of *scheduled generating units*, *semi-scheduled generating units*, *scheduled loads*, *scheduled network services* and *market ancillary services* in accordance with rule 3.8.

change

Includes amendment, alteration, addition or deletion.

changeover date

Has the meaning given in the *National Electricity Law*.

charging parameters

The constituent elements of a tariff.

check meter

A *meter*, other than a *revenue meter*, used as a source of *metering data* for Type 1 and Type 2 *metering installations* as specified in schedule 7.2.

check metering data

The *metering data* obtained from a *check metering installation*.

check metering installation

A *metering installation* used as the source of *metering data* for validation in the *settlements* process.

clause 4.8.9 instruction

Has the meaning given in clause 4.8.9(a1)(2).

COAG

Council of Australian Governments.

commercial arbitrator

A dispute resolution panel (within the meaning of section 58 of the *National Electricity Law*) established pursuant to clause 6A.30.2(b).

commitment

The commencement of the process of starting up and *synchronising* a *generating unit* to the *power system*.

common service

A service that ensures the integrity of a *distribution system* and benefits all *Distribution Customers* and cannot reasonably be allocated on a locational basis.

communication link

All communications equipment, processes and arrangements that lie between the *meter* and the *data logger*, where the *data logger* is external to the device that contains the *measurement elements*, and/or the *data logger* and the telecommunications network.

compensation recovery amount

Has the meaning given in clause 3.15.8(a).

complainant

The party which refers a dispute to the *Adviser* in accordance with clause 8.2.5(a).

confidential information

In relation to a *Registered Participant* or *AEMO*, information which is or has been provided to that *Registered Participant* or *AEMO* under or in connection with the *Rules* and which is stated under the *Rules*, or by *AEMO*, the *AER* or the *AEMC*, to be *confidential information* or is otherwise confidential or commercially sensitive. It also includes any information which is derived from such information.

congestion information resource

The information resource developed, *published* and amended from time to time by *AEMO* in accordance with rule 3.7A.

congestion information resource guidelines

Guidelines developed and *published* by *AEMO* in accordance with rules 3.7A(k) to (m).

congestion information resource objective

The objective of the *congestion information resource* which is set out in rule 3.7A(a).

connect, connected, connection

To form a physical link to or through a *transmission network* or *distribution network*.

connection agreement

An agreement between a *Network Service Provider* and a *Registered Participant* or other person by which the *Registered Participant* or other person is *connected* to the *Network Service Provider's transmission* or *distribution network* and/or receives *transmission services* or *distribution services*. In some *participating jurisdictions*, the *Registered Participant* or other person may have one *connection agreement* with a *Network Service Provider* for *connection services* and another agreement with a different *Network Service Provider* for *network services* provided by the *transmission network*.

Connection Applicant

A person who wants to establish or modify *connection* to a *transmission network* or *distribution network* and/or who wishes to receive *network services* and who makes a *connection* enquiry as described in clause 5.3.2.

connection assets

Those components of a *transmission or distribution system* which are used to provide *connection services*.

connection point

The agreed point of *supply* established between *Network Service Provider*(s) and another *Registered Participant*, *Non-Registered Customer* or *franchise customer*.

connection service

An *entry service* (being a service provided to serve a *Generator* or a group of *Generators*, or a *Network Service Provider* or a group of *Network Service Providers*, at a single *connection point*) or an *exit service* (being a service provided to serve a *Transmission Customer* or *Distribution Customer* or a group of *Transmission Customers* or *Distribution Customers*, or a *Network Service Provider* or a group of *Network Service Providers*, at a single *connection point*).

considered project

(a) In respect of a *transmission network augmentation*, a project that meets the following criteria:

(1) the *Network Service Provider* has acquired the necessary land and easements;

(2) the *Network Service Provider* has obtained all necessary planning and development approvals;

(3) as applicable:

(i) the *augmentation* project has passed the *regulatory investment test for transmission*;

(ii) the *augmentation* has passed the *regulatory test*;

(iii) in respect of a *transmission investment* which has not been subject to a *regulatory investment test for transmission* or the *regulatory test*, an intention to proceed with the project has been published in the *Network Service Provider's Annual Planning Report*; or

(4) construction has either commenced or the *Network Service Provider* has set a firm date for it to commence.

(b) In respect of a *distribution network augmentation*, a project that meets the following criteria:

(1) the *Network Service Provider* has acquired the necessary land and easements;

(2) the *Network Service Provider* has obtained all necessary planning and development approvals; and

(3) construction has either commenced or the *Network Service Provider* has set a firm date for it to commence.

constrained off

In respect of a *generating unit*, the state where, due to a *constraint* on a *network*, the output of that *generating unit* is limited below the level to which it would otherwise have been *dispatched* by *AEMO* on the basis of its *dispatch offer*.

constrained on

In respect of a *generating unit*, the state where, due to a *constraint* on a *network*, the output of that *generating unit* is limited above the level to which it would otherwise have been *dispatched* by *AEMO* on the basis of its *dispatch offer*.

constraint, constrained

A limitation on the capability of a *network*, *load* or a *generating unit* such that it is unacceptable to either transfer, consume or generate the level of electrical power that would occur if the limitation was removed.

consulting party

The person who is required to comply with the *Rules consultation procedures*.

contestable

(a) In relation to *transmission services* a service which is permitted by the laws of the relevant *participating jurisdiction* to be provided by more than one *Transmission Network Service Provider* as a contestable service or on a competitive basis.

(b) In relation to *distribution services*, a service which is permitted by the laws of the relevant *participating jurisdiction* to be provided by more than one *Distribution Network Service Provider* as a contestable service or on a competitive basis.

contingency capacity reserve

Actual *active* and *reactive energy* capacity, *interruptible load* arrangements and other arrangements organised to be available to be utilised on the actual occurrence of one or more *contingency events* to allow the restoration and maintenance of *power system security*.

contingency capacity reserve standards

The standards set out in the *power system security and reliability standards* to be used by *AEMO* to determine the levels of *contingency capacity reserves* necessary for *power system security*.

contingency event

An event described in clause 4.2.3(a).

contingent project

In relation to a *revenue determination*, a *proposed contingent project* that is determined by the *AER*, in accordance with clause 6A.8.1(b), to be a *contingent project* for the purposes of that *revenue determination*.

continuous uninterrupted operation

In respect of a *generating system* or operating *generating unit* operating immediately prior to a *power system* disturbance, not *disconnecting* from the *power system* except under its *performance standards* established under clauses S5.2.5.8 and S5.2.5.9 and, after clearance of any electrical fault that caused the disturbance, only substantially varying its *active power* and *reactive power* required by its *performance standards* established under clauses S5.2.5.11, S5.2.5.13 and S5.2.5.14, with all essential auxiliary and *reactive plant* remaining in service, and responding so as to not exacerbate or prolong the disturbance or cause a subsequent disturbance for other *connected plant*.

control centre

The *facilities* used by *AEMO* for managing *power system security* and administering the *market*.

control system

Means of monitoring and controlling the operation of the *power system* or equipment including *generating units connected* to a *transmission* or *distribution network*.

Co-ordinated Universal Time (UTC)

The time as determined by the International Bureau of Weights and Measures and maintained under section 8AA of the *National Measurement Act.*

Co-ordinating Network Service Provider

A *Network Service Provider* appointed by multiple *Transmission Network Service Providers* to allocate *AARR* in accordance with rule 6A.29.

Cost Allocation Guidelines

For a *Transmission Network Service Provider* – the guidelines referred to in clause 6A.19.3.

For a *Distribution Network Service Provider* – the guidelines referred to in clause 6.15.3.

Cost Allocation Method

For a *Distribution Network Service Provider*, the Cost Allocation Method approved by the *AER* for that *Distribution Network Service Provider* under clause 6.15.4(c) and (d) as amended from time to time in accordance with clause 6.15.4(f) and (g).

Cost Allocation Methodology

For a *Transmission Network Service Provider*, the Cost Allocation Methodology approved or taken to be approved by the *AER* for that *Transmission Network Service Provider* under clauses 6A.19.4(c) and (d) as amended from time to time in accordance with clauses 6A.19.4(f) and (g).

Cost Allocation Principles

For a *Transmission Network Service Provider* – the principles set out in clause 6A.19.2.

For a *Distribution Network Service Provider* – the principles set out in clause 6.15.2.

cost reflective network pricing

A cost allocation method which reflects the value of assets used to provide *transmission* or *distribution services* to *Network Users*.

cost reflective network pricing methodology or CRNP methodology or modified CRNP methodology

The cost allocation methodologies described in schedule 6A.3.

cost threshold

Has the meaning given in clause 5.6.5E(a).

cost threshold consultation period

Has the meaning given in clause 5.6.5E(d).

cost threshold determination

Has the meaning given in clause 5.6.5E(f).

cost threshold review

Has the meaning given in clause 5.6.5E(a).

CPI

As at a particular time, the Consumer Price Index: All Groups Index Number, weighted average of eight capital cities published by the Australian Bureau of Statistics for the most recent quarter that precedes that particular time and for which the index referred to has been published by the Australian Bureau of Statistics as at that time. If that index ceases to be published or is substantially changed, *CPI* will be such other index as is determined by the *AER* as a suitable benchmark for recording general movements in prices.

credible contingency event

An event described in clause 4.2.3(b), certain examples of which are set out in schedule 5.1.

credible option

Has the meaning given in clause 5.6.5D(a).

credit period

The typical period of days over which *maximum credit limit* is calculated in accordance with schedule 3.3.

credit support

An obligation owed to *AEMO* by a third party supporting the obligations of a *Market Participant* and having the characteristics required by clause 3.3.2.

credit support provider

The issuing party that assumes obligations to *AEMO* pursuant to a *credit support*.

cumulative price threshold

The threshold for imposition of an *administered price cap* as defined in clause 3.14.1.

current rating

The maximum current that may be permitted to flow (under defined conditions) through a *transmission line* or *distribution line* or other item of equipment that forms part of a *power system*.

current transformer (CT)

A *transformer* for use with *meters* and/or protection devices in which the current in the secondary winding is, within prescribed error limits, proportional to and in phase with the current in the primary winding.

Customer

A person who:

1. engages in the activity of purchasing electricity *supplied* through a *transmission or distribution system* to a *connection point*; and

2. is registered by *AEMO* as a *Customer* under Chapter 2.

Customer transmission use of system, Customer transmission use of system service

A service provided to a *Transmission Network User* for use of the *transmission network* for the conveyance of electricity (including where it has been negotiated in accordance with clause 5.4A(f)(3)) that can be reasonably allocated to a *Transmission Network User* on a locational basis, but does not include *Generator transmission use of system services*.

data collection system

All equipment and arrangements that lie between the *metering database* and the point where the *metering data* enters the *telecommunications network*.

data logger

A *metering installation* database or a device that collects electronic signals from a *measurement element* and packages it into 30 minute intervals (or sub-multiples). This device may contain data storage capability, be a separate item of equipment, and/or be combined with the *energy* measuring components within one physical device.

day

Unless otherwise specified, the 24 hour period beginning and ending at midnight Eastern Standard Time (EST).

declared NEM project

A project determined to be a declared NEM project under clause 2.11.1(ba) or 2.11.1(bd), for which there is special treatment in the timing of cost recovery.

declared shared network

Has the meaning given in the *National Electricity Law*.

declared transmission system operator

Has the meaning given in the *National Electricity Law*.

decommission, decommit

In respect of a *generating unit*, ceasing to generate and *disconnecting* from a *network*.

default dispatch bid

A *dispatch bid* made pursuant to clause 3.8.9.

default dispatch offer

A *dispatch offer* made pursuant to clause 3.8.9.

default event

An event defined as such in clause 3.15.21(a).

default notice

A notice issued by *AEMO* pursuant to clause 3.15.21(b)(1).

defaulting Market Participant

A *Market Participant* in relation to which a *default event* has occurred.

delayed lower service

The service of providing, in accordance with the *market ancillary service specification*, the capability of controlling the level of *generation* or *load* associated with a particular *facility* in response to a change in the *frequency* of the *power system* beyond a threshold or in accordance with electronic signals from *AEMO* in order to lower that *frequency* to within the *normal operating frequency band*.

delayed raise service

The service of providing, in accordance with the *market ancillary service specification*, the capability of controlling the level of *generation* or *load* associated with a particular *facility* in response to a change in the *frequency* of the *power system* beyond a threshold or in accordance with electronic signals from *AEMO* in order to raise that *frequency* to within the *normal operating frequency band.*

delayed response capacity reserve

That part of the *contingency capacity reserve* capable of realisation within 5 minutes of a major *frequency* decline in the *power system* as described further in the *power system security and reliability standards*.

delayed service

A *delayed raise service* or a *delayed lower service*.

demand based price

A price expressed in dollars per kilowatt per time period or dollars per kilovolt ampere per time period.

demand management incentive scheme

An incentive scheme for certain *Distribution Network Service Providers* developed and *published* by the *AER* under clause 6.6.3.

deprival value

A value ascribed to assets which is the lower of economic value or optimised depreciated replacement value.

derogation

Has the meaning given in the *National Electricity Law***.**

de-synchronising/de-synchronisation

The act of *disconnection* of a *generating unit* from the *connection point* with the *power system*, normally under controlled circumstances.

direct control service

A *distribution service* that is a direct control network service within the meaning of section 2B of the Law.

Directed Participant

A *Scheduled Generator*, *Semi-Scheduled Generator*, *Market Generator*, *Scheduled Network Service Provider* or *Market Customer* the subject of a *direction*.

direction

Has the meaning given in clause 4.8.9(a1)(1).

directional interconnector

Has the meaning given in clause 3.18.1(c).

Disclosee

In relation to a *Registered Participant* or *AEMO*, a person to whom that *Registered Participant* discloses *confidential information.*

disconnect, disconnected, disconnection

The operation of switching equipment or other action so as to prevent the flow of electricity at a *connection point*.

dispatch

The act of initiating or enabling all or part of the response specified in a *dispatch bid*, *dispatch offer* or *market ancillary service offer* in respect of a *scheduled generating unit*, *semi-scheduled generating unit*, a *scheduled load*, a *scheduled network service*, an *ancillary service generating unit* or an *ancillary service load* in accordance with rule 3.8, or a *direction* or operation of capacity the subject of a *reserve contract* as appropriate.

dispatch algorithm

The algorithm used to determine *central dispatch* developed by *AEMO* in accordance with clause 3.8.1(d).

dispatch bid

A notice submitted by a *Market Participant* to *AEMO* relating to the *dispatch* of a *scheduled load* in accordance with clause 3.8.7.

dispatch inflexibility profile

Data which may be provided to *AEMO* by *Market Participants*, in accordance with clause 3.8.19, to specify *dispatch inflexibilities* in respect of *scheduled loads* or *scheduled generating units* which are not *slow start generating units*.

dispatch instruction

An instruction given to a *Registered Participant* under clauses 4.9.2, 4.9.2A, 4.9.3 or 4.9.3A.

dispatch interval

A period defined in clause 3.8.21(a1) in which the *dispatch algorithm* is run in accordance with clause 3.8.21(b).

dispatch level

Means:

(1) for a *semi-dispatch interval*, the amount of electricity specified in a *dispatch instruction* as the *semi-scheduled generating unit's* maximum permissible *active power* at the end of the *dispatch interval* specified in the *dispatch instruction*; and

(2) for a *non semi-dispatch interval*, an estimate of the *active power* at the end of the *dispatch interval* specified in the *dispatch instruction.*

dispatch offer

A *generation dispatch offer* or a *network dispatch offer*.

dispatch offer price

The price submitted by a *Scheduled Generator*, *Semi-Scheduled Generator* or a *Scheduled Network Service Provider* for a *price band* and a *trading interval* in a *dispatch offer*.

dispatch optimisation software

The computer program used by *AEMO* for computing the *dispatch algorithm*.

dispatch price

The price determined for each *regional reference node* by the *dispatch algorithm* each time it is run by *AEMO*.

dispatchable unit identifier

An unique reference label allocated by *AEMO* for each *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled load*, and *scheduled network service*.

dispatched generating unit

A *scheduled generating unit* which has received instructions from *AEMO* in accordance with a *dispatch* schedule.

dispatched generation

The *generation* which has been *dispatched* as part of *central dispatch*.

dispatched Generator

A *Generator* who has received a *dispatch instruction* from *AEMO*.

dispatched load

The *load* which has been *dispatched* as part of *central dispatch.*

dispute management system (or "DMS")

The dispute management system which each *Registered Participant* and *AEMO* must adopt in accordance with clause 8.2.3.

dispute notice

Has the meaning given in clause 5.6.6A(c)(1).

dispute resolution panel (or "DRP")

A dispute resolution panel established pursuant to clause 8.2.6A.

disputing party

Has the meaning given in clause 5.6.6A(c).

distribution

Activities pertaining to a *distribution system* including the conveyance of electricity through that *distribution system*.

distribution consultation procedures

The procedures set out in Part G of Chapter 6.

