Major Energy Users Inc.

Australian Energy Markets Commission

OPTIONS PAPER

National Electricity Amendment (Scale Efficient Network Extensions) Rule 2010

Comments on the Options

Submission by

The Major Energy Users Inc

November 2010

Assistance in preparing this submission by the Major Energy Users Inc (MEU) was provided by Headberry Partners Pty Ltd and Bob Lim & Co Pty Ltd.

This project was part funded by the Consumer Advocacy Panel (www.advocacypanel.com.au) as part of its grants process for consumer advocacy and research projects for the benefit of consumers of electricity and natural gas.

A condition by the Consumer Advocacy Panel for making funding available to the MEU to provide this submission is a requirement imposed on it by the Ministerial Council on Energy.

This requirement is that this submission must be considered to be a draft until the MCE has the opportunity to review it for accuracies of fact. The MCE has reviewed the MEU submission. To comply with the MCE comments quoted below, the MEU has made the following additions:

1. "The Green Grid calculations can't be reproduced as all the required information to do so (including assumptions made) are not provided". The MEU has added note 8 and appendix 4 to address this concern.

2. "The MEU states that the SENEs framework seeks to address 'first mover disadvantage'. The MCE Rule change request does not specifically state that the SENEs framework is to address generators' first mover disadvantage." The MEU has added a qualification in paragraph 1 on page 12 that MCE proposal does not identify "first mover" or "building to current needs" as drivers for SENE.

3. "Most of the Green Grid energy would be exported to the NEM via Victoria, so South Australian consumers would not face the full TUOS increase highlighted by the MEU" as under the rule change introduced by the MCE for inter-regional charging consumers in an importing region would pay for the costs of the assets that deliver them energy. To address this concern the MEU has added the last paragraph on page 13, the first paragraph on page 14 and note 9.

4. "The MCE's SENE Rule change proposal does not specifically state that conventional energy generators are banned from or somehow prohibited from gain access to the network through a SENE" To address this concern, the MEU has added paragraphs 2 and 3.on page 18.

5. The addition of thee extra paragraphs has altered pagination between this "final" and the earlier draft.

With these changes the MEU submission is now "final" and may be made public

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Executive Summary

The Major Energy Users Inc (MEU) remains opposed to the proposed Scale Efficient Network extensions (SENE) rule change.

There are major untested assumptions under-pinning SENE. A key assumption that consumers will benefit from lower electricity prices as a result of providing SENEs for some generators is not supported by any quantitative analysis. To address this deficiency in the AEMC and MCE papers supporting the SENE rule change, the MEU refers, by way of an example, to the Green Grid proposal in South Australia and suggests that based on its analysis, consumers are not likely to be net beneficiaries of a SENE, and that in certain circumstances, consumers are likely to be worse off because of higher regional electricity prices.

The MEU considers that the Commonwealth Government has demonstrated a better approach to connecting remote renewable generators to the transmission nodes through its "connecting renewables initiative", as it does not distort fundamental principles that have successfully under-pinned the NEM and its Rules. Other countries, such as the USA, have introduced similar initiatives to that of the Commonwealth Government[1].

The SENE threatens key fundamental principles inherent in the NEM Law and Rules, including those involving competitive neutrality, generator locational signals and "causer pays".

There is an array of governmental policies on renewable energy at Federal and State levels that is lacking in coherence and is undermining business confidence and also distorting the efficient operation of the NEM. The latest proposed small-scale Technologies Certificates with the absence of a target and cap risks creating such large amounts of RECs that (some observers have pointed out) could easily allow the achievement of the eRET target of 20% renewables well before the targeted date of 2020. The SENE concept adds to these other distortions, and further increases the cost of operating businesses in this country.

The MEU provides its comments on the five options advanced by the AEMC Issues Paper and adds option 6 (status quo) to its analysis. The following table provides a high level critique of all 6 options based on the AEMC principles that it identifies (timeliness, efficient sizing, locational signal and complexity) the concept should be assessed against:

[1] See appendix 3

AEMC Option	Principle			
	Timely	Efficient sizing	Location signal	Complexity
1	Investment too early for the need but is timely for new generation	Investment sized to suit planning expectation	Quite muted	Most
2	Investment too early for the need but is timely for new generation	Investment sized to suit planning expectation	Quite muted	Most
3	Investment too early for the need, new generation delayed by process	Investment sized to suit forecast expectation	Muted	Very
4	Investment too early for the need, new generation delayed by process	Investment sized to suit forecast expectation	Muted	Very
5	Investment too early for the need, new generation delayed by process	Investment sized to suit forecast expectation	Muted	Very
6	Investment as required, timely connection for generator	Investment sized as required	Strong	Least

What this table shows is that option 6 (status quo) best meets all four of the basic principles when considered holistically, indicating that the likely benefits provided by a SENE are more than offset by the reductions in the other principles a SENE would cause

The MEU then developed another table identifying, again at a high level, the criteria that the AEMC developed to compare the various options, viz trigger, investment test, cost allocation, access provision and regulatory oversight. As before, option 6 (status quo) was added for the sake of completeness.

AEMC Option	Criterion				
	Trigger	Investment test	Cost allocation	Access provision	Regulatory oversight
1	AEMO and NSP assessment	Implicit by decision based on ~25% capacity being contracted	To generators, consumers pay for surplus	Mandated compensation for loss of access	AER veto, AEMO forecasts
2	AEMO and NSP assessment	Assessment of benefit, but assumes based on ~25% capacity must be contracted	To generators, consumers pay for surplus	No rights for access	AER veto, AEMO forecasts
3	First generator connection	Connection agreement, RIT-T for surplus	To generators, consumers pay for surplus	No rights for access	AER review against RIT-T, AEMO forecast
4	First generator connection	Connection agreement, RIT-T for surplus	To generators, consumers pay for surplus	No rights for access	AER review against RIT-T, AEMO forecast
5	First generator connection	Connection agreement, RIT-T for surplus	To generators, consumers pay for surplus	No rights for access	AER review against RIT-T, AEMO forecast
6	Generator connection	No test. Investment sized as required	To generator	Rights provided in NSP contract	None needed

As with the table on principles, option 6 (status quo) best meets, on a holistic basis, the five criteria identified by the AEMC as the basis for comparison of the various options.

In its Options Paper the AEMC stated (page ii)

> "While there is still some support for change, this has been tempered by the complex nature of the proposed Rule and the implementation difficulties that it poses. In particular, some stakeholders consider:

- the proposed Rule requires customers to bear significant risks that they are not best placed to manage;
- competitive neutrality between generators that connect to the SENE and those that connect directly to the network has been questioned; and
- certain characteristics of SENEs do not fit naturally into the existing framework which creates an additional layer of complexity, such as the nature of the service that the SENE provides and compensation arrangements where generators are constrained off the SENE."

The MEU agrees that these are major considerations for the SENE concept. However, the MEU does not consider that the options 1 to 5 proposed in the options paper provide much to reduce these concerns.

The AEMC posited at the recent SENE public forum that there always remained option 6, which was to maintain the status quo. The recent relieving of the confidentiality requirements in relation to NSPs discussing connections options with prospective generators provides a good basis for the potential of multiple generators providing their own signals for sharing connections.

As a first best option (option 6) the MEU considers that the current rules provide adequate incentive and ability for generators to "coordinate" with NSPs to provide for their own SENE. Such an approach does not increase complexity in the rules, does not impinge on competitive neutrality or pass costs and risks onto consumers who are not able to manage the not inconsiderable risks. It also avoids the need for the regulatory intervention that options 1 to 5 require. Significantly, the proponents of the proposed connection and the party providing the connection are all better placed to manage the risks.

As a second best approach (option 7), the MEU has developed a methodology for implementing SENEs which avoid many of the negative elements of the options 1 to 5, but still allows an NSP to build surplus capacity in a generator connection to provide lower costs for a number of generators to connect in the future. The MEU concept avoids many of the detriments inherent in the options detailed in the AEMC options paper but also recognises that incentive regulation allows a regulated entity a reward for managing risks.

The MEU has identified a number of detriments implicit in the proposed options and has struggled to quantify what benefits might flow to compensate consumers. The proposed options have more detriments than benefits (which MEU analysis indicates might never eventuate) for consumers, and as there is a credible alternative to meet the needs for small renewable generators, the MEU considers the AEMC should reject the SENE concept.

1. Introduction

1.1 About the MEU

The Major Energy Users Inc (MEU) represents some 20 large energy using companies across the NEM and in Western Australia and the Northern Territory. Member companies are drawn from the following industries:

- Iron and steel
- Cement
- Paper, pulp and cardboard
- Aluminium
- Processed minerals
- Fertilizers and mining explosives
- Tourism accommodation
- Mining

MEU members have a major presence in regional centres throughout Australia, e.g. Western Sydney, Newcastle, Gladstone, Port Kembla, Mount Gambier, Whyalla, Westernport, Geelong, Launceston, Port Pirie, Kwinana and Darwin.

The articles of the MEU require it to focus on the cost, quality, reliability and sustainability of energy supplies essential for the continuing operations of the members who have invested $ billions to establish and maintain their facilities.

1.2 The MEU view on "scale efficient network extensions"

In its earlier response to the rule change proposed by the MCE to implement scale efficient network extensions (SENEs) the MEU observed that:

- There is little doubt that, all other things being equal, providing a single large network element is more efficient than duplicating network assets to provide the same service to a number of separate (and smaller) generators
- Equally, other than a conceptual view that with efficient connections, consumers should receive a benefit, there has been no attempt to demonstrate that the benefit to consumers of a SENE will be greater than the consumer's share of the costs and risks
- The current rules (chapter 6A) are unbalanced and over-incentivise network investments
- The signals for efficient location of generators are currently muted and the introduction of SENEs as currently proposed would mute these further
- The introduction of SENEs will result in a number of other negative aspects in relation to the market as a whole:

- Competitive neutrality between generators is undermined in that some generators will get a SENE benefit but others will not as there will not be a SENE for them
- All generation types will benefit, not just the targeted renewables which is the underlying reason for the rule change proposal
- Consumers will face increased costs and risks, but any benefits are unclear let alone quantified
- There needs to be some definition as to when generation is too small (where any connection is, therefore, inefficient) or too large (generation is able to support its own connection on its own commercial criteria)
- There are significant complexities introduced in layout, the degree of firmness of access and charging generators for the connection provided

1.3 Recent observations relating the SENEs

In its earlier response to the proposed SENE rule change, the MEU queried whether the SENE should be implemented. The reason for its proposal was that as the Mandated Renewable Energy Target was expanded to notionally 20% of all generation (the eRET scheme), the increase in the number of small remote renewable generation projects would increase significantly. Being small (in comparative terms) the proposal identified that the viability of these small renewable generators would be impaired due to the high costs of connection if the connections were to be funded in accordance with the Chapter 6A rules, where generators individually negotiate with the appropriate network provider.

