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Australian Energy Market Commission
PO Box A2449
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Dear Dr Tamblyn,

Submission to: Climate Change Review
Second Interim Report

Snowy Hydro supports the AEMC investigating whether there needs to be changes to the energy frameworks in light of climate change policies. We believe the energy only market has performed strongly since its inception and has seen generation and other investments to balance demand growth. We believe the chance of market failure of the energy frameworks as a result of climate change policies is very unlikely and hence fundamental change to these frameworks is unnecessary.

The focus of our submission is on the management of transmission congestion. The following sections empathise and summarise our position on transmission congestion in the NEM.

Will the energy frameworks cope with future congestion?

In our opinion the energy market frameworks will deal with any expected increase in transmission congestion as a result of climate change policies. It is argued by some Participants that the expanded Renewable Energy Target would result in a big one-off step change to the amount of wind generation in the NEM. We believe that if this is in fact the eventual outcome then any regulatory response if required must be proportional to the issue and transitional in nature.

We note that planning bodies such as ESIPC and AEMO in different planning studies have only used between 5% to 8% of a wind generator's nameplate capacity at peak demand times. This practice by definition recognises that the impact of wind generation output is much less material at peak demand periods. However it is these peak demand periods when binding transmission constraints may have a greater impact on market prices and market outcomes. This observation serves to reinforce our concern that the materiality of the perceived problem of wind generation congestion is in fact not as material as what it has been made out to be by some Participants. This observation also reinforces our view that any regulatory response to the perceived problem of wind generation congestion must be proportion to the actual problem.

We also believe that over a period of time congestion will increase (regardless of climate change policies) if transmission is not built in line with demand and supply growth. However,

it is our belief that the current energy framework is designed to achieve an efficient level of transmission and is sufficiently robust to deal with this congestion.

We believe the TNSPs already have sufficient incentives to build out transmission congestion. Historically, congestion have been transitionary lasting for 2 to 3 years and once identified have been built out. Indeed, Macquarie Generation commissioned MMA[1] to look at the level of intra-regional congestion in the NEM and whether these have been historically built out. The study confirmed that intra-regional congestion was of a transitionary nature and was subsequently built out.

In fact the only material and persistent transmission congestion in the NEM is between Murray and Tumut transmission nodes. Due to the unusual location of major transmission lines present in environmentally sensitive national park, additional transmission build is not probable.

This highlights in our opinion that the congestion management framework that was derived from the Congestion Management Review (CMR) completed in 2007 should be given sufficient time to work. This is consistent with the principles of stability and predictability in that the market requires sufficient time for such policies to show whether that are effective or not. The CMR was tasked with "identifying ways of improving the ability of market participants to manage risks resulting from congestion on the transmission networks." From Snowy Hydro's perspective this existing framework is comprehensive and theoretically sound. Broadly the framework can be described as:

- Is there material congestion?
- If it's material but transitionary then consider a interim constraint management regime;
- If congestion is material and not transitionary then can the constraint be built out through transmission investment?
- If the constraint cannot be built out through transmission investment then change the Region Boundary.

More importantly the Congestion Management Framework was derived from analytical work by investigating the actual level of congestion in the NEM. The CMR framework is underpinned by the following fundamental features of the NEM.

- The NEM is a Regional market with generators possessing implicit rights to its Region Reference Node when it is dispatched. No market participants have explicit transmission rights to its Region Reference Node.
- Generators pay for shallow transmission access (that is Connection Assets).
- Generators do NOT pay for TUOS for the Shared Transmission Assets.
- The Rules provide for generators to negotiate different levels of connection service. This may involve a generator agreeing to fund deeper reinforcement work on the [Shared] transmission network in return for reduced dispatch risk.

We believe these fundamental features of the NEM are economically sound and strike the right balance of drivers for short term productive (dispatch efficiency) and long term dynamic efficiency.

In summary, we believe the CMR framework is sound and should be given sufficient time to work. The framework balances the need for regulatory predictability and stability and the need to make changes if congestion is shown to be material.

[1] Management of Intra-Regional Constraints, 25 September 2006. Report by MMA commissioned by Macquarie Generation.

The AEMC have stated that it believes congestion may become more of an issue with climate change policies. We believe the CMR framework coupled with reforms to the National Transmission Planner, Amended RIT-T, and TNSP performance incentive schemes are all enhancements to the CMR framework and therefore mitigate the risk of material congestion being unaddressed. Further we believe the TNSPs incentives remain to build out congestion if it is economically feasible to do so.

While we believe that the current energy frameworks in which the market currently operates is sufficiently robust to accommodate climate change policies, to remove any doubt that congestion would not be a major problem we suggest that the amended RIT-T be sufficiently robust to remove material intra-regional if and when it may arise. Put another way the amended RIT-T could be biased (if there is doubt) towards the building out of intra-regional congestion.

