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13 May 2010

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PO Box A2449
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Dear Commissioners,

National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010

Introduction

The National Generators Forum (NGF) welcomes the opportunity to make a submission in response to the Ministerial Council on Energy's (MCE) rule change proposal, entitled National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010 (the rule change). The purpose of this submission is to respond to the range of matters raised in the rule change proposal and outlined in the corresponding consultation paper prepared by the Australian Energy Market Commission (AEMC).

Our positions on these matters are informed by our experience as National Electricity Market (NEM) participants with an ongoing interest in the development and governance of the NEM, our direct involvement in the working group formed to consider issues of remote connection as part of the Review of Energy Market Frameworks in light of Climate Change Polices (Market Frameworks Review) and as the potential primary users of any future Scale Efficient Network Extensions (SENEs).

While this submission raises a number of concerns, we continue to support the AEMC's ongoing work focusing on the effectiveness of transmission related services, and at a general level support improved approaches to facilitating transmission investment to meet the needs of customers

Organisation Information

The NGF directly represents the major power generators in the NEM. The installed capacity of the members is 44,384 MW as of 2008, with an asset value of over $40 billion. Annual sales are over 180,000 GWh, valued at around $7 billion. This represents over 95% of the total Australian market.

NGF members are publicly and privately owned businesses which generate electricity for sale and trade under the National Electricity Rules (the rules), and who a have registered generating capacity of at least 300 MW. The Chief Executives of these businesses form the Board of National Generators Forum Ltd.

The NGF aims to be a respected industry body recognised for excellence in influencing the development of Australia's energy markets.

Executive Summary

The NGF supports the rule change proposal in-principle. On balance, the NGF believes there is value in a SENE approach in circumstances where realising economies of scale in transmission provides a net benefit to consumers. However, it is also important that new entrants connecting to SENEs face efficient transmission charges, in order to avoid discrimination against generators connecting in other parts of the network.

The NGF also agrees that given the implications of the Renewable Energy Target (RET) it is appropriate for customers to fund appropriate spare capacity where doing so contributes to least cost delivery of renewable energy.

SENE charges

The NGF:

- does not support the introduction of variable charges based on five-yearly reviews. We prefer that charges are as stable as possible to facilitate investment certainty;
- does not support the use of average costs charges for generators connecting to a SENE;
- supports the use of stand-alone costs for generators connecting to a SENE (stand-alone costs representing the generators best alternative to connecting to a SENE in that location);
- supports the difference between the stand-alone cost and the average cost being rebated to connected generators once a SENE is fully subscribed.

The use of average charges is only appropriate in circumstances where a SENE-type asset is fully subscribed, not reliant on future connection forecasts, and therefore is not distorting locational decisions (i.e. as the location has already been selected the average charge is a component of the absolute cost of the new transmission and therefore reflects the absolute cost). However, such an asset is not actually a SENE.

The payment of stand-alone such costs (either upfront or annualised), with or without the use of rebates once a SENE is fully subscribed, abrogates the need for NSPs to set variable charges based on five-yearly reviews, increases investment certainty, and directs savings to the party which bears the risk: customers, until such time as full cost recovery occurs.

Efficiency of SENEs

While SENEs may overcome lumpiness concerns, realise economies of scale which should deliver benefits to customers and may assist in meeting the RET in a timely fashion we do not believe that the current proposal is adequate as it does not address the economic value of SENEs in the context of the wider transmission framework. The NGF considers that without this analysis any claim by the AEMC of an overall efficiency improvement from SENEs is likely to be over-stated.

Nevertheless, in certain limited circumstances, where a SENE: does not distort locational signals; does not underwrite inefficient projects; does not place potential projects located away from SENEs at a relative disadvantage; and the market has signalled a strong interest in a location, the risks may outweighed the potential savings for customers and NSPs.

Risks to consumers

Risk is an inherent feature of the SENE proposal, given its strategic intent, and a degree of error should be expected given reliance on assumptions about the future. However, the NGF considers it important that the stranding risk to consumers is minimised as much possible under the SENE approach. In addition to facing stand-alone not average cost SENE charges, one way of achieving this is by a requirement for more of the initial capacity of the SENE to be underpinned by declared generator interest (i.e., through having more than one signed connection agreement for instance).

The NGF believes where projects are instigated by AEMO and NSPs then customers should remain responsible for the asset stranding risks cushioned by appropriate market interest and checks and balances (but not an explicit economic efficiency test). However, market based options exist which should mitigate or remove the risk to customers. These alternative market-based options are supported by the NGF.

Sizing and construction of SENEs

We support a flexible approach to the construction of SENEs based on the input of the generators who have shown an interest in immediate connection and those who have sought to purchase options over the right to connect. That input should be weighed against the assessments of AEMO, the NSPs and the risk to consumers of not recovering the full cost of the SENE.

It is not realistic to expect that SENEs will not need to be reconfigured over time. Where that reconfiguration is at the behest of a connection applicant and involves a reflective charge that reconfiguration should be facilitated. While adding to a SENE is less likely to capture all the scale efficiencies the capture of transmission scale efficiencies is not the end goal of generation connection in the market.

Capacity rights and congestion management

We support the capacity rights proposal so that: once the capacity of the SENE is fully utilised subsequent connections can choose to fund an augmentation to the SENE to increase the SENEs power transfer capability; or, where a generator chooses not to fund an augmentation it will be exposed to compensation payments. We believe the exposure to compensation payments could be minimised by electing to be backed off or funding a partial augmentation where such an augmentation is physically possible.

While the NGF supports the use of the compensation scheme we are not comfortable with the use of an AER calculation to determine the rate of compensation. We do not believe the AEMC has appropriately justified why the AER should be given this role, and question the value in extending the scope of AER's regulatory powers into this area. We are also concerned the model does not appropriately incentivise participant behaviour.

The NGF considers that that the use of private agreements between parties on a SENE is a more appropriate mechanism for determining compensation and managing access. Hence, we are not certain this issue requires resolution at this point in time.

SENEs in the context of wider transmission issues

As it currently stands, ring fencing appears to be the most appropriate interim solution; however, the NGF considers that the broader implications of the impacts of SENEs on the shared network should be examined in the forthcoming AEMC Transmission Frameworks Review.

Background

Previous NGF work concerning connecting clusters of remote generation

The 15 February 2010 rule change submitted by the MCE arose from the AEMC's analysis of possible measures to promote efficient connection of clusters of new generation to electricity networks as new generation connects over time. This analysis was undertaken as part of the Market Framework Review; the final report of which was handed to the MCE on 30 September 2009.[1]

The NGF, and its members, had significant involvement in the processes surrounding the Market Framework Review. This included numerous submissions and representation on the sub-group examining network extensions for remote generators, the working title for what have now been proposed as SENEs. At the time, the AEMC indicated its belief that SENE type arrangements would deliver the desired market outcome for efficient and timely connections to energy networks, and that this will occur when:

- Network Service Providers (NSPs) consider applications in a timely manner;
- new connections are provided on a cost reflective basis; and
- investment in connection assets is efficiently sized.

The NGF expressed concern that proposals to improve the efficient connection of clusters of generation:

- were regulatory and not market driven;
- were not cost reflective;
- do not resolve concerns in the shared network that flow from new connections that predominately impact incumbents, but also impact the quality of new entrants' connection; and
- will be used to underpin uneconomic generation.