Since the MEU response in May 2010 to the SENE rule proposal, there are three significant additional new observations relating to the SENE concept that must be considered.

1.3.1 Government actions

To overcome the relative disadvantage these small remote generators face, the SENE concept was proposed by the AEMC in a report to the MCE. The MCE considered the concept to be supportable and proposed a rule change along the lines of the AEMC recommendation.

In this regard, it is pertinent to review the National Electricity Market Objective (NEO), to identify if these small remote generators should get the benefit of consumer supported connections. The NEO:

> "...is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—

(a) price, quality, safety, reliability and security of supply of electricity; and
(b) the reliability, safety and security of the national electricity system.

The second reading speech made when the National Electricity Law (NEL) was introduced in 2005 makes it clear that the NEO is an economic concept and therefore efficient investment will result in the least cost to consumers in the long term.

That the least cost in the long term is the target of the NEO, then the SENE must deliver to consumers a better outcome than would apply in the absence of SENE. The SENE proposal makes no attempt to demonstrate that it will deliver a lower least cost to consumers and relies on the assumption that there will be savings to consumers that more than offset the costs.

The NEL was revised in 2007, and the policy intent surrounding the NEO was further clarified. In the second reading speech to the 2007 NEL the Minister (Conlon) pointed out[2]:

> "It is important to note that the **National Electricity Objective does not extend to broader social and environmental objectives**. The purpose of the National Electricity Law is to establish a framework to ensure the efficient operation of the National Electricity Market, efficient investment, and the effective regulation of electricity networks. As previously noted, the National Electricity Objective also guides the Australian Energy Market Commission and the Australian Energy Regulator in performing their functions. This should be guided by an objective of efficiency that is in the long term interest of consumers. **Environmental and social objectives are better dealt with in other legislative instruments and policies which sit outside the National Electricity Law.**" (Emphasis added)

In its report to MCE, the AEMC had advised that the NEM framework was robust and could accommodate the impact of the policies of CPRS and eRET.

> "[The AEMC has] concluded that the existing competitive energy markets, supported by efficient economic regulation of the monopoly

[2] Hansard: SA HOUSE OF ASSEMBLY Thursday 27 September 2007, page 964

> network sector, continue to provide the most effective response to major changes in economic and policy circumstances." [3]

The AEMC then added that the changes will improve the policy outcomes:

> "The changes we have recommended to market frameworks seek to improve and strengthen the ability of the energy markets to respond to the policies while continuing to meet the desired market outcomes of efficient and reliable energy services." [4]

The clear import of these observations is that firstly the NEM framework does not need to be changed to incorporate the environmental policies identified and secondly the changes it proposed could improve the outcome of the policies.

The MCE has clearly erred in proposing (at the instigation of AEMC) to make changes to the NER that do not necessarily achieve the NEO but would assist in achieving an environmental policy outcome.

This construct on the NEO is supported by policies of the new Commonwealth government.

Firstly, during the election campaign the Labor party (and now government) proposed[5] a "connecting renewables" initiative: which states:

> A Gillard Labor Government will invest $1 billion over the next decade in our electricity networks to connect Australia's rich but remote renewable resources to Australian homes.
> The Connecting Renewables initiative will transform our energy grids by bringing more renewable energy into Australian households and businesses sooner.
> This initiative will develop secure, sustainable and affordable energy for the future, supporting the enhanced Renewable Energy Target and helping deliver the Government's commitment to 20 per cent of Australia's electricity supply coming from renewable sources by 2020.

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[3] AEMC Questions and Answers on the Final Report Review of Energy Market Frameworks in light of Climate Change Policies 30 September 2009
[4] ibid
[5] The full text of the policy is included as appendix 1

In particular, the policy identifies that it is to provide funding for network extensions such as those the SENE addresses. As the detailed policy (attached as appendix 1) states, the policy is to address the two disadvantages identified by Garnaut in his report of the "first mover" and the tendency to build only for current needs. As the AEMC report point out, these are two of the aspects that SENE is intended to address, although it is noted the MCE in its rule change proposal does not specifically identify these as drivers of the proposal.

If the government considered that it should have the costs for connecting renewables covered under the NER, then why has it make clear that it sees the costs should be addressed externally to the NER? The government's "connecting renewables initiative" actually suggests that it considers that the requirements associated with connecting renewable generation are an environmental objective, and therefore appropriately addresses the issue as being outside the framework of the NEL[6].

However, the (now) Commonwealth government has gone further. In a letter to Mr Bob Katter, the Prime Minister is reported in the Australian Financial Review to have stated[7]:

> "... Labor committed during the election campaign to provide $1 billion over a decade to connect renewable energy to the national power grid ... Labor would provide up to $185 million for the transmission line [between Mt Isa and Townsville] from 2012-17 ... from ... funding available under the Connecting Renewables initiative ... [to connect] renewable energy projects along the transmission line "

Again the government is demonstrating clearly that it considers it (and not electricity consumers through the NER) is responsible for assisting in the connection of renewable energy projects and that it does not have an expectation that there will be changes made to the NER to require consumers to fund such generation connections.

These actions by Government clearly do not support the assumptions implicit in the SENE proposed that these generator connections should be enabled and funded by changes made to the NER.

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[6] This same observation applies in the US where the US government has also recognised that assistance might be needed to renewable generation connecting to the grid. As has the Australian government, the US government has recognised that it has to provide for these additional costs. See appendix 3

[7] Appendix 2 has the full wording of the newspaper article

1.3.2 The proposed Green Grid

In late July 2010 the MEU received advice from RenewablesSA (a SA government body) of the "Green Grid" proposed for SA.

The Green Grid proposal is for there to be four locations for wind farms at the extremities of the Eyre Peninsula (north east, north west, east central and south) all joined to the existing shared network at Port Augusta. The expected amount of generation would be some 2000 MW, which would necessitate the augmentation of the Port Augusta to Heywood HV transmission network to export the generation provided but unused in the SA region. The proposal has the four locations connected to Port Augusta developed as SENEs and the Port Augusta to Heywood link augmented under RIT-T.

The proposal is considered to be viable if the excess recovery of losses collected under the marginal loss factor returned to the generators (rather than consumers as is the current approach) and with the current price of Renewable Energy Certificates. It assumes that the project will not receive any benefit from a price for carbon such as from the CPRS.

The cost of the SENE element is estimated at $613m for capex and $11.7m pa for opex. The cost of the shared network augmentation is estimated to be $818m for capex and $15.7m pa for opex. Assuming that 50% of the cost of the SENE is paid for by generators, the MEU has calculated the cost to consumers for the other capex and opex, will equate to over $10/MWh of regional demand, effectively increasing the price consumers pay for transmission assets by some 50%[8].

Under normal operation of the SA regional electricity market (ie excluding the impact of the exercise of market power by AGL's Torrens Island Power Station as identified by the AER) the average spot price for power in SA is $45-55/MWh. It is unlikely that the benefit provided by 2000 MW of wind farm generation on the Eyre Peninsula could reduce the cost of power in SA by 20% or more to offset the increased costs consumers will be required to accept.

It is noted that the intention of the Green Grid is to export the bulk of the renewable generation and it is accepted that this must be achieved because the average indigenous demand of SA is less than the output of the Green Grid generation. To achieve this export, not only must the Port Augusta to Heywood transmission system be upgraded, but so must the Victorian system be structured so that the amount of power can be transported.

[8] See appendix 4 for details of this calculation

The MEU has noted that the MCE has proposed another rule change that would require the some of the costs of the transmission in an exporting region to be recovered from an importing region. However during the 2/3^{rds} of the time the Green Grid is not exporting, SA tends to be an importer of power via Heywood. This means that for potentially 2/3^{rds} of the time SA consumers will be paying Victoria for imported power, offsetting some of the cost recovery for the Port Augusta-Heywood connection SA consumers might get from Victorian consumers[9]. The inter-regional charging rule change proposal introduces extreme complexity so there is no certainty that the increased costs the Green Grid proposal imposes on SA consumers will be recovered in full, if at all.

Whilst it is accepted that the Green Grid proposal has not been granted any network benefits to date, the proposal does "tick all the boxes" for a SENE to be considered as an option – a remote location, high efficiency renewable generation and a number of adjacent generation sites.

This proposal is the first (and as yet only) example of a SENE proposal which has been costed sufficiently to identify both the costs to consumers and allow some assessment of the benefits consumers might get for the costs involved. The resultant cost-benefit analysis is unconvincing, in terms of providing any benefits to consumers, and certainly indicates that the Green Grid will result in a net detriment to consumers.

1.3.3 The crash and recovery of REC prices

To assess whether granting an additional benefit to renewable generation is warranted, it is important to identify if there is a constraint in providing new generation (especially renewable generation) under the current market settings.

Whilst recent moves in the price of renewable energy certificates (RECs) has fallen as a result of the Commonwealth Government decision to issue RECs for household generation and solar hot water installations, the price of RECs has historically been consistently above $40, peaking at over $50 in 2008.

