Australian Energy Market Commission

RULE CHANGE

CONSULTATION PAPER

National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010

Rule Proponent(s)
Ministerial Council on Energy

1 April 2010

Contents

1 Introduction

1.1 Rule change request

On 15 February 2010, the Ministerial Council on Energy (MCE) (Proponent) submitted a Rule change request to the Australian Energy Market Commission (AEMC or Commission) in relation to the introduction of a new framework for the efficient connection of clusters of new generation that are expected to seek to connect over a period of time. The purpose of the proposed Scale Efficient Network Extensions (SENEs) is to allow the connection of multiple generators to the shared network so as to prevent the inefficient duplication of connection assets that might otherwise occur.

This Consultation Paper has been prepared to facilitate public consultation on the Rule change proposal and does not represent the views of the AEMC or any individual Commissioner of the AEMC.

1.2 Rule change process

On 1 April 2010 the Commission published a notice under section 95 of the National Electricity Law (NEL) setting out its decision to commence the Rule change process for this Rule change request. Due to the complex nature of this proposed Rule, the AEMC does not propose to dispense with any of the steps in the process for assessing the Rule change request to ensure adequate consultation with stakeholders. The process set out in the National Electricity Rules (Rules) involves, at a minimum:

- at least four weeks of public consultation on the Rule change request (noting that we have extended this consultation period to six weeks for this Rule change);
- publication of the draft Rule determination within ten weeks of the close of public consultation on the Rule change request;
- an option for the Commission to hold a public hearing after the publication of the draft Rule determination;
- at least six weeks of public consultation on the draft rule determination; and
- publication of the final Rule determination within six weeks of the close of public consultation on the draft Rule determination.

Stakeholders should note that the Commission has the ability to extend the periods for publishing the draft and final Rule determinations for Rule change requests under section 107 of the NEL if the Commission considers that:[1]

1 Section 107 of the NEL.

"...a request for a Rule raises issues of sufficient complexity or difficulty or there is a material change in circumstances such that it is necessary that the relevant period of time...be extended."

Stakeholders should also note that the Commission may propose to make a more preferable Rule in certain cases under section 91A of the NEL, where the Commission is satisfied that the more preferable Rule will or is likely to better contribute to the achievement of the National Electricity Objective (NEO).[2] The Commission may also propose to make a more preferable Rule in view of the response to a draft Rule determination under section 102A of the NEL. In that case the Commission may:[3]

"(a) make, and publish notice of, a draft Rule determination in respect of the proposed more preferable Rule; or

(b) make, and publish notice of, a final Rule determination for the proposed more preferable Rule."

A draft or final Rule determination for a more preferable Rule must be published within six weeks of the close of public consultation on the original draft Rule determination.

1.3 This Consultation Paper

The remainder of this Consultation Paper is structured as follows:

- section 2 sets out the background to this Rule change proposal;
- section 3 highlights the issues this Rule change intended to address;
- section 4 sets out a summary of the proposed Rule change;
- section 5 discusses the proposed framework for assessing this Rule change request;
- section 6 identifies a number of issues and questions to guide stakeholders in responding to this Consultation Paper; and
- section 7 outlines the process for making submissions.

2 Section 91A of the NEL.

3 Section 102A of the NEL.

2 Background

2.1 Review of Energy Market Frameworks in light of Climate Change Policies

In August 2008, the MCE directed the AEMC to undertake a review of the existing energy market frameworks to assess whether they were resilient to the changes in behaviour that were likely to result from the planned introduction of the expanded Renewable Energy Target (RET) and the Carbon Pollution Reduction Scheme (CPRS). The Terms of Reference asked the AEMC to review both electricity and gas markets across all jurisdictions and to provide detailed advice on the implementation of any changes required to those markets.

The AEMC submitted its Final Report on the Review of Energy Market Frameworks in light of Climate Change Policies (Final Report) to the MCE on 30 September 2009.[4] The Final Report concluded that the energy market frameworks, supported by a number of recommended changes, are capable of accommodating the impacts of the expanded RET and CPRS.

The AEMC made a number of recommendations that seek to strengthen energy market frameworks to ensure they will be resilient to the changes in behaviour expected as a result of climate change policies. These include the introduction of inter-regional transmission use of system charges, enhanced capacity to manage reliability and improved locational signals for generators. One of the key recommended framework changes was the introduction of measures to promote the efficient connection of clusters of new generation to the electricity networks as new generation connects over time.

The MCE supported the AEMC's findings and recommendations in its response to the Final Report.[5] In particular, the MCE endorsed the recommendation regarding the efficient connection of clusters of generation, noting that the SENE framework will deliver benefits to the market by providing greater flexibility for the National Electricity Market (NEM) to respond to the challenges posed by climate change policies.[6] The MCE therefore requested that the AEMC progress the Rule change proposal, having regard to the contents of the MCE's response.

2.2 The expanded RET and CPRS

In August 2009, the legislation for the expanded RET was passed by the Australian Parliament. This scheme aims to ensure that twenty per cent of Australia's electricity

4 AEMC 2009, *Review of Energy Market Frameworks in light of Climate Change Policies: Final Report*, September 2009, Sydney. Available at www.aemc.gov.au.

5 Ministerial Council on Energy 2009, *Review of Energy Market Frameworks in light of Climate Change Policies: Response to Australian Energy Market Commission's Final Report*, December 2009.

6 Ministerial Council on Energy 2009, *Review of Energy Market Frameworks in light of Climate Change Policies: Response to Australian Energy Market Commission's Final Report*, December 2009, p.5.

supply is generated from renewable resources by 2020.[7] Annually increasing targets for renewable energy generation apply from January 2010 until 2020. The final target for 2020 will continue to apply until 2030.

The expanded RET obliges wholesale purchasers of electricity, such as retailers and large consumers, to contribute proportionately to the generation of additional renewable electricity. Each megawatt hour (MWh) of energy produced by an eligible renewable energy generator attracts a Renewable Energy Certificate (REC). Generators can sell these certificates to retailers. The RECs are bankable and obligated parties comply with the scheme by either surrendering the appropriate volume of certificates or paying the regulated penalty price, now set at $65 per MWh.

In February 2010, the Australian Government announced changes to the scheme.[8] Under the proposed enhanced RET, the existing scheme will be split into the Large-scale Renewable Energy Target (LRET) and the Small-scale Renewable Energy Scheme (SRES). The annual targets for large scale projects, including wind farms, solar and geothermal, range from 10,400 gigawatt hours (GWh) in 2011 to 41,000 GWh for 2020-2030. The SRES encompasses small scale technologies such as solar panels and solar water heaters implemented by households, small business and community groups.

The CPRS has not yet been finalised. However, while pricing carbon will have a significant impact on energy markets, particularly for incumbent coal-fired generators, it is the expanded RET that is expected to be the driving force behind new investment in renewable generation. Therefore, for the reasons discussed below, the issues this Rule change is seeking to address will become relevant before an emissions trading scheme or carbon price is introduced.

7 The expanded RET extends the former Mandatory Renewable Energy Target, introduced in 2001, and consolidates the existing state-based schemes.

8 Department of Climate Change 2010, *Fact Sheet: Enhanced Renewable Energy Target*, February 2010. Available at www.climatechange.gov.au.

3 Issues this Rule change is seeking to address

The expanded RET is expected to drive extensive new investment in renewable generation, particularly wind-powered generation, over the next decade. Due to the nature of the fuel resources for renewable generation, its entry is likely to be clustered around fuel basins in certain geographic areas. Pricing carbon through a mechanism such as the proposed CPRS will further stimulate increased investment in renewable - as well as lower carbon intensive - generation.

Generally the new renewable generation investment is likely to be located remote from the existing network and load centres. Therefore there are likely to be substantial efficiencies in coordinating the connection of clusters of new generation to the network so as to take advantage of the scale economies that are characteristic of network investment.

The MCE considers that the existing market framework is unlikely to promote the efficient connection of multiple generators in the same location over a period of time.[9]

There are three key issues that may challenge the efficiency of the existing framework for the bilateral negotiations for connection services between generators and Network Service Providers (NSPs). These are:

- the connection of multiple generators in proximate locations;
- the time period over which generators might seek connection; and
- a lack of incentives on NSPs to build scale efficient network extensions for connections.

One of the issues that was identified as a barrier to NSPs coordinating multiple connections during the Review of Energy Market Frameworks in light of Climate Change Policies was the confidentiality provisions in the Rules that prevented NSPs from disclosing any information provided by a connection applicant. These provisions were the subject of a Rule change request from Grid Australia in April 2009 which sought to ease the restrictions on NSPs from releasing any information received as a result of a connection enquiry or application. Since the Final Report was submitted to the MCE, the Commission published its final Rule Determination agreeing to amend the Rules so that NSPs may now disclose information in certain circumstances to Registered Participants and other persons to facilitate coordinated connection applications and enquiries.[10]

With these new provisions in place, the existing framework may better facilitate the coordination of multiple generators seeking to connect at a single point in time. However, challenges to the existing framework still exist as it is unlikely that

9 MCE 2010, *Rule Change Request - Scale Efficient Network Extensions*, February 2010, p.4

10 For further details see AEMC 2009, *Confidentiality Provisions for Network Connections*, Rule Determination, 12 November 2009, Sydney.

generators will be ready to connect at the same time, but may instead connect over a number of years.

The Rule change proposal states that NSPs currently have no commercial incentive to build network connections to an efficient scale in anticipation of future connection.[11] NSPs currently receive no benefit from, and will potentially occur significant costs, if they oversize their network assets in anticipation of future connections that do not eventuate. Consequently NSPs are unlikely to consider the possible scale efficiencies that could be achieved by sizing new assets to enable the more efficient connection of potential future entrants. This could lead to the unnecessary duplication of connection assets as each new generator connects, potentially resulting in significantly higher costs for consumers.

The proposed SENEs framework seeks to resolve this risk allocation issue by allowing capacity to be built in anticipation of future connection so as to enable consumers to benefit from scale economies associated with a larger network asset. The proposed framework is described in the next section.

11 MCE 2010, *Rule Change Request - Scale Efficient Network Extensions*, February 2010, p.4.

4 Proposal put forward in the Rule change request

The Rule change request seeks to address the issues raised above by introducing a new framework in the Rules to facilitate the efficient connection of multiple generators to distribution and transmission networks over time. The proposed Rule sets out a framework for planning, charging and revenue recovery of SENEs and adjustments to the process for connections.

The proposal includes the following key elements:

- the Australian Energy Market Operator (AEMO) to identify possible SENE zones as part of the National Transmission Network Development Plan (NTNDP);
- NSPs to identify credible connection asset options and undertake preliminary planning, to be reported in their Annual Planning Report (APR);
- NSPs to publish a planning report and connection offer, including technical design issues and annual charges payable by generators based on a forecast generation profile;
- AEMO and the Australian Energy Regulator (AER) to have regulatory oversight roles, including a requirement that AEMO reviews the relevant NSP's forecast generation profile and an opportunity for the AER to disallow the project;
- the connection offer to contain an agreed power transfer capability, including compensation arrangements where a generator is constrained off below its agreed capability;
- construction of the SENE to be triggered by agreement on the connection offer by at least one generator;
- a charging framework that requires connecting generators to pay for the share of SENEs that they use. Consumers would pay for any revenue requirement not recovered from generators, where fewer generators connect or connect later than was planned for; and
- a review of the policy to be undertaken by the AEMC and provided to the MCE after five years to ensure the anticipated benefits are being achieved.

Further details on the proposed changes are available in Chapter 2 of the Final Report.[12]

A draft Rule for the implementation of SENEs was set out in Appendix G to the Final Report, which is replicated in Appendix A of this Consultation Paper. The MCE endorsed this draft Rule, with the following additions:

12 AEMC 2009, *Review of Energy Market Frameworks in light of Climate Change Policies: Final Report*, September 2009, Sydney, pp. 13-25.