While the NGF welcomed the AEMC's work in this area, and we acknowledged that the existing framework "might not promote" efficient outcomes, we expressed a view that a cautious approach would be warranted as evidence supporting intervention in the market was lacking. Furthermore, the establishment of a process for improving the connection of clusters of generation could, if implemented incorrectly, create too many distortions and reduce overall efficiency.

Despite these concerns, and the belief amongst some members that the current framework was already appropriate, or that SENEs are not what are required, the NGF noted that the implications of the RET and Carbon Pollution Reduction Scheme required consideration of methods to better facilitate connection of clusters of generation.

Previous NGF position on generator access to transmission

The NGF previously outlined the following principles in relation to generator access to transmission policy[2]; it should:

- provide appropriate investor certainty;
- support efficient decentralised decision-making;

[1] AEMC (2009) Review of Energy Market Frameworks in light of Climate Change Policies, Final Report, 30 September.

[2] NGF (2009) Submission to Energy Market Frameworks Review, 2nd Interim Report, 3 August

- provide a long-run marginal cost transmission price signal;
- support new transmission investment; and
- ensure new transmission investment matches the preferences of new generation investment.

Investor certainty means:

- with a high degree of certainty know or be able to forecast with confidence the cost of their access to the transmission system; and
- with a high degree of certainty forecast short run transmission costs and hence revenue. The short-run marginal cost of transmission is made up of congestion and losses, generators need to understand the extent to which the plant my have restricted access to the regional reference node due to congestion and as a consequence the extent to which their revenue may be curtailed as a result.

Support efficient decentralised-decision making means:

- generation investors should know the absolute value of all the costs associated with a specific location which include:

    - the long run and short run fuel supply costs for that location;
    - location specific site costs such as, water, access and environmental costs;
    - long run and short run transmission costs for that location;
    - the ability to forecast with a high degree of certainty the long run transmission costs; and
    - the ability to forecast with a high degree of certainty short run transmission cost (congestion and losses) and the price duration curve to facilitate the forecasting of likely revenue and to assist in the selection of plant type.

Investors already face a short-run marginal cost transmission signal; however, in making locational decisions the absolute, not relative, locational long-run marginal cost transmission signal is also considered against other location specific costs (which are absolute costs).

Ensuring new transmission investment matches the preferences of new generation investment means new generators have flexibility with respect to transmission access to match that access and cost with the size, nature and operation of their plant and know with confidence that this level of access will be provided.

Hence, all these elements combined produce a transmission access regime designed to maximise competition in the wholesale contract market and support decentralised decision-making in the competitive supply side of the NEM which will provide access prices to investors when generators make investment decisions.

Therefore, the desirable features of an access regime from a generators point of view are the ability to choose a level of access that will be provided at a known cost with a high degree of certainty for the life of the plant. This will ensure that wholesale competition will be maximised and generation and transmission investment is made at least cost. These essential features are consistent with the NEO.

While the NGF's position on the issue of wider access options is not settled; these broad principles are relevant in the context of this rule change.

Discussion

Purpose of the rule change

The purpose of the rule change is stated as to "allow the connection of multiple generators to the shared network so as to prevent inefficient duplication of connection assets that might otherwise occur"[3]. However, the SENE proposal has wider implications.

While the NGF supports the rule change it is not apparent or at least not clearly articulated if SENEs are to be developed for the benefit of consumers in light of climate change polices, for generators by subsidising the cost of remote connection, or so that NSPs can fund scale economies in transmission investment. This lack of clarity gives rise to a number of inconsistencies.

While SENEs present conceptual benefits, at a broad level we are not convinced that the manner in which SENEs have been proposed, or the manner in which charging arrangements have been structured, will not generate inefficiencies and uncertainty for investors. We believe this is a consequence of the unclear purpose of SENEs.

In the 1st Interim Report of the Market Frameworks Review the AEMC stated, in considering the four initial options for connecting clusters of generators, that the desirable features of any of the options include:

> *efficient locational price signals as generators pay for the dedicated assets they require for connection (i.e. generators take account of the forward-looking cost of network assets that their connection would cause); prospective generators bearing the risks associated with investing in suitable connection assets; and bilateral negotiations providing a framework to agree terms suiting commercial need (e.g. commit the TNSP to deliver a project by an agreed date or be subject to liquidated damages).*[4]

Those principles are not inconsistent with the NGF's position on transmission at a broader level. In that regard, we believe it pertinent to consider the SENE rule change against these desirable features expressed by the AEMC at that time which may now be less prominent.

Likewise, the initial discussions concerning clusters of connection was concerned that the current framework creates first-mover disincentive to build assets with surplus capacity[5] and therefore neither NSPs, through lack of access to additional funds, or generators, through absence of property rights over privately funded assets, would build assets with surplus capacity. This was identified by the AEMC in a discussion paper as:

> *A particular deficiency identified in the existing connection arrangements was that no party was likely to have an incentive to take the risk associated with building connection and extension assets with initially surplus capacity even where this was efficient.*[6]

As the proposal has evolved the focus on realising transmission efficiencies and minimising first-mover disincentives has in part trumped the notion of overall market efficiency so as to focus on ensuring SENEs are successful and achieve cost recovery in spite of whether they contribute to meeting the cost of renewable obligations at least cost or distort existing signals. (This is because

[3] AEMC (2010) National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010 Consultation paper, 1 April, p.1.
[4] AEMC (2008) Review of Energy Market Frameworks in light of Climate Change Policies, 1st Interim Report, 23 December, p 39-40.
[5] AEMC (2009) Discussion Paper – Proposed Operation of the Preferred Connection Model, p.2.
[6] AEMC (2009) Discussion Paper – Proposed Operation of the Preferred Connection Model, p.1.

minimising the cost of Renewable Energy Certificates by increasing generation will not result in meeting the RET at least cost if generators do not pay for the full extent of their transmission costs or if building non-SENE projects is more cost-effective then building remote generation underpinned by SENEs.)

Hence, as it currently stands, NSPs are likely to get access to additional revenues and realise scale efficiencies underwritten by customers. Generators, in the first instance at least, are likely to pay the average cost of the connection, based on future forecasts, although that cost may be revised up, which has implications for locational signals and subsidising one form of generation over another. Consumers are facilitating the connection of clusters of generation; however, they are exposed to stranded risk, and may not be meeting their renewable obligations in a least cost manner.

It remains open to discussion whether all of these potential outcomes are appropriate or reflect the initial intent of SENEs.

Issues this rule change is seeking to address

The NGF supports consideration of this rule change on its merits; however, we previously noted that some of the assumptions lack evidence and may not be proven correct. Consider the AEMC's primary assumption:

> *The entry of renewable generation is likely to be clustered in certain geographic areas that are remote to the existing networks.*[7]

This assumption, which is reflected throughout the AEMC's analysis of this issue over the past 12 months, glosses over a number of issues.

The NGF, and most other parties, acknowledge that the RET and CPRS will stimulate significant investment in renewable capacity. However, this implies that the RET is bringing forward a significant amount of renewable investment ahead of when it would otherwise be efficient to invest in such technology. As such, given that wind power (in the absence of any new large scale hydro facilities) is the most commercially viable form of renewable generation, the RET is likely to result in a significant increase in wind farms.