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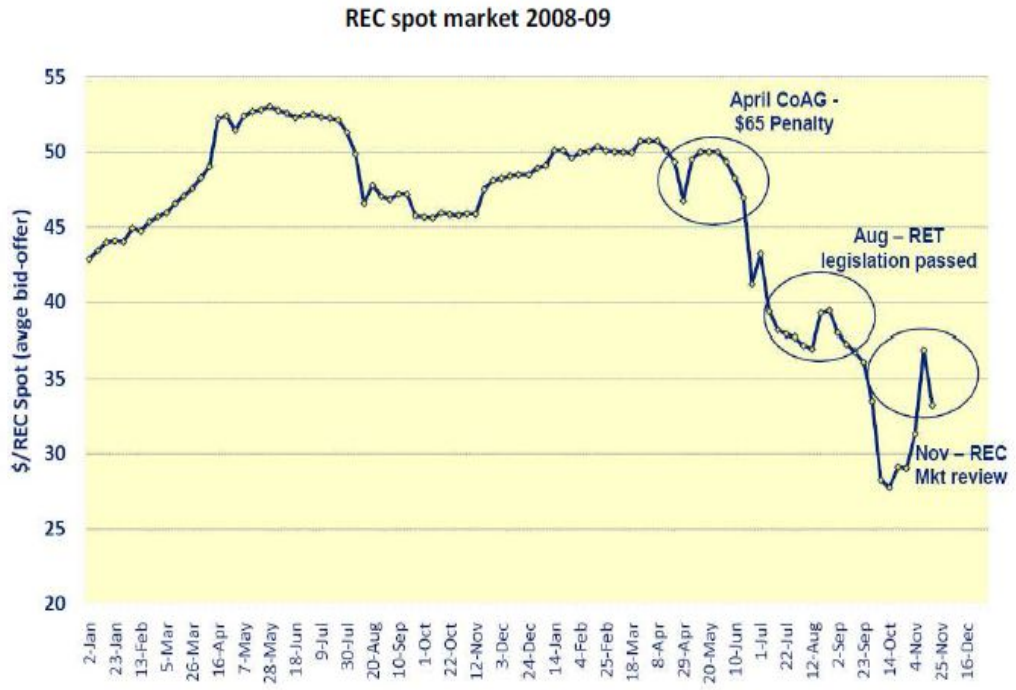
[9] For a more detailed analysis of the problems associated with the cost allocation rule change proposed for inter-regional cost allocation, see the MEU response to AEMC on this issue at http://www.aemc.gov.au/Media/docs/Major%20Energy%20Users-f0d57709-3fbe-4ab3-a6fb-28a2bb3cfd57-0.PDF



Source: Green Energy Markets

The government has addressed this problem by introducing a segregated program where electricity supplies will require RECs separate from those issued for micro (residential) renewable projects. This new program will effectively replace RECs issued in order to meet the Mandated Renewable Energy Target program with large renewable energy certificates (LRECs), and it is expected that the price for large renewable energy certificates (LRECs) will return to the same levels as RECs in the past.

Up to the time when the REC market fell, renewable generation needs were being easily met indicating there was not a need to provide more incentives for the most efficient renewable generation to be viable. When the LRECs are issued and reach the historic prices for RECs, it is expected that the new renewable generation will be provided as in the past.

This indicates that in the future, there is not a need to provide further incentives (such as low cost renewable generation connections as proposed by the SENE rule change) to ensure the renewable energy targets will be met.

In fact, under the proposed amendments to the draft Renewable Energy (Electricity) Amendment Regulations and the draft Renewable Energy (Electricity) Amendment (Transitional Provisions) Regulations, the unsustainable nature (driven by an array of strong subsidies and incentives) of the market for small-scale technologies (i.e. SRECs) is

even more disconcerting, largely due to the absence of a target or cap on the number of Small-scale Technology Certificates against a background of very strong growth in STCs to date.

The array of renewable energy assistance schemes from both levels of government in Australia, in addition to the SENE proposal, is extremely disconcerting to major businesses in Australia. There must be limits on the extent of cost increases that could be passed on to major businesses under the guise of climate change policies (let alone the over-riding need for coherent policies to provide more certainty in the business environment).

1.4 Analysis of the current market structure

> "Occam's razor is often expressed as the *lex parsimoniae* (translating to the law of parsimony [or the] law of economy) ... [and] "the Razor" may be addressed by the simple notion of ***not adding what is not needed***."[10]

Applying Occam's razor to the concept of SENEs, leads to the inevitable conclusion that as SENEs introduce so many complexities and distortions to a market that already works but might add detriments which are not calculable, then the introduction of SENEs adds little or nothing to achieving the NEO, but has the potential to detract from it.

The second reading speech of the NEL in 2005, postulates that the NEO is to deliver to consumers the "least cost" in the provision of electricity services.

Competition is the most effective route to determine the most efficient outcome and this underpins the current NEL and NER. It is competition that is seen as the basis which delivers "least cost" to consumers.

As the cost of generation includes the costs necessary for a generator to access the shared network, so investors in new generation are required to incorporate the costs of their locational decisions. Therefore it is competition which decides whether:

- A highly efficient wind farm remotely located on the Eyre Peninsula delivers a lower cost outcome to consumers than a less efficient wind farm located at Yass closer to the existing shared network, or
- A wind farm remotely located on the Eyre Peninsula delivers a lower cost outcome to consumers than a solar heliostat located near Mildura.

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[10] Wikipedia at http://en.wikipedia.org/wiki/Occam's_razor

In order to achieve the most efficient outcome (ie the least cost for consumers) all of the costs for providing new generation need to be included in the analysis by generation investors. If those decisions are distorted by consumers being required to accept some costs and/or risk, then the outcome is not necessarily the most efficient and therefore delivering the least cost.

The SENE approach changes the dynamics of generation investment. It effectively introduces the concept of "picking winners" and allowing those "winners" to minimise their risk and costs by consumers underwriting these. If the underpinning assumptions used to develop the SENE are not realised (ie the expected generation does not eventuate or the timing is later than planned) then consumers are exposed to increased costs and the cost of stranded assets. It was issues such as these that were seen to be overcome by the removal of central planning (when energy reforms were first introduced early last decade) and replacing this with market driven solutions. A SENE reconstitutes the negative aspects of central planning, and is effectively a retreat from the energy reform approach that has been consistently adopted and implemented since the early 1990s.

1.5 Summary

Inherent in the development of the SENE concept, is the view that building now to suit a future need will be more efficient than duplication at some time in the future. However, this economic equation is heavily dependent on the assumptions made, and the outcome for consumers is heavily dependent as to whether these assumptions have been realised.

The MCE (and AEMC which initiated the SENE concept) is of the view that the SENE will assist in the achievement of the eRET and CPRS policies and that consumers should pay for some of the costs and accept some of the risks associated with the SENE concept by way of changing the NER. However government policies and actions indicate that it has this responsibility. Whilst other government policies[11] remain perplexing in the light of the disturbing distortions introduced into the energy market, the addition of the SENE is a further unnecessary distortion of the NER.

The SENE proposal is predicated on the belief that consumers will benefit from lower electricity prices as a result of providing SENEs for some generators, but no one has attempted to quantify whether this outcome will be achieved. The Green Grid proposal seems to indicate that the savings will have to be very large.

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[11] For example, the creation of the uncapped small-scale Technologies Certificates which some observers have suggested could mean reaching the eReT target of 20% many years earlier than the targeted 2020)

Ostensibly, the introduction of the SENE concept was initiated to provide a benefit to small remote generation that will result from the introduction of the eRET scheme. Renewable generation is already receiving benefits from RECs and a carbon price (both of which consumers ultimately pay for) and providing a further benefit in the SENE concept will only enhance the benefits renewable generation will receive. Neither the MCE nor AEMC has addressed and quantified whether the SENE will in fact deliver a net benefit to consumers.

The AEMC report recommended that small renewable generation that would result from the impact of CPRS and eRET policies might need the support that SENE provides. Despite this being the driver of the perceived need, the MEU notes that the proposed rule change would provide a benefit to any generation. The MEU raised this as a concern in its response to the initial rule change proposal.

The MEU concern is more fully developed in its response to the AEMC Issues Paper on this Rule change. The MEU noted that the SENE concept was proposed to assist small renewable generation but has been expanded in the rule change to permit any generator of any size to connect to a SENE. This runs counter to a core principle of the NEM that the Rules must provide competitive neutrality because generators connecting to a SENE will get a benefit that is not provided to generators that cannot get access to a SENE, effectively destroying the policy of competitive neutrality.

At a high level the MEU considers that if there has been no detriment in the current NER to prevent significant investment in renewable generation, then there is no demonstrable reason to provide an additional benefit.

The concept of “if it ain’t broke, don’t fix it” has particular relevance.

2. Is there a better approach?

The MEU considers that the SENE concept is flawed in a number of aspects:

1. A SENE further mutes already muted generator location signals
2. SENEs remove the concept of competitive neutrality between generators which is embedded in the NER, giving generators which have access to a SENE a benefit over a generator without such a benefit.
3. Ostensibly, a SENE is intended to enable renewable generation but renewable generation is provided a benefit in terms of RECs and a carbon price by government decisions external to the NEM. A SENE distorts the overall competitive balance between renewable and conventional generation.
4. The SENE concept imposes a "picking of winners" responsibility onto AEMO and AER – a task they are not well equipped to do and should not be required to carry out.
5. SENEs provide a bias and remove an element of competition but it is competition which decides which options for new generation are the most viable at any point in time.
6. The NER is written in terms of allocating risk to the party best able to manage it[12], yet allocating the SENE risk to consumers is allocating the risk to a party with no ability to manage the risk.
7. There is nothing demonstrable that consumers, by funding a SENE and taking the risk of the asset stranding, will ever get a benefit.

The MEU has already provided its views on the first three issues and these are included in its response in May 2010 to the AEMC rule proposal. Rather than repeat its views, the MEU refers the AEMC to that earlier response.

The last four issues are addressed in the following sections.

2.1 Central planning

Inherent in the SENE approach is a reversion to central planning. In theory, central planning should provide the least cost to consumers as it provides the ability to balance the costs of providing excess capacity now for future growth against the cost of building for actual needs now and duplicating assets in the future when the need becomes imperative.

It has been demonstrated that central planning as implemented by the vertically integrated electricity businesses in the past resulted in excessive amounts of spare capacity that is still being absorbed some 15 years after the initial

[12] See for example "... the Commission noted that its intention was to reduce the likelihood of stranding of assets by ensuring that those that were able to manage the risk, bore the risk, rather than all users" (page 107 of AEMC rule Determination for Rule 2006 No.18, 16 November 2006)

implementation of NEM1 in 1995 where Victoria and NSW operated a "mini-NEM".

That there was significant over-investment in the electricity industry prior to 1995 was identified in the Hilmer report. The Hilmer recommendations were developed in detail by the National Grid Management Council and written in the National Electricity Code (NEC) which was effectively used in operating NEM1. An underlying principle of the NEC was that new generation building would be the result of incentives built into the NEC and not as a result of central planning. To assist in ensuring the incentives were identified by potential investors, the NEC required the market operator (NEMMCo) to publish its Statement of Opportunities (SoO) giving all interested parties information as to what is needed by the NEM in the future[13]. With this information potential investors in the NEM had information about what to invest in and when.

The SoO was to be the full extent of central planning, and investment decisions thereafter were left to the market to decide. The reasons for this approach is that the market is considered better able to identify location, size and timing of needed generation and its development than by a central planning process.