- provisions that give NSPs an internal incentive to prudently size SENEs to ensure appropriate discipline is applied to develop accurately sized proposals;
- an obligation on NSPs to consider explicitly any benefits that may accrue to consumers as a result of the SENE. Where such benefits exist, parts (or all) of the SENE may be permanently funded by consumers; and
- a favourable assessment by AEMO of the profile of new generation assumed by NSPs as a prerequisite for further consideration by the AER.

The MCE considers that this proposal should promote the NEO by:[13]

- overcoming the risk of inefficient duplication of transmission assets;
- ensuring efficient assets are built; and
- minimising risks to consumers.

13 MCE 2010, *Rule Change Request - Scale Efficient Network Extensions*, February 2010, pp.4-5.

5 Assessment Framework for evaluating the proposal

The Commission's assessment of this Rule change request must consider whether the proposed Rule promotes the NEO as set out under section 7 of the NEL. Under the NEO, a proposed Rule change must:

> "...promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to-
>
> (a) price, quality, safety, reliability and security of supply of electricity; and
>
> (b) the reliability, safety and security of the national electricity system."

In assessing this Rule change request against the NEO, the Commission will inform its decision by considering, in particular, the likely impact of the proposal on the following elements:

- efficient investment in electricity services, particularly connection assets. Efficient outcomes will occur where:
  - generators are able to connect in a timely manner. This is at risk where large volumes of connection applications and multiple connection applications in the same area are anticipated;
  - generators face appropriate, cost-reflective locational signals which are not biased towards any particular technology; and
  - investment in network and connection assets is efficient in respect of size, location and timing; and
- the efficient use of electricity services. This will occur where:
  - capacity on the SENE is allocated efficiently, such that generators that value capacity on the network the most have access to it; and
  - the lowest-cost generation is dispatched to meet load requirements and so achieve efficient outcomes in the wholesale market.[14]

The effects of the Rule change proposal on these elements will be compared with the status quo. In this case, the status quo includes the current arrangements for connecting generation to distribution and transmission networks as set out under the existing Chapters 5, 6 and 6A of the Rules. Note that the status quo also includes the possibility of:

14 Assuming no congestion on the shared network.

- NSPs using the market benefits limb of the regulatory test (in the case of distribution) or the Regulatory Investment Test for Transmission (RIT-T) (in the case of transmission) to justify building network extensions under the prescribed services arrangements, including any over-sizing of such extensions; and

- groups of generators funding their own network extensions to connect to the shared network.

A key assumption in assessing this Rule change is that the expanded RET will have the affect of driving significant new renewable generation investment, creating the potential for the inefficient duplication of connection assets.

6 Issues for Consultation

Taking into consideration the assessment framework and potential requirements to implement the proposed Rule change, we have identified a number of issues for consultation that appear to be relevant to this Rule change request. The issues raised predominantly relate to challenges arising from the practical implementation of the proposed Rule change, particularly over the medium to long term. While some of these challenges would not arise until SENEs had been in operation for several years, if this Rule change is made then arrangements will need to be developed as part of the Rule change process to address them to provide certainty for market participants over the long term.

The issues outlined below are provided for guidance. Stakeholders are encouraged to comment on these issues as well as any other aspect of the Rule change request or this paper including the draft Rule and the proposed assessment framework.

6.1 Efficient investment in electricity services

6.1.1 Efficient construction of connection assets and mitigating risks to consumers

The purpose of SENEs is to strengthen the framework for connections to ensure that the connection of new generation to the national grid is efficient and timely. The framework is intended to achieve this by facilitating the development of efficiently scaled connection assets in anticipation of future entry by new generation, which may not otherwise occur in the absence of changes to the existing framework.

The proposed Rule change seeks to overcome the lack of commercial incentive for network businesses to bear the risk of building assets to efficient scale in advance of future connection commitments. This is achieved by requiring consumers to underwrite the risk of any under-utilised capacity. The MCE notes that this risk sharing arrangement is in line with other regulated network services.[15]

The Rule change request states that this approach should reduce the likelihood of inefficient duplication of connection assets and allow NSPs to take advantage of economies of scale.[16] Consequently, the MCE considers that the proposed Rule change will promote the NEO through more efficient investment in electricity services and therefore the long term interests of consumers in respect of price.

15 MCE 2010, *Rule Change Request - Scale Efficient Network Extensions*, February 2010, p.4.

16 MCE 2010, *Rule Change Request - Scale Efficient Network Extensions*, February 2010, p.4.

Question 1 Will the proposed framework improve efficiency in the construction of connection assets?

1.1 Under the existing Rules, are inefficiencies likely to arise as a result of the significant new investment in renewable generation?

1.2 If so, do the costs associated with these inefficiencies justify amendments to the Rules?

1.3 Do you agree that the proposed Rule change will lessen the risk of the inefficient duplication of assets?

Mitigating the risk of stranded assets under the proposed framework

A key risk associated with over-sizing assets in anticipation of future use is that the expected generation entry does not occur, or occurs later than expected, resulting in asset stranding. Accurate forecasts of future generation entry are therefore imperative to minimising the potentially large costs associated with under-utilised assets.

The proposed Rule change requires consumers to underwrite the risks, and therefore the cost, of over-investment in the capacity of SENEs. This means that if generators connect later than forecast or do not connect at all, consumers will be required to fund the costs of the unused portion of the SENE. Conversely, consumers will benefit where generators connect earlier than expected. While consumers may not be best placed to manage the risk of stranded assets, they would be the ultimate beneficiaries from a scheme that facilitates the more efficient connection of generation.

The Rule change request states that the planning framework for SENEs is sufficient to promote a robust forecast of future generation connection requirements, including consideration of the suitability of the location and the potential of the fuel resource, in addition to the timing and size of generation connections.

The MCE proposes that this is achieved by the following components of the planning process:[17]

> "• a strategic component involving identification by AEMO of potentially economic geographical locations for SENEs; and
>
> • a design component involving the identification by network businesses of possible remote connection line locations, capacities, and indicative costs, taking into consideration possible implications for the shared network."

This two-step process requires AEMO to focus on locations that are more likely to offer the best outcomes for the NEM, promoting efficient investment in electricity services. This first step also provides for public consultation, allowing market participants to

17 MCE 2010, *Rule Change Request - Scale Efficient Network Extensions*, February 2010, p.5.

contribute to the identification of appropriate locations. The second component requires NSPs to provide public information on the possible design and indicative costs of SENEs. This is intended to enable generators and other market participants to make more informed, and therefore more efficient, investment decisions.

In addition to inaccurate forecasting, both NSPs and generators may have some incentive to over-size SENEs, which could lead to inefficiently high levels of investment. For NSPs, SENEs will provide a guaranteed return. As such the development of larger assets is likely to lead to greater returns. For generators, a bigger capacity implies the economies of scale will be greater, resulting in lower costs for a given capacity requirement.

The draft Rule proposes a series of checks and balances to help mitigate these incentives and the risks of inaccurate generation forecasts leading to stranded assets. These include:

- at least one generator must agree to connect to the SENE before it can be built. Therefore a SENE will only proceed if a generator finds it privately beneficial to connect;

- AEMO is required to review NSPs' forecast generation profiles. Further, the MCE has proposed that new projects should only go ahead if AEMO approves those forecasts. Stakeholders also have an opportunity to provide input to this process; and

- the AER has the option to disallow a proposed SENE.

The MCE considers that, collectively, these elements will minimise the risks to consumers of asset stranding.[18]

While such mechanisms may help align NSP and generator incentives with efficient investment outcomes and also reduce the risk of inaccurate forecasting, challenges remain. Forecasting future generation is inherently difficult, particularly over long time frames, and is unlikely to perfectly capture the actual profile that eventuates. Further, much of the anticipated new investment in renewable energy will be driven by government policy and the expanded RET. If Government policy changes, different technologies, and therefore different locations, may become more viable. Similarly, new developments in technology may lead to redundancy of a SENE before it is fully subscribed.

The proposed framework represents a substantial change to the connection framework and presents its own risks associated with asset stranding. In considering the relative merits of this proposed Rule change, the Commission will therefore need to assess whether the potential cost of inefficient duplication of connection assets is material and, if so, whether those costs are likely to be greater than the costs that may arise from asset stranding under the proposed new framework.

18 MCE 2010, *Rule Change Request - Scale Efficient Network Extensions*, February 2010, p.5.

Question 2 Will SENEs be efficiently sized and located so as to minimise risk to consumers?

2.1 Are NSPs likely to construct SENEs that are efficiently sized and located? Is there a significant risk of over-investment?

2.2 Are the risks associated with asset stranding outweighed by the potential efficiency gains from efficiently sized network extensions?

2.3 Does the Rule change, as proposed, provide sufficient checks and balances to minimise risks to consumers?

Alternative mechanisms for managing risks

As discussed above, there are some challenges to accurately sizing, locating and configuring SENEs to achieve the least cost outcome. Under the proposed framework, consumers would be underwriting potentially very large assets, and the cost of incorrect generation connection forecasts could be high. A significant onus will therefore be placed on the AER and AEMO to assess the robustness of the NSP's forecasts. Given the high costs associated with asset stranding, it may be appropriate to consider whether mechanisms for managing consumer exposure can be strengthened, or whether alternative entities may be better placed to manage the risks than consumers.

The proposed Rule change allocates risk to consumers on the basis that as ultimate beneficiaries of a more efficient network extension they should face the associated risks. However, there may be some tension between this "beneficiaries pay" principle and the regulatory principle that risk should be allocated to those that are best placed to manage it.

Under the proposed SENEs framework there are multiple beneficiaries and multiple entities that may be capable of managing risk to a greater or lesser extent. While consumers may benefit from SENEs in the form of more efficient prices, generators should also benefit through lower costs and more timely connection. Further, generators may be better placed to manage the risks of asset stranding than consumers. Generators have better access to information and greater financial incentive to investigate the viability of potential generation sites and other factors that contribute to the decision on the appropriate sizing and location of SENEs. Similarly, NSPs have some capability to manage the stranding risks. For example, NSPs are better placed to assess opportunities for staged development of SENEs to minimise the risk of stranded capital costs.

However, there may be some difficulties in designing a scheme that allocates risk to generators or NSPs while promoting the efficient sizing of network extensions. The appropriate allocation of risk amongst market participants, alternative mechanisms for managing risks, and the practical difficulties that may arise in implementing them, are discussed below.

An economic efficiency test

Risks to consumers could also be managed by applying a more explicit economic efficiency test to potential network extensions. Under the proposed framework, the test of the efficiency of the SENE undertaken by the AER is based on an assessment of reasonableness. However, assessing whether a proposal is "reasonable" may be interpreted broadly.

Alternatively, a more prescriptive test could be applied to provide further reassurance that a proposed SENE is efficient. Such a test may be akin to the existing regulatory test (for distribution investment) or the RIT-T (for transmission investment), which apply a rigorous assessment of the costs and benefits of a proposed project.[19]

Incentives on NSPs

The MCE proposed to include provisions in the Rule that:[20]

> "...give NSPs an internal incentive to prudently size SENEs to ensure appropriate discipline is applied to develop accurately sized proposals."

There would be complexities in developing and implementing such incentives, and careful consideration would need to be given to how an incentive scheme might operate in practice to ensure NSPs would have the right incentives to invest efficiently. While the previous discussion has focussed on the risk of over-investment, an inappropriately designed incentive scheme could lead to under-investment, or even a disincentive to invest altogether.[21] Establishing the point at which performance is measured against any incentive would also be challenging, particularly given the length of the time periods over which SENEs investment might occur. For example, a given SENE may not be expected to be fully subscribed for ten or fifteen years, and the economic life of a SENE might be even greater. Assessing performance at the end of such a time period may not provide an effective incentive.