However, it is not automatically conclusive that wind farms will locate in certain geographic clusters. What is correct is that the best wind is located in certain geographic areas. Therefore, if other costs are not a factor for a new entrant, then every new entrant would obviously choose the location where wind (fuel) is at its best. Hence, SENEs are premised on an expectation that wind generation will primarily locate in the best wind fuel locations. This is expected to be the case if there are no cost trade-offs between labour, planning, and notably access to transmission services and the price duration curve of one location against another, and no limits on renewable subsidies.

Wind is literally available everywhere; however, the quality of that wind varies dramatically. Hence, if a wind farm had to elect between a location with no transmission costs, close to load, and 25 kilometres per hour average wind and a second location with 35 kilometres per hour average wind but higher labour costs, higher transmission costs, and a significant distance from load, it may be that the least cost delivered to customers would flow from the location with 25 kilometre per hour wind. Such trade-offs, made by individual investors, will provide outcomes consistent with the

[7] AEMC (2009) Review of Energy Market Frameworks in light of Climate Change Policies, 2nd Interim Report, 30 June, p 13; and AEMC (2010) National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010 Consultation paper, 1 April, p. 5.

National Electricity Objective. The Allen Consulting Group paper for the AEMC reflected this position in their paper for the AEMC when they stated:

> *Entry would be expected first in the areas whose unit cost is lowest – and hence that require the lowest subsidy to be profitable – which would depend on such factors as:*
>
> - *the quality of the renewable resource ;*
> - *the capacity of the network to accept its energy output;*
> - *forecasts of spot prices in its region;*
> - *the transmission loss factor in the relevant area; and*
> - *the costs (such as land) or other constraints (such as environmental) of constructing a wind farm in different areas.*[8]

We would be concerned if SENEs undermined these trade-offs. Despite these ongoing concerns we did not conclude during the Market Frameworks Review or in the context of this rule change that SENEs should not be progressed. However, it does indicate that assumptions may bias the rules permitting the development of this form of intervention and that SENEs should not necessarily be the primary means of advancing the bulk of renewable connections. Furthermore, it also suggests that the potential distortionary impact of SENEs should be carefully scrutinised and minimised so that SENE benefits accrue primarily to consumers and not advantage one competing generation project over another.

AEMC's assessment framework

The NGF notes the assessment framework provided by the AEMC.[9]

We support the proposal that efficient investment in electricity services, in particular connection assets, will occur where: generators are able to connect in a timely manner; where generators face appropriate cost-reflective signals; and network investment is appropriately sized. The concept of cost-reflective is a specific matter of interest for the NGF.

We also suggest that efficient investment in electricity services will occur where the most appropriate party bears the risk of that investment. Therefore, in the context of the proposed rule change this is the delineation between investment risk borne by consumers, NSPs and generators.

We agree that efficient use of electricity services, in the context of new investment on yet to be developed parts of the network is allocated efficiently when the generator that values capacity on the network the most has access to it. We do not believe this principle has broader application across the shared network in the absence of consideration of a number of historical factors and the nature of long-lived sunk generation assets.

The NGF does not necessarily support the AEMC's principle that efficient use of electricity services will occur where "the lowest-cost generation is dispatched to meet load requirements and so achieve efficient outcomes in the wholesale market"[10]. This outcome is something which is not achieved in the context of the wider market given its existing design and therefore the principle,

[8] The Allen Consulting Group (2008) Review of Energy Market Frameworks in light of Climate Change Policies, Climate change policies and the application of the Regulatory Investment Test for Transmission, December, p.1.

[9] AEMC (2010) National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010 Consultation paper, 1 April, p. 14-15.

[10] AEMC (2010) National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010 Consultation paper, 1 April, p. 14.

while worthwhile, may ultimately play little part in analysis of this rule change. However, it may be an issue that requires wider consideration.

The NGF would like to suggest the AEMC evaluate the rule change against additional elements which the NGF, as generators, consider critical to the success of the SENE proposal. These elements being:

- investment certainty – a fundamental requirement to ensure investments can be underpinned by the required finance – is likely to be an important measure of the potential efficiency of SENEs; and
- regulatory certainty – a critical element in promoting efficient investment in the long-term interests of customers and to ensure generators make appropriate commitments to a specific SENE, that is supported by the regulatory framework.

Furthermore, all these elements should be transparent and create minimal distortions.

Issues for consultation

The consultation paper outlined the following key areas:

- Efficient investment in electricity services;
- Managing the risk of stranded assets;
- Alternative mechanisms for managing risks;
- Alternative configurations of SENEs;
- Efficient use of electricity services; and
- Distinguishing SENEs from the shared network.

We address each of these issues in turn.

Efficient investment in electricity services

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

It may not be possible for SENEs to deliver more efficient outcomes overall; however, specific SENEs may overcome lumpiness concerns and realise economies of scale which should deliver benefits to customers and may assist in meeting the RET in a timely fashion.

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

Current inefficiencies

The NGF believes there are some notable issues which over the life of the NEM have disincentivised generators and investors and led to significant inefficiencies. (NSPs will arguably have a range of concerns that relate to the regulated asset base which we do not seek to comment on at this time) These are:

- barriers to NSPs coordinating multiple applications;
- the inability to value competition and investments benefits under the Regulatory Investment Test for Transmission (RIT-T) in a manner which ensures generators can guarantee access to market where their offered price is competitive; and
- the absence of property rights in circumstances where investors/generators directly fund transmission assets.

The first of these issues was discussed at length during the Market Framework Review. As indicated in the consultation paper, since that time the AEMC has accepted the rule change request lodged by Grid Australia in April 2009 to assist NSPs to facilitate coordinated connection applications and enquiries.[11] Therefore, this issue appears to have been largely resolved and should facilitate coordinated entry in circumstances where a cluster of firm connections are to occur in a known timeframe.

Secondly, the general perspective that the RIT-T is not a tool which supports generation businesses, new or existing, remains. The NGF notes that proposed changes to the RIT-T, including the use of options value, are likely to prove beneficial and may possibly facilitate SENE like outcomes; however, this is not conclusive. Furthermore, the RIT-T in all its forms to date does not ensure generators can invest and operate on the basis that their required capacity is at some level protected in the transmission planning domain so as to ensure that for the economic life of the plant an individual generator can get their product dispatched where their price is competitive. This issue is in part beyond the scope of this paper but remains relevant to the broader issue of transmission.

Finally the provision of property rights over merchant transmission has the potential to encourage greater investment in transmission by private investors; however, there has been a general reluctance to consider this issue. This issue is discussed in the context of question 3 where we conclude that it should be possible to progress market based options as well as customer funded options, if desired.

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

Concerns and justification for SENEs

Some NGF members hold concerns that the SENE proposal will be used to support generation projects which are uneconomic in the absence of customers underwriting transmission. The possible negative consequence of the rule change includes:

- distorting locational signals;
- supporting plant which might otherwise be uneconomic which puts plant not located on SENEs at a relative disadvantage;
- over sizing at consumer expense i.e. stranded asset risk a concern;
- directing funds away from investment in other parts of the transmission network;
- creating an additional form of regulatory risk; and
- increasing the cost of meeting the RET.

However, the major advantage of the SENE proposal and a feature which interests the NGF is the underwriting of the 'overbuild' by customers where it can be justified. On balance, in circumstances where realising economies of scale in transmission provide a net benefit to consumers and does not remove the need for new entrants to face their relevant transmission costs there are potential efficiencies.