Distribution Customer

A *Customer*, *Distribution Network Service Provider*, *Non-Registered Customer* or *franchise customer* having a *connection point* with a *distribution network*.

distribution line

A power line, including underground cables, that is part of a *distribution network*.

distribution loss factor

An *average loss factor* calculated according to clause 3.6.3.

distribution losses

Electrical energy losses incurred in distributing electricity over a *distribution network*.

distribution network

A *network* which is not a *transmission network*.

distribution network connection point

A *connection point* on a *distribution network*.

Distribution Network Service Provider

A person who engages in the activity of owning, controlling, or operating a *distribution system*.

Distribution Network Service Provider Member

A *Member* appointed to the *Information Exchange Committee* in that membership category as set out in the *Information Exchange Committee Election Procedures*.

Distribution Network User

A *Distribution Customer* or an *Embedded Generator*.

distribution network user access

The *power transfer capability* of the *distribution network* in respect of:

(a) *generating units* or a group of *generating units*; and

(b) *network elements*,

at a *connection point* which has been negotiated in accordance with rule 5.5.

Distribution Ring-Fencing Guidelines

The guidelines developed by the *AER* under clause 6.17.2.

distribution service

A service provided by means of, or in connection with, a *distribution system*.

distribution services access dispute

A dispute referred to in clause 6.22.1.

distribution standard control service revenue

Has the meaning given in rule 6.26(b)(2).

distribution system

A *distribution network*, together with the *connection assets* associated with the *distribution network*, which is connected to another *transmission or distribution system.*

Connection assets on their own do not constitute a *distribution system.*

Distribution System Operator

A person who is responsible, under the *Rules* or otherwise, for controlling or operating any portion of a *distribution system* (including being responsible for directing its operations during *power system* emergencies) and who is registered by *AEMO* as a *Distribution System Operator* under Chapter 2.

distribution use of system, distribution use of system service

A service provided to a *Distribution Network User* for use of the *distribution network* for the conveyance of electricity that can be reasonably allocated on a locational and/or *voltage* basis.

DMS

A dispute management system.

DMS Contact

A person appointed by a *Registered Participant* or *AEMO* pursuant to its *DMS* to be the first point of contact for the notification of disputes under clause 8.2.

DMS referral notice

A notice served on a *DMS Contact* pursuant to clause 8.2.4(a).

DRP

A *dispute resolution panel*.

dual function asset

Means any part of a *network* owned, operated or controlled by a *Distribution Network Service Provider* which operates between 66 kV and 220 kV and which operates in parallel, and provides support, to the higher voltage *transmission network* which is deemed by clause 6.24.2(a) to be a *dual function asset*. For the avoidance of doubt:

(a) a *dual function asset* can only be an asset which forms part of a *network* that is predominantly a *distribution network*; and

(b) an asset which forms part of a *network* which is predominantly a *transmission network* cannot be characterised as a *dual function asset*,

through the operation of clause 6.24.2(a).

dynamic performance

The response and behaviour of *networks* and *facilities* which are *connected* to the *networks* when the *satisfactory operating state* of the *power system* is disturbed.

EAAP guidelines

The guidelines *published* by *AEMO* in accordance with clause 3.7C(k) that *AEMO* must comply with in preparing the *EAAP*.

EAAP principles

The principles referred to in clause 3.7C(b) that *AEMO* must comply with in preparing the *EAAP* and the *EAAP guidelines*.

Eastern Standard Time (EST)

The time which is set at 10 hours in advance of *Co-ordinated Universal Time*.

efficiency benefit sharing scheme

For a *Transmission Network Service Provider* – a scheme developed and *published* by the *AER* under clause 6A.5.

For a *Distribution Network Service Provider* – a scheme developed and *published* by the *AER* under clause 6.5.8.

efficiency benefit sharing scheme parameters

For an *efficiency benefit sharing scheme*, those parameters that are *published* by the *AER* in respect of that scheme pursuant to clause 6A.6.5(c).

electrical energy loss

Energy loss incurred in the production, transportation and/or use of electricity.

electrical sub-network

A part of the *national grid* determined by *AEMO* in accordance with clause 3.11.4B.

electronic communication system

Includes the electronic communication and the *electronic data transfer* system provided to *Registered Participants* by *AEMO*.

electronic data transfer

The transfer of data by electronic means from one location to another.

eligible pass through amount

In respect of a *positive change event* for a *Transmission Network Service Provider*, the increase in costs in the provision of *prescribed transmission services* that the *Transmission Network Service Provider* has incurred and is likely to incur until the end of the *regulatory control period* as a result of that *positive change event* (as opposed to the revenue impact of that event).

In respect of a *positive change event* for a *Distribution Network Service Provider*, the increase in costs in the provision of *direct control services* that the *Distribution Network Service Provider* has incurred and is likely to incur until the end of the *regulatory control period* as a result of that *positive change event* (as opposed to the revenue impact of that event).

eligible person

Has the meaning given in clause 3.18.2(b).

embedded generating unit

A *generating unit connected* within a *distribution network* and not having direct access to the *transmission network*.

Embedded Generator

A *Generator* who owns, operates or controls an *embedded generating unit*.

enabled

A *market ancillary service* is enabled when *AEMO* has selected the relevant *generating unit* or *load* for the provision of the *market ancillary service* and has notified the relevant *Market Participant* accordingly.

enablement limit

In relation to any *market ancillary service offer*, the level of associated *generation* or *load* (in MW) above or below which no response is specified as being available.

enabling price

Has the meaning given in clause 3.8.7A(d).

energise/energisation

The act of operation of switching equipment or the start-up of a *generating unit*, which results in there being a non-zero *voltage* beyond a *connection point* or part of the *transmission* or *distribution network*.

energy

Active energy and/or *reactive energy*.

energy adequacy assessment projection (EAAP)

A projection of *AEMO's* assessment of *energy* availability that accounts for *energy constraints* for each month over a 24 month period, which is prepared and *published* in accordance with rule 3.7C and is measured as *unserved energy* for each *region*.

energy based price

A price expressed in cents per kilowatt hour of *energy*.

energy constrained scheduled generating unit

A scheduled generating unit in respect of which the amount of electricity it is capable of *supplying* on a *trading day* is less than the amount of electricity it would *supply* on that *trading day* if it were *dispatched* to its full nominated availability for the whole *trading day*.

energy constrained scheduled load

A *scheduled load* in respect of which the amount of electricity it can take in a *trading day*, if *normally off*, or it can *off-load*, if *normally on*, is *constrained*.

energy constraint

A limitation on the ability of a *generating unit* or group of *generating units* to generate *active power* due to the restrictions in the availability of fuel or other necessary expendable resources such as, but not limited to, gas, coal, or water for operating turbines or for cooling.

energy conversion model

The model that defines how the *intermittent* input energy source (such as wind) is converted by the *semi-scheduled generating unit* into electrical output. That model must contain the information set out in the guidelines *published* by *AEMO* in accordance with clause 2.2.7(d).

energy data

Interval energy data or *accumulated energy data.*

energy data services

The services that involve:

(1) collation of *energy data* from the *meter* or *meter*/associated *data logger*;

(2) the processing of the *energy data* in the *metering installation* database;

(3) storage of the *energy data* in the *metering installation* database; and

(4) the provision of access to the data for those parties that have rights of access to the data.

energy packets

The value of *energy data* which is accumulated for a period of 30 minutes and stored as a separate data record.

energy support arrangement

A contractual arrangement between a *Generator* or *Network Service Provider* on the one hand, and a customer or *participating jurisdiction* on the other, under which *facilities* not subject to an *ancillary services agreement* for the provision of *system restart ancillary services* are used to assist *supply* to a customer during a *major supply disruption* affecting that customer, or customers generally in the *participating jurisdictions*, as the case may be.

entry charge

The charge payable by an *Embedded Generator* to a *Distribution Network Service Provider* for an *entry service* at a *distribution network connection point*.

entry cost

For each *distribution network connection point*, the amount of the *aggregate annual revenue requirement* for all individual assets classified as *entry service* assets which provide *entry service* for the *connection point.*

entry service

A service provided to serve a *Generator* or a group of *Generators*, or a *Network Service Provider* or a group of *Network Service Providers*, at a single *connection point*.

estimated energy data

The data that results from an estimation of the flow of electricity in a power conductor where the data applies to a *trading interval* or a period in excess of a *trading interval*. The estimation is made in relation to a *market load* and would not apply to a *metering point* where *accumulated energy data* or *interval energy data* is not available, or an *unmetered connection point*.

excess generation

Aggregate *self dispatch level* of *self-committed generation* which is in excess of the quantity needed to meet the expected *power system demand* and *reserve* requirements.

excess generation period

A period made up of one or more *dispatch intervals* where the sum of the aggregate of *generating unit self dispatch levels* and the required *regulating capability* (which forms part of the *contingency capacity reserves standard*) exceeds the forecast *load* or actual *load* during those *dispatch intervals*.

excitation control system

In relation to a *generating unit*, the automatic *control system* that provides the field excitation for the generator of the *generating unit* (including excitation limiting devices and any power system stabiliser).

exit charge

The charge payable by a *Distribution Customer* to a *Distribution Network Service Provider* for *exit service* at a *distribution network connection point*.

exit cost

For each *distribution network connection point*, the amount of the *aggregate annual revenue requirement* for all individual assets classified as *exit service* assets which provide *exit service* for the *connection point.*

exit service

A service provided to serve a *Transmission Customer* or *Distribution Customer* or a group of *Transmission Customers* or *Distribution Customers*, or a *Network Service Provider* or a group of *Network Service Providers*, at a single *connection point*.

extension

An *augmentation* that requires the *connection* of a power line or *facility* outside the present boundaries of the *transmission* or *distribution network* owned, controlled or operated by a *Network Service Provider*.

extreme frequency excursion tolerance limits

In relation to the *frequency* of the *power system*, means the limits so described and specified in the *power system security and reliability standards*.

facilities

A generic term associated with the apparatus, equipment, buildings and necessary associated supporting resources provided at, typically:

(a) a *power station* or *generating unit*;

(b) a *substation* or *power station switchyard*;

(c) a *control centre* (being a *AEMO control centre*, or a *distribution* or *transmission network control centre*);

(d) facilities providing an *exit service*.

fast lower service

The service of providing, in accordance with the requirements of the *market ancillary service specification*, the capability of rapidly controlling the level of *generation* or *load* associated with a particular *facility* in response to the locally sensed *frequency* of the *power system* in order to arrest a rise in that *frequency*.

fast raise service

The service of providing, in accordance with the requirements of the *market ancillary service specification*, the capability of rapidly controlling the level of *generation* or *load* associated with a particular *facility* in response to the locally sensed *frequency* of the *power system* in order to arrest a fall in that *frequency*.

fault clearance time

In respect of a *fault type*, the time within which the *protection system* is designed, operated and maintained to clear a *short circuit fault* of that *fault type* within its protection zone.

fault type

One of the following types of electrical fault:

(a) three phase to ground fault;

(b) three phase fault;

(c) two phase to ground fault;

(d) phase to phase fault; and

(e) one phase to ground fault.

final statement

A statement issued by *AEMO* under clause 3.15.15 to a *Market Participant*.

financial year

A period commencing on 1 July in one calendar year and terminating on 30 June in the following calendar year.

financially responsible

In relation to any *market connection point*, a term which is used to describe the *Market Participant* which has either:

1. classified the *connection point* as one of its *market loads*;

2. classified the *generating unit connected* at that *connection point* as a *market generating unit;* or

3. classified the *network services* at that *connection point* as a *market network service.*

First-Tier Customer

A *Customer* which has classified any *load* as a *first-tier load* in accordance with Chapter 2.

first-tier load

Electricity purchased at a *connection point* directly and in its entirety from the *Local Retailer* and which is classified as a *first-tier load* in accordance with Chapter 2.

framework and approach paper

A document prepared and issued as a framework and approach paper under clause 6.8.1.

franchise customer

A person who does not meet its local jurisdiction requirements to make it eligible to be registered by *AEMO* as a *Customer* for a *load*.

frequency

For alternating current electricity, the number of cycles occurring in each second. The term Hertz (Hz) corresponds to cycles per second.

frequency operating standards

The standards which specify the *frequency* levels for the operation of the *power system* set out in the *power system security and reliability standards*.

frequency response mode

The mode of operation of a *generating unit* which allows automatic changes to the generated power when the *frequency* of the *power system* changes.

fully co-optimised network constraint formulation

A *network constraint* equation formulation that allows *AEMO*, through direct physical representation, to control all the variables within the equation that can be determined through the *central dispatch* process. Some variables may not be included in accordance with clause 3.8.10(c) of the *Rules* if control of such variables would not materially enhance the security of the *power system* due to the small size of their coefficients.

funded augmentation

A *transmission network augmentation* for which the *Transmission Network Service Provider* is not entitled to receive a charge pursuant to Chapter 6A.

GELF parameters

Variable parameters specific to a *Generator Energy Limitation Framework (GELF)* which are defined in the *EAAP guidelines* and supplement the *GELF*, and are submitted by a *Scheduled Generator* and updated in accordance with rule 3.7C for the purpose of the *EAAP*.

general purpose

The term applied by the National Measurement Institute to refer to the classification of a *meter*.

generated

In relation to a *generating unit*, the amount of electricity produced by the *generating unit* as measured at its terminals.

generating plant

In relation to a *connection point*, includes all equipment involved in generating electrical *energy*.

generating system

(a) Subject to paragraph (b), for the purposes of the *Rules*, a system comprising one or more *generating units*.

(b) For the purposes of clause 2.2.1(e)(3), clause 4.9.2, Chapter 5 and a *jurisdictional derogation* from Chapter 5, a system comprising one or more *generating units* and includes auxiliary or *reactive plant* that is located on the *Generator's* side of the *connection point* and is necessary for the *generating system* to meet its *performance standards*.

Generating System Design Data Sheet

The data sheet *published* by *AEMO* under clause S5.5.7(a)(1).

Generating System Model Guidelines

The guidelines *published* by *AEMO* under clause S5.5.7(a)(3).