As AGL's Paul Simshauser put it so succinctly in his presentation to the SENE forum[14]:

> "AEMO, AER and NSPs know significantly less about optimal locations for merchant investment than market participants because of real world investment constraints & private information. The NEM is a prime example of where good economic theory and the harsh realities of real-world corporate finance quite simply collide
> ...
> The most elegant outcome of the NEM reform was shifting the cost of planning failure from customers to shareholders"

To support his observation, Paul Simshauser then provided data indicating that of all generation projects identified as perhaps likely to proceed, only one third actually were implemented. He added that this was why the move away from central planning was necessary.

The current approach has resulted in extensive new generation being built to suit the needs of the NEM, on a least cost basis. It is therefore both unnecessary and inappropriate for the re-emergence of central planning such as a SENE requires.

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[13] For example, see National Electricity Code version 1 (19 November 1998) clause 3.13.3(o)

[14] http://www.aemc.gov.au/Media/docs/SENEs%20Public%20Forum%20presentation%20-%20AGL-c4ab2573-ab30-4541-9843-875730fc2cbf-0.pdf

2.2 Risk management

It is a fundamental feature of the NER that risk is allocated to the party best able to manage the risk

2.2.1 Risk allocation

The NER are predicated on the allocation of risk to the party best able to manage the risk. In the case of generator connection, the party best able to manage the risk is the generation plant proponent, with the NSP being next best to manage the risk. Consumers have no ability at all to manage the risks inherent in a SENE.

The party best able to manage the risks inherent in generation location is obviously the proponent and this is expressly determined in the NER by the provision of locational signals to generators. This means that generators are to face the cost implications of their location respective to the existing shared network.

The investor developing a new generation proposal has the ability to decide between a number of basic generation assumptions – fuel, capacity, technology, location – and to balance the costs between each of these variables and the decision not to proceed. If a SENE is committed and large elements (eg as much as 75% is proposed to be underwritten by consumers) then this has the potential to bias the assessment of the generation variables.

It is this requirement that provides the investor to select the most efficient generation option. The introduction of the SENE concept biases what would otherwise be a decision based on providing the least cost solution for the investor. If a location is well suited to a number of small renewable but remote generation options, then the mere fact that the involved NSP is able to share this information that there may be other generators which might wish to share connection costs, should be sufficient to ensure locational signals still provide least cost outcomes.

For there to be a central planning decision made externally to the investment decisions made by generator proponents, immediately provides a reversion to the central planning approach that the competitive NEM was developed to avoid.

Clearly, leaving SENE risks with generators is the most efficient approach and has the added benefit of not requiring a change to the rules

2.2.2 Generator risks

Whilst the generator seeking connection to the shared network is best suited to manage its own risks of sizing and timing, the establishment of a SENE introduces a new risk to a subsequent generator. Under the current rules, a new generator has the right to select the lowest cost for the connection. This means that the incumbent NSP does not necessarily have the right to build the connection and must win this right in a competitive tender. This gives the foundation generator an ability to minimise its costs.

However, once the decision has been made to build a SENE, all subsequent generators seeking connection must negotiate with the incumbent SENE NSP, effectively removing the rights of subsequent generators to have competitive offers for their connections. There is an inherent assumption that the SENE NSP will provide a lower connection cost than a standalone but competitively tendered new connection.

The other risk that all generators face when connected to a SENE is that they may be constrained off at some time due to more generation being connected to the SENE than it can carry at peak generation times[15].

2.2.3 NSP managing the connection risk

On a risk allocation basis, if a generator is not required to accept the risk for connections, who then is next best able to manage the risk?

The party next best to manage the risks inherent in a SENE is the NSP who provides the connection to the shared assets[16]. If a SENE is committed, then the NSP has the power to determine the minimum costs involved in providing the ability to accommodate future generation connections, and to “chase up” those generators which indicated interest in using the SENE so as to reduce the amount of spare capacity remaining on the SENE.

If the NSP is to manage the risk of a generator connection, then it should be reimbursed for taking this risk. If the work is tendered competitively, then the cost of the risk would be included in the tendered price for the work. How the NSP costs this risk would be assessed becomes its responsibility.

Such an approach would provide an incentive on the NSP to minimise costs for providing spare capacity and to ensure generators connected to

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[15] It is probable that this risk will be more apparent when most of the generation connected is intermittent and assumptions have been made in sizing the SENE regarding coincident peak generation

[16] This may be the incumbent NSP or an NSP that has won the work on a competitive basis.

suit the SENE program. The higher rate of return would need to be set to balance the risks faced by the NSP.

2.2.4 Minimising the costs for a SENE

Currently the SENE proposal is based around an NSP building the SENE as if it were a regulated asset and receiving the reward reflecting such an approach (ie the WACC as calculated by the AER).

If the SENE is carried out without the NSP accepting the risks for the augmentation, there is no incentive on the NSP to minimise the costs of the connection – ie to build only the minimum amount of assets in the early stages to allow future augmentation to suit the ultimate capacity of the SENE.

Whilst the SENE concept is predicated on the incumbent NSP augmenting its network to provide closer access to the new generation, under the NER currently the only element the incumbent NSP must provide in relation to the cost of a generator connection, is that the actual connection to the shared network must be carried out by the incumbent NSP. If the customer for a connection is dissatisfied with the offer made by the incumbent NSP for a connection it has the ability to seek alternative offers for all work other than for the actual connection to the shared network[17].

Under a SENE approach, the incumbent NSP will have effectively unilateral rights to build the SENE. This means that there is no competitive tension for the incumbent NSP to minimise its costs in building the SENE and thereby minimising the connection costs.

As a SENE is essentially a negotiated connection agreement, the only involvement by the regulator is when the customer has a dispute about the connection costs. Creating a SENE reduces the ability of any one generator connected to challenge the costs stated by the incumbent NSP, further reducing the ability of generators connecting to ensure they pay the lowest cost for their connection.

This then raises the question as to whether a SENE should be built by the incumbent NSP as a notionally regulated asset, or whether it should be competitively tendered under the auspices of AEMO following the Victorian model.

[17] Under the Victorian model for transmission augmentation managed by AEMO, except for the actual connection to the S P Ausnet assets, the augmentation is tendered competitively and awarded to the lowest priced acceptable offer. In practice, the incumbent NSP has an advantage over all competitors for network augmentations, and generally augmentations are built by the incumbent NSP. But the process requires S P Ausnet to tender for the work and so the least cost should eventuate.

The most efficient approach to transferring generator locational signals (such as is inherent in a SENE) away from generators, would be to transfer the risk to NSPs. This could be managed with minimal change to the rules by requiring AEMO to establish a competitive approach to providing the ability to connect more than one generator in a single connection, such as the SENE proposes.

Under this model, AEMO would call for tenders for the development of a SENE which would be open for any party to provide. This general approach would reflect the way AEMO manages the Victorian transmission augmentations. AEMO would define some minimum parameters for the SENE such as a general location and minimum and maximum generation capacities to be accommodated, and advise all tenderers of the potential generation proposals, such as is proposed under the current SENE approach.

The tenderer would be responsible for discussions with prospective generators to identify the risks involved, detailed locations and timing of connections. AEMO would assess the offers such that the lowest cost for the maximum benefit would be achieved. The successful tenderer would establish connection agreements with each generator as each generation connection is made firm.

2.2.5 Consumers managing the risk

Some consumers might elect to connect to a SENE but this would normally be assessed and funded as a network augmentation as already addressed in the. Otherwise consumers have no ability to manage the risk of a SENE in any way.

In practice, there will be little pressure on a new generator to connect the planned capacity at the time envisaged, other than another generator might take up the capacity[18]. This increases the risk of stranding or of delayed recovery of the sunk costs consumers are expected to carry.

Equally, there is no pressure on the NSP to want to minimise the establishment costs of the SENE, or to ensure connections are made to suit the targeted timetable.

As there is little or no pressure on the key parties involved to minimise consumer costs, to therefore require consumers to bear the cost and/or risks inherent in a SENE is inefficient.

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[18] This is unlikely as if connecting one generator is not commercially viable, then another investor is unlikely to have a greater incentive to add its generation at the same location

2.3 Will consumers get a benefit from the SENE approach?

The SENE concept posits that as the generator connections will be more efficient because of the increased scale (two connections for 100 MW is more expensive than one connection for 200 MW)[19], this saving in cost will translate to reduced electricity supply costs for consumers.

At its most optimistic, a SENE might not cause consumers any costs at all on an NPV basis. This still means that consumers in the early days of a SENE will incur increased costs until a certain amount of generation is connected. Thereafter, as more generation connects, consumers will receive a benefit to offset the earlier losses. In a global sense this means that consumers as a group will be indifferent to the costs they incur. In practice, at an individual consumer level, the consumers in the early days pay a premium and only if they stay as consumers might they benefit in the future. If in the interim a consumer goes out of business because of the increased costs, then it never receives its benefit share. Even worse, the contribution that individual consumer makes to the cost of providing the shared network is lost, and whilst the remaining consumers do incur a benefit because the generators have connected to the SENE, they also lose the contribution the missing consumer made, reducing the benefit that will accrue because the generators have connected as planned.

For example, under the Green Grid proposal in SA (see section 1.3.2 above), that SENE will increase transmission costs by ~$10/MWh. This increase might cause a large consumer (say with a demand of 50 MW) to cease operations due to costs. The contribution this consumer makes to the transmission network is significant, probably of the order of $0.25-0.30/MWh. Whilst the $10/MWh is returned in due course because all planned generation does connect to the SENE (notionally balancing the “books”) the loss of the 50 MW consumer increases the transmission costs to all other consumers by $0.25-0.30/MWh because transmission costs are set under a revenue recovery approach.

At its worst, consumers will continue to pay for a SENE until it is depreciated if no additional generators ever connect.

As a SENE has the potential to always increase costs, there needs to be some offsetting benefit that more than compensates in order for the AEMC to allow a rule change.

The MCE alleges that as a result of a SENE, the lower connection costs for the generators will result in more efficient energy prices, and from higher energy costs if the SENE proposal is not initiated.