Interaction of regulated networks and competitive generation

The decision to apply a competitive model and to regulate networks was based on the idea that it would provide an overall benefit to the market. At the time, it was recognised that, by their very nature, regulated network monopolies give rise to a number of inefficiencies. However, in many instances, provided the market power of the monopoly service provider is subject to effective

[11] AEMC (2010) National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010 Consultation paper, 1 April, p. 5.

regulation, these failures provide for the efficient production and allocation for power supply and should be accepted.

Hence, any network proposals which improve transmission network investment but take away the benefit of locational price signals, or interferes with the competitive operation of the market in areas of generation, should not be supported. While such proposals may improve economic outcomes for networks in isolation they may reduce efficiency and distort cost and risk allocation within the market. Therefore, such proposals are likely to reduce the overall market benefit and undermine investment signals particularly in jurisdictions reliant on private investment for generation capacity.

Therefore, while we are not opposed to the rule change on one hand we remain concerned how SENEs will be used and would be concerned if this rule change led to a rapid uptake of SENEs. In this regard, we support a cautious and conservative approach.

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

Our cautious approach to SENEs is also a consequence of our concern at the growing central planning type approach this rule change endorses. With a growing role for central planners basing decisions on future expectations of possible projects, stranded asset risk is a significant and likely unavoidable issue.

In that regard, the risk of transmission duplication in a discrete location may be reduced by SENEs, while the risk of unnecessary construction of transmission overall may increase. Therefore, it is not necessarily clear-cut that duplication is in all instances inefficient if economies of scale benefits are traded off against wider market benefits or efficiencies.

Mitigating the risk of stranded assets under the proposed framework

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

While risk to consumers can be appropriately managed; risk is an inherent feature of the SENE proposal and a degree of error should be expected given reliance on assumptions about the future. This means some generators may miss out on connecting to a SENE in later years or that consumers will be required to fund inefficient assets. As it currently stands the NGF believes the AER forms the only effective check in the development of SENE options.

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

The NGF believes there is risk of over-investment and that regardless of the available checks and balances decisions based on forecasts and estimates developed by non-market facing entities can only ever be inaccurate. The question will be the size of the error. Clearly, overbuilding is undesirable and inefficient; however, under building may also be a problem and lead to duplication. This trade-off can not be easily managed and is critical feature of the SENE proposal.

Incentive to over build

We agree that NSPs are likely to have an incentive to oversize SENEs but agree that this risk can be managed. We are not convinced the rule change as presented does so.

We are not convinced that generators are likely to have a strong incentive to overbuild. First-mover generators in a location are likely to want to discourage competition in that part of the network and

therefore the existence of significant spare capacity in which they have no financial stake may not be in their interests. This is especially the case given that issues of congestion in the shared network will remain unresolved thereby creating a risk when a group of generators are connected to a spoke shaped SENE off the existing shared network with only one shared flow path.

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

In certain limited circumstances, where a SENE: does not distort locational signals; does not underwrite inefficient projects; does not place potential projects located away from SENEs at a relative disadvantage; and the market has signalled a strong interest in a location, the risks are outweighed by potential savings. We are not convinced the current proposal achieves this balance.

Who should benefit from potential gains

As customers are liable for the RET the driver for overbuilding is to enable timely connection to ensure the RET is able to be met. The benefit of the SENE is that by removing the prisoner's dilemma associated with first mover disadvantage, and capturing economies of scale, generators will achieve more timely connection. This is a benefit to customers, assuming the forecast level of generation capacity materialises. Where it does not, consumers should bear the asset stranding risk.

While there is a risk of asset stranding, or generators not turning up, there is also a potential for generators to turn up more quickly than anticipated in which case consumers see benefits more quickly.

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

The NGF is not convinced that the existence of only one generator agreeing to connect is sufficient to justify the development of a SENE. The use of stronger market drivers including options, discussed in the response to Question 3, may be appropriate. This includes the view that it may be preferable to have more then one generator demonstrate firm interest/commitment before a SENE is approved.

We do believe the role of AEMO and NSPs combined, with a compulsory review role for the AER is appropriate. Nevertheless, the stranded asset risk remains. On this basis, we support a review of the value of the rule change in five years time.

Additionally, given the regulatory risk associated with SENEs we suggest the AEMC may wish to consider a limit on the number of SENEs available for approval in the initial period. We would be concerned if AEMO and NSPs deemed it appropriate to proceed with multiple SENEs from the outset; it may suggest that the oversight arrangements may not be working effectively.

<u>Alternative mechanisms for managing risks</u>

3 Are alternative risk mitigation measures more appropriate?

The NGF believes where projects are proposed by AEMO and NSPs then customers should remain responsible for the asset stranding risks cushioned by appropriate market interest and checks and balances (but not an explicit economic efficiency test). However, market based options exist which are likely to mitigate or remove the risk to customers. These alternative market-based options are supported by the NGF and are contingent on and consistent with a move away from regulatory approaches.

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

The major beneficiaries from SENEs are customers generally and if a generator was to be allocated a charge significantly below the cost of connection in that location without the construction of a SENE, then the given generator is also a significant beneficiary.

Where a generator is charged an appropriate cost-reflective charge then the major benefit for the generator is the timeliness of connection, the associated capacity right and the congestion management regime.

Overall, given the development of SENEs is driven by public policy associated with the RET and not necessarily competitive tension in the market place, consumers are the best placed to manage (or accept the consequences of the) risk. We disagree with any suggestion that generators should bear the asset stranding risk for assets they have not sized to their own requirements or elected to build themselves. We do agree; however, that generators can play a more significant role in ensuring customers risk exposure is better managed.

Part of the risk mitigation measures for customers should be ensuring generators pay an appropriate charge, (i.e. the stand-alone costs associated with that of that location), so as to minimise the chance of stranded asset risk (even if a SENE was sized on forecasts that were overly optimistic).

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

Prescriptive economic test

If a more prescriptive economic efficiency test is required we believe the SENE rule change request should not be made. Instead, the RIT-T should be relied upon to approve the construction of SENE type assets in the circumstances such assets would pass the RIT-T[12].

Being strategic and proactive involves a certain degree of risks which means the likelihood of building SENE assets to an incorrect size or form is high. The issue is, in our view, whether customers' interest (not generators) is best served by constructing a SENE in a proactive fashion or relying upon reactive transmission investment to meet generators and customers needs. (Notably we are not aware of any robust body of case studies on how SENEs could have been used in the past that would have saved significant inefficient duplication.[13]) This debate remains unsettled and the SENE rule change implicitly assumes that proactive steps are necessary in light of climate change policies.

NSP incentives

Additionally, creating additional incentives for NSPs to rightly size SENEs may also be less than effective. We are more supportive of the AER and AEMO playing an oversight role to assist NSPs in the consideration of SENE size and form. Likewise a strict generator interest requirement should better ensure NSPs are informed as to the markets' interest in the size and form of a specific SENE.

[12] See The Allen Consulting Group (2008) Review of Energy Market Frameworks in light of Climate Change Policies, Climate change policies and the application of the Regulatory Investment Test for Transmission, December, for discussion on use of regulatory test in the context of RET and CPRS.

[13] CitiPower and Powercor Australia (2009), 1st Interim Report submission, p 5, did made note of a potential $12 million savings; however, in the context of the change required to facilitate SENEs and the broader risk this example alone does not constitute a robust case in favour of SENEs.