Generating System Setting Data Sheet

The data sheet *published* by *AEMO* under clause S5.5.7(a)(2).

generating unit

The actual generator of electricity and all the related equipment essential to its functioning as a single entity.

generation

The production of electrical power by converting another form of energy in a *generating unit*.

generation centre

A geographically concentrated area containing a *generating unit* or *generating units* with significant combined generating capability.

generation dispatch offer

A notice submitted by a *Scheduled Generator* or *Semi-Scheduled Generator* to *AEMO* relating to the *dispatch* of a *scheduled generating unit* or a *semi-scheduled generating unit* in accordance with clause 3.8.6.

Generator

A person who engages in the activity of owning, controlling or operating a *generating system* that is *connected* to, or who otherwise *supplies* electricity to, a *transmission* or *distribution system* and who is registered by *AEMO* as a *Generator* under Chapter 2 and, for the purposes of Chapter 5, the term includes a person who is required to, or intends to register in that capacity.

Generator Energy Limitation Framework (GELF)

A description of the *energy constraints* that affect the ability of a *scheduled generating unit* to generate electricity prepared in accordance with the *EAAP guidelines*.

Generator transmission use of system, Generator transmission use of system service

A service provided to a *Generator* for:

(a) use of the *transmission network* which has been negotiated in accordance with clause 5.4A(f)(3)(i); or

(b) use of a *transmission investment* for the conveyance of electricity that can be reasonably allocated to a *Generator* on a locational basis.

global market ancillary service requirement

Has the meaning given to it by clause 3.8.1(e2).

good electricity industry practice

The exercise of that degree of skill, diligence, prudence and foresight that reasonably would be expected from a significant proportion of operators of *facilities* forming part of the *power system* for the *generation*, *transmission* or *supply* of electricity under conditions comparable to those applicable to the relevant *facility* consistent with *applicable regulatory instruments*, *reliability*, safety and environmental protection. The determination of comparable conditions is to take into account factors such as the relative size, duty, age and technological status of the relevant *facility* and the *applicable regulatory instruments*.

governor system

The automatic *control system* which regulates the speed of the power turbine of a *generating unit* through the control of the rate of entry into the *generating unit* of the primary *energy* input (for example, steam, gas or water).

high voltage (HV)

A *voltage* greater than 1 kV.

identified need

The reason why the *Transmission Network Service Provider* proposes that a particular investment be undertaken in respect of its *transmission network*.

Independent Member

A *Member* appointed to the *Information Exchange Committee* in that membership category as set out in the *Information Exchange Committee Election Procedures*.

independent person

A person who:

(a) is not a member, employee or member of staff of the *AER* or the *AEMC*;

(b) is not a director or employee of *AEMO*;

(c) is not a director or employee of, or partner in, a *Registered Participant*;

(d) does not have a direct or indirect financial interest (whether as shareholder, partner or other equity participant) in any *Registered Participant* or a *related body corporate* of any *Registered Participant*, other than an interest of less than 0.1% of the net shareholders funds of that entity (as determined at the date the relevant person is appointed to carry out a function under the *Rules*); or

(e) is not a director or employee of a *related body corporate* of any *Registered Participant*.

independently controllable two-terminal link

A *two-terminal link* through which the *power transfer* can be independently controlled within a range determined by the *power transfer capability* of the *two-terminal link* and the conditions prevailing in the rest of the *power system*.

indexed amount

As at any time and in relation to a dollar value that is expressly set out in Part C of Chapter 6 or Part C of Chapter 6A, that dollar value multiplied by CPI_a/CPI_b

where:

CPI_a is the *CPI* as at that time; and

CPI_b is the Consumer Price Index: All Groups Index Number, weighted average of eight capital cities published by the Australian Bureau of Statistics for the quarter ending 30 June 2006.

inflexible, inflexibility

In respect of a *scheduled generating unit*, *scheduled load* or *scheduled network service* for a *trading interval* means that the *scheduled generating unit*, *scheduled load* or *scheduled network service* is only able to be *dispatched* in the *trading interval* at a fixed *loading level* specified in accordance with clause 3.8.19(a).

Information Exchange Committee

The committee established under clause 7.2A.2(a).

Information Exchange Committee Annual Report

The annual report prepared by the *Information Exchange Committee* in accordance with the *Information Exchange Committee Operating Manual*.

Information Exchange Committee Election Procedures

The procedures of that title which set out the process for election of *Members*.

Information Exchange Committee Operating Manual

The manual of that title prepared by the *Information Exchange Committee* which sets out the processes pursuant to which the *Information Exchange Committee* operates.

Information Exchange Committee Recommendation

A recommendation made by the *Information Exchange Committee* to *AEMO* to make *B2B Procedures* or to *change* the *B2B Procedures*.

Information Exchange Committee Working Groups

The groups established by the *Information Exchange Committee* to assist with the *Information Exchange Committee Works Programme*.

Information Exchange Committee Works Programme

The work programme prepared by the *Information Exchange Committee* in respect of the development, implementation and operation of the *B2B Procedures* and other matters which are incidental to effective and efficient *B2B Communications*.

information guidelines

Guidelines made by the *AER* for the purpose of guiding a *Transmission Network Service Provider* in the submission of certified annual statements and other related information in accordance with clause 6A.17.2.

instrument transformer

Either a *current transformer* (*CT*) or a *voltage transformer* (*VT*).

insurance event

An event for which the risk of its occurrence is the subject of insurance taken out by or for a *Transmission Network Service Provider*, for which an allowance is provided in the *total revenue cap* for the *Transmission Network Service Provider* and in respect of which:

(a) the cost of the premium paid or required to be paid by the *Transmission Network Service Provider* in the *regulatory year* in which the cost of the premium changes is higher or lower than the premium that is provided for in the *maximum allowed revenue* for the provider for that *regulatory year* by an amount of more than 1% of the *maximum allowed revenue* for the provider for that *regulatory year*;

(b) the risk eventuates and, as a consequence, the *Transmission Network Service Provider* incurs or will incur all or part of a deductible where the amount so incurred or to be so incurred in a *regulatory year* is higher or lower than the allowance for the deductible (if any) that is provided for in the *maximum allowed revenue* for the provider for that *regulatory year* by an amount of more than 1% of the *maximum allowed revenue* for the provider for that *regulatory year*;

(c) insurance becomes unavailable to the *Transmission Network Service Provider*; or

(d) insurance becomes available to the *Transmission Network Service Provider* on terms materially different to those existing as at the time the *revenue determination* was made (other than as a result of any act or omission of the provider which is inconsistent with good electricity industry practice).

intending load

A proposed purchase of electricity at a *connection point* (the location of which may be undefined) which is classified as an *intending load* in accordance with Chapter 2.

Intending Participant

A person who is registered by *AEMO* as an *Intending Participant* under Chapter 2.

interconnection, interconnector, interconnect, interconnected

A *transmission line* or group of *transmission lines* that *connects* the *transmission networks* in adjacent *regions*.

interconnector flow

The quantity of electricity in MW being transmitted by an *interconnector*.

interested party

(a) In Chapter 5, a person including an end user or its *representative* who, in *AEMO*'s opinion, has or identifies itself to *AEMO* as having an interest in relation to the *network* planning and development activities covered under rule 5.6 or in the determination of *plant standards* covered under clause 5.3.3(b2).

(b) Despite the definition in (a) above, in clauses 5.6.6 and 5.6.6A a person including an end user or its *representative* who, in the *AER's* opinion, has or identifies itself to the *AER* as having the potential to suffer a material and adverse market impact from the proposed *transmission investment* that is the *preferred option* identified in the *project assessment conclusions report*.

(c) In Chapter 6 or Chapter 6A, a person (not being a *Registered Participant* or *AEMO*) that has, in the *AER's* opinion, or identifies itself to the *AER* as having, an interest in the *Transmission Ring-Fencing Guidelines* or the *Distribution Ring-Fencing Guidelines*.

(d) In Chapter 2, a person including an end user or its *representative* who, in *AEMO's* opinion, has or identifies itself to *AEMO* as having an interest in relation to the structure of *Participant Fees*.

interim statement

Has the meaning given in clause 3.3.11(a)(1).

intermediary

A person who is registered by *AEMO* as a *Generator* or a *Network Service Provider* instead of another person who, in the absence of an exemption under clause 2.9.3, would be required to be registered as such under the *Rules*.

intermittent

A description of a *generating unit* whose output is not readily predictable, including, without limitation, solar generators, wave turbine generators, wind turbine generators and hydro-generators without any material storage capability.

inter-network test

A test conducted for the purpose of verifying the magnitude of the *power transfer capability* of more than one *transmission network* in accordance with clause 5.7.7.

inter-network testing constraint

A *constraint* on a *transmission network* as contemplated by clause 5.7.7.

inter-regional

Between *regions*.

inter-regional loss factor

A *marginal loss factor* determined according to clause 3.6.1.

inter-regional losses

Has the meaning given to it by clause 3.6.1(a).

interruptible load

A *load* which is able to be *disconnected*, either manually or automatically initiated, which is provided for the restoration or control of the *power system frequency* by *AEMO* to cater for *contingency events* or shortages of *supply*.

interval energy data

The data that results from the measurement of the flow of electricity in a power conductor where the data is prepared by a *data logger* into intervals which correspond to a *trading interval* or are sub-multiples of a *trading interval*.

intervention price dispatch interval

A *dispatch interval* declared by *AEMO* to be an *intervention price dispatch interval* in accordance with clause 3.9.3.

intervention price trading interval

A *trading interval* in which *AEMO* has declared an *intervention price dispatch interval* in accordance with clause 3.9.3.

intervention settlement timetable

Has the meaning given in clause 3.12.1(b).

intra-regional

Within a *region*.

intra-regional loss factor

A *marginal loss factor* determined according to clause 3.6.2.

intra-regional losses

Has the meaning given to it by clause 3.6.2(a).

invoiced amount

The aggregate of the *settlement statements*, *interim*, *preliminary* or *final*, which at the time of issue of a *call notice* are unpaid by the *Market Participant*, notwithstanding that the usual time for issue or payment of those *settlement statements* has not been reached.

involuntary load shedding

Load shedding where the *load* shed is not an *interruptible load* except *load* under the control of underfrequency relays as described in clause S5.1.10.1(a), or a *scheduled load*.

isolation

Electrical isolation of one part of a communication system from another but where the passage of *electronic data transfer* is not prevented.

Jurisdictional System Security Coordinator

A person appointed by the *Minister* of a *participating jurisdiction* in accordance with section 110 of the *National Electricity Law*.

jurisdictional derogation

Has the meaning given in the *National Electricity Law*. The jurisdictional derogations are included in Chapter 9.

jurisdictional electricity legislation

Has the meaning given to that term in the *National Electricity Law*.

jurisdictional metrology material

Jurisdictional metrology matters that are to be included in the *metrology procedure* for one or more of the *participating jurisdictions* and which is submitted by the *Ministers of the MCE* to *AEMO* under clause 7.14.2.

Jurisdictional NMI Standing Data schedule

The schedules described in clause 3.13.12(a), as amended from time to time in accordance with clause 3.13.12(b).

Jurisdictional NMI Standing Data suppliers

Registered Participants which are required by the relevant *participating jurisdiction's* legislation or licensing requirements to supply *NMI Standing Data* in respect of *connection points* in that *participating jurisdiction* to *AEMO*.

jurisdictional planning body

The entity nominated by the relevant *Minister* of a *participating jurisdiction* as having *transmission system* planning responsibility in that *participating jurisdiction*.

jurisdictional planning representative

The *representative* from the *jurisdictional planning body* for a *participating jurisdiction* nominated by that *jurisdictional planning body* as the *jurisdictional planning representative* for that *participating jurisdiction*.

Jurisdictional Regulator

The person authorised by a *participating jurisdiction* to regulate *distribution service* prices in that jurisdiction.

lack of reserve (LOR)

Any of the conditions described in clause 4.8.4(b), (c) or (d).

last resort planning power

The *AEMC's* power to direct a *Registered Participant* under clause 5.6.4(c).

last resort planning power guidelines

The guidelines made by the *AEMC* relating to the exercise of the *last resort planning power* and referred to in clause 5.6.4(o)-(r).

load

A *connection point* or defined set of *connection points* at which electrical power is delivered to a person or to another *network* or the amount of electrical power delivered at a defined instant at a *connection point*, or aggregated over a defined set of *connection points.*

load centre

A geographically concentrated area containing *load* or *loads* with a significant combined consumption capability.

load class

A grouping of customers with like *load* characteristics.

load shedding

Reducing or disconnecting *load* from the *power system*.

load shedding procedures

The procedures developed by *AEMO* for each *participating jurisdiction* in accordance with clause 4.3.2(h) for the implementation of the *load shedding* priority and *sensitive load* priority advised by that *Jurisdictional System Security Coordinator* under clauses 4.3.2(f)(1) and (2).

loading level

The level of output, consumption or power flow (in MW) of a *generating unit, load* or *scheduled network service*.

loading price

The price specified for a *price band* and a *trading interval* in a *dispatch offer*, in accordance with clause 3.8.6, for the *dispatch* of a *scheduled generating unit* at a level above its *self-dispatch level.*

local area/local

The geographical area allocated to a *Network Service Provider* by the authority responsible for administering the *jurisdictional electricity legislation* in the relevant *participating jurisdiction.*

local black system procedures

The procedures, described in clause 4.8.12, applicable to a *local area* as approved by *AEMO* from time to time.

local market ancillary service requirement

Has the meaning given to it by clause 3.8.1(e2).

Local Network Service Provider

Within a *local area*, a *Network Service Provider* to which that geographical area has been allocated by the authority responsible for administering the *jurisdictional electricity legislation* in the relevant *participating jurisdiction.*

Local Retailer

In relation to a *local area*, the *Customer* who is:

1. a business unit or *related body corporate* of the relevant *Local Network Service Provider*; or

2. responsible under the laws of the relevant *participating jurisdiction* for the *supply* of electricity to *franchise customers* in that *local area*; or

3. if neither 1 or 2 is applicable, such other *Customer* as *AEMO* may determine.

Local Retailer/Market Customer Member

A *Member* appointed to the *Information Exchange Committee* in that membership category as set out in the *Information Exchange Committee Election Procedures*.

local spot price

A price determined according to clause 3.9.1(c).

loss factor

A multiplier used to describe the *electrical energy loss* for electricity used or transmitted.

low reserve

The conditions described in clause 4.8.4(a).

major supply disruption

The unplanned absence of *voltage* on a part of the *transmission system* affecting one or more *power stations*.

mandatory restrictions

Restrictions imposed by a *participating jurisdiction* by a relevant law, other than the *Rules*, on the use of electricity in a *region*.

mandatory restriction period

The period of *mandatory restriction*s.

mandatory restriction schedule

A schedule prepared in accordance with clause 3.12A.2.

marginal electrical energy loss

The *electrical energy loss* associated with an infinitesimal increment in electricity produced, transported and/or used.

marginal loss factor

A multiplier used to describe the *marginal electrical energy loss* for electricity used or transmitted.

market

Any of the markets or exchanges described in the *Rules*, for so long as the market or exchange is conducted by *AEMO*.

market ancillary service

A service identified in clause 3.11.2(a).

market ancillary service offer

A notice submitted by an *Ancillary Service Provider* to *AEMO* in respect of a *market ancillary service* in accordance with clause 3.8.7A.

market ancillary service specification

Has the meaning given in clause 3.11.2(b).

market ancillary services commencement date

29 September 2001.

market auditor

A person appointed by *AEMO* to carry out a *review* under clause 3.13.10(a).

market commencement

The date declared as such by *AEMO*, on which trading in the *market* commences.

market connection point

A *connection point* where any *load* is classified in accordance with Chapter 2 as a *market load* or which *connects* any *market generating unit* to the *national grid*, or

where the *network service connected* at that *connection point* is a *market network service*.