It would also be challenging to design a framework that both provides NSPs with a financial reward or penalty associated with the efficient sizing of assets as well as embedding AEMO and the AER in the decision making regarding the efficient sizing of SENEs. Incentive schemes are most effective where the entity that faces the risk or reward has control over the outcome. Further, questions may be raised about the roles that AEMO and the AER play, particularly where forecasts are inaccurate.

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19 While this section discusses the potential for an additional economic efficiency test within the context of the proposed SENE framework, we will also assess whether the regulatory test or RIT-T could be used to assess network extensions as part of our analysis of likely outcomes under the status quo. Under this framework, consumers would fund the full cost of the network extension where the relevant test was passed. Generators would continue to pay the cost of their own connection asset.

20 MCE 2010, *Rule Change Request - Scale Efficient Network Extensions*, February 2010, p.4.

21 For example, if the risk of being penalised was too high, NSPs may prefer to invest elsewhere. Alternatively, if NSPs were rewarded once a SENE was fully subscribed, they may have an incentive to size the line at an inefficiently low capacity.

Alternatively, an incentive scheme could operate in place of the oversight roles of the AER and AEMO.

Such an incentive scheme may introduce asymmetric incentives as the AER would be expected to disallow inefficient projects but cannot require NSPs to build SENEs that are likely to be efficient. The scheme may therefore be more likely to provide rewards to NSPs, with less exposure to the risk of getting forecasts wrong and investing inefficiently.

Market-based options

A less centralised approach could also be considered for the planning and financing of network extensions. More market-based approaches would require generators to bear a greater proportion of the risk on the basis that generators have better information about the timing, location and size of potential generation sites and are therefore in a better position to manage the risks associated with network extensions. For example, during the Review of Energy Market Frameworks in light of Climate Change Policies one of the options explored was to maintain the existing bilateral negotiations framework but permit NSPs to declare "open seasons" for connections in their APRs.[22] Under this approach, generators would underwrite the costs of the network extension, therefore removing the stranded asset risk to consumers. The key difficulty identified with this approach was that it did not incorporate the necessary temporal element, and so would likely still result in the inefficient duplication of assets over time as not all generators would necessarily be ready during the open season to commit to connecting.[23]

Another more market-based approach is to allow generators to purchase options for the right to contract for capacity on a proposed SENE. The options would be time limited and tradable so that prospective new entrants could secure capacity on a SENE but in the event that their project did not eventuate the options could be sold to other potential entrants. It is likely that the value of the options would only represent a small proportion of the total cost of the SENE, and consumers would still bear the (potentially large) residual risk.[24] However, this approach would provide commercially robust market information on the appropriate sizing and location of SENEs based on generator interest in options.

Generators could bear an even greater proportion of risk by requiring them to provide upfront financial commitments prior to construction of a network extension. The level of risk borne by the generators would be proportionate to the size of any upfront financial commitments. However, new entrants may be limited in their ability to provide upfront financial commitments, particularly when they are yet to obtain the

22 AEMC 2008, *Review of Energy Market Frameworks in light of Climate Change Policies, 1st Interim Report*, December 2008, p.40.

23 AEMC 2009, *Review of Energy Market Frameworks in light of Climate Change Policies, 2nd Interim Report*, June 2009, p.22.

24 Alternatively, an NSP incentive scheme could operate in conjunction with this approach so as to further spread the risk across those entities that are better placed to manage it.

necessary planning approvals and other requirements necessary for the project to proceed.

Question 3 Are alternative risk mitigation measures more appropriate?

3.1 Who benefits from SENEs and who is best placed to manage the risk of asset stranding?

3.2 Should the framework include a more explicit economic efficiency test? If so, what form might it take?

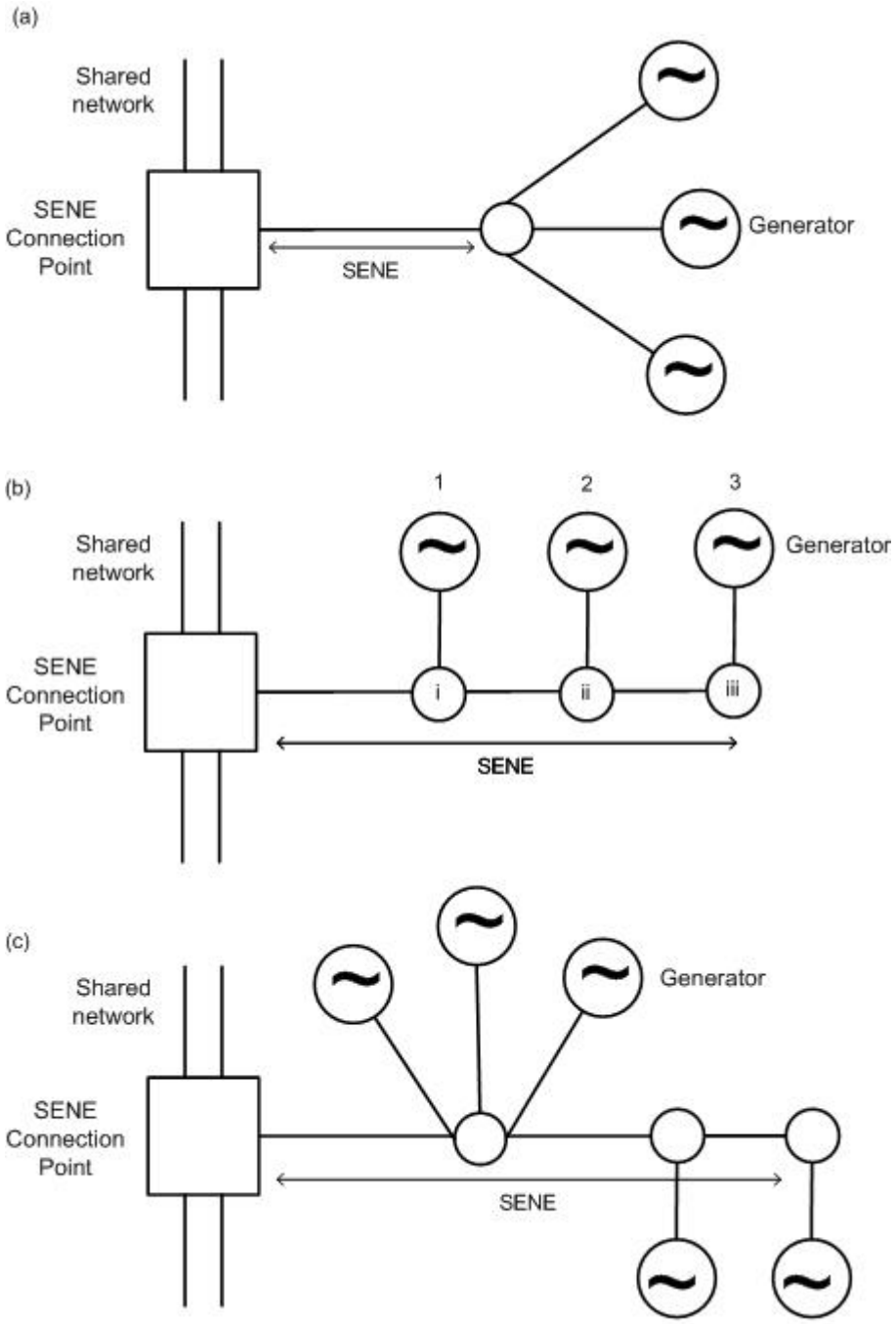
3.3 Would a market-based approach to the sizing and location of SENEs be more appropriate? If so, what form might it take?

6.1.2 Alternative configurations of SENEs

The Rule change proposal envisages a "hub and spoke" configuration, whereby all generators connect at a single connection point on the SENE (diagram (a) below). However, alternative configurations may better reflect the location of the fuel resource. For example, generators may wish to connect at different points along the line (as in diagram (b) below), or a combination of the two (diagram (c) below). A requirement to have a single hub could potentially lead to greater costs than alternative designs, although it may be simpler to build and regulate.[25]

25 Note that if a hub design resulted in costs that were greater than a series of individual connections, generators would simply opt to connect under the usual process. However, this in itself could lead to inefficiencies if a SENE had already been built.

Figure 6.1



The draft Rule recognises that generators will not all locate an equal distance away from the SENE hub. In the planning arrangements, NSPs are required to identify the design option for the SENE - including the location of the SENE hub - that minimises overall costs to generators.[26] This necessarily requires some assumptions about the likely configuration of generation. The optimal location of the SENE hub is also

26 SENE draft Rule clause 5.5A.4(c)(2).

identified as a key area where guidance from the AER will be required to ensure no generator is favoured over others.[27]

Alternative configurations to a simple hub and spoke design could present challenges in developing an efficient charging framework. While an appropriate principle - and the one that has been adopted for SENEs - is that generators should face the economic cost of their connection, this could lead to difficulties in recovering the full cost of the SENE.

For example, in diagram (b), a SENE has been built with the intention that all generators would connect at point iii. However, Generator 1 decides to connect closer to the shared network. Generator 1 only uses a portion of the SENE (from where the SENE connects to the shared network to connection point i) and therefore only imposes costs on that part of the line. However, if the total cost of the SENE is not spread across all generators, then the portion of the network between connection points i and iii may never be fully recovered from generators. Further, generators may have an incentive to connect closer to the shared network to lower their network costs.

Alternatively, incrementally adding to the capacity of a SENE as new generators connect so as to obtain a more efficient configuration is unlikely to capture the same scale efficiencies.

Question 4 Will generators be able to connect to the SENEs in the most efficient configuration?

4.1 Should the draft Rule allow for configurations other than a "hub and spoke"?

4.2 If so, how could the charging arrangements best promote efficient locational decisions by generators and by NSPs in locating SENEs?

4.3 Should the costs of the SENE be spread across all generators irrespective of where they locate?

6.2 Efficient use of electricity services

6.2.1 Efficient allocation of SENE capacity

Under the proposed Rule change, generators negotiate an agreed power transfer capability with the NSP as part of the connection agreement. If the generator is unable to access its agreed capacity, it is entitled to compensation. These arrangements are intended to mimic the connection arrangements that are available to individually connecting generators. However, under the SENEs framework, multiple generators share a single network extension. This raises issues regarding how capacity is allocated

27 SENE draft Rule clause 5.5A.4(i)(2)(ii).

on the SENE and whether this is done efficiently so as not to distort competition, particularly once the SENE is fully subscribed.

Under the proposed Rule change, once the capacity of the SENE is fully utilised two options are explicitly articulated to allow for the connection of additional generation capacity:

- where there is insufficient capacity on the SENE to meet a connecting generator's requirements, that generator may choose to fund an augmentation to the SENE such that the power transfer capability agreed between the connecting generator and the NSP is equal to or exceeds the capacity of the proposed installed generation.[28] This is consistent with the principle that all generators that connect to the SENE are required to fund the full economic costs of their connection. Generators will therefore face cost-reflective prices for their connection; or

- where a generator chooses not to fund an augmentation, that generator is required to make compensation payments for any trading interval where it generates in excess of its agreed power transfer capability where it has the effect of constraining off another generator connected to the SENE.[29] The compensation reflects the profit that a generator has lost as result of being constrained off.[30] This implies a generator could connect with an agreed power transfer capability of zero, in which case it would not pay, or would pay a minimal charge, to use the SENE. However, it would likely be required to pay compensation each time it generates.

These arrangements would ensure that any new generator seeking entry has access to the SENE, consistent with the principles of the open access regime under which the NEM operates. Further, the charges that the new entrant faces are intended to reflect the economic cost of their connection. However we note that, under the second set of arrangements, the compensation payments are unlikely to reflect the true economic cost of connection. This is because, under the proposed Rule change, the compensation payments for lost profit will be calculated using an administratively determined marginal cost for the constrained generator, published by the AER, for different categories of generation.[31] Where the estimated marginal cost is set too high, potentially efficient entry and dispatch of new generation may be prevented. Similarly, where the assumed marginal cost is too low, then inefficiently high levels of new entry could result, leading to inefficient congestion on the SENE.