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[19] In their submissions to the rule change proposal, both Grid Australia and Powercor/Citipower provide examples that this is the case

In its application the MCE states:

> The key benefit from the proposed Rule is that it will reduce the risk of duplication in connection assets and promote efficiently sized connection assets. As a result, customers will benefit through more efficient investment decisions, and ultimately, more efficient energy prices.
>
> There are a number of other benefits associated with the proposed Rule, these include:
>
> - facilitating a more strategic approach to planning through the involvement of the AEMO;
> - improved transparency and decision making by market participants through the requirement for publication of information by AEMO and NSPs; and,
> - maintenance of efficient locational signals by charging generators for the share of assets they use.
>
> The MCE's Response to the Final Report accepts that the benefits associated with the new framework are likely to outweigh the costs. In the absence of this framework, and the role for customers, there is a likelihood of connections being planned and built independently at much higher total cost to customers. This is because the costs associated with inefficient connection assets for clusters of new generators is likely to be substantial.

The AEMC in its report to MCE considered that the benefits of a SENE would be delivered by lower electricity prices caused by lower costs of the SENEs. Whilst such an assumption might be an intuitive outcome, in practice, it is not sustainable in an energy only electricity market such as the NEM.

Most renewable generation is intermittent, as most renewable generation is currently wind powered. Other renewable generation (such as solar, wave and tidal) also tends to be intermittent. There is some renewable generation which is dispatchable but this is currently a small proportion of the overall "renewable generation" fleet.

The market price setting process in the NEM is based on the marginal price of dispatch. An intermittent generator cannot be "dispatched" as is conventionally fired generation and therefore it offers its capacity at the lowest price (regardless of its cost of generation) possible, and "takes" whatever the marginal price is. Even some dispatchable renewable generation (such as biomass) is a market "price taker" as the dispatch is coupled to heat output (eg cogeneration) or manufacturing processes which requires the generation to operate at all times, limiting the ability to be dispatched at a price only at which it is commercially viable. Essentially this means that the bulk of the renewable projects that will get a benefit from lower connection costs will not price their output to reflect the savings of the lower cost connection, but at the minimum price allowed in the NEM, to ensure that they are dispatched. They then have their price of output set at a level set by the marginal generator which will

almost always be a dispatchable conventionally fired generator[20], already connected to the NEM.

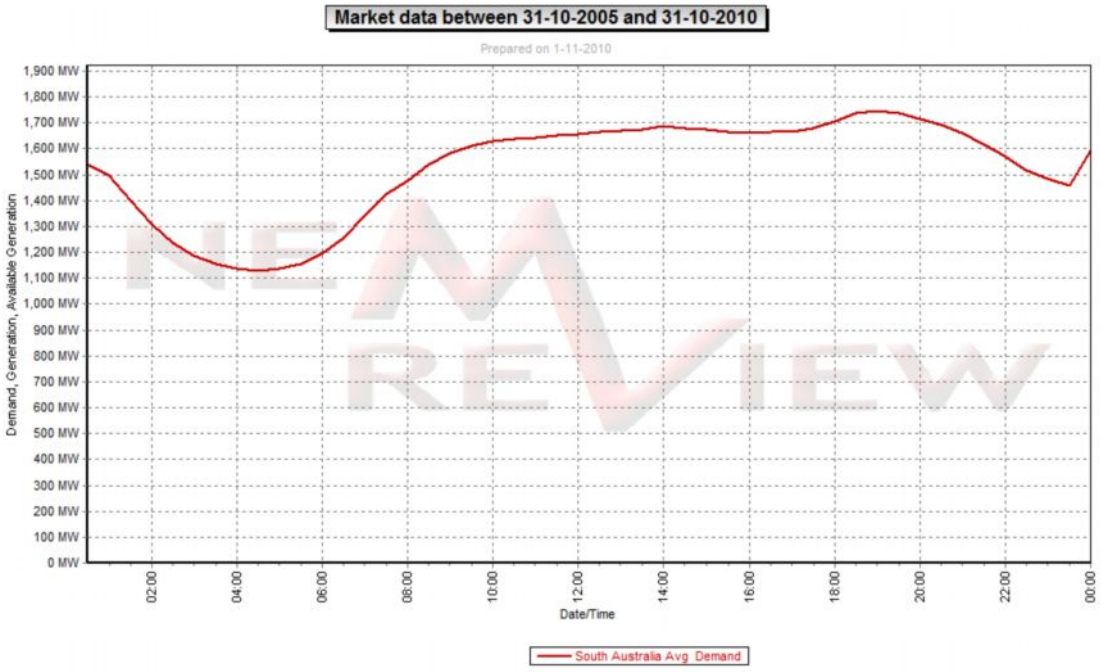
As the bulk of most of the renewable generation will be intermittent, even when all the generation is provided from such a source, for the times when the intermittent generation is not providing output, the supply will be made up by dispatchable generation. As dispatchable generation output will have been displaced by intermittent generation when the intermittent generation is operating, the despatchable generator still has its fixed costs to recover but over shorter generating periods and less output. This means that to remain commercially viable, the dispatchable generation has to increase its prices when it is operating to recover its fixed costs when it has been displaced by the intermittent generation.

Using the Green Grid referred to in section 1.3.2 as an example, it is noted there would be a real cost to consumers which might be of the order of $10/MWh. For a SENE to deliver a net benefit to consumers, any benefit has to exceed the costs that consumers would incur.

In the early stages of the Green Grid development, the output from this source will be (say) 1000 MW for a 1/3rd of the time[21]. As the following chart shows, on average SA demand always exceeds 1000 MW. This means that all the time, the price of power in SA will still be set by marginal generators, which will not include any benefit the Green Grid might get from a SENE allowance.

[20] Which in theory do not get a SENE benefit

[21] Wind generation commonly has an availability profile ranging from 25-40% over the long term but there may be extended periods where there is no generation at all.



Source: NEMReview using AEMO data

However, as the marginal generators would have significantly lower outputs for a third of the time (ie when the wind farms are operating), they would have to increase their prices to provide for their lower outputs during this time.

To help quantify this impact, the MEU has used ACIL Tasman data which provides long run marginal cost data for AEMO for different generation[22]. ACIL advises in its 2009 report that based on 85% capacity factor in 2009/10, a new combined cycle gas turbine (CCGT) plant based in Adelaide would have a long run marginal cost (LRMC) cost of $61.49/MWh and a short run marginal cost (SRMC) of $40.19/MWh whereas an open cycle gas turbine (OCGT) plant would have a LRMC of $101.49/MWh and a SRMC of $86.60/MWh. A CCGT plant needs to run nearly continuously to deliver the cost implied in the report whereas an OCGT plant is designed for frequent and short run operation. Assuming that both types of plant could operate as a backup to the Green Grid wind generators for 2/3rd of the time, then the cost for CCGT to provide the balance of the power SA needs built not provided by the Green Grid wind farm would be $72.59/MWh and for the OCGT it would be $108.94/MWh[23].

Without the Green Grid, assuming a CCGT provides all power, the notional cost for power in SA would be ~$61/MWh[24] to reflect the LRMC of CCGT plant.

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[22] Fuel resource, new entry and generation costs in the NEM (prepared for the Inter-Regional Planning Committee) April 2009

[23] This is the SRMC plus the difference between the LRMC and the SRMC (ie the fixed costs) increased to account for only operating for 2/3rd of the time rather than 100% of the time.

[24] This is about the time weighted cost of power in SA excluding the impact of generator market power in the region.

With the Green Grid operating at 1000 MW output, the cost to consumers increases to a minimum of $72/MWh[25] which is the LRMC for a CCGT operating for about 2/3rd of the time. The wind farms would receive the marginal price set by the CCGT as income.

Thus with the Green Grid providing less than the regional demand at any time, the regional spot price actually increases, and does not decrease because consumers have provided a SENE benefit as posited by MCE and AEMC.

Continuing this example further, the Green Grid proposal sees that its output will reach 2000MW. In theory this means that for about 1/3rd of the time the regional spot price will be set at whatever the Green Grid wind farms offer their prices at. As a "price taker" it is probable that the Green Grid connected wind farms would initially bid -$1000/MWh[26]. However, the output of the Green Grid wind farms would exceed the regional demand when they are operating. This means that when the wind farms are operating at full capacity, there is no dispatchable generator to set the marginal price so setting a price of -$1000/MWh (as when the wind farms are price takers) would be unacceptable to the wind farm investors as their LRMC is in the range of about $100-120/MWh[27]. Even though they receive RECs (say at a price of $40-50/MWh) wind farms still need a regional price in excess of $60-70/MWh in order to remain viable. Thus for the 1/3rd of the time when the wind farms set the spot price, the wind farms would have to set the price for their output at this figure, so the regional price would be ~$60/MWh, or about the LRMC level of a CCGT.

However, for the other 2/3rd of the time, dispatchable generators would set the regional price. They would have to set their price at above their LRMC for operating at a reduced output –at some $72/MWh[28] as estimated above. This means that the average spot price would be perhaps $68-70/MWh based on LRMC recoveries. This is higher than the spot price in the absence of the Green Grid.

If the backup generation was provided in the form of OCGT, the regional prices would be even higher.

This very simplistic analysis indicates that the presence of the Green Grid, might actually result in higher spot prices in the SA region of the NEM, leading to a conclusion that rather than the Green Grid based on a SENE resulting in lower prices for SA consumers (as contended by the MCE and AEMC intuitive

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[25] This figure is probably understated as a CCGT operating in such a mode is likely to be less efficient.
[26] This is currently the minimum price a generator can bid into the NEM
[27] This LRMC is that for wind farms connected near to the shared network require and this cost would assume that the SENE has been provided
[28] Whilst there will be competition amongst those dispatchable generators for output, they all must recover their fixed costs or go out of business

assessment), in fact the provision of the SENE benefit might result in SA consumers paying not only for the SENE but incurring higher electricity prices as well.

Effectively what this example shows is that by providing a further benefit to renewable generation (in addition to the RECs and carbon price) there is

- The likelihood of higher regional prices (rather than lower prices),
- The potential for insufficient dispatchable generation (causing involuntary load shedding), or
- Increased costs to provide additional backup generation

Whilst it accepted that this analysis is predicated on long run marginal costs being the driver of the regional spot price, this assumption is more likely than the MCE and AEMC abstract view which postulates that consumers will get lower prices if SENEs provide a benefit to new generation.

The MCE also noted that the SENE approach had other benefits than more efficient prices to consumers. They point out that it will also:

- Facilitate more strategic planning
- Improve transparency and decision making
- Maintain efficient locational signals.

The MEU disagrees with these as being benefits that come from implementing SENEs – all of these benefits can be achieved without requiring consumers to underwrite a SENE approach. In fact, as the MEU noted in its response to the MCE rule change proposal, the SENE approach actually mutes locational signals rather than enhances them.

