NATIONAL GENERATORS FORUM

31 May 2013

Mr Marc Tutaan
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235
Ref: EPR0032

Dear Mr Tutaan

The NGF appreciates this opportunity to comment on the *Issues Paper: Management of negative interregional settlements residues*[1].

Introduction and context

The NGF has participated extensively in the *Transmission Frameworks Review* (TFR) which has recently been completed by the Commission. The NGF's position has been that the regional design of the NEM allows for efficient trading within the region. This efficient trading occurs because of the regional price approximation which allows buyers and sellers to trade electricity derivatives easily within the same region. This trading allows the electricity market to ensure productive, allocative and dynamic efficiencies, occur now and into the future.

In the TFR the inefficiencies associated with the regional pricing approximation have been highlighted. These have been identified as being productive inefficiencies in dispatch, which includes the concept of "disorderly rebidding", counter price flows and negative IRSRs. Some have argued[2] these productive inefficiencies lead to greater allocative and dynamic inefficiencies[3], although all respectable modelling studies, be they completed by Frontier Economics for the AEMC in 2006, IES for AEMO in 2012, ROAM for the AEMC in 2013, and Frontier Economics for the NGF in 2013 show these inefficiencies are small compared to the overall production cost of the NEM[4]. Studies have also shown the NEM is not dynamically inefficient, which was reflected in comments of the AEMC[5] when it reported to the Standing Council of Energy and Resources on the transmission and dispatch arrangements of the NEM. In addition, minor inefficiencies of the NEM are often compared against the concept of a perfect Congestion pricing – Firm Transmission Rights regime, which may be theoretically attractive but practically impossible to efficiently implement because it would require perfect foresight to accurately price Access rights.

[1] From here in this response we shall refer to interregional settlements residue as 'IRSR'
[2] AER, special report "The Impact of congestion on bidding and interregional trade in the NEM" p 16, 21
[3] Productivity Commission Draft Report p 609
[4] The NGF commissioned Frontier Economics in 2013 to quantify the economic / resource cost of disorderly bidding. Frontier found the economic cost to average $7.8 million per annum.
[5] AEMC Final Report, Transmission Frameworks Review, Executive Summary pages ii and iii

It is the NGF's view which is supported by modelling undertaken by Frontier Economics, Roam Consulting, and IES, that negative IRSRs are a minor inefficiency of the NEM design that are eclipsed by the efficiency gains of encouraging regional trading in derivatives through a single RRP. The Issues Paper considers negative IRSRs would be "addressed" in the long term by proposals for Optional Firm Access in the TFR, as a long term "solution". The NGF contends that should OFA be implemented, the AEMC and NGF would then be discussing other inefficiencies presented by the OFA model, just as we are today considering negative IRSRs with the existing regional design and Option 4 (co-optimised) constraint formulation.

As a result, the NGF believes negative IRSRs are not a significant or material problem that particularly needs to be solved. Negative IRSRs are just a feature of the NEM which has been proved to be an efficient electricity market overall. This view characterises our response to the consultation questions as follows. Notwithstanding the previous comment, the NGF believes the existing system of negative residue management employed by AEMO has some minor issues which should be addressed, in a manner suggested in our submission.

Question 1

Effectiveness of AEMO's current management of negative IRSR

• Could the transparency and clarity of AEMO's processes for managing negative IRSRs be enhanced?

Yes – this is discussed later, key point is publishing the NRM_DI_AMT (NR$) through MMS.

• Could any improvements be made to the timeliness of AEMO's response in managing negative IRSRs?

Yes – Market Participants cannot see any reason why AEMO has implement an asymmetrical response in the management of negative IRSRs, the reason for the $100,000 threshold following the implementation of the automated system or the reason for cancelling negative residue management once a period of positive residue has occurred.

• Are AEMO's responses proportionate to the issues raised by negative IRSRs? Or should AEMO respond differently?

No – AEMO's asymmetric NRM constraint equations often prevent efficient flows through overly constraining the interconnectors, resulting in positive IRSRs. One may consider this is solely to punish the participants in the exporting region and there is no justification for the policy.

• Is AEMO's communications approach with respect to managing negative IRSRs sufficient?

No – further information on NRM_DI_AMT could be published, also the application of the dispatch increment to the flow and not the target of the interconnector also means the changes in dispatch are unpredictable.

• Are there any factors outside of AEMO's control that may affect AEMO's management of negative IRSRs?