A third option which would sit outside the Rules but could explicitly be allowed for or required in connection agreements is for a new entrant to negotiate directly with

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28 SENE Draft Rule, clause 5.5A.1(e).

29 SENE Draft Rule, clauses 5.5A.1(d)(6)(i) and 5.5A.14(a)

30 Lost profit is calculated as the additional trading amount a generator would have received had it not been constrained off less the costs avoided as a result of being constrained off, based on the quantity (in MW) which the generator was not required to generate and an estimate of the generator's marginal cost. See Draft Rule clause 5.5A.14(b).

31 SENE Draft Rule, clause 5.5A.14(b)(2)(ii).

incumbents to purchase a portion of their power transfer capability. While this approach should lead to the efficient level of new entry, the outcome may be distorted by the estimated marginal costs published by the AER for the purpose of calculating compensation payments.

While consideration must be given to the efficient allocation of network capacity under the SENEs framework, the potential outcomes must also be analysed in the context of the status quo. Under the current framework it may be difficult for new entrants to connect to the shared network where they would be required to fund the full cost of connection from a potentially remote location - where renewable resources are likely to be located - to the shared network. By reducing connection costs, SENEs should promote greater levels of new generation investment than might otherwise occur, reducing prices in the wholesale market by facilitating increased competition.

Interruptible generation

An additional issue to consider is the ability for interruptible generation to connect to the SENE. The proposed draft Rule does not articulate whether generation can connect to the SENE with an agreed power transfer capability of zero and with an agreement to generate only where there is spare capacity on the network. Where the capacity of the SENE is fully utilised by incumbent generators, allowing interruptible generation to connect is likely to be efficient, as it would maximise the use of the network extension. However, allowing generators to connect with a zero power transfer capability where uncontracted capacity is available is likely to lead to "free riding". In other words, generators may avoid contributing to the cost of the SENE yet have full or partial access to capacity. This could lead to gaming whereby generators trade-off the savings they would make by avoiding SENE charges against the risk that the SENE will be fully subscribed. If this occurs, there is a potential for the full cost of the SENE to never be recovered.

Question 5 Will capacity be efficiently allocated to connecting generators?

5.1 Will the framework promote the efficient allocation of capacity on the SENE?

5.2 More generally, will the SENEs framework result in efficient outcomes in the wholesale market?

5.3 Could an interruptible generator connect to the SENE? If so, what arrangements would need to be in place to ensure the full cost of the SENE can be recovered?

6.2.2 Distinguishing SENEs from the shared network

SENEs could potentially extend for hundreds of kilometres between the existing shared network and fuel basins where much of the new renewable generation plant is

expected to connect. Over time, as the network continues to develop and demand increases, it is possible that load may wish to connect to the SENE or the SENE may have more than one connection point to the shared network. The draft Rule, as currently presented, does not appear to address the potential for SENEs to become difficult to distinguish from the shared network.

Where SENEs have more than one connection point to the shared network, forming a loop or a grid rather than a radial line, complications arise around generators' rights to capacity on the SENE. The nature of electricity is such that power evacuated from generators other than those connected to the SENE cannot be prevented from flowing down the SENE. This may encroach on generators' capacity rights, yet generators that are not connected to the SENE are not required to make compensation payments. Further, if generators retained the right to their agreed power transfer capability on the SENE this would conflict with the arrangements for the remainder of the shared network, which operates on an open access basis. Those generators connected to the former SENE would have an unfair advantage as no other generators would have the opportunity to purchase similar capacity rights.

Options for addressing the treatment of capacity rights following such future developments will need to be considered. One approach would be to specify that SENE capacity rights would be terminated after an appropriate notice period should the SENE become part of the shared network in the future. However, this would be inconsistent with one of the principles of the SENE framework, which is to provide certainty for generators that they will continue to have access to the asset they funded. This certainty is necessary to provide generators with an incentive to fund the necessary network connections. To address this, the issue of financial compensation may also need to be considered, if the SENE access right were to be terminated in this way and the notice period was considered insufficient.

Similarly, if load connects to a SENE, there may be a case for converting the SENE - or a portion of it - to a prescribed service. This would raise the same challenges regarding the viability of maintaining capacity rights for generators that are connected to the former SENE, particularly where new generators connect to the newly defined shared network.

Maintaining the integrity of the SENE framework may therefore require "ring fencing" the SENE by preventing any additional network connections to the shared network for a period of time, after which it may become part of the shared network. Under this option, any load that connects to the SENE would be treated like an additional connecting generator and would be required to pay a use of system charge, reducing generators' charges. While this approach is unlikely to promote the NEO - and in fact could lead to significant inefficiencies by preventing network development through market interventions - it is difficult to envisage how generators could practically retain capacity rights on segments of the open access shared network.

Question 6 **How could loops to the shared network and load connections to SENEs best be accommodated?**

6.1 **Should SENEs be "ring fenced" from the shared network to enable the framework to operate? If so, should a time limit apply to such ring fencing arrangements?**

6.2 **Alternatively, how could SENEs best be incorporated into the shared network? In particular, how could the challenges arising from capacity rights to the former SENE best be addressed?**

7 Lodging a Submission

The Commission has published a notice under section 95 of the NEL for this Rule change proposal inviting written submissions. Submissions are to be lodged online or by mail by 13 May 2010 in accordance with the following requirements.

Where practicable, submissions should be prepared in accordance with the Commission's Guidelines for making written submissions on Rule change proposals.[32] The Commission publishes all submissions on its website subject to a claim of confidentiality.

All enquiries on this project should be addressed to Elisabeth Ross or Mark Feather on (02) 8296 7800.

7.1 Lodging a submission electronically

Electronic submissions must be lodged online via the Commission's website, www.aemc.gov.au, using the "lodge a submission" function and selecting the project reference code ["ERC0100"]. The submission must be on letterhead (if submitted on behalf of an organisation), signed and dated.

Upon receipt of the electronic submission, the Commission will issue a confirmation email. If this confirmation email is not received within 3 business days, it is the submitter's responsibility to ensure the submission has been delivered successfully.

7.2 Lodging a submission by mail

The submission must be on letterhead (if submitted on behalf of an organisation), signed and dated. The submission should be sent by mail to:

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Or by Fax to (02) 8296 7899.

The envelope must be clearly marked with the project reference code: ERC0100.

Except in circumstances where the submission has been received electronically, upon receipt of the hardcopy submission the Commission will issue a confirmation letter.

If this confirmation letter is not received within 3 business days, it is the submitter's responsibility to ensure successful delivery of the submission has occurred.

32 This guideline is available on the Commission's website.

Abbreviations

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
APR	Annual Planning Report
Commission	See AEMC
CPRS	Carbon Pollution Reduction Scheme
Final Report	Final Report on the Review of Energy Market Frameworks in light of Climate Change Policies
GWh	gigawatt hour
LRET	Large-scale Renewable Energy Target
MCE	Ministerial Council on Energy
MWh	megawatt hour
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National Electricity Objective
NSP	Network Service Provider
NTNDP	National Transmission Network Development Plan
REC	Renewable Energy Certificate
RET	Renewable Energy Target
RIT-T	Regulatory Investment Test for Transmission
Rules	National Electricity Rules
SENE	Scale Efficient Network Extension
SRES	Small-scale Renewable Energy Scheme

A Amendment of National Electricity Rules

Part 1: General – Scale Efficient Network Extensions

[1] New Clause 5.3.1(e)

After clause 5.3.1(d), insert:

(e) Where a *Generator* wishes to establish a *connection* to:

(1) a proposed *scale efficient network extension* for which no *SENE connection offer* has been approved, the procedures in this rule 5.3 apply subject to the provisions of clause 5.5A.3; and

(2) a *scale efficient network extension* for which a *SENE connection offer* has been approved, the procedures in this rule 5.3 apply subject to the provisions of clause 5.5A.4.

[2] New Rule 5.5A

After clause 5.5(j), insert:

5.5A Scale Efficient Network Extensions

5.5A.1 Principles

Principles have been included to assist in the interpretation of this draft Rule. However, these principles may not be necessary for the final Rule amendments (although they may be helpful for interpretation given the unique characteristics of *scale efficient network extensions*).

The draft *Rules* amendments are based on the following approach:

- This draft *Rule* applies to both *Transmission Network Service Providers* and *Distribution Network Service Providers*. Rule 5.5A (and rule 5.3) applies equally to both.
- Establishing a *connection* to a *scale efficient network extension* will generally follow the rule 5.3 *connection* procedures, but must also satisfy the additional requirements of rule 5.5A.
- A *scale efficient network extension* will be characterised as a *negotiated transmission service* or *negotiated distribution service* for the purposes of revenue recovery. However, unlike other negotiated network services,

Customers will be required to fund the shortfall between *Generator* contributions to the *scale efficient network extension* and the *Network Service Provider's* annual revenue requirements for the *scale efficient network extension*.

- The *Network Service Provider* may also provide *connection services* to each *Generator* in respect of the *connection assets* between the *Generator* and the *SENE hub*.

- A *Generator* who wishes to *connect* to a *scale efficient network extension* may enter into a single *connection agreement* with the *Network Service Provider* covering the provision of *connection services* in respect of both the *scale efficient network extension* and the *connection assets* between the *Generator* and the *SENE hub* (these will be recognised as separate services under the *connection agreement*).

- The terms of the *SENE connection offer* will be developed through the detailed *scale efficient network extension* planning process. The *Generator* will still be able to negotiate the terms of access for any sole use *connection assets* following the usual *negotiated transmission/distribution services* procedures.

Classification of *scale efficient network extensions*:

- The relevant *connection point* for *Generators* will be the point at which the *Generator* connects to the *scale efficient network extension*. Individual *Generators* will be required to fully fund the *connection assets* between their *generating units* and the *connection point*.

- *Scale efficient network extensions* are *extensions*. Therefore, they are part of the *network* (i.e. they are not *connection assets*). *Scale efficient network extensions* are treated as if they were *negotiated connection services*: they are not subject to the *regulatory test* or *regulatory test for transmission*. In addition, they are not part of the relevant *Network Service Provider's* regulated asset base and the cost of *scale efficient network extensions* is to be recovered from connecting *Generators* (noting that the services will be funded by *Customers* to the extent that the charges paid by *Generators* do not meet the *Network Service Provider's annual SENE revenue requirement*).

- The services provided by *Network Service Providers* to *Generators* in respect of *scale efficient network extensions* have been categorised as *Generator transmission use of system services* and *Generator distribution use of system services*.

(a) The purpose of this rule 5.5A is to identify and develop potential scale efficient network extensions for connection to the network by future Generator facilities located in a scale efficient generation zone.

(b) Absent this rule 5.5A, the *Rules* generally provide for the development of *transmission investments* and *new distribution network investment* as either:

(1) *prescribed transmission services* or *direct control services* which are funded by *Customers*; or

(2) *negotiated transmission services* or *negotiated distribution services* which are funded by *Connection Applicants*.

(c) A *scale efficient network extension* will be regarded as a *negotiated transmission service* or *negotiated distribution service* (as relevant), but unlike other *negotiated transmission services* or *negotiated distribution services* it may be funded by *Customers* to the extent that, in any year, the *SENE charges* paid by *Generators* do not meet the relevant *Network Service Provider's annual SENE revenue requirement*.