More broadly, the issue of NSP incentives concerning transmission investment and services should be considered in the context of the entire network. We see limited value in creating a complicated incentive scheme for NSPs that relates only to SENEs. This broader issue of NSP incentive and service requirements should be considered in the context of the wider Transmission Frameworks Review.

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

Improving the role of the market in determining SENE and SENE-type investments

In light of the NGF's existing principles on generator access to transmission we support a greater role for market driven approaches to SENEs. As it relates to the specific rule change we recommend the for a SENE proposal to proceed:

- more than one generator has a demonstrated firm financial interest in the proposed SENE project, specifically firm connection applications; and
- a significant portion, if not all, of the remaining forecast capacity of the SENE (not the subject of a connection application) must be "purchased" by generators as re-saleable options for the right to connect.

We also believe there is scope for merchant SENE projects funded exclusively by one or more generation investors where the funding generator(s) is allocated all the capacity rights. We believe such a proposal should be progressed whether or not the substantive elements of the rule change for SENEs funded by consumers is, or is not, approved.

Generator expressions of interest and cost-reflective charges

We are not convinced the firm interest of a single generator is cause enough for customers to fund a SENE. The construction of a SENE is a move away from current arrangements for funding connection assets and extensions from the shared network.

Therefore, it is our view that it is only worth realising economies of scale benefits at the customers expense where: (a) individual generators have shown a strong desire to connect in a designated SENE location and (b) where the over build represents a realistically acceptable risk to customers.

We do not believe the rule change places enough emphasis on the markets response to a proposed SENE. As such we believe stranded asset risk will not be appropriately mitigated under the proposed rule change. While AEMO and AER would play oversight roles, initiating a SENE should not be permissible in the absence of more than one firm connection application and the purchase of resaleable options for the right to connect.

We would also suggest a significant portion of the initial available capacity should not be based on forecasts but actual firm interest. We encourage the AEMC to consider whether a portion of the proposed SENEs capacity should be the subject of firm connection applications and what that portion should be, other things being equal.

Purchase of options over the right to connect to a SENE

The NGF also endorses the idea of availability to purchase options, which reflect a less firm commitment, but still a declared interest in a proportion of the SENE capacity.

A time-limited non-resaleable option is less valuable and also less reflective of the long term value of a SENE connection. An interested generator who believes connection is highly likely in the future may be interested in purchasing the options to facilitate its own connection or for the expected future connection of another participant.

We suggest as a minimum, and subject to further review, over fifty percent of the remaining, unsubscribed, capacity is covered by options. There is a strong argument to suggest that in the absence of full purchase of all available options over the right to connect it is likely that the SENE is being overbuilt and that future duplication, should it occur, may not be inefficient.

While we are comfortable with a proposal that requires all the spare capacity to be purchased in the form of options, at the market determined price, we are pragmatic enough to recognise this may be unacceptable to those who may otherwise believe specific forecasts are more insightful than the interest shown by the market. We support further consideration of the issue of full subscription of available capacity rights by the AEMC.

Merchant transmission investment outside proposed SENE framework

To improve the scope for merchant transmission investment by generators and investors need both investment certainty and recognition of property rights. We believe this is a logical outcome, which can be facilitated within the NEM, and does not conflict with the open access regime.

Where an individual investor chooses to build a SENE type asset, that investor or generator should be provided with the entirety of the capacity right over that asset and be permitted to offer connection to other generators through private agreement or sale.

One of the major failings, in our view, of the transmission system is the inability of generators or investors to make private investments in transmission assets with any certainty that the value of that investment will not be captured by other beneficiaries or directly by new connections. While this issue has wider implications it is beyond the scope of this submission to discuss broader issues concerning private investment. However, as it relates to SENEs, we recommend a system operate alongside the regulated SENE process (or in its absence) whereby any generator constructing a SENE type asset has its private property rights recognised in the form of full ownership of all available capacity rights.

In these circumstances, a generator wishing to connect at that location can choose to either duplicate an asset, which may be efficient depending on timing and cost, or make a private agreement with the owner of the privately-funded asset. Where spare capacity exists and will not be used in the future it will invariably be in the interests of the private owner of that asset to sell spare capacity. The sale price will always be capped by the price of building a duplicated asset. Thereby, it will actually reflect the absolute costs of transmission in that location (excluding shared network cost) which is an efficient signal. Which is identical to the price signal regulated SENEs should be charging connecting generators.

<u>Alternative configurations of SENEs</u>

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

We support a flexible approach to the construction of SENEs based on the input of the generators who have shown an interest in immediate connection and those who have sought to purchase options over the right to connect with capacity rights. That input should be weighed against the assessments of AEMO, the NSPs and the risk to consumers of not recovering the full cost of the SENE.

It is not realistic to expect that SENEs will not need to be reconfigured over time. Where that reconfiguration is at the behest of a connection applicant and involves a cost reflective charge that connection should be facilitated. While adding to a SENE is less likely to capture all the scale efficiencies, the capture of transmission scale efficiencies is not the end goal of generation connection in the market.

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

Given SENEs are as yet untried it may be initially prudent to restrict SENEs to a more simplistic design. This conservative approach may be appropriate in the absence of significant connection applications and the purchase of available options based on alternative and more costly designs.

Conversely, the NGF is not convinced a static hub and spoke approach is appropriate as the only means of meeting the evolving needs of connection applicants over time. Therefore, it may be appropriate to proceed with alternative and more costly designs where significant market interest has been demonstrated i.e. multiple firm connection applications and purchase of all available options.

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

By adopting an approach that ensures a generator initially faces at the stand-alone costs of connection in that location the generator is facing an appropriate locational signal. This mechanism, along with a form of rebate for early connecting SENE generators, once full subscription is achieved is appropriate and not over distortive.

Therefore, our view is that for the initial connections the charge should be akin to the stand-alone charge for the capacity of the SENE the connection has a right to. For example, let us imagine a 30 kilometre line with 150MW of capacity with one 50MW connection at 10 kilometres in and one 50MW connections at a hub at 30 kilometres as Illustrated below.

In this instance, both connections were conceived in the planning stage – as firm connection applications – and each was provided with a capacity right then they would be charged an amount reflective of the stand-alone costs of jointly building a 100MW line from the 30 kilometre mark to the shared network. In this example, there is 50MW spare capacity unsubscribed for forecast future connection.

It is correct that this appears to be penalising the 50MW connection at the 10 kilometre mark. However, the capacity right provided at the 10 kilometre mark prohibits use of that 50MW of capacity across the entirety of the line not just from 10 kilometres through to the shared network. Hence, the charge is appropriate.

If the generator at the 10 kilometre mark determines that duplicating the asset is more appropriate, as it would be cheaper, then instead of building a 150MW line to 30 kilometres the NSP would construct a 100MW line only. There would be one 50MW connection on that line and 50MW left aside for the forecast future connections. The generator at 10 kilometres would have a separate 10 kilometre line to the shared network and not use the SENE. This would also be appropriate.

A more detailed discussion on SENE charges and the NGF recommended approach is contained later in this submission.

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

See above.

Generators should have an incentive to connect close to the shared network and close to load all other things being equal. However, given fuel and other costs are often more significant factors then connection costs, charging a cost-reflective, and in essence as close to absolute charge as possible, is appropriate even if it disincentives some generators so that they facilitate their own non-SENE connection at points closer to the network or in other locations. This appears consistent with the driver of SENEs; facilitating remotely located renewable generation; although it does not subsidise such connections.