Market Customer

A *Customer* who has classified any of its *loads* as a *market load* and who is also registered by *AEMO* as a *Market Customer* under Chapter 2.

market customer's additional claim

Has the meaning given in clause 3.12.2(g)(4).

market floor price

A price floor on *regional reference prices* as described in clause 3.9.6.

market generating unit

A *generating unit* whose *sent out generation* is not purchased in its entirety by the *Local Retailer* or by a *Customer* located at the same *connection point* and which has been classified as such in accordance with Chapter 2.

Market Generator

A *Generator* who has classified at least one *generating unit* as a *market generating unit* in accordance with Chapter 2 and who is also registered by *AEMO* as a *Market Generator* under Chapter 2.

market information

Information, other than *confidential information*, concerning the operation of the *spot market* or relating to the operation of, inputs to, or outputs from the *central dispatch* process.

market information bulletin board

A facility established by *AEMO* on the *electronic communication system* for the posting of information which may then be available to *Registered Participants*.

market load

A *load* at a *connection point* the electricity relating to which is purchased other than from the *Local Retailer* and which is classified by the person *connected* at that *connection point* or, with the consent of that person, by some other person, as a *market load* in accordance with Chapter 2. There can be more than one *market load* at any one *connection point.*

market management systems

AEMO's market information systems and associated communications networks used to support the electronic communication by *Registered Participants* and others connected to or making use of the systems and networks in the operation of the *market*.

Market Management Systems Access Procedures

The procedures to be followed by *Registered Participants* and *Metering Providers* in connecting to and making use of the *market management systems* from time to time *published* by *AEMO* under clause 3.19.

market network service

A *network service* which is classified as a *market network service* in accordance with clause 2.5.2.

Market Network Service Provider

A *Network Service Provider* who has classified any of its *network services* as a *market network service* in accordance with Chapter 2 and who is also registered by *AEMO* as a *Market Network Service Provider* under Chapter 2.

Market Participant

A person who is registered by *AEMO* as a *Market Generator, Market Customer* or *Market Network Service Provider* under Chapter 2.

Market Participant registered data

The data kept on the register in accordance with schedule 5.5.

market price cap

A price cap on *regional reference prices* as described in clause 3.9.4.

Market Settlement and Transfer Solution Procedures

The procedures from time to time *published* by *AEMO* under clause 7.2.8 which include those governing the recording of financial responsibility for *energy* flows at a *connection point*, the transfer of that responsibility between *Market Participants* and the recording of *energy* flows at a *connection point*.

market suspension

Suspension of the *market* by *AEMO* in accordance with clause 3.14.3.

material inter-network impact

A material impact on another *Transmission Network Service Provider's network*, which impact may include (without limitation):

(a) the imposition of *power transfer constraints* within another *Transmission Network Service Provider's network*; or

(b) an adverse impact on the quality of *supply* in another *Transmission Network Service Provider's network*.

materially

For the purposes of the application of clause 6A.7.3, an event (other than a *network support event*) results in a *Transmission Network Service Provider* incurring materially higher or materially lower costs if the change in costs (as opposed to the revenue impact) that the *Transmission Network Service Provider* has incurred and is likely to incur in any *regulatory year* of the *regulatory control period*, as a result of that event, exceeds 1% of the *maximum allowed revenue* for the *Transmission Network Service Provider* for that *regulatory year*. In other contexts, the word has its ordinary meaning.

maximum allowed revenue

For a *Transmission Network Service Provider*: the amount calculated as such for a *regulatory year* of a *regulatory control period* in accordance with rule 6A.3.

For *AEMO*: the amount calculated as such for a *regulatory year* of a *regulatory control period* in accordance with clause S6A.4.2(c)(4).

maximum credit limit

In relation to a *Market Participant* a credit limit determined by *AEMO* for that *Market Participant* in accordance with clause 3.3.8.

maximum demand

The highest amount of electrical power delivered, or forecast to be delivered, over a defined period (*day*, week, month, season or year) either at a *connection point*, or simultaneously at a defined set of *connection points*.

maximum enablement level

The maximum *energy* output (MW) at which the relevant *ancillary service* can be supplied.

maximum lower angle

The maximum angle at the lower end of the relevant *ancillary service* profile.

maximum power input (MPI)

The largest single *supply* input to a particular location or *region*, typically the output of the largest single *generating unit* or group of *generating units* or the highest *power transfer* of a single *transmission line* or *interconnection*.

maximum ramp rate

The *maximum ramp rate* that an item of equipment is capable of achieving in normal circumstances. This may be:

(a) as specified by the manufacturer; or

(b) as independently certified from time to time to reflect changes in the physical capabilities of the equipment.

maximum total payment

The amount determined in accordance with clause 3.15.22.

maximum upper angle

The maximum angle at the upper end of the relevant *ancillary service* profile.

measurement element

An energy measuring component which converts the flow of electricity in a power conductor into an electronic signal and / or a mechanically recorded electrical measurement.

medium term capacity reserve

At any time, the amount of surplus generating capacity indicated by the relevant *Generators* as being available for a particular period, being more than 7 *days* in the future but not more than 12 weeks, and which is assessed as being in excess of the capacity requirement to meet the forecast *load* demand, taking into account the known or historical levels of demand management.

medium term capacity reserve standard

The level of *medium term capacity reserves* required for a particular period as set out in the *power system security and reliability standards*.

medium-term PASA

The PASA in respect of the period from the 8th *day* after the current *trading day* to 24 months after the current *trading day* in accordance with clause 3.7.2.

Member

A person appointed to the *Information Exchange Committee* pursuant to the *Information Exchange Committee Election Procedures*, and includes all membership categories, unless a contrary intention appears.

meter

A device complying with *Australian Standards* which measures and records the production or consumption of electrical *energy*.

metering

Recording the production or consumption of electrical *energy*.

metering data

The data obtained from a *metering installation*, the processed data or substituted data.

metering database

A database of *metering data* and *settlements ready data* maintained and administered by *AEMO* in accordance with clause 7.9.

metering installation

The assembly of components and/or processes that are controlled for the purpose of metrology and which lie between the *metering point(s)* or *unmetered connection point* and the point of connection to the *telecommunications network*, as shown in schedule 7.1.

[**Note:** The assembly of components may include the combination of several metering points to derive the metering data for a connection point. The metering installation must be classified as a revenue metering installation and/or a check metering installation.]

metering point

The point of physical connection of the device measuring the current in the power conductor.

Metering Provider

A person who meets the requirements listed in schedule 7.4 and has been accredited by and registered by *AEMO* as a Metering Provider.

metering register

A register of information associated with a *metering installation* as required by schedule 7.5.

metering system

The collection of all components and arrangements installed or existing between each *metering point* and the *metering database*, as shown in schedule 7.1 .

metrology procedure

The procedure developed and published by *AEMO* in accordance with rule 7.14.

minimum access standard

In relation to a technical requirement of access, a standard of performance, identified in a schedule of Chapter 5 as a minimum access standard for that technical requirement, such that a *plant* that does not meet that standard will be denied access because of that technical requirement.

minimum enablement level

The minimum *energy* output (MW) at which the relevant *ancillary service* becomes available.

minimum technical ancillary service standards

The minimum technical service standards prepared by *AEMO* in accordance with clause 3.11.4.

Minister

A Minister that is a "Minister" under the *National Electricity Law*.

Minister of (a, that, another, or other, etc) participating jurisdiction

Has the same meaning as Minister of a participating jurisdiction has in the *National Electricity Law*.

Ministers of the MCE

Ministers of the participating jurisdictions acting as the MCE where MCE has the same meaning as in the *National Electricity Law*.

mis-pricing

For a particular *network* node within a nominated *region*, the difference between:

(a) the *regional reference price* for the *region*; and

(b) an estimate of the marginal value of *supply* at the *network* node, which marginal value is determined as the price of meeting an incremental change in *load* at that *network* node.

monitoring equipment

The testing instruments and devices used to record the performance of *plant* for comparison with expected performance.

month

Unless otherwise specified, the period beginning at 4.30 am on the relevant commencement date and ending at 4.30 am on the date in the next calendar month corresponding to the commencement date of the period.

nameplate rating

The maximum continuous output or consumption in MW of an item of equipment as specified by the manufacturer, or as subsequently modified.

NATA

National Association of Testing Authorities.

National Electricity Code

Has the same meaning as in the *National Electricity Law*.

National Electricity Law

The National Electricity Law set out in the schedule to the National Electricity (South Australia) Act 1996 (SA) and applied in each of the *participating jurisdictions.*

National Electricity Market

Has the same meaning as in the *National Electricity Law*.

national electricity objective

The objective stated in section 7 of the Law.

national grid

The sum of all *connected transmission systems* and *distribution systems* within the *participating jurisdictions*.

National Measurement Act

The National Measurement Act 1960 of the Commonwealth as amended from time to time.

national transmission flow path

That portion of a *transmission network* or *transmission networks* used to transport significant amounts of electricity between *generation centres* and *load centres.*

national transmission grid

Has the meaning given in the *National Electricity Law*.

NCAS

A *network control ancillary service*.

negative change event

For a *Transmission Network Service Provider*, a *pass through event* which entails the *Transmission Network Service Provider* incurring *materially* lower costs in providing *prescribed transmission services* than it would have incurred but for that event.

For a *Distribution Network Service Provider*, a *pass through event* that materially reduces the costs of providing *direct control services*.

negative network support event

A *network support event* which entails a *Transmission Network Service Provider* making lower *network support payments* in the preceding *regulatory year* than the amount of *network support payments* (if any) that is provided for in the *annual building block revenue requirement* for the provider for that *regulatory year*.

negative pass through amount

In respect of a *negative change event* for a *Transmission Network Service Provider*, an amount that is not greater than a *required pass through amount* as determined by the *AER* under clause 6A.7.3(g).

In respect of a *negative change event* for a *Distribution Network Service Provider*, an amount that is not greater than a *required pass through amount* as determined by the *AER* under clause 6.6.1(g).

negotiable service

(a) In relation to *transmission services* means *negotiated transmission services*.

(b) In relation to *distribution services* means *negotiated distribution services.*

negotiated access standard

In relation to a technical requirement of access for a particular *plant*, an agreed standard of performance determined in accordance with clause 5.3.4A and identified as a negotiated access standard for that technical requirement in a *connection agreement.*

negotiated distribution service

A *distribution service* that is a *negotiated network service* within the meaning of section 2C of the Law;

Negotiated Distribution Service Criteria

The criteria specified in a distribution determination in accordance with clause 6.7.4.

Negotiated Distribution Service Principles

The principles set out in clause 6.7.1.

negotiated transmission service

Any of the following services:

(a) a *shared transmission service* that:

(1) exceeds the *network* performance requirements (whether as to quality or quantity) (if any) as that *shared transmission service* is required to meet under any *jurisdictional electricity legislation*; or

(2) except to the extent that the *network* performance requirements which that *shared transmission service* is required to meet are prescribed under any *jurisdictional electricity legislation*, exceeds or does not meet the *network* performance requirements (whether as to quality or quantity) as are set out in schedule 5.1a or 5.1;

(b) *connection services* that are provided to serve a *Transmission Network User*, or group of *Transmission Network Users*, at a single *transmission network connection point*, other than *connection services* that are provided by one *Network Service Provider* to another *Network Service Provider* to *connect* their *networks* where neither of the *Network Service Providers* is a *Market Network Service Provider*; or

(c) *use of system services* provided to a *Transmission Network User* and referred to in rule 5.4A(f)(3) in relation to *augmentations* or *extensions* required to be undertaken on a *transmission network* as described in rule 5.4A,

but does not include an *above-standard system shared transmission service* or a *market network service*.

Negotiated Transmission Service Criteria

For a *Transmission Network Service Provider* under a *transmission determination*, the criteria set out in that *transmission determination* pursuant to clause 6A.9.4.

Negotiated Transmission Service Principles

The principles set out in clause 6A.9.1.

negotiated use of system service

A *use of system service* in respect of which:

(a) a *Connection Applicant* may negotiate with a *Transmission Network Service Provider*;

(b) an *Embedded Generator* may negotiate with a *Distribution Network Service Provider*; or

(c) a *Market Network Service Provider* may negotiate with a *Distribution Network Service Provider*,

in accordance with clauses 5.4A(f)(3) or 5.5(f)(3).

negotiated use of system charges

The charges described in clauses 5.4A(f)(3) or 5.5(f)(3).

negotiating framework

For a *Transmission Network Service Provider*, the negotiating framework approved or included by the *AER* for that *Transmission Network Service Provider* in a final decision under clause 6A.14.1(6).

For a *Distribution Network Service Provider*, a negotiating framework as approved or substituted by the *AER* in its final decision under clause 6.12.1(15).

NEM

The *National Electricity Market*.

network

The apparatus, equipment, plant and buildings used to convey, and control the conveyance of, electricity to customers (whether wholesale or retail) excluding any *connection assets*. In relation to a *Network Service Provider*, a *network* owned, operated or controlled by that *Network Service Provider*.

network capability

The capability of the *network* or part of the *network* to transfer electricity from one location to another.

network connection

The formation of a physical link between the *facilities* of two *Registered Participants* or a *Registered Participant* and a customer being a *connection* to a *transmission* or *distribution network* via *connection assets.*

network constraint

A *constraint* on a *transmission network* or *distribution network.*

network control ancillary service

A service identified in clause 3.11.4(a) which provides *AEMO* with a capability to control the real or *reactive power flow* into or out of a *transmission network* in order to:

(a) maintain the *transmission network* within its current, *voltage*, or stability limits following a *credible contingency event*; or

(b) enhance the value of *spot market* trading in conjunction with the *central dispatch* process.

network coupling point

The point at which *connection assets* join a *distribution network*, used to identify the *distribution service* price payable by a *Customer*.

network dispatch offer

An notice submitted by a *Scheduled Network Service Provider* to *AEMO* relating to the *dispatch* of a *scheduled network service* in accordance with clause 3.8.6A.

network element

A single identifiable major component of a *transmission system* or *distribution system* involving:

(a) an individual *transmission* or *distribution* circuit or a phase of that circuit; or

(b) a major item of apparatus or equipment associated with the function or operation of a *transmission line*, *distribution line* or an associated *substation* or *switchyard* which may include *transformers*, circuit breakers, *reactive plant* and *monitoring equipment* and control equipment.

network loop

A set of *network elements* that are *connected* together in the form of a closed path, that is in such a way that by progressing from each element to the next it is possible to return to the starting point.

network losses

Energy losses incurred in the transfer of electricity over a *transmission network* or *distribution network*.

network service

Transmission service or *distribution service* associated with the conveyance, and controlling the conveyance, of electricity through the *network*.

Network Service Provider

A person who engages in the activity of owning, controlling or operating a *transmission or distribution system* and who is registered by *AEMO* as a *Network Service Provider* under Chapter 2.

network service provider performance report

A report prepared by the *AER* under section 28V of the Law.

network support agreement

An agreement between a *Network Service Provider* and a *Market Participant* or any other person providing *network* support services to improve *network capability* by providing a non-*network* alternative to a *network augmentation*.

network support event

(a) If, at the end of a *regulatory year* of a *regulatory control period*, the amount of *network support payments* made by a *Transmission Network Service Provider* for that previous *regulatory year* is higher or lower than the amount of *network support payments* (if any) that is provided for in the *annual building block revenue requirement* for the *Transmission Network Service Provider* for that *regulatory year*, this constitutes a *network support event*.

