Trevor Armstrong
Executive General Manager
System Planning & Regulation

Level 9, 570 George Street
Sydney NSW 2000

Address all mail to:
GPO Box 4009
Sydney NSW 2001

Telephone +61 2 9269 2611
Facsimile +61 2 9269 7294

EnergyAustralia®

13 May 2010

Dr John Tamblyn
Chairman
Australian Energy Market Commission
Level 5, 201 Elizabeth Street
SYDNEY NSW 2000

Dear Dr Tamblyn

EnergyAustralia's submission on MCE proposed Rule on scale efficient network extensions

EnergyAustralia welcomes the opportunity to comment on the MCE's proposed Rule change on scale efficient network extensions (SENE). While we have previously had the opportunity to comment on the development of AEMC recommendations to the MCE in respect of the impacts of climate change on energy markets, this is the first opportunity for stakeholders to comment on the detailed policy and draft Rules associated with the SENE framework.

EnergyAustralia encourages initiatives that support the development and entry of 'low cost' renewable generation into the energy market. We note that the cornerstone assumption of the proposed Rule change is that the expanded RET scheme will have the effect of driving significant new renewable generation investment in remote areas. The proposed Rule is in response to potential disincentives to invest that may arise from connecting these generators to the shared grid.

The SENE framework proposed by the Rule is complex, as are the issues which arise in considering the proposal within the current regulatory framework under the National Electricity Rules. We have found it very difficult to complete the analysis required to respond to the proposed rule in the time available and we are still preparing a worked example which applies the proposed framework to distribution networks. We are very concerned as to whether the AEMC could be satisfied that the Rule as proposed would contribute to the achievement of the National Electricity Objective. Our attached submission identifies these issues, and suggests adjustments to the framework, in the event that the AEMC were to consider that the SENE framework is required.

The proposed Rule is seeking to address a potential market failure that may arise from connecting renewable generators in remote areas. In these particular circumstances, the existing connection regime may result in high entry costs for individual small generators, and create duplicative network infrastructure. This is because each proponent pays for a dedicated connection to the network, where a more optimal investment may have been a higher capacity 'shared' asset that would reduce average costs for each connecting or prospective generator.

We agree that in these very limited circumstances, there may be an economic reason for developing a single 'oversized' extension of the network to connect prospective generation. However, we consider that the SENE framework as set out in the proposed Rule will:

- increase the likelihood of oversized and under-utilised assets (asset stranding), thereby resulting in inefficient investment;
- require customers to take on the risks and costs associated with asset stranding, without any economic assessment of whether the customer will benefit from the investment; and
- establish complicated and duplicative economic regulatory arrangements, resulting in administrative inefficiency.

Given these difficulties, we are encouraged by the AEMC's statements that it will be assessing alternative options to the proposed Rule. We strongly encourage the AEMC to first explore whether the potential market failure can be adequately addressed within the existing framework, with minor adjustments if required. For instance, we consider that the existing regulatory test is a more appropriate option for addressing the issue of potential market failure. The regulatory test has been designed to assess whether there are market benefits from extending the network, and for quantifying the 'optimal' size of a network extension. We consider that the AEMC would need to demonstrate that minor adjustments to the existing framework do not address the issue, before adopting the SENE framework.

If the AEMC does adopt the SENE framework, we have identified adjustments that would be required to ensure that the framework better promotes the National Electricity Objective. These include:

- Increased safeguards for customers by ensuring that AEMO is required to undertake an assessment of the costs, benefits and risks to customers before identifying a SENE zone.
- Classifying the asset as a prescribed/ standard control service. This would be consistent with the shared nature of the asset, and would enable the Rule to utilise existing investment test and pricing processes rather than create duplicative and complex instruments.
- Allocating responsibility to AEMO in respect of forecast generation profiles. This would be consistent with AEMO's planning function and better market knowledge of potential generation.

As I have indicated above, EnergyAustralia has been developing a realistic example to demonstrate the implications of the SENE framework set out in the proposed Rule. Unfortunately we are not in a position to attach a final version of the example to our submission, but we will strive to provide the AEMC with an appendum by Friday 28 May. We think the example will powerfully illustrate our concerns, and we would appreciate the opportunity to further discuss the example with the AEMC before a draft Rule is made.

If you have any questions on our submission, please do not hesitate to contact Ms Jane Smith on 9269 4171.