(d) For clarity, *scale efficient network extensions*:

(1) will be *negotiated transmission services* or *negotiated distribution services* comprising *Generator transmission use of system services* and *Generator distribution use of system services* (as relevant);

(2) will not include the *connection assets* required to *connect Generator facilities* to the relevant *scale efficient network extension*;

(3) will not be subject to the *regulatory investment test for transmission* or the *regulatory test* (as relevant);

(4) will not be included in the relevant *Network Service Provider's* regulatory asset base, capital expenditure or operating and maintenance expenditure for the purposes of determining any *revenue determination* or *building block determination* (as the case may be) for the relevant *Network Service Provider*;

(5) will be funded by the *Generators* connecting to the *scale efficient network extension* paying *SENE charges* to the *Network Service Provider*, with:

(i) any shortfall amount in the relevant *Network Service Provider's annual SENE revenue requirement* being funded by *Customers*; and

(ii) any surplus amount over the relevant *Network Service Provider's annual SENE revenue requirement* being rebated to *Customers*,

with all amounts chargeable or refundable to *Customers* in a *region* being allocated by the relevant *Co-ordinating SENE Network Service Provider* to *Transmission Network Users* and *transmission network connection points* in accordance with

the *Co-ordinating SENE Network Service Provider's pricing methodology*; and

(6) will provide for an arrangement whereby a connecting *Generator*:

(i) must make payments to the relevant *Network Service Provider* to the extent that its *connected facilities* generate in excess of its contracted *power transfer capability* for the *scale efficient network extension* for any *trading interval*; and

(ii) will be entitled to receive payments from the relevant *Network Service Provider* to the extent that it is *constrained off* below its contracted *power transfer capability* for the *scale efficient network extension* for any *trading interval*.

(e) If sufficient *power transfer capability* on a *scale efficient network extension* is not available to a connecting Generator (relative to the *generation* capacity of the *Generator's* proposed *facilities*), the *Generator* can elect to fund any *augmentation* required to ensure that its contracted *power transfer capability* for the *scale efficient network extension* is equal to or exceeds the capacity of its *connected facilities*.

(f) Nothing in this rule 5.5A prevents any person from proposing or undertaking the development and construction of a *transmission investment* or *new distribution network investment* to a *scale efficient generation zone* as an alternative to a proposed *scale efficient network extension* or in addition to a *scale efficient network extension*.

5.5A.2 Preliminary Planning

This clause sets out the preliminary planning arrangements for *AEMO* and *Network Service Providers*.

The *Rules* do not presently require *Distribution Network Service Providers* to prepare and publish an *Annual Planning Report*. Should *AEMO* identify a *Distribution Network Service Provider* as the relevant *Network Service Provider*, the *Distribution Network Service Provider* is required to conduct an assessment of credible options for the development of a *scale efficient network extension* and publish a *SENE planning repor*t on its website.

In addition, this clause is intended to address the issue that *scale efficient network extensions* are unlikely to be relevant to some *Network Service Providers* (e.g. Murraylink, Basslink, EnergyAustralia). Rather than exempt specific *Network Service Providers*, this clause provides that *AEMO* should expressly identify the *Network Service Provider* or *Network Service Providers* responsible for preparing options for the development of potential *scale efficient network extensions*.

(a) *AEMO*, in its role as *National Transmission Planner*, is required to identify in the *NTNDP* for each year (in accordance with rule 5.6A):

(1) *scale efficient generation zones*; and

(2) the *Network Service Provider* or *Network Service Providers* responsible for preparing options for development of potential *scale efficient network extensions* between the present *network* and each *scale efficient generation zone*.

(b) Where the most recent *NTNDP* identifies a *Transmission Network Service Provider* as responsible for preparing options for development of a potential *scale efficient network extension*, the relevant *Transmission Network Service Provider* must:

(1) conduct a review of credible options for development of the potential *scale efficient network extension*; and

(2) *publish* the credible options for development of the potential *scale efficient network extension* in its next *Annual Planning Report*.

(c) Where the most recent *NTNDP* identifies a *Distribution Network Service Provider* as responsible for preparing options for the development of a potential *scale efficient network extension*, the relevant *Distribution Network Service Provider* must, by 30 June of the year following *publication* of the most recent *NTNDP*:

(1) conduct a review of credible options for development of the relevant *scale efficient network extension*; and

(2) *publish* the credible options for development of the potential *scale efficient network extension* on its website.

(d) Any review under clauses 5.5A.2(b)(1) or 5.5A.2(c)(1) must include a high level assessment of the credible options for the economic development of potential *scale efficient network extensions* from the relevant *scale efficient generation zone* to the present *network* and consider:

(1) the future *generation* capacity in the *scale efficient generation zone* considered likely to require *connection* to a *scale efficient network extension*;

(2) for each credible option identified:

(i) the location of the point of *connection* of the *scale efficient network extension* to the present *network*;

(ii) the location of the *SENE hub*;

(iii) the capacity and technical specifications of the *scale efficient network extension*;

(iv) a preliminary timetable for development of the *scale efficient network extension*;

(v) indicative development, operating and other costs for the *scale efficient network extension*; and

(vi) the estimated economic life of the *scale efficient network extension*;

(3) possible scale and other efficiencies associated with different *scale efficient network extension* options;

(4) opportunities for staged and modular development to minimise risk of stranded capital costs;

(5) the impact of each credible option on the present *network*, including any requirement for *augmentation*;

(6) the most recent *NTNDP*; and

(e) Any credible options for a *scale efficient network extension* published by a *Network Service Provider* under clause 5.5A.2(b)(1) or 5.5A.2(c)(1) (as applicable) must be accompanied by the *Network Service Provider's* conclusions regarding the factors set out in clause 5.5A.2(d). If a *Network Service Provider* concludes there are no credible options for a *scale efficient network extension*, the *Network Service Provider* must *publish* the reasons for that conclusion on its website

(f) For the purposes of this clause 5.5A.2, a credible option for a *scale efficient network extension* is one that, after considering the factors set out in clause 5.5A.2(d), has a reasonable prospect of development as a *scale efficient network extension* under this rule 5.5A

(g) For the avoidance of doubt, a *Network Service Provider* is not required to conduct a review of credible options for development of a potential *scale efficient network extension* unless clauses 5.5A.2(b) or (c) apply (as relevant).

(h) A *Transmission Network Service Provider* must *publish* details of any relevant *SENE connection offer* approved under clause 5.5A.9 in its *Annual Planning Report*.

(i) A *Distribution Network Service Provider* must *publish* details of any relevant *SENE connection offer* approved under clause 5.5A.9 on its website.

5.5A.3 Connection procedure for proposed scale efficient network extensions

Draft clause 5.5A.3 adopts the existing *connection* provisions of rule 5.3 (from *connection* enquiry to *connection agreement*) where possible. Clause 5.5A.3 sets out the 'deviations' from the rule 5.3 *connection* process which are necessary to ensure compatibility with the special requirements of *scale efficient network extension* planning.

The rule 5.5A *connection* procedure applies to any *connection* to an existing or potential *scale efficient network extension*, regardless of the stage of development of the *scale efficient network extension* (i.e. from the initial connection enquiry to *applications to connect* made after the *scale efficient network extension* has been commissioned).

Generators may enter into a single *connection agreement* covering both the use of a *scale efficient network extension* and the other *connection assets* required to *connect* to an existing or potential *scale efficient network extension*. Note, however, that the charging and revenue recovery arrangements will differ for the two components. The other *connection assets* required by a *Generator* to *connect* to an existing or potential *scale efficient network extension* will continue to be soley funded by the relevant *Generator*.

The relevant *Network Service Provider* will *publish* a standard set of terms and conditions for *connection* to the *scale efficient network extension* (the *SENE connection offer*) which can be incorporated in an offer to *connect* and, ultimately, the *Generator's connection agreement*.

Application of clause

(a) This clause 5.5A.3 applies where a *Generator* wishes to establish a *connection* to a proposed *scale efficient network extension* for which no *SENE connection offer* has yet been approved under clause 5.5A.9.

Connection enquiries and response to connection enquiry

The *Network Service Provider* must provide an initial preferred design option for the *scale efficient network extension* in its response to a *connection* enquiry. This preliminary design option is to be based on:

- information from all *connection* enquiries received up to the end of the *SENE invitation period*, where the *Network Service Provider* is responding to one of the initial *connection* enquiries; or

- all *connection* enquiries, *applications to connect* and other information available to the *Network Service provider* up to the date of the *connection* enquiry, where the *Network Service Provider* is responding to a *connection* enquiry made later in the planning process.

(b) Within 10 *business days* after receiving the first *connection* enquiry under clause 5.3.2 in respect of a potential *scale efficient network extension* (being a credible option identified under clause 5.5A.2(b)(2) or clause 5.5A.2(c)(2)), the relevant *Network Service Provider* must *publish* a notice inviting further *connection* enquiries in respect of the proposed *scale efficient network extension* to be made to the *Network Service Provider* within a period (of at least 20 *business days*) specified in the notice.

(c) A *Network Service Provider* must provide a response to a *connection* enquiry under clause 5.3.2 in respect of a proposed *scale efficient network extension*:

(1) for all *connection* enquiries received prior to the end of the *SENE invitation period*, no earlier than the last day of the *SENE invitation period*. In respect of all such *connection* enquiries, each of the time periods in clause 5.3.3 which are counted from the receipt of the *connection* enquiry will instead be counted from the end of the relevant *SENE invitation period*; and

(2) for all *connection* enquiries received after the end of the *SENE invitation period*, within the time periods set out in clause 5.3.3.

(d) The information provided by the *Network Service Provider* under clause 5.3.3(b) in response to a *connection* enquiry in respect of a proposed *scale efficient network extension* must include details of the progress (if any) already made in the planning and development of the proposed *scale efficient network extension*.

(e) The information provided by the *Network Service Provider* under clause 5.3.3(b1) in response to a *connection* enquiry in respect of a proposed *scale efficient network extension* must:

(1) where no *SENE connection offer* for the relevant *scale efficient network extension* has been approved under clause 5.5A.9, include a description of any preliminary design options for the *scale efficient network extension* (including the location, capacity, technical specifications, timetable for development, indicative costs and assumed economic life), based on the *Network Service Provider's* review of all relevant *connection* enquiries, *applications to connect* and other submissions received in relation to the proposed *scale efficient network extension*; and

(2) where a *SENE connection offer* for the relevant *scale efficient network extension* has been approved under clause 5.5A.9, the terms of that *SENE connection offer*.

Application for connection

(f) Following receipt of the first *application to connect* to a proposed *scale efficient network extension* under clause 5.3.4, the relevant *Network*

Service Provider must determine whether it is required to develop a *SENE connection offer* for the proposed *scale efficient network extension* in accordance with clause 5.5A.5.

(g) If the first *application to connect* to a proposed *scale efficient network extension* under clause 5.3.4 is received by the relevant *Network Service Provider* more than 6 months after the latest date on which a notice under clause 5.5A.3(b) was *published* in respect of the proposed *scale efficient network extension*, then within 10 *business days* after receiving the first *application to connect*, the *Network Service Provider* must, prior to making any determination referred to in clause 5.5A.3(f), *publish* a notice inviting, within a period (of at least 20 *business days*) specified in the notice:

(1) further *applications to connect* to the proposed *scale efficient network extension*;

(2) further *connection* enquiries in respect of the proposed *scale efficient network extension*; and

(3) any other information relevant to future *generation* capacity within the relevant *scale efficient generation zone*.

Preparation of offer to connect

(h) A *Network Service Provider* to whom an *application to connect* to a proposed *scale efficient network extension* has been submitted under clause 5.3.4 is not required to commence preparation of an offer to *connect*, or to commence consideration of any proposed *negotiated access standard*, prior to the relevant *SENE connection offer* being approved under clause 5.5A.9.

(i) An offer to *connect* to a *scale efficient network extension* must include the terms of the *SENE connection offer* as part of the proposed terms and conditions for *connection* under clause 5.3.6(b).

(j) A *Network Service Provider* to whom an *application to connect* to a proposed *scale efficient network extension* has been submitted under clause 5.3.4 may require the relevant *Connection Applicant* make a reasonable contribution to the *Network Service Provider's* costs of preparing the relevant *SENE connection offer*. Any additional *Network Service Provider* costs of preparing a *SENE connection offer* may be recovered through the *SENE charges* payable by other *Generators* connecting to the relevant *scale efficient network extension*.