(b) In calculating the amount for the purposes of a *network support event* referred to in paragraph (a), the amount of *network support payments* made

by a *Transmission Network Service Provider* must not include an amount of *network support payments* that are a substitute for a *network augmentation* where an allowance for capital expenditure in relation to that *network augmentation* has been provided for in the *revenue determination*.

network support pass through amount

The amount that should be passed through to *Transmission Network Users* in the *regulatory year* following the preceding *regulatory year*, in respect of a *network support event* for a *Transmission Network Service Provider*.

network support payment

A payment by a *Transmission Network Service Provider* to:

(a) any *Generator* providing *network* support services in accordance with clause 5.6.2; or

(b) any other person providing a *network* support service that is an alternative to *network augmentation*.

Network User

A *Generator*, a *Transmission Customer*, a *Distribution Customer* or a *Market Network Service Provider*.

new distribution network investment

Investment in a *new large distribution network asset* or a *new small distribution network asset*.

new large distribution network asset

An asset of a *Distribution Network Service Provider* which is an *augmentation* and in relation to which the *Distribution Network Service Provider* has estimated it will be required to invest a total capitalised expenditure in excess of $10 million, unless the *AER* publishes a requirement that a *new large distribution network asset* is to be distinguished from a *new small distribution network asset* if it involves investment of a total capitalised expenditure in excess of another amount, or satisfaction of another criterion. Where such a specification has been made, an asset must require total capitalised expenditure in excess of that amount or satisfaction of those other criteria to be a *new large distribution network asset*.

new network investment

Means:

(a) *new distribution network investment*; or

(b) investment in a *transmission network* asset of a *Transmission Network Service Provider* which is:

(1) an *augmentation*; and

(2) designed to address limitations in respect of a *distribution network* notified under clause 5.6.2(e)(2); and

(3) estimated by the *Transmission Network Service Provider* to have an estimated capital cost in excess of $5 million (as varied in accordance with a *cost threshold determination*).

new small distribution network asset

An asset of a *Distribution Network Service Provider* which is an *augmentation* and:

(a) in relation to which the *Distribution Network Service Provider* has estimated it will be required to invest a total capitalised expenditure in excess of $1 million, unless the *AER* publishes a requirement that an asset will be a *new small distribution network asset* if it involves investment of a total capitalised expenditure in excess of another amount, or satisfaction of another criterion. Where such specification has been made, an asset must require total capitalised expenditure in excess of that amount or satisfaction of those other criteria to be a *new small distribution network asset*; and

(b) is not a *new large distribution network asset*.

NMAS

A *non-market ancillary service*.

NMI

A National Metering Identifier as described in clause 7.3.1(d).

NMI Standing Data

The following data in respect of a *connection point*:

(a) the *NMI* of the *connection point* and the street address of the relevant *connection point* to which that *NMI* is referable;

(b) the *NMI* checksum for the *connection point*;

(c) the identity of the *Local Network Service Provider*;

(d) the code (known as a TNI) identifying the relevant *transmission node* which identifies the *transmission loss factor* and/or *transmission use of system* charge for the *connection point*;

(e) the relevant *distribution loss factor* applicable to the *connection point*;

(f) the Network Tariff (identified by a code) applicable in respect of the *connection point*;

(g) the *NMI* classification code (as set out in the *Market Settlement and Transfer Solution Procedures*) of the *connection point*;

(h) the read cycle date, or date of next scheduled read or date in a relevant code representing the read cycle date or date of next scheduled read, for that *connection point*;

(i) the profile type applicable to the *connection point*; and

(j) such other categories of data as may be referred to in the *Market Settlement and Transfer Solution Procedures* as forming *NMI Standing Data*,

and, for the avoidance of doubt, does not include any *metering data* or other details of an end-user's consumption at that *connection point*.

nomenclature standards

The standards approved by *AEMO* in conjunction with the *Network Service Providers* relating to numbering, terminology and abbreviations used for information transfer between *Registered Participants* as provided for in clause 4.12.

nominal voltage

The design *voltage* level, nominated for a particular location on the *power system*, such that power lines and circuits that are electrically connected other than through transformers have the same *nominal voltage* regardless of operating *voltage* and *normal voltage*.

non-credible contingency event

An event described in clause 4.2.3(e).

non-market ancillary service

Network control ancillary services and *system restart ancillary services*.

non-market generating unit

A *generating unit* whose *sent out generation* is purchased in its entirety by the *Local Retailer* or by a *Customer* located at the same *connection* point and which has been classified as such in accordance with Chapter 2.

Non-Market Generator

A *Generator* who has classified a *generating unit* as a *non-market generating unit* in accordance with Chapter 2.

Non-Registered Customer

A person who:

1. purchases electricity through a *connection point* with the *national grid* other than from the *spot market;* and

2. is eligible to be registered by *AEMO* as a *Customer* and to classify the *load* described in (1) as a *first-tier load* or a *second-tier load*, but is not so registered.

non-regulated transmission services

A *transmission service* that is neither a *prescribed transmission service* nor a *negotiated transmission service*.

non-scheduled generating unit

A *generating unit* so classified in accordance with Chapter 2.

non-scheduled generating system

A *generating system* comprising *non-scheduled generating units.*

Non-Scheduled Generator

A *Generator* in respect of which any *generating unit* is classified as a *non-scheduled generating unit* in accordance with Chapter 2.

non-scheduled load

A *market load* which is not a *scheduled load*.

non semi-dispatch interval

For a *semi-scheduled generating unit*, a *dispatch interval* other than a *semi-dispatch interval*.

normal operating frequency band

In relation to the *frequency* of the *power system*, means the range 49.9Hz to 50.1Hz or such other range so specified in the *power system security and reliability standards*.

normal operating frequency excursion band

In relation to the *frequency* of the *power system*, means the range specified as being acceptable for infrequent and momentary excursions of *frequency* outside the *normal operating frequency band*, being the range of 49.75 Hz to 50.25 Hz or such other range so specified in the *power system security and reliability standards*.

normal voltage

In respect of a *connection point*, its *nominal voltage* or such other *voltage* up to 10% higher or lower than *nominal voltage*, as approved by *AEMO*, for that *connection point* at the request of the *Network Service Provider* who provides *connection* to the *power system*.

normally off

Describes a *scheduled load* which, unless *dispatched* in accordance with its *dispatch bid*, and in accordance with clause 3.8.7(j), should be considered as being switched off.

normally on

Describes a *scheduled load* which, unless *dispatched* in accordance with its *dispatch bid*, and in accordance with clause 3.8.7(i), should be considered as being switched on.

NTNDP

The National Transmission Network Development Plan as defined in the *National Electricity Law*.

NTNDP database

The database that *AEMO* is required to establish and maintain under clause 5.6A.4.

NTNDP inputs

Has the meaning given in clause 5.6A.4.

NTP functions

Has the meaning given in the *National Electricity Law*.

off-loading price

The price specified for a *price band* and a *trading interval* in a *dispatch offer*, in accordance with clause 3.8.6, for the *off-loading* of a *scheduled generating unit* below its *self-dispatch level*.

off-loading price band

A *price band* submitted for *off-loading* below a *self-dispatch level* for a *trading interval* in a *dispatch offer*.

off-loading, off-load

The reduction in electricity output or consumption.

operating expenditure criteria

For a *Transmission Network Service Provider* – the matters listed in clause 6A.6.6(c)(1)–(3).

For a *Distribution Network Service Provider* – the matters listed in clause 6.5.6(c)(1)–(3).

operating expenditure factors

For a *Transmission Network Service Provider* – the factors listed in clause 6A.6.6(e)(1)–(10).

For a *Distribution Network Service Provider* – the factors listed in clause 6.5.6(e)(1)–(10).

operating expenditure objectives

For a *Transmission Network Service Provider* – the objectives set out in clause 6A.6.6(a).

For a *Distribution Network Service Provider* – the objectives set out in clause 6.5.6(a).

operational communication

A communication concerning the arrangements for, or actual operation of, the *power system* in accordance with the *Rules*.

operational frequency tolerance band

The range of *frequency* within which the *power system* is to be operated to cater for the occurrence of a *contingency event* as specified in the *power system security and reliability standards*.

outage

Any full or partial unavailability of equipment or *facility*.

outstandings

In relation to a *Market Participant*, the dollar amount determined by the formula in clause 3.3.9.

over-recovery amount

Any amount by which the revenue earned from the provision of *prescribed transmission services* in previous *financial years* exceeds the sum of the *AARR* in those *financial years*, grossed up by the application of an annual interest rate approved by the *AER* for this purpose.

Participant compensation fund

The fund of that name referred to in clause 3.16.

participant derogation

Has the meaning given in the *National Electricity Law*. The participant derogations are included in Chapter 8A.

Participant fees

The fees payable by *Registered Participants* described in clause 2.11.

participating jurisdiction

A jurisdiction that is a "participating jurisdiction" under the *National Electricity Law*.

PASA availability

The *physical plant capability* of a *scheduled generating unit*, *scheduled load* or *scheduled network* service, including any capability that can be made available within 24 hours.

pass through event

Any of the following is a pass through event:

(a) a regulatory change event;

(b) a service standard event;

(c) a tax change event;

(d) a terrorism event.

An *insurance event* is a pass through event for a *transmission determination* (in addition to those listed above).

An event nominated in a distribution determination as a pass through event is a pass through event for the determination (in addition to those listed above).

payment date

The 20th *business day* after the end of a *billing period.*

payment period

The typical period between trading and payment defined in schedule 3.3.

peak load

Maximum *load*.

performance incentive scheme parameters

For a *service target performance incentive scheme*, those parameters that are *published* by the *AER* in respect of that scheme pursuant to clause 6A.7.4(c).

performance standard

A standard of performance that:

(a) is established as a result of it being taken to be an applicable performance standard in accordance with clause 5.3.4A(i); or

(b) is included in the register of *performance standards* established and maintained by *AEMO* under rule 4.14(n),

as the case may be.

performance standards commencement date

For:

(a) *Generators*, *Customers* and *Network Service Providers* who plan, own, operate or control a *facility* located in a *participating jurisdiction* (other than Tasmania), the *performance standards commencement date* is, in relation to that *facility*, 16 November 2003; and

(b) *Generators*, *Customers* and *Network Service Providers* who plan, own, operate or control a *facility* located in Tasmania, the *performance standards commencement date* is, in relation to that *facility*, the date that Tasmania becomes a *participating jurisdiction*.

physical plant capability

The maximum MW output or consumption which an item of electrical equipment is capable of achieving for a given period.

planned network event

An event which has been planned by a *Transmission Network Service Provider*, *AEMO* or a *Market Participant* that is likely to materially affect *network constraints* in relation to a *transmission system*, including but not limited to:

(a) a *network outage*;

(b) the *connection* or *disconnection* of *generating units* or *load*;

(c) the commissioning or decommissioning of a *network* asset or the provision of new or modified *network control ancillary services*; and

(d) the provision of services under a *network support agreement*.

plant

In relation to a *connection point*, includes all equipment involved in generating, utilising or transmitting electrical *energy*.

In relation to *dispatch bids and offers*, controllable generating equipment and controllable *loads.*

In relation to the *statement of opportunities* prepared by *AEMO*, individually controllable generating facilities registered or capable of being registered with *AEMO*.

In relation to the *regulatory investment test for transmission*, any of the above definitions for *plant* relevant to the application of the *regulatory investment test for transmission* to a proposed *transmission investment.*

plant availability

The *active power capability* of a *generating unit* (in MW), based on the availability of its electrical power conversion process and assuming no fuel supply limitations on the *energy* available for input to that electrical power conversion process.

plant standard

An Australian or international standard or a part thereof that:

(a) the *Reliability Panel* determines to be an acceptable alternative to a particular *minimum access standard* or *automatic access standard* for a particular class of *plant*, or

(b) a schedule in Chapter 5 establishes as an acceptable alternative to a particular *minimum access standard* or *automatic access standard* for a particular class of *plant*.

positive change event

For a *Transmission Network Service Provider*, a *pass through event* which entails the *Transmission Network Service Provider* incurring *materially* higher costs in providing *prescribed transmission services* than it would have incurred but for that event, but does not include a *contingent project* or an associated *trigger event*.

For a *Distribution Network Service Provider*, a *pass through event* that materially increases the costs of providing *direct control services*.

positive network support event

A *network support event* which entails a *Transmission Network Service Provider* making higher *network support payments* in the preceding *regulatory year* than the amount of *network support payments* (if any) that is provided for in the *annual building block revenue requirement* for the provider for that *regulatory year*.

positive pass through amount

For a *Transmission Network Service Provider*, an amount (not exceeding the *eligible pass through amount*) proposed by the provider under clause 6A.7.3(c).

For a *Distribution Network Service Provider*, an amount (not exceeding the *eligible pass through amount*) proposed by the provider under clause 6.6.1(c).

postage stamp basis

A system of charging *Network Users* for *transmission service* or *distribution service* in which the price per unit is the same regardless of how much *energy* is used by the *Network User* or the location in the *transmission network* or *distribution network* of the *Network User*.

post-tax revenue model

For a *Transmission Network Service Provider*, the model prepared and *published* by the *AER* in accordance with clause 6A.5.1.

For a *Distribution Network Service Provider*, the model prepared and *published* by the *AER* in accordance with clause 6.4.1.

potential transmission project

New network investment only in respect of a *transmission network* which the *AEMC* identifies as likely, if constructed, to relieve forecast *constraints* in respect of *national transmission flow paths* between *regional reference nodes*.

potential value

In relation to a *transaction* for a *Market Participant*, the dollar amount determined by the procedure in clause 3.3.14.

power factor

The ratio of the *active power* to the *apparent power* at a *metering point*.

power station

In relation to a *Generator*, a *facility* in which any of that *Generator's generating units* are located.

power system

The electricity power system of the *national grid* including associated *generation* and *transmission* and *distribution networks* for the *supply* of electricity, operated as an integrated arrangement.

power system damping

The rate at which disturbances to the *satisfactory operating state* reduce in magnitude.

power system demand

The total *load* (in MW) supplied by the *power system*.

power system operating procedures

The procedures to be followed by *Registered Participants* in carrying out operations and/or maintenance activities on or in relation to primary and *secondary equipment connected* to or forming part of the *power system* or *connection points*, as described in clause 4.10.1.

power system reserve constraint

A *constraint* in the *central dispatch* due to the need to provide or maintain a specified type and level of *scheduled reserve*.

power system security

The safe scheduling, operation and control of the *power system* on a continuous basis in accordance with the principles set out in clause 4.2.6.

power system security and reliability standards

The standards (other than the *system restart standard*) governing *power system security* and *reliability* of the *power system* to be approved by the *Reliability Panel* on the advice of *AEMO*, but which may include but are not limited to standards for the *frequency* of the *power system* in operation, *contingency capacity* reserves (including guidelines for assessing requirements), *short term capacity reserves* and *medium term capacity reserves*.

power transfer

The instantaneous rate at which *active energy* is transferred between *connection points*.

power transfer capability

The maximum permitted *power transfer* through a *transmission* or *distribution network* or part thereof.

pre-dispatch

Forecast of *dispatch* performed one *day* before the *trading day* on which *dispatch* is scheduled to occur.

pre-dispatch schedule

A schedule prepared in accordance with clause 3.8.20(a).

preferred option

Has the meaning given in clause 5.6.5B(b).

preliminary program

The program to be prepared by a *Network Service Provider* showing proposed milestones for *connection* and access activities as specified in clause 5.3.3(b)(6).

preliminary statement

Has the meaning given in clause 3.15.14(a).

prescribed common transmission services

Prescribed transmission services that provide equivalent benefits to all *Transmission Customers* who have a *connection point* with the relevant *transmission network* without any differentiation based on their location within the *transmission system.*

prescribed connection services

Services that are either *prescribed entry services* or *prescribed exit services*.