Case for biasing the RIT-T to favour built out of intra-regional congestion

There is increased speculation whether there would be increased congestion as a result of climate change policies. The AEMC's commissioned modelling from IES and Roam Consulting suggest that congestion may become more material as a result of the incentives from the expanded Renewable Energy Target (RET). That is the expanded RET would entice renewable plant (pre-dominantly wind) to locate in certain areas. Snowy Hydro believes these wind generators locational signal is almost exclusively driven by where is the best wind resource. Hence, we question the economic benefit of further refinements to locational signals targeted towards renewable energy (wind) developers.

A case in point is South Australia where ESIPC and NEMMCO (AEMO) have highlighted wind output significantly impacting dispatch and pricing outcomes. Yet, there's still approximately 1000MW of wind waiting to connect to the South Australian transmission grid.

Snowy Hydro believes this supports our assertion that a finer location signal for wind developers would not be relevant in their location assessment. The danger is that the locational signal if implemented would have to be very extreme (ie. large costs) for the wind developer to factor in its location decision. This may influenced the new entrant's location but depending on how the charge is implemented may also inadvertently damage incumbent generators who can not move their plant.

Snowy Hydro believes that the NEM does not need further refinements to existing locational signals. If the AMEC determines that there may be a significant step change in wind generation that would consequently lead to persistent and material intra-regional congestion, then Snowy Hydro favours a transitional mechanism to build out this intra-regional transmission congestion.

Snowy Hydro believes the most economic approach under the above scenario could be for the amended RIT-T to ensure that intra-regional constraints are built out and are paid for by customers. This recognises that there is a body of literature that supports the fact that increased transmission capability increases overall competition and hence customers are the ultimate beneficiaries.

The AEMC's commissioned modelling and analytical work support this conclusion. For instance:

- The Roam Consulting report says congestion located only at several locations in the NEM. There is no case to introduce wholesale changes to the NEM when it's only applicable to small number of locations in the NEM.

- IES finds small differences in Net Present Value across different transmission development scenarios. This supports the view that the economic impact of an expected increase in congestion is relatively low and hence does not justify wholesale changes to the market which may adversely impact the other facets of the NEM such as efficiency of the contracts market.

- Dr Darryl Biggar states that current framework works <u>if</u> it is assumed that intra-regional congestion built out.

Snowy Hydro believes that if a solution is required to address the risk of an expected increase in congestion then the existing energy frameworks would be more robust if they were biased towards building out intra-regional congestion if and when it materially arises.

Case against localised CSP/CSC

We interpret that the case for a more localised price signal may be based on improving dispatch efficiency. It has been well documented that in the regional market design, generator offers for dispatch may not reflect its underlying marginal cost when there are transmission constraints. Hence it can be argued that a localised price applied when the constraint binds increases dispatch efficiency at the margin.

However, the AEMC's own analysis indicates that the dispatch inefficiency costs associated with this "dis-orderly" bidding has been relatively low. The analysis undertaken for the Congestion Management Review by Frontier Economics indicated that dispatch inefficiencies were in the order of only $8 million per year (for the 2007/08 financial year). This is a negligible amount compared to the overall market turnover of over $7 billion per year.

Our overall position in relation to interim constraint management is that the benefits derived from a finer granular pricing do not exceed the additional complexity and risk that comes from having to manage pricing risk as a result of receiving the local nodal price instead of the region reference price. This is a very important point as the bulk of energy in the market is transacted in the contracts market. The addition of a local node price increases the risk to contracting and hence overall contract market liquidity and competition would be adversely affected. We will draw from our experiences with the Tumut CSP/CSC trial to highlight the inherent problems in a localised CSP/CSC arrangement.

Experiences from the Tumut CSP/CSC trial

Snowy Hydro is uniquely positioned to comment on the experience from the Tumut constraint support price and constraint support contract (CSP/CSC) trial. This location-specific interim constraint management mechanism had been applied on a trial basis in the former Snowy region from 1 October 2006.

We believe the Tumut trial resulted in more efficient market outcomes but only due to the circumstances specific to the Snowy Region. Snowy Hydro was the only directed affected Participant and hence it was the only Participant allocated a CSC. There were only approximately 20 thermal constraints which could trigger the CSP/CSC settlements as

opposed to potentially thousands of constraints (thermal, voltage, stability) which may trigger a more generic CSP/CSC arrangement. Hence the experiences from the Tumut trial is not readily transferable to other parts of the NEM. We note that since Tumut CSP/CSC trial has cease there has been a new generator, Uranquinty, located in the proximity of Snowy Hydro's Tumut power stations. The presence of additional power stations owned by other Market Participants significantly increases the complex of implementing an interim constraint management mechanism such as the CSP/CSC. In summary the Tumut CSP/CSC trial was a very simple and relatively non-controversial application on an interim constraint management mechanism which can not be practically replicated in other locations in the NEM. We elaborate on this non-transferability and complexity further.