5.5A.4 Connection procedure where SENE connection offer is approved

Application of clause

(a) This clause 5.5A.4 applies where a *Generator* wishes to establish a *connection* to a proposed *scale efficient network extension* for which a *SENE connection offer* has been approved under clause 5.5A.9.

Preparation of offer to connect

(b) An offer to *connect* to a *scale efficient network extension* must include the terms of the relevant *SENE connection offer* as part of the proposed terms and conditions for *connection* under clause 5.3.6(b).

5.5A.5 Scale efficient network extension planning procedure

Commencement of scale efficient network extension planning procedure

(a) A *Network Service Provider* must develop a *SENE connection offer* for a proposed *scale efficient network extension* in accordance with this clause 5.5A.5 where:

(1) the *Network Service Provider* has received an *application to connect* to a proposed *scale efficient network extension*;

(2) a *SENE connection offer* has not yet been approved for the relevant proposed *scale efficient network extension* under clause 5.5A.9; and

(3) the information provided to the *Network Service Provider* under clauses 5.5A.3(b) and 5.5A.3(f) indicates a reasonable likelihood that:

(i) other *Generators* will *connect* to the proposed *scale efficient network extension*, if developed; and

(ii) there will be material scale efficiencies in developing the relevant *transmission investment* or *new distribution network investment* as a *scale efficient network extension*, having regard to the likely timing and capacity requirements of other *Generators* likely to *connect* to the proposed *scale efficient network extension*, if developed.

(b) Where clause 5.5A.5(a) applies, the relevant *Network Service Provider* must, within 30 *business days* after receipt of the *application to connect* to a proposed *scale efficient network extension*, *publish* a notice of its intention to either proceed, or to not proceed, with development of a *SENE connection offer* for the proposed *scale efficient network extension*.

SENE planning report

A report stage has been included to collect the *Network Service Provider's* analysis and to provide a basis for submissions and appeals. If the *Network Service Provider* does not believe there are any material scale efficiencies, the *application for connection* should proceed as if it was a standard *negotiated transmission service*.

(c) A *Network Service Provider* must, within 20 business days of *publish*ing a notice of its intention to proceed with development of a *SENE connection offer* under paragraph (b), prepare and *publish* a report (a *SENE planning report*) which must:

(1) set out the *Network Service Provider's* best estimate of the *forecast generation profile* for the proposed *scale efficient network extension*;

(2) identify the design option for the proposed *scale efficient network extension*, and location of the *SENE hub*, that minimises the present value of the total *connection* costs to all *Generators* considered likely to *connect* to the proposed *scale efficient network extension* (including the costs of all *connection assets* between the relevant *Generators' facilities* and the *scale efficient network extension*) and reasonably minimises the funding risk to *Customers* under clause 5.5A.12(a). The relevant design option must include:

(i) the location of the proposed *scale efficient network extension*, including the location of:

(A) the point of *connection* of the proposed *scale efficient network extension* to the present *network*; and

(B) the *SENE hub*;

(ii) the capacity and technical specifications of the proposed *scale efficient network extension*;

(iii) an estimated timetable for the development of the proposed *scale efficient network extension*; and

(iv) the estimated economic life of the proposed *scale efficient network extension*.

(3) set out the expenditure the *Network Service Provider* estimates is reasonably required to develop, operate and maintain the proposed *scale efficient network extension*, including:

(i) the capital expenditure required to develop the proposed *scale efficient network extension* in accordance with the applicable technical requirements set out in the Schedules to this Chapter;

(ii) the operating and maintenance expenditure required for the proposed *scale efficient network extension* over its *economic life*;

(iii) the financing and overhead costs of the *Network Service Provider* reasonably attributable to the proposed *scale efficient network extension*;

(iii) the costs of the *Network Service Provider* complying with laws, regulations and applicable administrative requirements in relation to the development, operation and maintenance of the proposed *scale efficient network extension.*

(4) after considering all of the matters in paragraphs (1) to (3) (inclusive), calculate the *Network Service Provider's* estimate of the:

(i) *annual SENE revenue requirement* for the proposed *scale efficient network extension*; and

(ii) *SENE charges* payable by *Generators* connecting to the proposed *scale efficient network extension*,

for each year of the economic life of the proposed *scale efficient network extension*; and

(5) include a description of the assumptions and methodology used by the *Network Service Provider* in identifying the *forecast generation profile* and the preferred design option for the proposed *scale efficient network extension.*

(d) In preparing a *SENE planning report* under paragraph (c), a *Network Service Provider* must, in addition to the matters set out in paragraph (c), also have regard to:

(1) the *relevant scale efficient generation zone* identified by AEMO under clause 5.6A.2(b)(2)(v);

(2) the matters a *Network Service Provider* was required by clause 5.5A.2(d) to consider in undertaking a review of credible options for development of the relevant *scale efficient network extension* under clause 5.5A.2(b)(1) or 5.5A.2(c)(1) (as applicable);

(3) all *connection* enquiries and *applications to connect* to the proposed *scale efficient network extension*;

(4) the probability of any identified future *generation* capacity actually being developed, or being developed within the forecast timeframe;

(5) any other information relevant to future *generation* capacity likely to *connect* to the *scale efficient network extension* provided in

response to a notice *publish*ed under clauses 5.5A.3(b) and 5.5A.3(f); and

(6) the *SENE planning guidelines*.

Scale efficient network extension connection offer

(e) Unless a *Network Service Provider* determines that a proposed *scale efficient network extension* will not provide any material scale efficiencies, the *Network Service Provider* must, at the same time as preparing and *publishing* the relevant *SENE planning report*, prepare and *publish* a *SENE connection offer* for the relevant *scale efficient network extension*.

(f) The *SENE connection offer* must contain the proposed terms and conditions for a *Generator's connection* to the *scale efficient network extension*, including:

(1) a description of the proposed *scale efficient network extension*;

(2) a proposed development timetable for the *scale efficient network extension*;

(3) the applicable *SENE charges*;

(4) the available *power transfer capability*;

(5) the payment arrangements that will apply for the purposes of clause 5.5A.14(a)(2);

(6) conditions requiring the *Generator* to commit to the payment of *SENE charges* for the estimated economic life of the *scale efficient network extension*;

(7) prudential requirements, including the circumstances in which the *Network Service Provider* may call on prudential support provided by the *Generator*;

(8) conditions applying in the event of default by the *Generator* or *Network Service Provider*; and

(9) proposed level of redundancy and circumstances where *power transfer capability* on the *scale efficient network extension* will not be available.

Publication

(g) For the purposes of paragraphs (c) and (e), the *Network Service Provider* must *publish* a *SENE planning report* or *SENE connection offer* by:

(1) *publish*ing a copy of the *SENE planning report* or *SENE connection offer* on its website; and

(2) providing a copy of the *SENE planning report* or *SENE connection offer* to *AEMO* and the *AER*.

(h) The *AER* must *publish* each *SENE planning report* and *SENE connection offer* on its website as soon as practicable and in any event within 5 *business days* of receipt from the *Network Service Provider*.

Scale efficient network extension planning procedure guidelines

There are two key areas where guidance from the AER will be required:

- first, the methodologies that can be applied by the *Network Service Provider* for determining the *forecast generation profile*; and
- second, the optimal location of the *scale efficient network extension* and the *SENE hub*. This has the potential to favour some *Generator*s over others and needs to be optimised so it does not unduly favour the initial *connection applicant*.

(i) The *AER* must develop and *publish* guidelines for the operation and application of the *scale efficient network extension planning procedure* (the *SENE planning guidelines*) in accordance with the *transmission consultation procedure* and this clause 5.5A.5.

(j) The *SENE planning guidelines* must:

(1) give effect to and be consistent with this clause 5.5A.5; and

(2) provide guidance and worked examples as to:

(i) acceptable methodologies for determining the *forecast generation profile*, including criteria for the inclusion of possible *generation* capacity in the *forecast generation profile*;

(ii) acceptable methodologies for determining the optimal location of the *scale efficient network extension* and *SENE hub*;

(iii) acceptable methodologies for valuing the costs of a *scale efficient network extension*;

(iv) acceptable methodologies for determining the *annual SENE revenue requirement* for the *scale efficient network extension*;

(v) suitable modelling periods and approaches to scenario development; and

(vi) appropriate approaches to assessing uncertainty and risks.

(k) The *AER* must develop and *publish* the first *SENE planning guidelines* by 31 December 2010, and the *SENE planning guidelines* must remain in force at all times after that date.

(l) The *AER* may, from time to time, amend or replace the *SENE planning guidelines* in accordance with the *transmission consultation procedures*, provided the *AER publishes* any amendments to, or replacements of, the *SENE planning guidelines* at the same time.

(m) An amendment referred to in paragraph (l) does not apply to any *connection* enquiry or *application to connect* in respect of a *scale efficient network extension* current at the date of amendment.

(n) For the purposes of paragraph (m), an application of the *SENE planning guidelines* is "current" if the relevant *connection* enquiry or *application to connect* is not completed at the date of the relevant amendment to the *SENE planning guidelines.*

5.5A.6 Objections regarding scale efficient network extension connection offer

(a) Any person may, by notice to the *AER*, object to the:

(1) conclusions made by a *Network Service Provider* in relation to the *forecast generation profile* for a *scale efficient network extension*;

(2) conclusions made by a *Network Service Provider* on the design option, including its estimated cost, for a *scale efficient network extension* (including the location of the *scale efficient network extension* or the *SENE hub*); and/or

(3) the terms and conditions of the *SENE connection offer*.

(b) An objection under paragraph (a) must be made within 30 *business days* after the date of *publication* of the relevant *SENE connection offer* by the *AER* under clause 5.5A.5(h), by the objecting party providing to the *AER* a notice of the objection in writing, setting out the grounds for the objection. The *AER* must *publish* any objection made under paragraph (a) on its website.

5.5A.7 Review by AEMO

(a) *AEMO* must, within 30 *business days* after the date of publication of a *SENE connection offer* under clause 5.5A.5(h), undertake an assessment of the conclusions made by the *Network Service Provider* in relation to the *forecast generation profile* for the relevant *scale efficient network extension*.

(b) A review by *AEMO* under clause 5.5A.7(a) must assess whether, in the view of AEMO, the methodology, assumptions and conclusions of the

Network Service Provider in determining the *forecast generation profile* were reasonable.

(c) *AEMO* must notify the *AER* of its assessment under clause 5.5A.7(b) by providing the *AER* with a written report setting out its assessment and the reasons for its conclusions.

(d) The *AER* must *publish* a report provided by *AEMO* under clause 5.5A.7(c) on its website.

5.5A.8 AER determination on scale efficient network extension connection offer

(a) Within 30 *business days* of receiving *AEMO's* assessment under clause 5.5A.7(c), the *AER* may, having regard to clauses 5.5A.8(b) and (c), make and *publish* a determination:

(1) approving the relevant *SENE connection offer*; or

(2) rejecting the relevant *SENE connection offer* for any of the reasons set out in clause 5.5A.8(c).

(b) In making a determination under clause 5.5A.8(a), the *AER*:

(1) must consider *AEMO's* assessment under clause 5.5A.7(c);

(2) must consider any objection notified to the AER under clause 5.5A.6;

(3) must only take into account information and analysis that the *Network Service Provider* could reasonably be expected to have considered or undertaken at the time it determined the *forecast generation profile* for the relevant *scale efficient network extension*;

(4) may request further information from the *Network Service Provider* or any person who has made an objection under clause 5.5A.6, in which case the *Network Service Provider* or other person must provide such information to the *AER* as soon as reasonably practicable; and

(5) must *publish* the reasons for its determination.