Efficient use of electricity services

5. Will capacity be efficiently allocated to connecting generators?

Yes. The NGF supports the proposed arrangements in-principle.

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

We support a framework where: once the capacity of the SENE is fully utilised subsequent connections can choose to fund an augmentation to the SENE to increase the SENEs power transfer capability; or, where a generator chooses not to fund an augmentation it will be exposed to compensation payments. We believe the exposure to compensation payments could be minimised by electing to be backed off or funding a partial augmentation where such an augmentation is physically possible.

Interestingly, the paper notes that paying the costs of augmentation or compensation is not inconsistent with the open access regime as it still permits connection but requires connection to be inclusive of cost reflective charges.[14] The NGF supports this position.

The NGF also strongly supports the use of private agreements negotiated between the affected parties and does not believe AER administrative issues should prohibit this outcome. It is likely that these arrangements may need to be declared.

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

Congestion management scheme

The NGF believes the use of private agreement in some instances will negate the need for a congestion management scheme; however, at a general level we support the use of a compensation scheme.

That said, we are not comfortable with the use of an AER calculation to determine the rate of compensation. We do not believe the AEMC has appropriately justified why the AER should be given this role and question the value in extending the AER's reach into this area.

The compensation regime is a critical feature of the SENE rule change and it is vitally important that generators have confidence in its application. The NGF is not convinced the scheme, which we support in principal, has been fully developed.

[14] AEMC (2010) National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010 Consultation paper, 1 April, p. 20.

Alternative to AER calculated rate or compensation

The NGF supports a scheme which is referenced to the individual generators capacity right and not an administrative proxy. Such a scheme would compensate generators with full access that were backed off and penalise generators with partial access that generated in access of their entitlement and caused congestion. The proposed scheme does not do this. As such, the NGF welcomes an opportunity to discuss in further details how such a scheme could be progressed.

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?

Where there is no spare capacity the case for connecting interruptible loads is relatively straight-forward. Since an interruptible load is not utilising capacity or impeding the capacity right of existing connections then an interruptible load should be able to connect without contributing to the cost of the SENE but pays its direct connection costs only. This is an efficient outcome and the NGF agrees with the AEMC.

However, the AEMC then suggests that connecting interruptible generation where spare capacity is available and the full cost of the SENE have not been covered may be inefficient as it may result in free riding. We believe the AEMC conclusions in this regard are incorrect.

Where an interruptible generator is not affecting the SENEs sizing in the planning stages, or its use once built, that interruptible generator should be able to connect for free as it is economically efficient. To support inefficient charging of interruptible generation as spare capacity exists indicates that the SENE has been overbuilt and that stranded asset risk may be realised. It does not justify inefficient charging.

This suggests that interruptible generation should not warrant additional capacity being built into a SENE. Given interruptible generation does not require a capacity right to support its business case, such generation should not be taken into account when sizing a SENE.

The issue of free riding also appears overstated. Free riding, especially in the form of an interruptible generator, but for all generators, is only an issue where: (1) connection at an earlier point in time is not profitable; and (2) the capacity right is of no value. We do not think either of these outcomes is likely.

Free riding could be a problem where in subsequent years after the SENE is constructed it becomes apparent that the SENE has been wrongly sized. In that case, where all parties know that further connections will not materialise in that remote circumstance the last connecting generator could have an incentive to declare itself an interruptible generation even where it has no intention to act as one.

We do not propose that a regulatory approach to handling this risk be created. Such regulatory approaches create further complexities and are cost-prohibitive given the limited prospect of this risk arising.

We also refer back to the point that if each new connection is charged a cost reflective charge, which reflects something close to the absolute cost of that connection point being constructed, then the total cost of the SENE should be readily covered particularly if the level of interest from the market determined sizing decisions.

Distinguishing SENEs from the shared network.

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

Firstly, the belief that SENEs offer a system of access which conflicts with open access is not correct[15] and directly conflicts with the AEMC's discussion under 6.2.1 of the consultation paper which examined the consistency of SENE charging arrangements with open access.[16]

The point here is: that open access does not prohibit the use of cost-reflective transmission charges, just like it requires connections to take account of non-transmission costs (cost of land, labour, fuel). And as charges are cost-reflective they do not form artificial barriers to entry and therefore are consistent with open access. In other words, open access is not free access, it is cost-reflective access without artificial barriers.

We concede that the interaction of SENEs with the shared network is complex given SENEs will have a more evolved generator access to transmission framework. However, we do not believe the existence of capacity rights in one part of the network necessarily leads to the conclusion that the SENE framework can not work in the context of the wider shared network.

Rather it indicates this issue requires wider consideration, more likely as part of the Transmission Frameworks Review to be conducted by the AEMC. In any case, the potential for loop flows or non-SENE generators constraining SENE capacity is an extremely remote possibility at this point in time and is largely academic.

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?

Generators need rights to be honoured for the economic life of the plant or should be appropriately compensated as a last resort. Otherwise, to lose those rights puts those generators at a disadvantage to generators who have not paid for SENEs and those interruptible generators who have connected to SENEs who now have equal status.

Ring fencing appears to be a necessary interim solution; however, the NGF considers that the broader issue of transmission access is one that should be considered in the Transmission Frameworks Review, which is due to commence shortly.

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

We note the AEMC deemed it "difficult to envisage how generators could practically retain capacity rights on segments of the open access shared network."[17] We do not believe the AEMC should seek to resolve these issues as part of this rule change. Rather these matters should be assessed as part of the Transmission Frameworks Review.

[15] AEMC (2010) National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010 Consultation paper, 1 April, p. 22.
[16] AEMC (2010) National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010 Consultation paper, 1 April, p. 20.
[17] AEMC (2010) National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010 Consultation paper, 1 April, p. 22.

SENE Draft Amendment

We now turn to specific aspects of the draft amendment to the rules provided by the MCE.

5.5A.2 Preliminary Planning

The NGF suggests that AEMO under 5.5A.2(a) and relevant NSPs as part of the preliminary planning procedures under 5.5A.2(b)(1) and 5.5A.2(c)(1) should be required to publicly identify the sites being considered as scale efficient generation zones and credible options respectively and be open to input from industry participants.

While the NGF recognises that the assessment of credible options is at the early stage of the assessment process, we are strongly in favour of early engagement of industry. We believe both for AEMO in the context of its role as National Transmission Planner and NSPs undertaking options analysis, industry engagement is important, highly valuable, will provide insights into the merits of specific options and reduce costs.

5.5A.13 SENE charges

We have previously indicated that SENE charges should not, as far as is feasibly possible, distort locational decisions especially as it relates to locational transmission costs and that generators should not be responsible for the stranded asset risk. We have also indicated that the AEMC's assessment framework fails to take account of investment certainty and the needs of investors seeking to finance generation projects.

The body of the rule change directly reflects the worst aspects of a market intervention by a regulator. Firstly, it distorts market signals and creates bias in favour of one group of market participants over another and, secondly, it introduces regulatory risk which directly undermines investment certainty. These are issues the NGF has raised in the context of numerous reviews and we are concerned that these concerns again have not registered.

The SENE charge

The charge is based on an apportionment of the present value of the cost of the SENE for its economic life based on an annual $/MW charge. This is problematic for two reasons.