prescribed entry services

Entry services that are *prescribed transmission services* by virtue of the operation of clause 11.6.11.

prescribed exit services

Exit services that are *prescribed transmission services* by virtue of the operation of clause 11.6.11 and *exit services* provided to *Distribution Network Service Providers*.

prescribed shared transmission services

Shared transmission services that are *prescribed TUOS service* or *prescribed common transmission services.*

prescribed transmission service

Any of the following services:

(a) a *shared transmission service* that:

(1) does not exceed such *network* performance requirements (whether as to quality or quantity) as that *shared transmission service* is required to meet under any *jurisdictional electricity legislation*;

(2) except to the extent that the *network* performance requirements which that *shared transmission service* is required to meet are prescribed under any *jurisdictional electricity legislation*, does not exceed such *network* performance requirements (whether as to quality or quantity) as are set out in schedule 5.1a or 5.1; or

(3) is an *above-standard system shared transmission service;*

(b) services that are required to be provided by a *Transmission Network Service Provider* under the *Rules*, or in accordance with *jurisdictional electricity legislation*, to the extent such services relate to the provision of the services referred to in paragraph (a), including such of those services as are:

(1) required by *AEMO* to be provided under the *Rules*; and

(2) necessary to ensure the integrity of a *transmission network*, including through the maintenance of *power system security* and assisting in the planning of the *power system*; or

(c) *connection services* that are provided by a *Transmission Network Service Provider* to another *Network Service Provider* to *connect* their *networks* where neither of the *Network Service Providers* is a *Market Network Service Provider*;

but does not include a *negotiated transmission service* or a *market network service*.

prescribed TUOS services or prescribed transmission use of system services;

Prescribed transmission services that:

(a) provide different benefits to *Transmission Customers* who have a *connection point* with the relevant *transmission network* depending on their location within the *transmission system*; and

(b) are not *prescribed common transmission services*, *prescribed entry services* or *prescribed exit services*.

price band

A MW quantity specified in a *dispatch bid*, *dispatch offer* or *market ancillary service offer* as being available for *dispatch* at a specified price.

pricing methodology

For a *Transmission Network Service Provider*, means the pricing methodology approved by the *AER* for that *Transmission Network Service Provider* and included in a *transmission determination* as referred to in rule 6A.24.

pricing methodology guidelines

Guidelines made by the *AER* under rule 6A.25 that contain the matters set out in clause 6A.25.2.

Pricing Principles for Prescribed Transmission Services

The principles set out in rule 6A.23.

pricing proposal

A pricing proposal under Part I of Chapter 6.

pricing zone

A geographic area within which *Network Users* are charged a specific set of *distribution service* prices.

primary restart service

A *system restart ancillary service* that meets the technical and availability requirements of a *primary restart service* specified by *AEMO* under clause 3.11.4A(d).

profile

Energy data or costs for a period longer than a *trading interval* allocated into *trading intervals*.

project assessment conclusions report

The report prepared under clauses 5.6.6(s) or 5.6.6(t).

project assessment draft report

The report prepared under clause 5.6.6(j).

project specification consultation report

The report prepared under clause 5.6.6(c).

projected assessment of system adequacy process ("PASA")

The medium term and short term processes described in clause 3.7 to be administered by *AEMO*.

Proponent

In respect of clause 5.7.7 has the meaning given in clause 5.7.7(a).

proposed contingent capital expenditure

The total forecast capital expenditure for the relevant *proposed contingent project*, as included in the *Revenue Proposal* for that project.

proposed contingent project

A proposal by a *Transmission Network Service Provider* as part of a *Revenue Proposal* for a project to be determined by the *AER* as a *contingent project* for the purposes of a *revenue determination* in accordance with clause 6A.8.1(b).

prospective reallocation

A *reallocation transaction* that occurs in a *trading interval* that takes place at a time after the *reallocation request* is made.

protected information

Has the meaning given in the *National Electricity Law*.

protection system

A system, which includes equipment, used to protect a *Registered Participant's facilities* from damage due to an electrical or mechanical fault or due to certain conditions of the *power system*.

prudential margin

A dollar amount to be determined by *AEMO* in accordance with clause 3.3.8.

prudential requirements

The requirements which must be satisfied as a condition of eligibility to remain a *Market Participant* in accordance with clause 3.3.

publish/publication

A document is published by the *AER* if it is:

(a) published on the *AER*'s website; and

(b) made available for public inspection at the *AER*'s public offices; and

(c) in the case of a document inviting submissions from members of the public – published in a newspaper circulating generally throughout Australia.

A document is published by someone else if it is made available to *Registered Participants* electronically.

ramp rate

The rate of change of *active power* (expressed as MW/minute) required for *dispatch.*

rated active power

(1) In relation to a *generating unit*, the maximum amount of *active power* that the *generating unit* can continuously deliver at the *connection point* when operating at its *nameplate rating*.

(2) In relation to a *generating system*, the combined maximum amount of *active power* that its in-service *generating units* can deliver at the *connection point*, when its in-service *generating units* are operating at their *nameplate ratings.*

reaction period

The estimated period of time taken to remove defaulting *Market Participants* from the *market* as defined in schedule 3.3.

reactive energy

A measure, in varhour–(varh), of the alternating exchange of stored energy in inductors and capacitors, which is the time-integral of the product of *voltage* and the out-of-phase component of current flow across a *connection point*.

reactive plant

Plant which is normally specifically provided to be capable of providing or absorbing *reactive power* and includes the *plant* identified in clause 4.5.1(g).

reactive power

The rate at which *reactive energy* is transferred.

Reactive power is a necessary component of alternating current electricity which is separate from *active power* and is predominantly consumed in the creation of magnetic fields in motors and *transformers* and produced by *plant* such as:

(a) alternating current generators;

(b) capacitors, including the capacitive effect of parallel *transmission* wires; and

(c) *synchronous condensers*.

reactive power capability

The maximum rate at which *reactive energy* may be transferred from a *generating unit* to a *connection point* as specified or proposed to be specified in a *connection agreement* (as the case may be).

reactive power reserve

Unutilised sources of *reactive power* arranged to be available to cater for the possibility of the unavailability of another source of *reactive power* or increased requirements for *reactive power*.

reactive power support/reactive support

The provision of *reactive power*.

reactor

A device, similar to a *transformer*, specifically arranged to be *connected* into the *transmission system* during periods of low *load* demand or low *reactive power* demand to counteract the natural capacitive effects of long *transmission lines* in generating excess *reactive power* and so correct any *transmission voltage* effects during these periods.

reallocation

A process under which two *Market Participants* request *AEMO* to make matching debits and credits to the position of those *Market Participants* with *AEMO*.

reallocation amount

In respect of a *Market Participant*, the positive or negative dollar amount in respect of a *reallocation transaction* being an amount payable to or by the *Market Participant*.

reallocation procedures

The procedures *published* by *AEMO* under clause 3.15.11A.

reallocation request

A request to *AEMO* for a *reallocation*, pursuant to clause 3.15.11(c).

reallocation transaction

A *transaction* which occurs when the applicable *trading interval* specified in a *reallocation request* occurs and the *reallocation request* has been registered and not deregistered before the expiration of the *trading interval*.

Reallocator

A person registered as a Reallocator by *AEMO* in accordance with rule 2.5B.

reasonable worst case

A position that, while not being impossible, is to a probability level that the estimate would not be exceeded more than once in 48 months.

rebid

A variation to a bid or offer made in accordance with clause 3.8.22.

reconfiguration investment

Has the meaning given in clause 5.6.5C(a)(5).

reduced payment period request

A written request to *AEMO* for the purpose of schedule 3.3, paragraph VI(C).

Referred Affected Participant

An *Affected Participant* who has a claim referred to an independent expert pursuant to clauses 3.12.2(l) or 3.12.2(m).

Referred Directed Participant

A *Directed Participant* who has a claim referred to an independent expert pursuant to clauses 3.15.7B(c) or 3.15.7B(d).

Referred Market Customer

A *Market Customer* who has a claim referred to an independent expert pursuant to clauses 3.12.2(l) or 3.12.2(m).

region, regional

An area determined by the *AEMC* in accordance with Chapter 2A, being an area served by a particular part of the *transmission network* containing one or more major *load centres* or *generation centres* or both.

regional benefit directions procedures

Has the meaning given in clause 3.15.8(b2).

regional reference node

A location on a *transmission* or *distribution network* to be determined for each *region* by the *AEMC* in accordance with Chapter 2A.

regional reference price

Spot price at the *regional reference node*.

regional specific power system operating procedures

The procedures described in clause 4.10.1(a)(3).

Regions Publication

The document *published* by *AEMO* under clause 2A.1.3 that provides a list of all *regions*, *regional reference nodes* and the *region* to which each *market connection point* is assigned.

~~**registered bid and offer data**~~

~~Data submitted by *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* to *AEMO* in relation to their *scheduled loads*, *scheduled generating units*, *semi-scheduled generating units* and *scheduled market network services* in accordance with schedule 3.1.~~

Registered Participant

A person who is registered by *AEMO* in any one or more of the categories listed in clauses 2.2 to 2.7 (in the case of a person who is registered by *AEMO* as a *Trader*, such a person is only a *Registered Participant* for the purposes referred to in clause 2.5A). However, as set out in clause 8.2.1(a1), for the purposes of some provisions of clause 8.2 only, *AEMO* and *Connection Applicants* who are not otherwise *Registered Participants* are also deemed to be *Registered Participants*.

Registered Participant Agent

An agent of a *Registered Participant* appointed under clause 4.11.5.

regulated interconnector

An *interconnector* which is referred to in clause 11.8.2 of the *Rules* and is subject to *transmission service* regulation and pricing arrangements in Chapter 6A.

regulating capability

The capability to perform *regulating duty*.

regulating capability constraints

Constraints on the formulation of a realisable *dispatch* or *predispatch schedule* due to the need to provide for *regulating capability*.

regulating duty

In relation to a *generating unit*, the duty to have its *generated* output adjusted frequently so that any *power system frequency* variations can be corrected.

regulating lower service

The service of controlling the level of *generation* or *load* associated with a particular *facility*, in accordance with the requirements of the *market ancillary service specification*, in accordance with electronic signals from *AEMO* in order to lower the *frequency* of the *power system.*

regulating raise service

The service of controlling the level of *generation* or *load* associated with a particular *facility*, in accordance with the requirements of the *market ancillary service specification*, in accordance with electronic signals from *AEMO* in order to raise the *frequency* of the *power system.*

regulation services

The *regulating raise service* and *regulating lower service*.

regulatory change event

A change in a *regulatory obligation* or *requirement* that:

(a) falls within no other category of *pass through event*; and

(b) occurs during the course of a *regulatory control period*; and

(c) substantially affects the manner in which the *Transmission Network Service Provider* provides *prescribed transmission services* or the *Distribution Network Service Provider* provides *direct control services* (as the case requires); and

(d) *materially* increases or *materially* decreases the costs of providing those services.

regulatory control period

(a) In respect of a *Transmission Network Service Provider*, a period of not less than 5 *regulatory years* in which a *total revenue cap* applies to that provider by virtue of a *revenue determination*.

(b) In respect of a *Distribution Network Service Provider*, a period of not less than 5 *regulatory years* for which the provider is subject to a control mechanism imposed by a distribution determination.

regulatory investment test for transmission

The test developed and *published* by the *AER* in accordance with clause 5.6.5B, as in force from time to time, and includes amendments made in accordance with clause 5.6.5B.

regulatory investment test for transmission application guidelines

The guidelines developed and *published* by the *AER* in accordance with clause 5.6.5B as in force from time to time, and includes amendments made in accordance with clause 5.6.5B.

regulatory obligation or requirement

Has the meaning assigned in the Law.

regulatory proposal

A proposal (by a *Distribution Network Service Provider*) under rule 6.8.

regulatory test

The test developed and published by the *AER* in accordance with clause 5.6.5A, as in force from time to time, and includes amendments made in accordance with clause 5.6.5A.

regulatory year

Each consecutive period of 12 calendar months in a *regulatory control period*, the first such 12 month period commencing at the beginning of the *regulatory control period* and the final 12 month period ending at the end of the *regulatory control period*. For *AEMO*, each *financial year* is a *regulatory year*.

related body corporate

In relation to a body corporate, a body corporate that is related to the first-mentioned body by virtue of the Corporations Act 2001 (Cth).

releasable user guide

A document associated with a functional block diagram and model source code provided under clause S5.2.4(b) (combined, forming the "**model**"), that contains sufficient information to enable a *Registered Participant* to use encrypted model source code provided under clause 3.13.3(l) to carry out *power system* studies for

planning and operational purposes. The information in a releasable user guide must include, but is not limited to:

(1) the **model** parameters and their values;

(2) information about how the **model** parameter values vary with the operating state or output level of the *plant* or with the operating state or output level of any associated *plant*;

(3) instructions relevant to the use and operation of the encrypted model source code provided under clause 3.13.3(l);

(4) settings of *protection systems* that are relevant to load flow or dynamic simulation studies;

(5) information provided in accordance with Schedule 5.5 only to the extent that the information is not a part of the **model** or the **model** parameters and that is reasonably necessary to allow modelling of the *generating unit*, *generating system* or related *plant* in *power system* load flow or dynamic simulation studies;

(6) *connection point* details including its parameters and values, location, *network augmentations* or modifications and other relevant *connection* information; and

(7) if the *generating unit* or *generating system*, as appropriate, is not yet *connected*, the expected *connection* and commissioning dates.

relevant AEMO intervention event

A *AEMO intervention event* that involves the exercise of the *reliability and emergency reserve trader* in accordance with rule 3.20 as referred to in paragraph (b) of the definition of *AEMO intervention event*.

relevant tax

Any tax payable by a *Transmission Network Service Provider* or a *Distribution Network Service Provider* other than:

(a) income tax and capital gains tax;

(b) stamp duty, financial institutions duty and bank accounts debits tax;

(c) penalties, charges, fees and interest on late payments, or deficiencies in payments, relating to any tax; or

(d) any tax that replaces or is the equivalent of or similar to any of the taxes referred to in paragraphs (a) to (b) (including any State equivalent tax).

Relevant Transmission Network Service Provider, Relevant TNSP

In respect of clause 5.7.7 has the meaning given in clause 5.7.7(a).

reliability

The probability of a system, device, *plant* or equipment performing its function adequately for the period of time intended, under the operating conditions encountered.

reliability and emergency reserve trader (RERT)

The actions taken by *AEMO* as referred to in clause 3.20.2, in accordance with rule 3.20, to ensure reliability of *supply*.

reliability augmentation

A *transmission network augmentation* that is necessitated principally by inability to meet the minimum *network* performance requirements set out in schedule 5.1 or in relevant legislation, regulations or any statutory instrument of a *participating jurisdiction*.

reliability corrective action

Investment by a *Transmission Network Service Provider* in respect of its *transmission network* for the purpose of meeting the service standards linked to the technical requirements of schedule 5.1 or in *applicable regulatory instruments* and which may consist of *network* or non-*network* options.