Yours sincerely

TREVOR ARMSTRONG
Executive General Manager
System Planning and Regulation

EnergyAustralia's submission on MCE Rule change proposal – Scale Efficient Network Extensions

May 2010

1 Summary of policy position

The proposed Rule is seeking to address a potential market failure that may arise from connecting renewable generators in remote areas. In these particular circumstances, the existing connection regime may result in high entry costs for individual small generators, and create duplicative network infrastructure. This is because each proponent pays for a dedicated connection to the network, where a more optimal investment may have been a higher capacity 'shared' asset that would reduce average costs for each connecting or prospective generator.

We agree that in very limited circumstances, there may be an economic reason for developing a single 'oversized' extension of the network to connect prospective generation. In considering the optimal size of the asset, there is an important balance between:

- the potential for inefficiency for duplicated investment; and
- the potential for inefficiency from investment in larger scale networks that are perpetually under-utilised.

We consider that the existing regulatory test is a more appropriate instrument for assessing whether there would be a market benefit from extending the network, and for quantifying the 'optimal' size of the asset. This would also have the advantage of working within the existing regulatory framework to address the issue.

In contrast, the proposed Rule will increase the risk that customers will bear the cost of a significant number of oversized and under-utilised assets. The regime also establishes complicated and duplicative economic regulatory arrangements.

We have two major comments on how the SENE model could be altered to remove some of the stranding risk, and suggest ways that the Rule could better utilise existing structures in the existing regulatory framework.

Minimise risk of asset stranding

Our submission focuses on ensuring that the proposed regime (if implemented) provides better safeguards for customers from bearing the costs of stranded assets, including:

- requiring AEMO to identify the economic benefit, costs and risks to the customer, and establishing stricter economic criteria for identifying SENE geographic zones;
- establishing a minimum threshold of capacity commitment for the development of the SENE (for example, 25 per cent) to remove some of the risks faced by customers from asset stranding; and
- allocating responsibility to AEMO for forecasting expected generation development in a SENE.

Work within existing regulatory framework

Our key concern with the proposed Rule is the complicated regulatory treatment of the SENE. We consider that the regulatory arrangements for the SENE could parallel the framework that applies to extensions of the network to meet future load. This would involve a far simpler regulatory model where:

- The shared asset is classified as providing direct control service, and included with other shared assets in the network service provider's regulatory asset base (RAB).
- The investment is subject to a regulatory test process to ensure that the least cost design to meet the forecast generation is developed.
- The generator pays an annual charge for its share of the capital and operating costs of the asset through regulated network charges (based on installed capacity), with the customer paying residual costs.

Appendix A separately provides our detailed responses to the AEMC's questions, and further expands on the key messages in the body of this submission. Appendix B provides further comments on aspects of the proposed SENE framework in respect of the new planning, connection and pricing processes. We have not had an opportunity to undertake a detailed legal review of the drafting provisions.

2 Issue

2.1 Existing 'market' framework for connections

The current arrangements in the Rules are based on bilateral negotiations between a prospective generator and network service provider on terms and conditions of connection. The regime is based on market economics. The key principle is that a connecting party must pay the full cost of any development to connect the generator to the shared network.

In making decisions on whether to connect, generation proponents take into account
(i) the costs of generation;
(ii) incentives provided outside the market (for instances Renewable Energy Certificates); and
(iii) the costs of connecting to the network from the generation location.

The connection and charging framework ensures that proponents pay the full costs of connecting to the network, and therefore there is no distortion to the investment decision.

Under these conditions, proponents with the most efficient cost structure will enter the market first, and this will ultimately lead to the dispatch of the cheapest generation. In this way, consumers pay the lowest cost for electricity services. Importantly, the current arrangements do not preclude connection applicants from coordinating the construction of a connection asset, in cases where it will lower the average connection cost. Recent rule changes have relaxed confidentiality provisions to encourage these 'market led' developments.

2.2 Perceived Market failure

EnergyAustralia agrees with the AEMC that in very special circumstances, the current arrangements may provide disincentives for low-cost renewable generators to locate in remote areas, leading to a market failure. In this case, the connecting party may not receive an efficient location signal if it is required to meet the whole cost of a connection.

The market failure would only occur in circumstances where the total cost (generation and connection) is lower in the remote area, relative to an area closer to the shared network. If these remote generators entered the market, the customer would receive lower electricity prices.