2.4 Summary

The MEU is of the view that there are major negatives that the SENE concept introduces to the NEM. Some the negatives are more fully expanded in our earlier response to the rule change application, but further analysis by MEU indicates that there are more negatives than it covered in that initial response.

In addition to the SENE concept introducing considerably increased complexity as well as losing the concept of generation competitive neutrality (ie between different types and generation and between generators in differing locations), reducing competition and muting locational signals, the SENE concept as developed by the options posited by the AEMC:

- Reintroduces the central planning approach that Hilmer clearly condemned as being less efficient than allowing market forces to decide what is most efficient.

- Removes a basic concept underpinning the NER that risk should be allocated to the party best able to manage the risk

- The assumption that the SENE concept will provide a market benefit to consumers is not borne out when analysed in detail.

3. Options examined by AEMC

The AEMC has identified that despite being of the view there was high level support for the SENE concept, response to the draft rule change indicates that there is less support for the concept than they assumed as a result of the discussions held during the development of the report to the MCE on the climate change impacts of CPRS and eRET.

In this regard it must be stated for the record that MEU was never a supporter of the SENE concept during this time when the concept was developed. During these discussions, consumers were given but one voice in consultative subgroups that included beneficiaries from the SENE concept and others that were not exposed to the costs that SENEs might impose. It appears the AEMC took the position that a simple majority view was sufficient for it to consider the concept had general acceptance. The MEU is pleased that there has been a groundswell of opposition to the SENE concept as it is clear that many of the issues surrounding the concept had not been fully investigated before embarking on its more detailed development.

Despite this increased opposition, the AEMC has developed five basic options to the SENE concept. These five options can be collated into two basic groups

- Options 1 and 2 revert to total central planning, with AEMO being required to "pick winners" as the location for SENEs
- Options 3, 4 and 5 are more market driven

All options require consumers to pay (at least in the early years) for unused excess capacity which is provided and to accept the risk that there might be SENE assets which are never used and become "stranded" with consumers continuing to pay for them until they are fully depreciated.

Whilst unstated, the AEMC made it clear at the forum that it considers there is an "option 6" which is the status quo.

However, what has not been addressed in the various options for consideration, is one that attempts to allocate the risks, inherent in the SENE approach, to the party or parties best able to manage the risk. Essentially all options proposed by the AEMC slate the ultimate risk back to consumers who have no ability at all in managing the risk and, as developed in section 2.3 above, will not gain a benefit and are likely to see higher costs.

3.1 Principles and criteria used by the AEMC

The AEMC has sensibly decided to use a set of principles to guide its decision making process in relation to the SENE rule change request. This means that the set of principles it uses must be appropriate and lead to achievement of the

NEO. The Options paper posits (page 16) that it sees the SENE should be structured so that:

1. Generators can connect in a timely manner
2. Generators can connect via efficiently sized and located assets
3. Generators face efficient cost location signals
4. Frameworks should not be burdensome or complex.

One specific feature of these four principles is that all are written in terms of what is good for generation, other than principle 3 which requires generators to connect where it will best provide for the NEM and therefore consumers

It is important to note that under the current rules these four principles apply and have delivered the optimum outcome for the NEM and for consumers, including considerable remote and small generation. In this regard it must be noted that the NEM has not replicated the approach of the centrally coordinated past (where very large generators[29] were built), but there have been many smaller generators connected – typically sized at less than 500 MW (compared to the 2500-3000 MW of the past) with many being much smaller. Accepting that there have been smaller sized generators these generators have even then been incrementally increased in size over time. What this indicates is that the current NEM approach has resulted in sufficient growth in generation being added incrementally to suit the needs of the NEM.

It is important to recognise that the current structure actually has worked to deliver the least cost to consumers over the long term.

It is the view of the AEMC that perhaps the second principle does not necessarily deliver the best outcome with the expectation that there will be an increase in smaller generators seeking to connect into the NEM and from more remote locations as a result of the eRET scheme. Essentially the AEMC has concluded that sizing a generation connection asset to suit the amount of generation that might connect at that general location, will be lower cost than individual generator connections. That this is likely is not contended, but as noted earlier it is contended that in “tweaking” of the second principle to enhance its outcome, there will be a lessening in the other principles that in an overall sense negate the current level of benefit consumers are achieving under the current arrangements.

The following table is an attempt to provide a high level analysis of each of the options against these four principles identified by the AEMC. Whilst it is accepted that the analysis is high level, it appears that in providing a benefit via the second principle, each of the other principles are negatively impacted to a

[29] For example, Bayswater Power Station and Loy Yang power station)

greater or lesser extent, but what is clear none of the other principles is enhanced by enhancing the second principle.

AEMC Option	Principle			
	Timely	Efficient sizing	Location signal	Complexity
1	Investment too early for the need but is timely for new generation	Investment sized to suit planning expectation	Quite muted	Most
2	Investment too early for the need but is timely for new generation	Investment sized to suit planning expectation	Quite muted	Most
3	Investment too early for the need, new generation delayed by process	Investment sized to suit forecast expectation	Muted	Very
4	Investment too early for the need, new generation delayed by process	Investment sized to suit forecast expectation	Muted	Very
5	Investment too early for the need, new generation delayed by process	Investment sized to suit forecast expectation	Muted	Very
6[30]	Investment as required, timely connection for generator	Investment sized as required	Strong	Least

In addition to this assessment it must be recognised that the SENE concept requires significant regulatory involvement either at the beginning (options 1 and 2 in establishing the SENE by AEMO and reviewing it at the end by AER and AEMO) or at the end (proving that the SENE is cost effective by AER and AEMO). This regulatory involvement only increases transactions costs and complexity into the processes.

In its Options paper the AEMC summarises the impact of the five options against a set of criteria:

1. The trigger for a SENE
2. The investment test to be applied
3. The cost allocation method
4. Access provisions

[30] Included by MEU

5. Regulatory oversight required.

A table similar to the above was created but below the MEU includes option 6. This clearly shows that the current arrangement is much more balanced in its approach

AEMC Option	Criterion				
	Trigger	Investment test	Cost allocation	Access provision	Regulatory oversight
1	AEMO and NSP assessment	Implicit by decision based on ~25% capacity being contracted	To generators, consumers pay for surplus	Mandated compensation for loss of access	AER veto, AEMO forecasts
2	AEMO and NSP assessment	Assessment of benefit, but assumes based on ~25% capacity must be contracted	To generators, consumers pay for surplus	No rights for access	AER veto, AEMO forecasts
3	First generator connection	Connection agreement, RIT-T for surplus	To generators, consumers pay for surplus	No rights for access	AER review against RIT-T, AEMO forecast
4	First generator connection	Connection agreement, RIT-T for surplus	To generators, consumers pay for surplus	No rights for access	AER review against RIT-T, AEMO forecast
5	First generator connection	Connection agreement, RIT-T for surplus	To generators, consumers pay for surplus	No rights for access	AER review against RIT-T, AEMO forecast
6	Generator connection	No test Investment sized as required	To generator	Rights provided in NSP contract	None needed

3.2 Analysis of options

3.2.1 Locational decisions

In all options proposed by the AER the locational decision is made either under a central planning approach (options 1 and 2) or by the first mover generator, backed up by the NSP assessment under a RIT-T. The AER has a role either in vetoing a SENE decision or reviewing and accepting the NSP RIT-T assessment.

What this approach means is that, once the SENE is determined, the decisions made will influence the locational decisions of subsequent generators. If a subsequent generator determines that there is a better location which might be more efficient in the absence of a SENE, the very presence of the SENE must influence the new generator. If the new generator declines to use the SENE, for other locational reasons, then this will result in an even worse outcome for consumers which will continue to incur the costs of the unused capacity as well as the costs of the new connection.

This distortion has the potential to result in an even worse outcome for consumers depending on locational decisions by subsequent generators.

Option 6 does not influence other generators except where the generators themselves decide to utilise a common connection. With the relaxation of the confidentiality provisions, this option has the potential to provide the benefits of a SENE but not distort subsequent generator locational decisions.

3.2.2 Timely connection

Options 1 and 2 incorporate the benefit from being able to connect in a timely fashion, but to no greater extent than is implicit in option 6.

Options 3, 4 and 5 all are exposed to delays from carrying out a RIT-T review to ensure that the surplus capacity provided is efficient.

Option 6 is not affected by RIT-T and time is only constrained by bipartisan negotiations with the NSP.

3.2.3 Stranded asset risk

All options (1-5) include a stranded asset risk which consumers will take.

Option 6 allocates the stranded asset risk to the generator and NSP.

3.2.4 Allocation of cost of the SENE

All options (1-5) allocate the cost of unused capacity to consumers.

Some options, on an NPV basis, could be assumed to deliver a net zero cost to consumers (in the event all planned generators connect at the time it is assumed they will) but, as discussed in section 2.3 above, not all consumers might see the benefit of this NPV assessment.

Option 6 allocates the cost of unused capacity to the generator.

3.2 5 Generator access

The principle inherent in the current rules for generator access, is that a generator will pay for its access to the shared network, and will receive firm rights to the capacity of the connection via a bilateral contract with the NSP. With a SENE whilst a generator might pay a slight reduction in its connection cost, it losses unilateral right to all the capacity it pays for.

Under option 6 the generator has unilateral rights to all capacity of the connection.

3.2.6 MEU assessment of the options

The MEU considers that none of the five options provides a better solution to “option 6” – the status quo – now that there is a reduction in the confidentiality requirements allowing NSPs to discuss proposed generator connection offers more widely.

Of the five options proposed by the AEMC, the MEU considers that all are unacceptable.

However, the MEU considers that option 4 is the “least worst” option of all, but only if it is provided with the addition of a requirement that the generator connection costs are priced so that over the complete SENE development phase, the cost to consumers results in a zero value on an NPV basis.

3.3 An option not examined by AEMC (option 7?)

As stated above, the MEU considers that the status quo (option 6) provides the best solution to generator connections. This is a market based approach which allows the market to decide which options are the most efficient and avoids the need for regulators to “pick a winner” which history has shown is not one of their strengths.

However, there is an option which was not examined by the AEMC where the potential benefits of a scale efficient network extension might be implemented

but where the risk of the connection is borne by the parties best able to manage the risk. To allocate the risk management to the party best able to manage the risk is an underlying principle of incentive regulation which provides a reward for the successful management of the risk.

As noted above, the risk of a generator connection is within the reasonable control of the generation proponent and the NSP. The concept behind the SENE is that some of the connection risk is to be removed from the generator as it is seen as more efficient to connect a number of small remote generators to a single large connection arrangement.