Yes – negative ISRSs are typically the symptom of intraregional constraints, which are the result of the exporting region's TNSP's planning and outage decisions. AEMO does not control these factors, neither do generators, yet the NEM requires these parties to "manage" them in dispatch. This may suggest that the exporting TNSP should pay the negative ISRSs, or the exporting TNSP should enter into network support agreements to prevent them occurring.

The NGF is concerned that negative ISRSs are typically the symptom of intraregional constraints, which are the result of the exporting region TNSP's planning and outage decisions. We question why doesn't the exporting TNSP pay, rather than the importing TNSP, when this is the case?

NGF discussion on AEMO's approach to managing negative IRSRs

AEMO aims to control counter price flows by clamping interconnectors with Negative [[Settlement]] Residue Management constraint equations, (NRM). These equations are automated and the RHS of the equation is set by the following with NSW1-QLD1 used as an example.

NRM_NSW1_QLD1	Change in interconnector (MW)	Aim
NR$ < -5000	-100	Tightening
-5000 <= NR$ < -1000	-50	
-1000 <= NR$ < 1000	0	
NR$ >= 1000	30	Easing

Important to this equation is the new term NRM_DI_AMT (NR$) as this determines the RHS MW value of the NRM constraint.
This is calculated as follows:

"The automatic NRM constraint equations will use the latest accumulation values available from dispatch. The accumulation amount, relevant to the affected directional interconnector, is based on the previous trading intervals and an estimate of the current trading interval. The current trading interval estimate is based on an average of the dispatch interval quantities so far in the current trading interval. In the case where dispatch results aren't available pre-dispatch results are used."

These numbers are not published. The NGF suggests these should be published in real time.

In addition the NRM constraint equation calculates, using metered flow of the interconnectors rather than previous targets to set the RHS. This means the RHS does not change in the increments stated in the AEMO procedure document – the RHS changes from the current interconnector metered position, not the previous target flow at the start of the DI. This is analogous to applying the target for a generator with reference to initial MW at the start of the dispatch interval – i.e. not forcing non-conformance on the unit. This makes the NRM equation difficult to understand from a dispatch & trading perspective, because the increment is applied to the metered flow which can vary considerably from the target flow. AEMO's system uses the flow / initial MW of the dispatch interval to determine the RHS. AEMO chose the initial MW over the previous RHS to avoid the possibility of ramping down faster than its technical capabilities. It may be more sensible to apply the increment to the target MW and cap any change at the rate of change of the interconnector – this would be easier to understand in dispatch.

On a more general note the NGF was surprised at the asymmetry of the change in increments. The NGF believes that this is biased towards creating positive residues (by creating negative prices in the exporting region). Historical outcomes show this appears to be true, the NGF also acknowledges that this was often the case when the AEMO operators' manually implemented NRM constraints prior to the automated system. As a result it appears the NRM constraints may be persisting longer than they need to: therefore it is possible that they are preventing cheaper generation being dispatch to supply the importing region, resulting in a higher price in the importing region and lower in exporting region. This is inefficient.

Possible options to improve AEMO's management of negative IRSRs

Options are as follows:

1. Publish the NRM_DI_AMT (NR$) in dispatch, 5min PD and 30 min PD
2. Adjust the increments so the NRM constraints are symmetrical
3. Apply the increments to targets for the interconnectors and allow the ramping constraints on the interconnectors to control targets and CVP factors to apply
4. Or explore possibility of treating NRM constraints as an OCD-type rerun where the MW in the equation results in equivalent pricing across both regions (explained below)

Options 1 to 3 could be implemented together; option 4 is a new approach, which we shall explain further:

The dispatch engine could enter multiple NRM MW values for the interconnectors[6], allow these to violate, yet pick the equation with the lowest *GenericConstraintSurplus* which therefore allows NEMDE to ignore the equation that changes the *Objective Function* to the greatest extent. The NRM MW equation that maximises the *Objective Function* will be the correct volume to assign to the interconnector. This equation should ensure neither positive nor negative residues accrue across the interconnector and will as near as can be result in equalisation of prices between the regions. This would prevent the NRM equations from restricting the export of lower priced generation.

Benefits

All of the options should result in more efficient dispatch and pricing – especially when existing NRM constraints result in the restriction in exporting lower priced generation

More efficient market responses to the introduction of NRM constraint equations, because suppliers will be able to more effectively understand the pricing outcomes under negative IRSRs.

For further information, please contact David Scott from CS Energy on (07) 3854 7440 or 0439 017 719.

Yours sincerely

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[6] This could be similar to the over constrained dispatch (OCD) rerun process