One, it reflects a charge based on the cost of the SENE and not the cost that a generation project should be required to consider in order to weigh one location against another and make the most efficient decision. This implies generators will be incentivised through lower charges (at least initially) to connect to SENEs as opposed to use other parts of the network, including other parts of the network where spare capacity may already exist. This is an inefficient outcome and is biased towards minimising stranded asset risk in the face of over sizing as opposed to ensuring SENE forecasts are conservative and overall market outcomes are efficient.

At least until a SENE is fully subscribed SENE charges should reflect the stand-alone costs of connection at that point in the network to the desired amount of MW and to the desired line capacity. For instance, a 50MW connection would be charged at least the equivalent of the required cost of a notional line between the shared network and the SENE hub by 50MW.

Where a SENE has not been built it is not efficient to structure costs to be below stand-alone costs. As the aim is not to justify the construction of SENEs but to ensure generators pick the most efficient location and of which one choice may be a SENE. However, once an SENE asset is sunk the incentive to connect and utilise spare capacity is clear. It was this thinking that led AEMC staff during the

Market Frameworks Review to suggest that even if it were a lower cost options for a generator to connect away from the SENE (NERG) the charging structure should incentivised the use of the SENE instead. This was promoted on the concept of providing "lower (social) cost"[18]. But the purpose of SENEs is not to build a hub to fund low cost connections but to fast-track connections to enable the RET to be achieved. This clearly creates a dilemma around SENE charging.

These conflicting positions, put by the AEMC at the staff level, were vigorously opposed by the NGF during that process. The AEMC's final position on the SENEs is reflected in the Market Frameworks Review final report:

> *Even though customers underwrite the costs until future generation arrives, the model requires all generators that connect to fund the full costs of connection. In this way, consistent with other generators that connect in the NEM, generators connecting to SENEs will face cost-reflective price for their connection. . . maintaining cost reflective charges is important for encouraging efficient location decisions from generators.*[19]

It is for this reason that we stand by the reasoning that charging a cost in the vicinity of the stand-alone cost (but no more) is the most appropriate mechanism to ensure locational signals are accurate, locational decisions are appropriate and the construction of SENEs does not distort locational signals. In addition to ensuring that customer risk is minimised, cost recovery is maximised, and that SENE projects are conservatively scaled.

Secondly, there is a distinct lack of reasoning, in the context of encouraging stable investment, as to why an annual $/MW charge is required, as opposed to locking in a charge that can be annualised or paid upfront at time of connection at the discretion of the generator.

A variable charge creates significant uncertainty

In recent months, the AEMC has shown a growing interest in variable annual charges in the context of transmission. The NGF as incumbents and initiators of new projects are particularly concerned by these developments. It undermines project viability and suggests the AEMC has not recognised that annual variable charges while on their face are dynamically efficient if capital could exit and enter the industry with ease, are not suited to an industry where the economic life of plant is 30, 40 or 50 years.

Hence, the NGF is concerned that the rule change contains provision for the recalculation of SENE charges every five years. In effect, this means that connecting generators are required to bear the risk of over sizing of SENE assets and that if the forecast determined by non-market facing entities prove to be incorrect, which forecasts invariably are, then NSPs will have regular five-year reviews whereby they can revise the SENE charges against generators.[20]

This facility, in conjunction with the ability of NSPs to claim shortfalls from customers in years between five yearly reviews, encourages NSPs to overbuild SENEs at the expense of customers and generators. This is unacceptable both from an investment perspective and from a risk management perspective.

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[18] AEMC (2009) Discussion Paper – Proposed Operation of the Preferred Connection Model, p.5.

[19] AEMC (2009) Review of Energy Market Frameworks in light of Climate Change Policies, Final Report, 30 September, p.24.

[20] The prospect of five year reviews was raised in the context of the AEMC's background work concerning NERGS. At that time the NGF expressed concern that this uncertainty would undermine any efficiencies associated with NERGs. This concern was not dealt with by the AEMC at that time and remains unaddressed.

We suggest that charges for generators are set upfront to ensure investors have certainty and that should charges be set at the level of stand-alone costs then there is no case for increasing cost to generators and no case for not requiring customers to carry the burden of additional cost where management of the SENE over the life of the asset is above budget forecasts or where additional generation does not materialise.

This does not mean budget forecasts cannot be revised over time and lead to revised posted prices for new entrants. We accept that subsequent connections to a SENE may be charged a higher connection charge, reflecting increased costs, than the initial connection. This means generator A, can lock in posted price A, for the life of the project in, say year 1; whereas generator D, locks in price D for the life of the project, in, say, year 6. While the stand-alone prices may be change over time, each connection is provided with investment certainty and can readily commit to the project based on known prices for the life of the asset.

NGF's recommended charging structure

How should the charging regime work?

We are opposed to using average cost from the time of initial connection – average cost being a proportion charge shared between actual and forecast connections as provided in the rule change. We believe this distorts locational signals and makes it even easier for uneconomic SENEs to be built. Hence, the initiating generators should be exposed to the cost equivalent to their stand-alone costs.

As customers bear the risk they should be provided with a premium on that risk by charging rates which are economic for generators but maximise opportunities for cost recovery. This means generators can be charged up to their stand-alone cost i.e. their best alternative to connecting to a SENE and acting independently on their own or as a group (where other actual generators are present) in that location. Such an outcome does not undermine incentives to connect to a SENE.

Furthermore, to avoid gaming and retain strong locational signals initial connections need to be charged the absolute cost of the actual project they would individually or as a group require, that is their stand-alone cost. Where a group of generators have expressed firm interest than the stand-alone cost would represent the average cost each generator would be required to pay if the asset was constructed to meet the shared needs of the generators who are present and intend to connect in the absence of a SENE.

The use of marginal cost ex post would create gaming as once a transmission line is built exposing the next entrant to their marginal cost could create a first-mover disadvantage as the first-mover would pay a higher price.

However, as along as each subsequent ex post connection pays $1 below their stand-alone cost then it is still economically beneficial for them to connect. This is preferable if customers wish to maximise recovery across the totality of constructed SENEs (shortfalls in one will be recovered though over recovery from others). It also provides strong signals and incentives to use spare capacity on the existing shared network first.

The use of a charging methodology that does not initially rely on average costs removes the need to introduce 5-yearly reviews and variable charges for all generators. A development we strongly oppose.

Rebates

There is an argument, strongly supported by some NGF members, that once the SENE is fully subscribed or when cost is fully recovered, it may be appropriate to provide rebates to all connections so that their actual charge reflects the average cost of the assets. The reasoning behind this approach is that following full subscription the next generator would be exposed to their marginal cost, the cost of augmenting the SENE, and hence this may be significantly below the stand-alone cost charged to the earlier connecting generators.

There is no strong economic rational for doing so in a market where competition between generators based on fuel cost sets price. Hence, if each generator ex post is charged just below their stand-alone cost they will always use the SENE when it is in their economic interests to do so. Given the requirements for generators connecting after the SENE to augment or pay compensation it also suggests gaming is unlikely to be significant.

However, the main argument in favour of rebates is that cost recovery for customers should not be excessive and that the premium between average cost and stand-alone cost may be excessive. So for example, where the costs of a 330KV line of 1400MW are recovered it may be appropriate that from that point on the scale economies be shared between customers and generators. This is an equity argument and one which raises a number of wider social benefits.

The use of rebates also does not require a variable charging regime as the trigger for a rebate would be full subscription or full cost recovery. Furthermore, the quantum of the rebate can be calculated at project start based on full subscription and paid once that trigger is reached.