The MEU does not necessarily agree with this premise as it does not follow that application of it will deliver the most efficient outcome when assessed on a holistic basis. As discussed above, a more technically efficient wind farm in remote SA might be less economically efficient than a less technically efficient wind farm closer to the share network.

However, if the premise of a SENE was accepted, then the party next most able to manage the risk associated with a SENE, is the NSP involved. The NSP has the ability to both minimise the costs for providing for surplus capacity and to assess the likelihood of additional generators connecting to the extension and the capacities that might be the most efficient. It is best suited for this task as it has direct dialogue with intending new generators. However, if the NSP does take some risk then it is entitled to a return for taking this risk, and such a return would be higher than the regulated rate of return which is intended to reflect the normal low risks faced by NSPs.

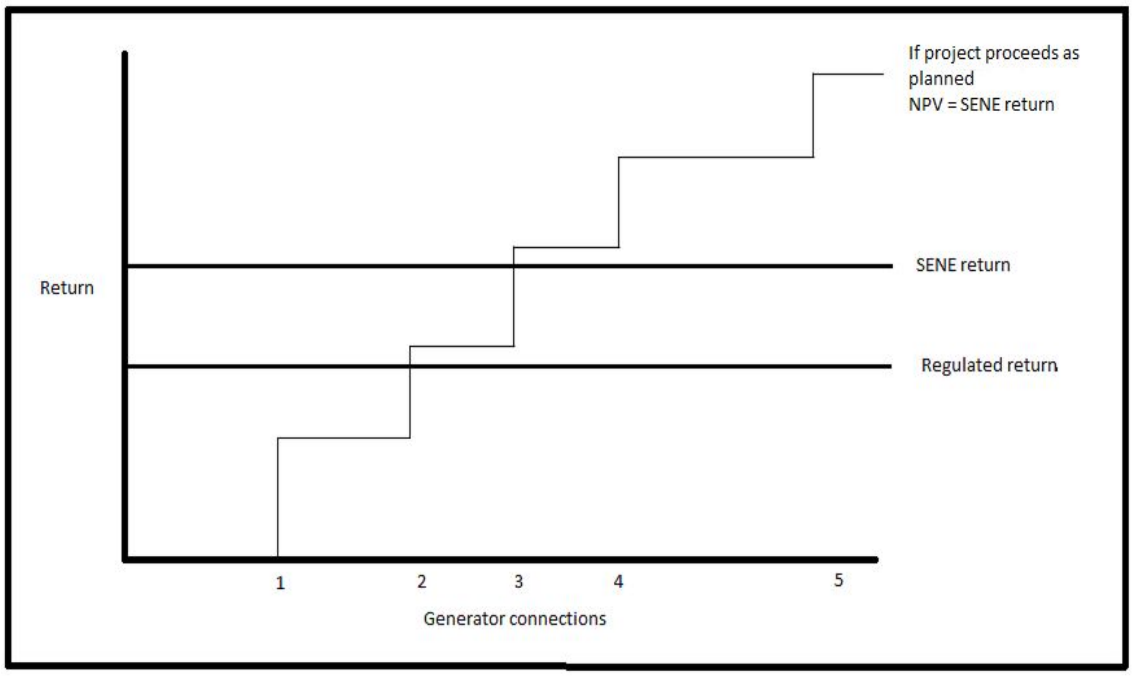
If the AEMC considers that there must be a benefit provided to generation as proposed by the SENE approach, then the NSP is best suited to take the risk associated with a SENE.

Should the AEMC consider that there must be a SENE rule change, the MEU then proposes that the following approach be allowed:

- An NSP assesses the likelihood of a SENE being appropriate in a specific location as part of its network
- The NSP develops a SENE proposal for that location
- The NSP shares this information with the AER which might seek independent verification from AEMO that this SENE is appropriate and is costed appropriately.
- If the AER concurs with the NSP that a SENE is appropriate, then the NSP develops the SENE and agrees with the AER what reward is appropriate for the expected risks. This agreement is essential because under the current arrangements, a generator connection is a competitive element and the generator can select the lowest cost offer for its connection and the SENE concept would effectively remove this right from subsequent generation connections

- If there is a concern about the sizing, timing or costs proposed, the AER could ask AEMO to seek competitive quotations for the SENE following the approach used by AEMO for Victorian region shared network augmentations.
- The foundation generator would pay stand alone costs, with an expectation that over time its connection costs will reduce
- As additional generators connect, the charge for the new connections would be structured so that on an NPV basis for the entire capacity, the NSP would receive the agreed risk premium for providing the capacity[31]
- If generators connect early, the benefit would remain with the NSP, if they connect later, this would reduce the premium reward agreed with the AER.

This concept is shown diagrammatically in the following chart:



Whilst this approach might result in a higher cost overall for the network than if the SENE was built as a notionally regulated asset (as the MCE rule change proposal implies) it reflects the incentive nature of the NER which is predicated on providing an incentive to the party best able to manage the risks involved and so deliver the most efficient long term outcome for consumers.

Whilst the MEU is not convinced that any SENE approach is needed for the reasons provided above, it does see that an approach based on the NSP managing the risk for a reward provides a number of features not present in the options considered by the AEMC. These include:

[31] This is the approach proposed for AEMC options 1and 2

- Providing a mechanism for providing some scale efficiency for small remote generators
- Recognising that many renewable projects will fund their own connections and that SENEs are not necessary for these
- Incentivising the connection of these generators to meet the most efficient timescale
- Ensuring that the lowest cost for the connections by providing the potential for competition in the development of the SENE
- Placing pressure on the generators and NSP to optimise the connection details and development
- Not discriminating between generators with and without a SENE, as the generators themselves are fully funding the connection
- Locational signals still being maintained, as it is the generators that effectively decide where a SENE is most likely
- Avoiding the need for central planning with its associated “picking of winners” detriment
- Not requiring consumers to fund a generator connection or take the stranding risk

4. MEU Views and conclusions

In its options paper the AEMC stated (page ii)

> While there is still some support for change, this has been tempered by the complex nature of the proposed Rule and the implementation difficulties that it poses. In particular, some stakeholders consider:
>
> - the proposed Rule requires customers to bear significant risks that they are not best placed to manage;
> - competitive neutrality between generators that connect to the SENE and those that connect directly to the network has been questioned; and
> - certain characteristics of SENEs do not fit naturally into the existing framework which creates an additional layer of complexity, such as the nature of the service that the SENE provides and compensation arrangements where generators are constrained off the SENE.

The MEU agrees that these are major considerations for the SENE concept. However, the MEU does not consider that the options 1 to 5 proposed in the options paper provide much to reduce these concerns.

The AEMC posited at the SENE forum that there always remained option 6 which was to maintain status quo. The recent relieving of the confidentiality requirements in relation to NSPs discussing connections options with prospective generators provides a good basis for the potential of multiple generators providing their own signals for sharing connections.

The MEU considers that the current rules provide adequate incentive and ability for generators to "coordinate" with NSPs to provide for their own SENE. Such an approach:

- Does not increase complexity in the rules
- Does not reduce competitive neutrality
- Does not pass costs and risks onto consumers
- Avoids the need for the regulatory interventions that options 1 to 5 require.

As a second best approach (option 7), the MEU has developed a methodology for implementing SENEs which avoid many of the negative elements of the options 1 to 5, but still allows an NSP to build surplus capacity in a generator connection to provide lower costs for a number of generators to connect in the future. The MEU concept avoids many of the detriments inherent in the options detailed in the AEMC options paper.

The MEU has identified a number of detriments implicit in the proposed options and has struggled to quantify what benefits might flow to compensate

consumers. The proposed options have more detriments than benefits (which MEU analysis indicates might not ever occur) for consumers, and there is a credible alternative to meet the needs for small renewable generators.

When all these detriments are balanced against what must be considered to be arcane benefits at best, the MEU considers the AEMC should reject the SENE concept.

APPENDIX 1

Connecting Renewable Energy to Australian Homes

CONNECTING RENEWABLES

A Gillard Labor Government will invest $1 billion over the next decade in our electricity networks to connect Australia's rich but remote renewable resources to Australian homes. The Connecting Renewables initiative will transform our energy grids by bringing more renewable energy into Australian households and businesses sooner.

This initiative will develop secure, sustainable and affordable energy for the future, supporting the enhanced Renewable Energy Target and helping deliver the Government's commitment to 20 per cent of Australia's electricity supply coming from renewable sources by 2020.

Federal Labor will also invest $100 million over four years in a new Renewable Energy Venture Capital Fund.

These new initiatives build on Federal Labor's record investments in solar power and other renewables to help transition Australia to a low pollution economy.

Australia's renewable energy wealth

Australia has some of the best renewable resources in the world. Enough sunshine falls on Australia and New Zealand on an average day to power both countries for 25 years. It is estimated that if we harnessed just one per cent of our geothermal resources, we could power Australia for 26,000 years. But some of our richest solar, biomass, wind and geothermal resources are in remote locations like central and northern Australia, and are not connected to our main electricity networks.

The Connecting Renewables initiative will identify and develop projects to unlock clean energy resources for Australia's future.

Why we are doing this initiative– the evidence

Australia's electricity networks were built to support a generation mix heavily focused on fossil fuels. They are regulated to ensure that additional investment in shared infrastructure is efficient and delivers supply reliability. To deliver renewable energy on the scale and at the speed of progress that Australia now needs, large-scale investments are required to connect new, clean, and affordable energy sources to areas where Australians live and work.

The Garnaut Review identified two barriers to network expansion that significantly slow or even halt the deployment of lower-emissions generation technology.

- The 'first mover disadvantage' means the first renewable energy project in an area bears all the cost of extending the network, allowing later projects to 'free-ride' on the investment.
- The tendency to build capacity for current needs only due to the large capital cost of transmission infrastructure, rather than building for future needs from the outset, which is cheaper.

With State and Territory Governments and the energy market institutions, Federal Labor has progressed important changes to the regulatory framework over the past year to address these problems. This new initiative will build on these regulatory reforms, providing further support for the transformation required of Australia's energy industry if we are to meet our important climate change goals.

The Connecting Renewables initiative is designed to ensure that funds are disbursed to high value projects where there is a demonstrated market failure. All projects will require substantial co-contributions from other sources. Governance arrangements that are consistent with the national energy market framework will be finalised in consultation with energy market institutions and energy, environment and infrastructure stakeholders over the next six months.