Reliability Panel

The panel established by the *AEMC* under section 38 of the *National Electricity Law*.

reliability standard

A standard as set out in the *power system security and reliability standards*, determined by the *Reliability Panel* under clause 8.8.3(a)(1).

reliable

The expression of a recognised degree of confidence in the certainty of an event or action occurring when expected.

reliable operating state

In relation to the *power system*, has the meaning set out in clause 4.2.7.

remote acquisition

The acquisition of interval *metering data* from a *metering installation*, where the acquisition process transmits the *metering data* from the site of the *metering point* to the *metering database*, and does not, at any time, require the presence of a person at, or near, the interval *meter* for the purposes of data collection or data verification (whether this occurs manually as a walk-by reading or through the use of a vehicle as a close proximity drive-by reading), and remote acquisition includes but is not limited to methods that transmit *metering data* via:

(1) direct dial-up;

(2) satellite;

(3) the internet;

(4) a general packet radio service;

(5) power line carrier; or

(6) any other equivalent technology.

remote control equipment

Equipment used to control the operation of elements of a *power station* or *substation* from a *control centre*.

remote monitoring equipment

Equipment installed to enable monitoring of a *facility* from a *control centre.*

replacement transmission network asset

A proposed new asset of a *Transmission Network Service Provider* which the relevant *Transmission Network Service Provider* reasonably estimates to have an estimated capital cost in excess of $5 million (as varied in accordance with a *cost threshold determination*) and which will replace any existing element of its *transmission network*. For the avoidance of doubt, if the cost of replacing any existing element also results in an *augmentation* to the *network*, then such an asset must be included in this definition where the *Transmission Network Service Provider* has estimated that the asset will have an estimated capital cost in excess of $5 million.

representative

In relation to a person, any employee, agent or professional adviser of:

(a) that person; or

(b) a *related body corporate* of that person; or

(c) a third party contractor to that person.

required pass through amount

In respect of a *negative change event* for a *Transmission Network Service Provider*, the costs in the provision of *prescribed transmission services* that the *Transmission Network Service Provider* has saved and is likely to save until the end of the *regulatory control period* as a result of that *negative change event* (as opposed to the revenue impact of that event).

In respect of a negative change event for a *Distribution Network Service Provider*, the costs in the provision of *direct control services* that the *Distribution Network Service Provider* has saved and is likely to save up to the end of the *regulatory control period* as a result of the *negative change event* (as opposed to the revenue impact of that event).

RERT guidelines

The guidelines developed and *published* by the *Reliability Panel* under clause 3.20.8.

RERT principles

The principles referred to in clause 3.20.2(b).

reserve

Scheduled reserve or *unscheduled reserve*.

reserve contract

A *scheduled reserve contract* or an *unscheduled reserve contract*.

response breakpoint

(a) In relation to a *market ancillary service offer* to raise the *frequency* of the *power system*, the level of associated *generation* or *load* (in MW) above which the amount of response specified in the *offer* reduces with increased *generation* or *load* level; and

(b) in relation to a *market ancillary service offer* to lower the *frequency* of the *power system*, the level of associated *generation* or *load* (in MW) below which the amount of response specified in the *offer* reduces with decreased *generation* or *load* level.

response capability

(a) In relation to a *market ancillary service offer* to raise the *frequency* of the *power system*, the amount of the response in (MW) which is specified in the *offer* for every level of associated *generation* or *load* below the associated *response breakpoint*; and

(b) in relation to a *market ancillary service offer* to lower the *frequency* of the *power system*, the amount of the response in (MW) which is specified in the *offer* for every level of associated *generation* or *load* above the associated *response breakpoint.*

responsible person

The person who has responsibility for the provision of a *metering installation* for a particular *connection point*, being either the *Local Network Service Provider* or the *Market Participant* as described in Chapter 7.

restriction demand reduction

The reduction in a *Market Customer's* demand due to the imposition of *mandatory restrictions* as reasonably determined by an independent expert in accordance with clause 3.12A.7. For the avoidance of doubt, the reduction of a *Market Customer's* demand due to the imposition of *mandatory restrictions* should exclude any reduction in its demand which the *Market Customer* claims was due to the operation of *generation* and as reasonably verified by the independent expert in a similar manner to that used by the independent expert to determine restrictions due to demand management.

restriction offer

An offer by a *Scheduled Generator* or a *Scheduled Network Service Provider* to provide capacity to *AEMO* for all or part of a *mandatory restriction period* made in accordance with the *restriction offer procedures.*

restriction offer procedures

The procedures developed by *AEMO* in accordance with clause 3.12A.1.

restriction shortfall amount

The amount determined in accordance with clause 3.12A.7(b).

retailer of last resort

In relation to a jurisdiction, means a person or persons required under the retailer of last resort arrangements of that jurisdiction to assume the obligations under the *Rules* (including the obligation to pay *trading amounts* and other amounts due under the *Rules*) of a *Market Customer* that has defaulted in the performance of its obligations under the *Rules*.

revenue determination

A determination referred to in clause 6A.2.2(1) and rule 6A.4 as substituted (if at all) pursuant to clause 6A.7.1 or rule 6A.15 or as amended pursuant to clause 6A.8.2.

revenue meter

The *meter* that is used for obtaining the primary source of *metering data*.

revenue metering data

The *metering data* obtained from a *revenue metering installation*.

revenue metering installation

A *metering installation* used as the primary source of *metering data* for the *settlements* process.

revenue metering point

The *metering point* at which the *revenue metering installation* is *connected*.

Revenue Proposal

For a *Transmission Network Service Provider*, a proposal submitted or resubmitted by the *Transmission Network Service Provider* to the *AER* pursuant to clause 6A.10.1(a), clause 6A.11.2 or clause 6A.12.3(a) (as the context requires).

review

An examination of the specified matters conducted to the standard specified for a "review" in Auditing Standard AUS106: "Explanatory Framework for standards on Audit and Audit Related Services" prepared by the Auditing Standards Board, as varied from time to time.

revised statement

A statement issued by *AEMO* under clause 3.15.19 following the resolution of a dispute regarding a *final statement*.

RMS phase voltage

The *voltage* of *supply* measured as the average of the root mean square of the *voltages* between each pair of phases.

roll forward model

According to context:

(a) the model developed and published by the *AER* for the roll forward of the regulatory asset base for *transmission systems* in accordance with clause 6A.6.1;

(b) the model developed and published by the *AER* for the roll forward of the regulatory asset base for *distribution systems* in accordance with clause 6.5.1.

routine revised statement

A *settlement statement* issued by *AEMO* under clause 3.15.19(b).

Rule fund

A fund referred to in clause 1.11(a).

Rules

The rules called the National Electricity Rules made under Part 7 of *the National Electricity Law* as amended from time to time in accordance with that Part.

Rules bodies

Any person or body, other than *AEMO*, the *AER*, the *AEMC*, or the *ACCC*, that is appointed or constituted by the *Rules* to perform functions under the *Rules*.

Rules consultation procedures

The procedures for consultation with *Registered Participants* or other persons as set out in clause 8.9.

satisfactory operating state

In relation to the *power system*, has the meaning given in clause 4.2.2.

scheduled generating unit

(a) A *generating unit* so classified in accordance with Chapter 2.

(b) For the purposes of Chapter 3 and rule 4.9, two or more *generating units* referred to in paragraph (a) that have been aggregated in accordance with clause 3.8.3.

scheduled generating system

A *generating system* comprising *scheduled generating units.*

Scheduled Generator

A *Generator* in respect of which any *generating unit* is classified as a *scheduled generating unit* in accordance with Chapter 2.

scheduled high price

The dollar amount per MWh or MW, as the case may be, determined as such by *AEMO* pursuant to clause 3.3.17.

scheduled load

(a) A *market load* which has been classified by *AEMO* in accordance with Chapter 2 as a *scheduled load* at the *Market Customer's* request. Under Chapter 3, a *Market Customer* may submit *dispatch bids* in relation to *scheduled loads.*

(b) For the purposes of Chapter 3 and rule 4.9, two or more *scheduled loads* referred to in paragraph (a) that have been aggregated in accordance with clause 3.8.3.

scheduled low price

The dollar amount per MWh or MW, as the case may be, determined as such by *AEMO* pursuant to clause 3.3.17.

scheduled network service

(a) A *network service* which is classified as a *scheduled network service* in accordance with Chapter 2.

(b) For the purposes of Chapter 3 and rule 4.9, two or more *scheduled network services* referred to in paragraph (a) that have been aggregated in accordance with clause 3.8.3.

Scheduled Network Service Provider

A *Network Service Provider* who has classified any of its *network services* as a *scheduled network service.*

scheduled plant

In respect of a *Registered Participant*, a *scheduled generating unit*, a *semi-scheduled generating unit*, a *scheduled network service* or a *scheduled load* classified by or in respect to that *Registered Participant* in accordance with Chapter 2.

scheduled reserve

The amount of surplus or unused capacity:

(a) of *scheduled generating units*;

(b) of *scheduled network services*; or

(c) arising out of the ability to reduce *scheduled loads*.

scheduled reserve contract

A contract entered into by *AEMO* for the provision of *scheduled reserve* in accordance with rule 3.20.

scheduling error

Scheduling error means any of the events described in clause 3.8.24(a).

secondary equipment

Those assets of a *Market Participant*'s *facility* which do not carry the *energy* being traded, but which are required for control, protection or operation of assets which carry such *energy*.

secondary restart service

A *system restart ancillary service* that meets the technical and availability requirements of a *secondary restart service* specified by *AEMO* under clause 3.11.4A(d).

Second-Tier Customer

A *Customer* which has classified any *load* as a *second-tier load* in accordance with Chapter 2.

second-tier load

Electricity purchased at a *connection point* in its entirety other than directly from the *Local Retailer* or the *spot market* and which is classified as a *second-tier load* in accordance with Chapter 2.

secure operating state

In relation to the *power system* has the meaning given in clause 4.2.4.

self-commitment, self-commit

Commitment, where the decision to *commit* a *generating unit* was made by the relevant *Generator* without instruction or direction from *AEMO*.

self-decommitment

Decommitment, where the decision to *decommit* a *generating unit* was made by the relevant *Generator* without instruction or direction from *AEMO*.

semi-dispatch interval

For a *semi-scheduled generating unit*, a *dispatch interval* for which either:

(a) a *network constraint* would be violated if the *semi-scheduled generating unit's generation* were to exceed the *dispatch level* specified in the related *dispatch instruction* at the end of the *dispatch interval*; or

(b) the *dispatch level* specified in that *dispatch instruction* is less than the *unconstrained intermittent generation forecast* at the end of the *dispatch interval*,

and which is notified by *AEMO* in that *dispatch instruction* to be a *semi-dispatch interval*.

self-dispatch level

The level of *generation* in MW, as specified in a *dispatch offer* for a *generating unit* and a *trading interval*, which is the level at which that *generating unit* must be *dispatched* by *AEMO* in that *trading interval* unless otherwise *dispatched* in accordance with clause 3.8 or unless required to operate under a *direction* issued by *AEMO* in accordance with clause 4.8.9.

semi-scheduled generating system

A *generating system* comprising *semi-scheduled generating units*.

semi-scheduled generating unit

(a) A *generating unit* classified in accordance with clause 2.2.7.

(b) For the purposes of Chapter 3 and rule 4.9, two or more *generating units* referred to in paragraph (a) that have been aggregated in accordance with clause 3.8.3.

Semi-Scheduled Generator

A *Generator* in respect of which any *generating unit* is classified as a *semi-scheduled generating unit* in accordance with Chapter 2.

sensitive loads

Loads defined as sensitive for each *participating jurisdiction* by the *Jurisdictional System Security Coordinator* for that *participating jurisdiction*.

sent out generation

In relation to a *generating unit*, the amount of electricity *supplied* to the *transmission* or *distribution network* at its *connection point*.

Service Applicant

According to context:

(a) a person who is an existing or intending *Registered Participant* or a person who is eligible to become a *Registered Participant*; or

(b) a person who asks a *Distribution Network Service Provider* for access to a *distribution service*.

service standard event

A legislative or administrative act or decision that:

(a) has the effect of:

(i) substantially varying, during the course of a *regulatory control period*, the manner in which a *Transmission Network Service Provider* is required to provide a *prescribed transmission service*, or a *Distribution Network Service Provider* is required to provide a *direct control service*; or

(ii) imposing, removing or varying, during the course of a *regulatory control period*, minimum service standards applicable to *prescribed transmission services* or *direct control services*; or

(iii) altering, during the course of a *regulatory control period*, the nature or scope of the *prescribed transmission services* or *direct control services*, provided by the service provider; and

(b) *materially* increases or *materially* decreases the costs to the service provider of providing *prescribed transmission services* or *direct control services*.

service target performance incentive scheme

A For a *Transmission Network Service Provider* – a scheme developed and *published* by the *AER* in accordance with clause 6A.7.4.

For a *Distribution Network Service Provider* – a scheme developed and *published* by the *AER* in accordance with clause 6.6.2.

settlement amount

The amount calculated by *AEMO* pursuant to clause 3.15.12.

settlement statement

Includes an *interim statement*, *preliminary statement* and *final statement.*

settlements

The activity of producing bills and credit notes for *Market Participants*.

settlements ready data

The *metering data* that has undergone a validation and substitution process by *AEMO* for the purpose of *settlements* and is delivered to the *metering database.*

settlements residue

Any surplus or deficit of funds retained by *AEMO* upon completion of *settlements* to all *Market Participants* in respect of a *trading interval*.

settlement residue committee

The committee established by *AEMO* in accordance with clause 3.18.5.

settlement residue distribution agreement or SRD agreement

Has the meaning given in clause 3.18.1(b).

shared distribution service

A service provided to a *Distribution Network User* for use of a *distribution network* for the conveyance of electricity (including a service that ensures the integrity of the related *distribution system*).

shared network capability service

Has the meaning given in the *National Electricity Law*.

shared transmission service

A service provided to a *Transmission Network User* for use of a *transmission network* for the conveyance of electricity (including a service that ensures the integrity of the related *transmission system*).

short circuit fault

A fault having a metallic conducting path between any two or more conductors or between any conductor and ground, including touching conductors and faults through earthing facilities, and excluding faults within equipment at a station.

short term capacity reserve

At any time, the amount of surplus or unused generating capacity indicated by the relevant *Generators* as being available for any half hour period during the next 7 *days* and which is assessed as being in excess of the capacity requirement to meet

the current forecast *load* demand, taking into account the known or historical levels of demand management.

short term capacity reserve standard

The level of *short term capacity reserve* required for a particular period in accordance with the *power system security and reliability standards*.

short term PASA

The *PASA* in respect of the period from 2 *days* after the current *trading day* to the end of the 7th day after the current *trading day* inclusive in respect of each *trading interval* in that period.

short term PASA inputs

The inputs to be prepared by *AEMO* in accordance with clause 3.7.3(d).

shunt capacitor

A type of *plant connected* to a *network* to generate *reactive power*.

shunt reactor

A type of *plant connected* to a *network* to absorb *reactive power*.

single contingency

In respect of a *transmission* or *distribution network* and *Network Users*, a sequence of related events which result in the removal from service of one *Network User*, *transmission* or *distribution line*, or *transformer*. The sequence of events may include the application and clearance of a fault of defined severity.

slow lower service

The service of providing, in accordance with the requirements of the *market ancillary service specification*, the capability of controlling the level of *generation* or *load* associated with a particular *facility* in response to the locally sensed *frequency* of the *power system* in order to stabilise a rise in that *frequency*.

slow raise service

The service of providing, in accordance with the requirements of the *market ancillary service specification*, the capability of controlling the level of *generation* or *load* associated with a particular *facility* in response to the locally sensed *frequency* of the *power system* in order to stabilise a fall in that *frequency*.

slow start generating unit

A *generating unit* described in clause 3.8.17(a).

slow start reserve generating unit

A *slow start generating unit* providing *scheduled reserve*.