(c) The *AER* may only make a determination under clause 5.5A.8(a)(2) if it concludes that:

(1) the *Network Service Provider's* assessment of any of:

(i) the *forecast generation profile* for the *scale efficient network extension*;

(ii) the design option for the *scale efficient network extension*;

(iii) the expenditure required for the purpose of developing, constructing, operating and maintaining the *scale efficient network extension*; or

(iv) the economic life of the *scale efficient network extension*,

was not reasonable;

(2) there was a manifest error in any of the calculations performed by the *Network Service Provider* in applying the requirements of this rule 5.5A; or

(3) the *SENE connection offer* has not been prepared in accordance with the *Rules*.

(d) If the *AER* makes a determination under clause 5.5A.8(a)(2), the relevant *Network Service Provider* must submit a revised *scale efficient connection planning report* and/or revised *SENE connection offer* to the *AER* within 30 *business days* after the *AER's publication* of the determination, in which case the procedure under clause 5.5A.8(a) will apply in respect of the revised *scale efficient connection planning report* and/or revised *SENE connection offer*.

5.5A.9 Approval of scale efficient network extension connection offer

This clause has been drafted on the basis that the AER will only make a determination when it considers it necessary. Therefore, the AER will have the option not to make a determination. This means that the *SENE connection offer* is taken to be approved if the AER decides not to make a determination within the stated timeframe. We recognise, however, there may be a case for providing some flexibility with regard to the timing of this assessment. For example, the AER could be afforded some ability to extend the period for making a determination. However, this needs to be weighed against the costs of delays to the process. Should the MCE submit this draft Rule to the AEMC, this may be an area stakeholders wish to comment on.

(a) A *SENE connection offer* is taken to be approved if:

(1) the *AER* makes a determination under clause 5.5A.8(a)(1) within the period required by that clause; or

(2) the *AER* fails to make a determination under clause 5.5A.8(a)(2) within the period required by that clause.

(b) A *Network Service Provider* must *publish* an approved *SENE connection offer* on its website.

5.5A.10 Construction of scale efficient network extension

A *Network Service Provider* may commence development of a *scale efficient network extension* after a *Generator* has entered into a *connection agreement* (incorporating the relevant *SENE connection offer*) under clause 5.3.7.

5.5A.11 Withdrawal from SENE process

Nothing in this rule 5.5A prevents a *Generator* from at any time withdrawing:

(a) a *connection* enquiry in respect of a proposed *scale efficient network extension*; or

(b) an *application to connect* in respect of a proposed *scale efficient network extension*.

5.5A.12 Scale efficient network extension funding

(a) Where a *Network Service Provider* undertakes development of a *scale efficient network extension* in accordance with this rule 5.5A, it*:*

(1) may, in any year, pass through to *Customers* the cost of any shortfall amount calculated under clause 5.5A.13(e) for the relevant *scale efficient network extension* in respect of the previous year; and

(2) must, in any year, pass through to *Customers* the benefit of any refund amount calculated under clause 5.5A.13(g) for the relevant *scale efficient network extension* in respect of the previous year.

(b) For the avoidance of any doubt, no charge to *Customers* under clause 5.5A.12(a)(1) or refund to *Customers* under clause 5.5A.12(a)(2) will be considered for the purposes of:

(1) in the case of a *Transmission Network Service Provider*:

(i) calculating the *Network Service Provider*'s *maximum allowed revenue* for any *regulatory year* of a regulatory *control period* under rule 6A.3 or

(ii) determining the revenue that a *Transmission Network Service Provider* has earned in any *regulatory year* of a *regulatory control period* from the provision of *prescribed transmission services*; and

(2) in the case of a *Distribution Network Service Provider*:

(i) calculating the *Network Service Provider*'s *annual revenue requirement* for any *regulatory year* of a regulatory *control period* under rule 6.4; or

(ii) determining the revenue that a *Distribution Network Service Provider* has earned in any *regulatory year* of a *regulatory control period* from the provision of *direct control services*.

5.5A.13 SENE charges

(a) The *SENE charges* charged to *Generators* connecting to a *scale efficient network extension* developed by a *Network Service Provider* must be determined by the relevant *Network Service Provider* by calculating:

(1) the present value of the aggregate costs of planning, developing, constructing, operating and maintaining the *scale efficient network extension* over its *economic life* and any other relevant costs set out in this rule 5.5A; and

(2) the annual $/MW *SENE charge* for *connected generation* capacity that, assuming the *connection* of *generation* in accordance with the *forecast generation profile*, fully recovers the costs determined under paragraph (1) from *Generators* connecting to the *scale efficient network extension* over its *economic life*.

(b) The relevant *Network Service Provider* must calculate an annual $/MW *SENE charge* using a return on capital consistent with:

(1) in the case of a *Transmission Network Service Provider*, the *Transmission Network Service Provider's* permitted rate of return calculated under clause 6A.6.2(a); and

(2) in the case of a *Distribution Network Service Provider*, the *Distribution Network Service Provider's* permitted return on capital as set out in its current *building block determination*.

(c) Subject to clause 5.5A.13(d), the *SENE charges* determined by the relevant *Network Service Provider* must apply for all *Generators* connecting to the relevant *scale efficient network extension* for the *economic life* of the *scale efficient network extension*.

(d) The relevant *Network Service Provider* must review the *SENE charges* for a *scale efficient network extension* developed by a *Network Service Provider* on the commissioning of the relevant *scale efficient network extension* and every 5 year anniversary of such commissioning. A *Network Service Provider* must, within 20 business days following the relevant review date, recalculate the *SENE charges* for a *scale efficient network extension* developed by a *Network Service Provider* to the extent necessary:

(1) to accommodate any material variation between forecast costs used to calculate the current *SENE charges*, and the actual costs incurred up to the review date or known as at the review date; or

(2) to reflect any change in the *Network Service Provider's*:

(i) financing costs; or

(ii) permitted return on capital referred to in clause 5.5A.13(b),

since the previous review date (or, for the first review date, since the date of the *Network Service Provider* determining the initial *SENE charges*),

and must provide any proposed amendments to the *SENE charges* to the *AER* for approval under clause 5.5A.13(e).

(e) Within 20 *business days* of receiving all relevant details of a proposed amendment to any *SENE charges* for a *scale efficient network extension* under clause 5.5A.13(d), the *AER* may make and *publish* a determination:

(1) that the proposed amendment is reasonable; or

(2) that the proposed amendment is not reasonable, identifying the aspects of the proposed amendment the *AER* considers not to be reasonable.

(f) A proposed amendment to any *SENE charges* for a *scale efficient network extension* under clause 5.5A.13(d) is taken to be approved if:

(1) the *AER* makes a determination under clause 5.5A.13(e)(1) within the period required by that clause; or

(2) the *AER* fails to make a determination under clause 5.5A.12(e)(2) within the period required by that clause.

(g) If the *AER* makes a determination under clause 5.5A.13(e)(2), the relevant *Network Service Provider* must submit a revised proposed amendment to any *SENE charges* for a *scale efficient network extension* under clause 5.5A.13(d) within 20 *business days* after the *AER's publication* of the determination, in which case the procedure under clause 5.5A.13(e) will apply in respect of the revised proposed amendment to any *SENE charges*.

(h) A *Network Service Provider* may not amend any *SENE charges* until the amended *SENE charges* have been approved by the *AER* under clause 5.5A.13(f). Any amended *SENE charges* approved by the *AER* may be applied from the relevant review date.

(i) To the extent that, in any year, the aggregate *SENE charges* received from *Generators* in respect of a *scale efficient network extension* developed by a *Network Service Provider* is less than its *annual SENE revenue*

requirement, the relevant *Network Service Provider* may recover such shortfall amount from *Customers* under clause 5.5A.13(a)(1) during the following year.

(j) If any shortfall amount under clause 5.5A.13(a) is due to the non-payment of *SENE charges* payable from *Generators* in respect of a *scale efficient network extension*, the relevant *Network Service Provider* may not recover such shortfall amount from *Customers* under clause 5.5A.13(a)(1) unless and until it has pursued all reasonable commercial avenues for recovery of the outstanding *connection charges*, including its rights under any prudential support provided to the *Distribution Network Service Provider* by the *Generator*.

(k) To the extent that, in any year, the aggregate *SENE charges* received by a *Network Service Provider* from *Generators* in respect of a *scale efficient network extension* is greater than its *annual SENE revenue requirement* for that *scale efficient network extension*, the *Network Service Provider* must refund such surplus amount to *Customers* under clause 5.5A.13(a)(2) during the following year.

5.5A.14 Contracted power transfer capability on scale efficient network extensions

This clause provides for a constraint payment for *scale efficient network extensions.* This is necessary where *Generators* connect in excess of installed capacity on *scale efficient network extensions*. It is important to note that this arrangement does not extend to constraints on the shared network.

We note that different levels of prescription can be used for determining the payments made under this clause. Should the MCE submit this draft Rule to the AEMC, this may be an area stakeholders wish to comment on.

(a) The *SENE charges* payable by *Generators* connecting to a *scale efficient network extension* developed by a *Network Service Provider* must be determined by the relevant *Network Service Provider* in the following manner:

(1) each *Generator* connecting to the *scale efficient network extension* will be entitled to a capacity entitlement in respect of a *scale efficient network extension*:

(i) up to the extent of the *Generator*'s contracted *power transfer capability*; and

(ii) for any *trading interval*, up to amount (in MW) calculated as the available capacity of the *scale efficient network extension* during that *trading interval* multiplied by the proportion represented by the *Generator*'s contracted *power transfer capability* relative to the contracted *power transfer capability*

of all *Generator*s *connected* to the *scale efficient network extension*; and

(2) in the event that the *generating units* or group of *generating units* of a *Generator* are *constrained off* during a *trading interval* due to a constraint on the *scale efficient network extension*, the relevant *Network Service Provider* must:

(i) collect payments from all parties *connected* to the *scale efficient network extension* to the extent they generate in excess of their contracted *power transfer capability* for the relevant *trading interval*; and

(ii) make payments to all parties *connected* to the *scale efficient network extension* to the extent they are *constrained off* below their contracted *power transfer capability* for the relevant *trading interval*.

(b) The payments to be collected and made by a *Network Service Provider* under clause 5.5A.14(a)(2) must be determined by the relevant *Network Service Provider* calculating:

(1) the additional *trading amount* a *Generator* would have received under Chapter 3 had it not been *constrained off* below its contracted *power transfer capability*; less

(2) the costs avoided by the relevant *Generator* as a result of being *constrained off* below its contracted *power transfer capability*, based on:

(i) the quantity (in MW) which the *Generator* was not required to generate as a result of being *constrained off* below its contracted *power transfer capability*; and

(ii) the marginal costing (in $/MW) prepared and *published* by the *AER* for the category of affected generating *facility* from time to time under clause 5.5A.14(c).

(c) For the purposes of clause 5.5A.14(b)(2)(ii), the *AER* must calculate an approximate and generic marginal cost (in $/MW) for identified categories of generating *facilities* and *publish* that marginal costing on its website. The AER may review and update such marginal costing or the categories of generating *facilities identified* from time to time. For these purposes, the *AER* may identify categories of generating *facilities* and develop marginal costing for each category after considering any matters the AER considers relevant, which may include:

(1) *generation facility* technology type;

(2) *generation facility* fuel type, price and availability; and

(3) *generation facility* location.

(d) A *Network Service Provider*:

(1) will not be required to make payments to *Generator*s under clause 5.5A.14(a)(2)(ii) in excess of the amount of payments received from *Generator*s under clause 5.5A.14(a)(2)(i) in respect of any *trading interval*;

(2) must, subject to clause 5.5A.14(d)(3), distribute all payments received from *Generator*s under clause 5.5A.14(a)(2)(i) to *Generators* under clause 5.5A.14(a)(2)(ii); and

(3) may deduct its reasonable costs of administering the arrangements in this clause 5.5A.14 from payments under clause 5.5A.14(a)(2)(ii).