- Significant increased complexity in managing basis risk

The introduction of a location-specific constraint management mechanism would significantly increase the complexity of managing basis risk as it increases the number of potential prices in the market. Generators subject to a location-specific interim constraint management mechanism therefore has to manage the risk of price separation between its local nodal price and its Regional Reference Price (RRN).

There are many different type of constraints in the NEM dispatch engine. These include thermal, voltage, stability constraints. For each specific location the type of constraint that is likely to bind is heavily dependent the location. These factors include for instance whether the generator in a heavily meshed network, the voltage levels, the level of capacitive support, and the generators location relative to the an inter-regional interconnector. All these factors determine which type of constraints is more likely to bind.

A generators allocation to the CSC (access to its RRN) would be dependent on the coefficient of the relevant binding constraint. However, depending on which type of constraint is binding these constraint coefficients can substantially vary from one type of constraint to another. Hence a generator would find it very difficult to manage its basis risk on a dispatch basis. This increased basis risk would ultimately limit future contract competition and increase the overall costs to customers.

We believe this could also adversely impact a generator who has entered into a long term contract prior to a location-specific interim constraint management mechanism being implemented. This raises sovereign and regulatory risks of such an arrangement and reinforces the risk in long term contracting.

Further, major constraints in the NEM are integrally linked to each other. This fact reflects the intermeshed nature of electrical transmission networks. This linkage of constraint equations means that it would be impractical to implement a localised CSP/CSC arrangement for only one location. Hence, effectively to apply a localised CSP/CSC would require a full blown CSP/CSC arrangement across the entire NEM.

Such as outcome would significantly magnify the complexity of managing basis risk in the NEM and inevitably lead to less contract market competition and lower market efficiency. We note that such as policy approach would in practice be no different to full nodal pricing which has been rejected by the MCE.

- Very complex implementation issues

For a location-specific interim constraint management mechanisms to be more generally applied in the NEM would require resolution of a number of complex implementation issues.

  - As highlighted above the identification of which constraints would be applied in the mechanism would be very complex given that NEMMCO's analysis of the prevailing patterns of congestion in the NEM shows that much congestion has been transitory and that a large proportion coincides with network outages. If all constraints were included in the local mechanism this would greatly exacerbate the challenge of managing basis risk. However, if too few constraints are included then the mechanism may be ineffective as it may not be active when required.

  - The allocation of the CSC would be very contentious. Under the current NEM all generators are implicitly entitled to its RRN for all of its dispatch volume. An alternative method of allocation to the RRN is required under a location-specific interim constraint management mechanism. The form and duration of the CSC allocation would impact on the ability of market participants to manage basis risk and their ability to forward contract.

    An administrative form of allocation (ie. based on available capacity) increases incentives for inefficient behaviour. For example, incumbent generators would be incentivised to overstate their available capacity, which might adversely compromise NEMMCO's ability to operate the system securely. Further to this there would be perverse incentives on inefficient plant (such as a old and unreliable gas plant) to locate in a constrained area of the network safe in the knowledge that it would secure financial rights to the RRN based on its available capacity.

    A market-based approach to allocating financial rights is arguably more appropriate for a location specific interim constraint management mechanism compared to an administered form. However a market based approach would involve significant additional complexity for market participants. As stated earlier there are thousands of constraint equations with a different level of impact on the generator. These impacts are also materially different depending on the type of constraint. Hence, individual auctions for financial rights in each constraint would be required to cover the differences across all constraints. Therefore this would require very significant number of auctions. This would not only require significant Implementation cost to establish the auction platform to purchase these financial rights and also increase the cost for all market participants to develop necessary tools to participate in such auctions.

In summary, we don't believe there would be net economic benefit from introducing a location-specific interim constraint management mechanism. Such a mechanism may marginally improve productive efficiency but runs the risk of other more significant inefficiencies arising such as reducing contract market efficiency due to increased basis risk. We also believe a more generally applied location specific interim constraint management mechanism would be complex to implement and decreases the overall level of predictability and stability in the regulatory environment. Over time this would deter investment in the NEM.

Summary

In summary, we believe the CMR framework for dealing with congestion should be given sufficient time to work.

We believe based on available analytical work and anecdotal evidence that the NEM does not need further refinements to existing locational signals. If the AMEC determines that there may be a significant step change in wind generation driven by climate change policies that would consequently lead to persistent and material intra-regional congestion and that there is a case for further regulatory intervention, then we favour a transitional mechanism to build out this congestion. Under this scenario we believe an amended RIT-T could be biased towards the build-out of intra-regional congestion.

We don't believe there would be net economic benefit from introducing a more general location-specific interim constraint management mechanism. Such as mechanism will be complex to implement and would reduce overall contract market liquidity and hence reduce market efficiency.

Snowy Hydro appreciates the opportunity to respond to this consultation. Please contact Kevin Ly, Manager Market Development and Strategy on (02) 9278 1862 if you would like to discuss any issue associated with this submission.

Yours sincerely,

Roger Whitby
Executive Officer, Trading