Special Participant

A *System Operator* or a *Distribution System Operator*.

special revised statement

A *settlement statement* issued by *AEMO* under clause 3.15.19(a)(3).

spot market

The spot market established and operated by *AEMO* in accordance with clause 3.4.1.

spot market transaction

A transaction as defined pursuant to clause 3.15.6 which occurs in the *spot market*.

spot price

The price for electricity in a *trading interval* at a *regional reference node* or a *connection point* as determined in accordance with clause 3.9.2.

spot price forecast

A forecast of the *spot price*.

SRAS

A *system restart ancillary service*.

stand-alone amount

For a *category of prescribed transmission services*, the costs of a *transmission system* asset that would have been incurred had that *transmission system* asset been developed, exclusively to provide that *category of prescribed transmission services*.

standard control service

A *direct control service* that is subject to a control mechanism based on a *Distribution Network Service Provider's total revenue requirement*.

Standards Australia

The Standards Association of Australia and includes its heirs or successors in business.

statement of opportunities

A statement prepared by *AEMO* to provide information to assist *Scheduled Generators*, *Semi-Scheduled Generators*, *Transmission Network Service Providers* and *Market Participants* in making an assessment of the future need for

electricity generating or demand management capacity or augmentation of the *power system*.

statement of regulatory intent

A statement issued by the *AER* under clause 6.5.4(c).

static excitation system

An *excitation control system* in which the power to the rotor of a *synchronous generating unit* is transmitted through high power solid-state electronic devices.

static VAR compensator

A device specifically provided on a *network* to provide the ability to generate and absorb *reactive power* and to respond automatically and rapidly to *voltage* fluctuations or *voltage* instability arising from a disturbance or disruption on the *network*.

submission guidelines

The guidelines made by the *AER* in accordance with rule 6A.10 for the purposes of guiding a *Transmission Network Service Provider* in the submission of a *Revenue Proposal* under Part E of Chapter 6A.

substation

A *facility* at which two or more lines are switched for operational purposes. May include one or more *transformers* so that some *connected* lines operate at different nominal *voltages* to others.

supply

The delivery of electricity.

survey period

An agreed sample period used to determine the allocation of costs and prices for use of *transmission network* or *distribution network* assets.

suspended region

A region in which the *spot market* is suspended in accordance with clause 3.14.5(a).

suspension notice

A notice issued by *AEMO* to a *defaulting Market Participant* pursuant to clause 3.15.21(c).

switchyard

The *connection point* of *a generating unit* into the *network*, generally involving the ability to *connect* the *generating unit* to one or more outgoing *network* circuits.

Sydney time

Eastern Standard Time or Eastern Daylight Saving Time as applicable in Sydney.

synchronise

The act of *synchronising* a *generating unit* or a *scheduled network service* to the *power system*.

synchronising, synchronisation

To electrically *connect* a *generating unit* or a *scheduled network service* to the *power system*.

synchronous condensors

Plant, similar in construction to a *generating unit* of the *synchronous generator* category, which operates at the equivalent speed of the *frequency* of the *power system*, specifically provided to generate or absorb *reactive power* through the adjustment of rotor current.

synchronous generating unit

The alternating current generators of most thermal and hydro (water) driven power turbines which operate at the equivalent speed of the *frequency* of the *power system* in its *satisfactory operating state*.

synchronous generator voltage control

The automatic *voltage control system* of a *generating unit* of the *synchronous generator* category which changes the output *voltage* of the *generating unit* through the adjustment of the generator rotor current and effectively changes the *reactive power* output from that *generating unit.*

System Operator

A person whom *AEMO* has engaged as its agent, or appointed as its delegate, under clause 4.3.3 to carry out some or all of *AEMO's* rights, functions and obligations under Chapter 4 of the *Rules* and who is registered by *AEMO* as a *System Operator* under Chapter 2.

system restart ancillary service

A service provided by *facilities* with *black start capability* which allows:

(a) *energy* to be supplied; and

(b) a *connection* to be established,

sufficient to restart large *generating units* following a *major supply disruption*.

system restart plan

The plan described in clause 4.8.12(a).

system restart standard

The standard as determined by the *Reliability Panel* in accordance with clause 8.8.3(a)(1a), for the acquisition of *system restart ancillary services*.

system standard

A standard for the performance of the *power system* as set out in schedule 5.1a.

system-wide benefits

Benefits that extend beyond a *Transmission Network User*, or group of *Transmission Network Users*, at a single *transmission connection point* to other *Transmission Network Users*.

take or pay contract

A contract between a buyer and a seller of an asset-based service under which the buyer undertakes to pay regularly to the seller a fixed or minimum sum regardless of the actual level of consumption of the service by the buyer. The contract has the effect of transferring market risk associated with the assets from the seller (as the owner of the assets) to the buyer.

tap-changing transformer

A *transformer* with the capability to allow internal adjustment of output *voltages* which can be automatically or manually initiated and which is used as a major component in the control of the *voltage* of *transmission* and *distribution networks* in conjunction with the operation of *reactive plant*. The *connection point* of a *generating unit* may have an associated tap-changing transformer, usually provided by the *Generator*.

tariff class

A class of customers for one or more *direct control services* who are subject to a particular tariff or particular tariffs.

tax

Any tax, levy, impost, deduction, charge, rate, rebate, duty, fee or withholding which is levied or imposed by an *Authority*.

tax change event

A tax change event occurs if:

(a) any of the following occurs during the course of a *regulatory control period* for a *Transmission Network Service Provider* or a *Distribution Network Service Provider*:

(i) a change in a *relevant tax*, in the application or official interpretation of a *relevant tax*, in the rate of a *relevant tax*, or in the way a *relevant tax* is calculated;

(ii) the removal of a *relevant tax*;

(iii) the imposition of a *relevant tax*; and

(b) in consequence, the costs to the service provider of providing *prescribed transmission services* or *direct control services* are materially increased or decreased.

technical envelope

The limits described in clause 4.2.5.

telecommunications network

A telecommunications network that provides access for public use or an alternate telecommunications network that has been approved by *AEMO* for the delivery of *metering data*.

template for generator compliance programs

The template determined and *published* by the *Reliability Panel* under clause 8.8.3 of the *Rules*.

terms and conditions of access

According to context:

(a) the terms and conditions described in clause 6A.1.2 (access to transmission services);

(b) the terms and conditions described in clause 6.1.3 (access to *distribution services*).

terrorism event

An act (including, but not limited to, the use of force or violence or the threat of force or violence) of any person or group of persons (whether acting alone or on behalf of in connection with any organisation or government), which from its nature or context is done for, or in connection with, political, religious, ideological, ethnic or similar purposes or reasons (including the intention to influence or intimidate any government and/or put the public, or any section of the public, in fear) and which *materially* increases the costs to a *Transmission Network Service Provider* of providing *prescribed transmission services* or the costs to a *Distribution Network Service Provider* of providing *direct control services*.

test program

In respect of an *inter-network test*, means the program and co-ordination arrangements for the test including, without limitation:

(1) test procedures;

(2) the proposed timing of the test;

(3) operational procedures to manage *power system security* during the test;

(4) required *power system* conditions for conducting the test;

(5) test facilitation services including, as necessary, *ancillary services* required to achieve those *power system* conditions;

(6) criteria for continuing or concluding a test and the decision-making process relevant to the test; and

(7) contingency arrangements.

tie

Identically priced *dispatch bids* or *dispatch offers*.

time

Eastern Standard Time.

time stamp

The means of identifying the *time* and date at which data is transmitted or received.

timetable

The timetable published by *AEMO* under clause 3.4.3 for the operation of the *spot market* and the provision of *market* information.

total revenue cap

For a *Transmission Network Service Provider* for a *regulatory control period*, the sum of the *maximum allowed revenues* for that provider for each *regulatory year* of that *regulatory control period* as calculated in accordance with clause 6A.5.3 and set out in a *revenue determination*.

total revenue requirement

For a *Distribution Network Service Provider*, an amount representing revenue calculated for the whole of a *regulatory control period* in accordance with Part C of Chapter 6.

Trader

A person who is registered by *AEMO* as a *Trader* under Chapter 2.

trading amount

The positive or negative dollar amount resulting from a *transaction*, determined pursuant to clauses 3.15.6, 3.15.6A or 3.15.11.

trading day

The 24 hour period commencing at 4.00 am and finishing at 4.00 am on the following *day*.

trading interval

A 30 minute period ending on the hour (EST) or on the half hour and, where identified by a time, means the 30 minute period ending at that time.

trading limit

A dollar amount for a *Market Participant*, determined pursuant to clause 3.3.10.

trading margin

Has the meaning given in clause 3.3.15.

transaction

A *spot market transaction*, *reallocation transaction* or any other transaction either in the *market* or to which *AEMO* is a party.

transformer

A *plant* or device that reduces or increases the *voltage* of alternating current.

transformer tap position

Where a tap changer is fitted to a *transformer*, each tap position represents a change in *voltage* ratio of the *transformer* which can be manually or automatically adjusted to change the *transformer* output *voltage*. The tap position is used as a reference for the output *voltage* of the *transformer*.

transmission

Activities pertaining to a *transmission system* including the conveyance of electricity through that *transmission system*.

transmission consultation procedures

The procedures set out in Part H of Chapter 6A that must be followed by:

(a) the *AER* in making, developing or amending guidelines, models or schemes or in reviewing methodologies; or

(b) the *AEMC* in developing or amending guidelines.

Transmission Customer

A *Customer*, *Non-Registered Customer* or *Distribution Network Service Provider* having a *connection point* with a *transmission network*.

transmission determination

Has the meaning given in the *National Electricity Law*, and includes a determination by the *AER* as described in rule 6A.2.

transmission element

A single identifiable major component of a *transmission system* involving:

(a) an individual *transmission* circuit or a phase of that circuit;

(b) a major item of *transmission plant* necessary for the functioning of a particular *transmission* circuit or *connection point* (such as a *transformer* or a circuit breaker).

transmission investment

Expenditure on assets and services which is undertaken by a *Transmission Network Service Provider* or any other person to address an *identified need* in respect of its *transmission network*.

transmission line

A power line that is part of a *transmission network*.

transmission network

A *network* within any *participating jurisdiction* operating at nominal *voltages* of 220 kV and above plus:

(a) any part of a *network* operating at nominal *voltages* between 66 kV and 220 kV that operates in parallel to and provides support to the higher voltage *transmission network*;

(b) any part of a *network* operating at nominal *voltages* between 66 kV and 220 kV that is not referred to in paragraph (a) but is deemed by the *AER* to be part of the *transmission network*.

transmission network connection point

A *connection point* on a *transmission network*.

Transmission Network Service Provider

A person who engages in the activity of owning, controlling or operating a *transmission system*.

Transmission Network User

In relation to a *transmission network*, a *Transmission Customer*, a *Generator* whose *generating unit* is directly *connected* to the *transmission network* or a *Network Service Provider* whose *network* is *connected* to the *transmission network.*

transmission network user access

The *power transfer capability* of the *transmission network* in respect of:

(a) *generating units* or group of *generating units*;

(b) *network elements*; or

(c) plant,

at a *connection point* which has been negotiated in accordance with rule 5.4A.

transmission or distribution system

A *transmission system* or *distribution system* that:

1. is used to convey, and control the conveyance of, electricity to customers (whether wholesale or retail); and

2. is *connected* to another such system.

transmission plant

Apparatus or equipment associated with the function or operation of a *transmission line* or an associated *substation* or *switchyard*, which may include *transformers*, circuit breakers, *reactive plant* and *monitoring equipment* and control equipment.

Transmission Ring-Fencing Guidelines

The Guidelines made under rule 6A.21.

transmission service

The services provided by means of, or in connection with, a *transmission system*.

transmission services access dispute

A dispute between a *Transmission Network Service Provider* and a *Service Applicant* as to *terms and conditions of access* for the provision of *prescribed transmission services* or for the provision of *negotiated transmission services* as referred to in clause 6A.1.2, that is for determination by a *commercial arbitrator* under Part K of Chapter 6A.

transmission standard control service

Has the meaning given in rule 6.25(a).

transmission standard control service revenue

Has the meaning given in rule 6.26(b)(1).

transmission system

A *transmission network*, together with the *connection assets* associated with the *transmission network*, which is connected to another *transmission or distribution system*.

transmission use of system, transmission use of system service

A *Generator transmission use of system service* or a *Customer transmission use of system service.*

trigger event

In relation to a *proposed contingent project* or a *contingent project*, a specific condition or event described in clause 6A.8.1(c), the occurrence of which, during the relevant *regulatory control period*, may result in the amendment of a *revenue determination* under clause 6A.8.2.

two-terminal link

One or more *network elements* that together enable the transfer of *energy* between two, and only two, *connection points.*

type 5 accumulation boundary

The volume of *energy* for a *connection point* above which the *metering data* that is extracted or emanates from a type 5 *metering installation* must be extracted or emanate as *interval energy data* for the purpose of producing *settlements ready data*.

[**Note:** Below the type 5 accumulation boundary, the metering data may be extracted or emanate from the metering installation as accumulated energy data for the purpose of producing settlements ready data, in which case the metering installation must be registered with *AEMO* as a type 6 metering installation. Otherwise the metering data may be extracted or emanate as interval energy data for the purpose of producing settlements ready data in which case the metering installation must be registered with *AEMO* as a type 5 metering installation.]

typical accrual

Has the meaning given in clause 3.3.12(a).

uncompleted transaction

Has the meaning given in clause 3.3.16(b).

unconstrained

Free of *constraint*.

unconstrained intermittent generation forecast

The forecast prepared by *AEMO* in accordance with rule 3.7B of the *available capacity* of each *semi-scheduled generating unit*.

under-recovery amount

Any amount by which the sum of the *AARR* in previous *financial years* exceeds the revenue earned from the provision of *prescribed transmission services* in those previous years, grossed up by the application of an annual interest rate approved by the *AER* for this purpose.

unmetered connection point

A *connection point* at which a *meter* is not necessary under schedule 7.2.

unscheduled reserve

The amount of surplus or unused capacity:

(a) of *generating units* (other than *scheduled generating units*); or

(b) arising out of the ability to reduce demand (other than a *scheduled load*).

unscheduled reserve contract

A contract entered into by *AEMO* for the provision of *unscheduled reserve* in accordance with rule 3.20.

unserved energy

The amount of *energy* that is demanded, but cannot be supplied, in a *region* and which is defined in accordance with the *power system security and reliability standards* and is expressed as:

(a) GWh; or

(b) a percentage of the total *energy* demanded in that *region* over a specific period of time such as a year.

use of system

Includes *transmission use of system* and *distribution use of system.*

use of system services

Transmission use of system service and *distribution use of system service.*

violation

In relation to *power system security*, a failure to meet the requirements of Chapter 4 or the *power system security and reliability standards.*

virtual transmission node

A non-physical node used for the purpose of *market settlements*, having a *transmission loss factor* determined in accordance with clause 3.6.2(b)(3).

voltage

The electronic force or electric potential between two points that gives rise to the flow of electricity.

voltage transformer (VT)

A *transformer* for use with *meters* and/or protection devices in which the *voltage* across the secondary terminals is, within prescribed error limits, proportional to and in phase with the *voltage* across the primary terminals.

WACC

Weighted average cost of capital.

weighted average cost of capital

For a *Transmission Network Service Provider* for a *regulatory control period*, the return on capital for that *Transmission Network Service Provider* for that *regulatory control period* as calculated in accordance with clauses 6A.6.2(b) to (e), and in any other case an amount determined in a manner consistent with schedule 6.1.

For a *Distribution Network Service Provider* for a *regulatory control period*, the return on capital for that *Distribution Network Service Provider* for that *regulatory control period* calculated in accordance with clause 6.5.2.