(e) The relevant *Network Service Provider* must provide for the arrangements set out in this clause 5.5A.14, including its entitlement to collect payments under clause 5.5A.14(a)(2)(i), in all *Generator connection agreements* in respect of a *scale efficient network extension.*

(f) To the extent that the *power transfer capability* of a *scale efficient network extension* has been fully taken up by the contracted *power transfer capability* entitlements of *connected Generator*s, any further applicant for *connection* will not be entitled to contracted *power transfer capability* entitlements in respect of the *scale efficient network extension* other than to the extent that it funds an increase in the *power transfer capability* of the *scale efficient network extension.*

5.5A.15 Recovery of SENE charges within a region

This clause (modelled on rule 6A.29) allocates *SENE charges* equitably across all *Customers* in a *region.* In the absence of this arrangement, *SENE charge* would be allocated solely to the *Customers* of a *Distribution Network Service Provider* or one *Transmission Network Service Provider* where there are multiple *Network Service Providers* within a *region.*

(a) Where:

(1) a *Distribution Network Service Provider* undertakes development of a *scale efficient network extension* in accordance with this rule 5.5A; or

(2) there are multiple *Transmission Network Service Providers* within a *region*,

all relevant *Network Service Providers* within the *region* (the *appointing SENE providers*) must appoint a *Co-ordinating SENE Network Service Provider* as the party responsible for the allocation of:

(3) all shortfall amounts recoverable from *Customers* under clause 5.5A.12(a)(1); and

(4) all amounts refundable to *Customers* under clause 5.5A.12(a)(2),

for *scale efficient network extensions* within that *region* in accordance with this clause 5.5A.15.

(b) For the avoidance of doubt, nothing in this clause 5.5A.15 entitles a *Co-ordinating SENE Network Service Provider* to determine *SENE charges* for a *scale efficient network extension* developed by another *appointing SENE provider*. Each relevant *appointing SENE provider* will be solely responsible for determining the *SENE charges* for any *scale efficient network extensions* developed by that *appointing SENE provider* within that *region*, in accordance with this rule 5.5A.

(c) To make the allocation referred to in clause 5.5A.15(a), the *Co-ordinating SENE Network Service Provider* must use the total of all:

(3) shortfall amounts recoverable by *appointing SENE providers* from *Customers* under clause 5.5A.12(a)(1); and

(4) amounts refundable by *appointing SENE providers* to *Customers* under clause 5.5A.12(a)(2),

for *scale efficient network extensions* within the relevant *region*.

(d) The *Co-ordinating SENE Network Service Provider* is responsible for making the allocation referred to in clause 5.5A.15(a), in accordance with its *pricing methodology*, in relation to *Transmission Network Users'* and *Transmission Network Service Providers' transmission network connection points* located within the *region*.

(e) Each *appointing SENE provider* must promptly provide information reasonably requested by the *Co-ordinating SENE Network Service Provider* for the relevant *region* to enable the proper performance of the coordination function under this clause 5.5A.15.

(f) The *Co-ordinating SENE Network Service Provider* must provide sufficient information to each *appointing SENE provider* to enable that *appointing SENE provider*:

(1) to understand the basis for the allocation referred to in clauses 5.5A.15(a) and (d); and

(2) to prepare its *pricing methodology* and replicate the pricing allocation.

5.5A.16 Review of this Rule

The *AEMC* must conduct a review of the operation of this rule 5.5A by no later than the end of the fifth anniversary of *publication* of the first *NTNDP*. The objective of the review will be to report on the extent that this rule 5.5A and any other provision of these *Rules* relating to *scale efficient network extensions* are achieving the delivery of efficient *connection* options where potential scale economies are present. The review must be conducted in accordance with section 45 of the *National Electricity Law*.

[3] Replacement Clause 5.6.2(b) and New Clause 5.6.2(b1)

Omit clause 5.6.2(b) and insert:

(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;

(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*;

(3) take into account the most recent *NTNDP*;

(4) where the most recent *NTNDP* identifies the *Transmission Network Service Provider* as responsible for preparing options for the development of a potential *scale efficient network extension*, include any matters required by clause 5.5A.2; and

(5) 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*.

(b1) Where the *NTNDP* identifies more than one *Network Service Provider* as responsible for preparing options for the development of a potential *scale efficient network extension*, the relevant *Network Services Providers* must jointly conduct the review required under clause 5.6.2(b)(4).

[4] New Clause 5.6.2A(b)(6a)

After clause 5.6.2A(b)(6), insert:

(6a) for any potential *scale efficient network extension*, the matters required by clause 5.5A.2; and

Part 3: Exclusion of Scale Efficient Network Extensions from the Regulatory Investment Test for Transmission and the Regulatory Test

[5] New Clause 5.6.5(i)

After clause 5.6.5(h), insert:

Application of regulatory test to scale efficient network extensions

(i) For the avoidance of doubt, a *Distribution Network Service Provider* is not required to apply the *regulatory test* to any proposed *new distribution network investment* where the proposed *new distribution network investment* will be a *scale efficient network extension*.

[6] New Clause 5.6.5C(7a)

After clause 5.6.5C(a)(7), insert:

(7a) the proposed *transmission investment* will be a *scale efficient network extension*;

Part 4: AEMO Identification of Scale Efficient Generation Zones

[7] New Clauses 5.6A.2(b)(2a) and (2b)

This clause provides guidance to *AEMO* about how it identifies possible *scale efficient generation zones*. There may be scope to provide more or less prescriptive guidance to the *AEMO*. Should the MCE submit this draft Rule to the AEMC, this may be an area stakeholders wish to comment on.

After clause 5.6A.2(b)(2)(v), insert:

(2a) identify possible *scale efficient generation zones* having regard to the likelihood of substantial scale efficiencies emerging from the development of a *scale efficient network extension* to the relevant area, after considering:

(i) the possible location of fuel sources for future electricity *generation* capacity;

(ii) the viability of future electricity *generation* projects within the relevant area using existing *generation* technologies, but considering relevant regulatory incentives for the development of particular electricity *generation* technologies;

(iii) the likelihood of the development of more than one electricity *generation* project in the relevant area;

(iv) any proposed development of the *national grid* contemplated in the current *NTNDP*;

(v) topography and other characteristics of the relevant area as relevant to the establishment of a *connection* to the *national grid*;

(vi) where the relevant fuel source considered in clause 5.6A.2(b)(2a)(i) is capable of being commercially transported, the relative costs of transporting the fuel as an alternative to building a *scale efficient network extension*;

(vii) the likely location and scale of the development of *generation* capacity within the relevant area; and

(viii) such other matters as *AEMO*, in consultation with the *participating jurisdictions*, considers appropriate; and

(2b) identify the *Network Service Provider* or *Network Service Providers* responsible for preparing options for the development of *scale efficient network extensions* to each *scale efficient generation zone*, having regard to:

(i) the *participating jurisdiction* or *participating jurisdictions* in which a *scale efficient generation zone* is located; and

(ii) the areas of the *network* from which a *connection* to a *scale efficient generation zone* could practicably be established.

[8] New Clause 5.6A.2(c)(8a)

After clause 5.6A.2(c)(8), insert:

(8a) identify the location of any identified *scale efficient generation zones* and identify the *Network Service Provider* or *Network Service Providers* responsible for preparing options for the development of potential *scale efficient network extensions* to each relevant *scale efficient generation zone*;

[9] New Clause 6.7.1(12)

After clause 6.7.1(11), insert:

(12) in the case of *scale efficient network extensions*, the *terms and conditions of access* should also provide for:

(i) the full recovery of the costs of the *scale efficient network extension* from connecting *Generators* based on the relevant *forecast generation profile* and the refunding of any *Customer* contributions under clause 5.5A.12(a)(1);

(ii) the charging arrangements described in clause 5.5A.14; and

(iii) without limiting any other aspect of this clause 6.7.1(12), if the other party requires any conditions in respect of a *scale efficient network extension* in addition to the terms and conditions set out in the relevant *SENE connection offer*, the price for the *Distribution Network Service Provider* complying with those additional conditions, and the costs of which the other party must pay in full.

[10] New Clause 6.7.2(b)(5)

After clause 6.7.2(b)(4), insert:

(5) rule 5.5A when negotiating the *SENE charges* to be paid to or by a *Generator* in respect of a *scale efficient network extension*.

[11] New Clause 6A.9.1(12)

After clause 6A.9.1(11), insert:

(12) in the case of *scale efficient network extensions*, the *terms and conditions of access* should also provide for:

(i) the full recovery of the costs of the *scale efficient network extension* from connecting *Generators* based on the relevant *forecast generation profile* and the refunding of any *Customer* contributions under clause 5.5A.12(a)(1);

(ii) the charging arrangements described in clause 5.5A.14; and

(iii) without limiting any other aspect of this clause 6A.9.1(12), if the other party requires any conditions in respect of a *scale efficient network extension* in addition to the terms and conditions set out in the relevant *SENE connection offer*, the price for the *Transmission Network Service Provider* complying with those additional conditions, and the costs of which the other party must pay in full.

[12] New Clause 6A.9.2(b)(3)

After clause 6A.9.2(b)(2), insert:

(3) rule 5.5A when negotiating the *SENE charges* to be paid to or by a *Generator* in respect of a *scale efficient network extension*.

[13] New Clause 11.27.4(a)(6)

After clause 11.27.4(a)(5), insert:

(6) the location of possible *scale efficient generation zones*,

[14] Chapter 10 – New Definitions

In Chapter 10, insert the following new definitions in alphabetical order:

annual SENE revenue requirement

The annual revenue requirement of a *Network Service Provider* in respect of a *scale efficient network extension* calculated pursuant to clause 5.5A.13.

appointing SENE providers

Has the meaning set out in clause 5.5A.15(a).

Co-ordinating SENE Network Service Provider

Has the meaning set out in clause 5.5A.15(a).

forecast generation profile

The forecast profile of the aggregate *power transfer capability* contracted by *Generators* in respect of a *scale efficient network extension*, over the economic life of that *scale efficient network extension*, as determined under rule 5.5A.

Generator distribution use of system, Generator distribution use of system service

A service provided to a *Generator* for use of a *scale efficient network extension* developed by a *Distribution Network Service Provider* in accordance with rule 5.5A.

scale efficient network extension

A *transmission investment* or *new distribution network investment* approved under rule 5.5A connecting the *national grid* (as it was before construction of the relevant *transmission investment* or *new distribution network investment*) to *a scale efficient generation zone*.

scale efficient generation zone

A geographic area identified by *AEMO* under clause 5.6A.2(b)(2a).

SENE charges

The charges payable by a *Generator* to a *Network Service Provider* for use of a *scale efficient network extension* calculated pursuant to clause 5.5A.13 (excluding any payments under clause 5.5A.14).

SENE connection offer

The standard terms and conditions for *Generators* to *connect* to a *scale efficient network extension*, established in accordance with clauses 5.5A.5 to 5.5A.9.

SENE hub

The end point of a *scale efficient network extension* within a *scale efficient generation zone*.

SENE invitation period

The period set out in clause 5.5A.3(b).

SENE planning guidelines

Has the meaning set out in clause 5.5A.5(i).

SENE planning report

Has the meaning set out in clause 5.5A.5(c).

[15] Chapter 10 – Amended Definitions

In Chapter 10, replace the following definitions in alphabetical order:

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);

(b) use of a *scale efficient network extension* developed by a *Transmission Network Service Provider* in accordance with rule 5.5A; or

(c) use of a *transmission investment* for the conveyance of electricity that can be reasonably allocated to a *Generator* on a locational basis.

negotiated distribution service

Any of the following services:

(a) a *distribution service* that is a *negotiated network service* within the meaning of section 2C of the Law; or

(b) *Generator distribution use of system services* provided by a *Distribution Network Service Provider* in respect of a *scale efficient network extension*;

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*;

(c) *Generator transmission use of system services* provided by a *Transmission Network Service Provider* in respect of a *scale efficient network extension*; or

(d) *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*.