What type of projects will receive support under the program?

This program will support major transmission infrastructure investments that would not otherwise proceed without Australian Government funding. This transitional measure will accelerate investment in supporting infrastructure so our electricity sector is well positioned to respond to a future carbon price. Projects under the initiative will transition the power industry towards cleaner energy sources, reduce cost pressures in the future, and address identified market failure.

Funding decisions will take into account existing levels of support for renewable generation projects and regions, and will consider the merits of investment in emerging areas.

The initiative could help build national infrastructure through projects such as:

- Making North West Queensland Australia's "next Pilbara" – opening a new wealth-generating mining province and bringing the wind, solar, biomass, and geothermal resources of the region to the national network.
- Using the world's best solar resource to help power the mining industry and dozens of communities in northwest Western Australia.
- Connecting the massive Cooper Basin geothermal resource to the national energy market.

The type of projects that the Fund will support will include connecting renewable generation projects to the national network, significant network augmentations, upgrading of regional interconnectors, or new interconnectors.

The first $100 million under this program will be invested over four years.

$100 million Renewable Energy Venture Capital Fund

A re-elected Gillard Government will also allocate $100 million over four years to a Renewable Energy Venture Capital (REVC) Fund. This initiative addresses another challenge facing many renewable energy companies– access to capital. The Australian Centre for Renewable Energy (ACRE) will work with financial institutions to develop structured renewable energy products to help overcome this hurdle.

The REVC Fund will make critical early-stage equity investments that leverage private funds to help commercialise emerging renewable technologies, for instance in geothermal, solar, wave and bio-energy technologies.

What has the Government already done to support renewables?

The Connecting Renewables initiative and the REVC Fund builds on Federal Labor's $10 billion investments in energy efficiency, and renewable and clean energy, including through the $1.5 billion Solar Flagships program. This funding will support the enhanced Renewable Energy Target of 20 per cent by 2020, driving significant investments in renewable energy development and deployment.

APPENDIX 2

The Australian Financial Review Friday 10 September 2010

Katter has his cake, eats it too

Relationships

Sophie Morris

Independent MP Bob Katter might have backed the Coalition to form a government but he's been getting warm messages from Julia Gillard.

The Prime Minister wrote to Mr Katter on Wednesday, outlining a range of the ventures promoted by the maverick north Queensland MP that Labor still intended to support.

Mr Katter released Ms Gillard's letter yesterday, underlining his promise to work constructively with a minority Labor government.

With a 76-to-74 majority in the House of Representatives, Labor will lose government if one MP switches sides. The government doesn't want to offend Mr Katter and may need his support to pass legislation not backed by the other independents.

In her letter, Ms Gillard said Labor committed during the election campaign to provide $1 billion over a decade to connect renewable energy to the national power grid.

Ms Gillard promised that Mr Katter's pet project, a transmission line between Mt Isa and Townsville, would be made a top priority when assessments were made on how to distribute the funding.

"Labor will provide up to $ 185 million for the transmission line from 2012-17, with payments made subject to agreed milestones," her letter said. The promise could eat up all the first-round funding available under the Connecting Renewables initiative as the policy suggested that only $ 100 million would be available in its first four years.

Ms Gillard also promised that a Labor government would provide up to $150 million extra beyond 2017 if feasibility studies were completed and the project required it.

She proposed that Infrastructure Australia should have considered the project before the further investment were made, but didn't suggest that the advisory body would need to approve it or indeed that it should have a say before the initial $185 million was spent.

The letter also said that Labor would provide $2 million initially to develop renewable energy projects along the transmission line to pre-feasibility stage. The beneficiaries would include a solar and biomass project proposed for Pentland by Korean firm Samsung.

The money would come from a pool overseen by the Australian Centre for Renewable Energy.

Labor has also pledged to provide up to $350 million for the construction of a large-scale solar generation plant along the transmission line.

The letter said the Queensland government will be invited to apply to the Solar Flagships program for the funds when its next round of applications opens in 2012-13.

Labor's promises address the top item on the list of 20 priorities that Mr Katter gave to both parties last week

In the document he wrote: "Whilst the two giant projects, the Kennedy Wind Farm and the Pentland Solar Bio-fuels plant, require little financial assistance, they do require a strong government commitment."

The projects seem to have secured both financial assistance and a government commitment.

Mr Katter announced his support for the Coalition on Tuesday, shortly before Tony Windsor and Rob Oakeshott said they would back Labor to form government. He said that both parties had presented "outstanding" policies on the National Energy Grid and Clean Energy Corridor.

He said the Coalition had better policies on ethanol, emissions trading the mining tax, indigenous Australians, food importation, water development, property rights, remote area allowances and returning citizens' rights and freedoms.

In Mr Katter's assessment, Labor only beat the Coalition in its approach to stay-at-home mothers.

APPENDIX 3

Renewables to spark U.S. grid revolution: John Kemp

Reuters, 17 April 2009

Growing power consumption and the U.S. administration's plan to rely more heavily on renewable generation sources will increase the demand on America's already overloaded electricity grid and require major investment in transmission and distribution networks.

Upgrading power transmission and distribution systems is likely to cost as much as installing new generating capacity over the next 20 years.

While Congress provided an extra $4.5 billion of funding for grid improvements in the recent fiscal stimulus, federal loan guarantees and other support, far more investment will be needed if the administration's targets for renewable generation are to be realised.

...

"Annual Energy Outlook 2009" (AEO2009) projects that most of the added generating capacity will be from conventional sources such as natural gas (53 percent), coal (18 percent) and nuclear (5 percent). But a substantial proportion will come from renewables (22 percent), raising the share of renewable power in total generation from 8 percent in 2007 (much of it from hydro dams) to as much as 13 percent in 2030.

The biggest additional contribution will come from the combustion of biomass waste products left over from increased production of ethanol to meet the federal government's ambitious targets. The other major contribution will come from wind. Solar is likely to make a marginal contribution in the timeframe owing to high cost.

Biomass generators can be used in the same way as conventional power sources like gas and oil since the technology is identical (combustion to raise steam). The amount of power can be scheduled ("despatched") to meet demand in exactly the same way as a conventional power plant.

Wind and solar present greater challenges because they cannot be scheduled with precision. As the percentage of power drawn from these non-despatchable sources increases, it will pose unique challenges for grid managers and require a substantial reconfiguration of the system.

Reconfiguring the grid to handle increased demand and a greater share of renewables will impose substantial costs. The Brattle Group report estimated the industry would need to spend as much upgrading the high-voltage long-distance transmission system ($300 billion) and lower-voltage local distribution networks ($600 billion) as it will on increased generating capacity.

...

INCORPORATING RENEWABLES

While loads from individual appliances are very variable and impossible to forecast, aggregate load from millions of appliances linked to the grid is much more predictable over a 24 hour cycle. In effect, the law of large numbers and grid interconnectedness help smooth the demand profile and make supply management possible.

In the same way, generation from individual wind turbines and solar units fluctuates significantly, but power availability becomes more stable if many different types of renewable energy (wind, solar, biomass) are connected to the grid at many different locations: strong sunlight and solar generation in the Mojave desert can make up for power lost when the wind stops blowing in Kansas.

Problems posed by variable power output from renewables can be managed in exactly the same way as variations in load or accidental loss of generating supply.

But as the percentage of renewable generation increases, so do potential imbalances. More renewables such as wind and solar will require more conventional (gas, coal and biomass) generating capacity to be held in frequency and standing reserve (potentially reducing efficiency and increasing cost).

Renewables proponents want to move away from the traditional power-on-demand model to one in which demand as well as supply is managed dynamically. If load as well as generation can be scheduled, via "smart grids" and other control techniques, the amount of generating capacity held in costly reserve could be reduced.

Increasing renewables will also put a premium on long-distance transmission capacity so shortfalls in generation in one region can be made up from increased output in other areas. But the U.S. power grid grew up piecemeal and is plagued by bottlenecks. In particular, there are limited interconnections between the eastern and western United States across the Rocky Mountains, and between Texas and the rest of the country.

Bottlenecks are already causing reliability problems, which will worsen as the percentage of renewables increases unless grid capacity is upgraded.

The fiscal stimulus approved earlier this year directed the Department of Energy to provide technical assistance to help increase transmission capacity across the Rockies and with Texas. But grid management will have to undergo a revolution if the share of renewables is to be raised significantly without an adverse impact on reliability.

Much more investment, and more federal government support through direct funding, loan guarantees or favourable charging regimes will be needed if the renewables aspiration is to be made a reality.

(Editing by David Evans) -- John Kemp is a Reuters columnist. The views expressed are his own --

Appendix 4

Calculation of Green Grid proposal costs

The SENE proposal does not provide any costing or benefits that a SENE might provide, but the Green Grid proposal provides some costings for its implementation although it does not attempt to relate these into costs consumers might be exposed to. As any proposal for expanding the networks requires a RIT-T analysis (which is essentially a cost benefit analysis) the MEU has attempted to do so, based on the limited data provided.

Stage 1 of the Green Grid proposal posits there will be a capital requirement of $613m for the SENE and $818m for the augmentation of the shared network totaling $1431m. Additional opex costs of $11.7m pa for the SENE and $15.37m pa for the augmentation totals $27.07m pa. Using a nominal rate of return on the capital involved of 10% (this is comparable to the AER “vanilla WACC” used in the recent Victorian EDPR) the costs of the entire program can be quantified.

Allowing (say) 50% of the SENE cost to be carried by consumers in the early years and 100% of the shared transmission augmentation cost would cost consumers some ($112m pa in return on capital and $28m in return of capital or $140m pa. Allocating opex costs on the same basis as capital costs, opex costs would add a further $21m pa bringing the total annual cost to ~$160m pa.

Consumption of power in SA is approximately 13 TWh pa giving a cost to consumers of $12/MWh. As the average cost for transmission in 2013 is forecast by the AER in its revenue decision on ElectraNet at about $22/MWh the cost to SA consumers of the Green Grid will increase the transmission charges by ~50%

To put the Green Grid costs into perspective in 2013, ElectraNet regulatory asset base (RAB) is forecast to be $1,975m and its opex $73m pa. This means that the proposal will result in an increase in the ElectraNet RAB of 72% and an increase in opex of 37%.

Additionally, the AER considers that the current ElectraNet capex program of ~$150m pa is near ElectraNet’s capacity to manage, so the proposal of spending $1.43Bn over a few years will further impact ElectraNet’s ability to manage an already stretched capex program.