Hypothetical examples of SENE charges

Estimated costs

Capability of 220 KV double circuit TL = 200 MW at a cost of 1.25M per KM

330 KV 200 MW Transformer Cost and associated switchyard = $30M

Capability of 275 KV double circuit TL = 400 MW at a cost of 1.75M per KM

275/330 KV 400 MW Transformer Cost and associated switchyard = $35M

Capability of 330 KV double circuit TL = 1,500 MW at a cost of 2.5M per KM

220/330 KV 500 MW Transformer Cost and associated switchyard = $40M

<u>Building a small line with no SENE</u>

If a 200MW generator builds a project independent of a SENE they would pay $185M for 200MW/220KV/100KM with 2 transformers.

In this instance, the generators marginal cost is equal to the generators stand-alone cost. The stand-alone cost is defined as the absolute cost the generator would pay in the absence of any better options and no SENE.

If two 200MW generators build a project together they would pay $105M each. That is 275KV/400MW/100KW at $210M divided by 2 equals $105M. This cost is appropriate as the

generator would never be exposed to the cost of $185M as they have no incentive to build independently and they are acting ex ante together – this is their best option. So at that point in time the generators absolute cost to build the project with the other generator is constant. It equals $105M.

Building a small line with a SENE

If a 100KM/450MW/275KV line was built as a SENE at a cost of $245M what would connecting generators be charged?

If one 200MW generator connected they would pay $185M; the stand-alone cost of building by a 100KM/200MW/200KV line for their sole use. That is their only alternative option so charging up to $185M is appropriate.

The subsequent 200MW connection would be charged up to $185M for the same reasons.

It is not appropriate to charge the first generator the average cost of $122.5M ex ante and the second $122.5M ex post for the reasons outlined above (i.e. distorts locational signals, justifies uneconomic SENEs, relies on forecast that will need to be revised and requires a unnecessary variable charging regime which introduces more investor uncertainty).

(The issue of rebates would become relevant when the last 50MW was used).

Building a bigger line with a SENE

So, if the two generators above acted independently ex ante their stand-alone costs would notionally be $185M which is why they have an incentive to act together – the better option. But we are not comparing one generator versus two generators. We are comparing each generator's best alternative option at that point in time compared with a SENE as follows.

If a SENE 100KM/330KV/1000MW was constructed with four transformers at a total cost of $410M what would be the connecting generators costs?

If only one 200MW generator choose to connect their cost would be $185M (i.e. 100KM/200MW/220KV).

If two 200MW generators connect to the SENE they would have to pay $185M for 200MW/220KV/100KM to act independently. However, they would not pay this as if the acted together and built a 100KM/400MW/275KV line with two transformers at a cost of $245M their total combined stand-alone cost independent of the SENE would be $122.5M each. (Remember stand-alone cost equals the absolute cost you incur by pursuing your best option independent of the SENE).

So, if one 200MW generator chooses to connect it pays $185M.

If two 200MW generators choose to connect they pay $122.5M each.

So if three choose to connect they pay the cost of what it would cost independent of the SENE. Assume they choose 200MW each on a 100KM/330KV line and 3 transformers which equals $370M. So they would pay up to $123.3M each to connect to the SENE.

So if four choose to connect they pay the cost of what it would cost independent of the SENE. This would be 200MW each 100KM/330KV line and 3 transformers which also equals $370M. So they would pay $92.5M each to connect to the SENE. And this goes on.

In each circumstance it is more economic to have an additional generator join in real time as it reduces your stand-alone cost closer to an average for the entire line. It also makes the project more viable. It also does not provide a subsidy, maintains strong locational signals and negates the need to worry about the number of subscriptions as having to pay your stand-alone cost, as if there were no SENE, is the threshold test.

And as you have paid your absolute cost you should not be subject to revised yearly charges and in those circumstances it is appropriate to have the customers bear the entire risk of any funding shortfall.

What about the remaining capacity? What do the ex post connections pay?

This last issue is the most problematic as ex post the marginal cost for the next generator is actually zero as the asset cost is sunk. So the drivers are cost recovery and avoiding gaming not economic efficiency of line usage. So we need to use the stand-alone cost.

Hence, for the 100KM/1000MW/330KV line the subsequent generators connecting after the project is commissioned, up to full subscription, would pay the stand-alone cost of acting independent of a SENE. This is the first cost of $185M for a 100KM/200MW/220KV line and would be paid regardless of whether one generator or four generators committed to connect ex ante.

This means customers may recover in excess of the SENE build cost; however, just as customers bear the shortfall one argument is that they should benefit from the economies of scale realised ex post. However, the question remains whether once full cost recovery is achieved or once full subscription is achieved should partial rebates be provided to the initial connections.

Some NGF members strongly favour the provision of a rebate as an effective and appropriate measure. A rebate would amount to the difference between the stand-alone cost paid and the average cost once the SENE is fully subscribed.

Surplus charges

It is not clear, from the draft amendment, if surplus charges in any given year under 5.5A.13 would be apportioned to customers on a regional basis.

5.5A.15 Recovery of SENE charges within a region

Some within the NGF supports the principal that customers within a given region should be allocated the costs of over building a SENE asset given: the competitive benefit of additional generation accrues initially to customers in the affected region; and the inter-regional transmission use of services charge rule change aims to capture benefits accruing in one region from another.

However, other members consider that the costs of the SENE should be recovered NEM wide since it is largely a measure to address national climate change objectives such as the RET.

5.5A.16 Review of this Rule

The NGF supports a review of the rule as outlined; however, we recommend the inclusion of a sub-clause that provides that the liability for costs arising for those generators who connected under the

SENE framework prior to the review and who in the event that SENEs are abandoned, are damaged, be protected.

In essence, the rule is already beset with significant regulatory risks, such as the variable charge, which are likely to gravely undermine the potential use of SENEs. This uncertainty is accentuated again given the prospect that rights and entitlements provided under the SENE framework may be rendered invalid at the five year review point. This risk will be particularly prominent for the first one or two generators to connect to the initial SENE.

Conclusions

The NGF supports the use of SENEs in limited circumstances and where the primary beneficiaries are the customers who bear the risk of over sizing assets. The NGF supports the use of absolute not average costs charges. The use of absolute charges negates the need to introduce variable charging regimes and requires customers and NSPs, the beneficiaries of the scale efficiencies, to bear the stranded asset risk and to be responsible for any shortfall in funding over the life of the project. If it is appropriate to expose generators to the average cost this should occur via a rebate once a SENE is fully subscribed not prior to so as to minimise locational distortions.

Where a merchant SENE is funded by generators coordinating the connection of actual projects in committed timeframes, those generators would be provided with the entirety of the existing capacity rights and would be exposed to any residual stranded asset risk and thus would be exposed to the absolute costs of that asset. In those circumstances no regulatory charging regime is required.

The NGF is supportive of the AEMC's initial analysis of capacity rights in the context of SENEs. However, we believe the rule change congestion scheme is not fully evolved as it does not appropriately incentivises parties. The AEMC should also consider the use of private agreements between parties. As it relates to shared network issues, the NGF supports the resolution of such issues in the context of the yet to be unveiled AEMC Transmission Review.

The NGF is pleased to continue to provide advice to the AEMC in the consideration of these issues. Please do not hesitate to contact Mr Jamie Lowe, telephone (03) 9612 2236, or myself, telephone (02) 6198 3491, if you have queries in relation to this submission.

Yours sincerely,

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