However, the requirement for generators to pay the full connection cost (rather than share the connection cost with other generators who may connect in the future) may create some risks of either inefficient network development due to several small capacity lines being built for co-located generators, or small barriers to entry for a generator wishing to connect remotely.

The cornerstone assumption of the proposed Rule is that the expanded RET scheme will have the effect of driving significant new renewable generation investment, creating the potential for the inefficient duplication of connection assets. That is, there will be an increase in the number of instances where this potential market failure may arise.

We have seen little evidence or anecdotal information to suggest that the current Rules have discouraged efficient renewable generation investment, or have led to inefficient development of the shared network. EnergyAustralia accepts that, to the extent that this cornerstone assumption holds, this Rule change is intended to reflect emerging RET and CPRS incentives which drive investment in new forms of renewable generation.

Nevertheless, our view is that the potential market failure would only occur under a very limited scenario:

(i) The remote area is comprised of several ‘small’ size generation proponents. The costs of dedicated connection are high for a single proponent, resulting in a disincentive to invest.

(ii) The connection costs for each generator will be reduced by building a larger connection asset to service all the generators. That is, there are economies of scale from a single large connection asset that would make it economic for the individual generators to enter the market through sharing network extension costs.

(iii) Generators connect to the shared network over a period of time.,.

(iv) Most importantly, there is likely to be an overall benefit to the market that exceeds the cost of investment and therefore the investment is in the long term interest of customers.

3 Options to address issue

We note that the AEMC intends to assess the Rule against criteria which reflect the promotion of the National Electricity Objective (NEO). In doing so, the AEMC will also be assessing whether the proposed Rule better promotes the NEO relative to alternatives within the existing framework. These alternatives include the ‘markets benefit’ evaluation in the regulatory test, and market led developments. In respect of promoting efficient investment, the AEMC will be considering whether the Rule:

- will result in efficient investment in network connection assets in respect of size, location and timing;
- will minimise risks to consumers;

- will enable multiple connection applications to be processed in a timely manner; and
- will send appropriate cost signals to generators that are not biased towards any particular technology.

3.1 Efficiency of oversizing extensions of the network

The AEMC has identified that the key solution to the market failure is to build a single extension of the network that is 'oversized' to connect future generation. While we accept that there is merit in this view, we consider that the 'optimal' size of the asset will need to balance:

- The potential for inefficiency for duplicated investment because different proponents choose to invest in isolation, where a more optimal investment may have been a higher capacity shared network investment.
- The potential for inefficiency from investment in larger scale networks that are simply never utilised.
- The allocation of risks between the customer and generator.

EnergyAustralia considers that the existing regulatory test is an appropriate vehicle to assess the 'optimal' size and design of a network extension. The purpose of the regulatory test is to identify new network investments that maximise the net benefit to all those who produce, consume and transport electricity in the market.[1]

The regulatory test is a more disciplined method than the proposed Rule for quantifying the 'efficient size' of the extension of the shared network. This would minimise the risks to customers from paying for stranded assets, or building an asset above the size that maximises customer benefits. No such economic assessment is provided for in the SENE framework.

The regulatory test would also ensure that the deeper costs of connection are taken into account in the economic assessment of the optimal size of the extension. In terms of low voltage distribution networks, we consider that deeper costs may represent the majority of the costs of connecting large amounts of renewable generation.

Our views on the regulatory test are aligned with the Australian Energy Regulator, which has stated:

> "A transmission project to connect future generation will pass the regulatory test and RIT-T where it maximises net economic benefits. If the investment does not do this, then it is not efficient (or optimally sized) and the costs of the investment should not be recovered from customers". [2]

At the time of its review of energy market frameworks in light of climate change policies, the AEMC commissioned Allens Consulting Group (ACG) to assess whether the application of the RIT-T was sufficiently flexible to take into account new investment from climate change policies. ACG concluded that:

[1] Clause 5.6.5A(b) of the National Electricity Rules.
[2] Australian Energy Regulator, Response to AEMC 1st interim report, 23 February 2009, p10.

> “The regulatory test and accompanying guidelines would appear to provide sufficient flexibility to take account of the ERET scheme and CPRS when estimating the benefits of a transmission upgrade. Notwithstanding, explicit guidance would be desirable, for example, by providing explicit guidance in the AER guideline.”[3]

We consider that the application of the regulatory test would also meet other criteria in the AEMC’s assessment criteria including timely connection of multiple proponents. Further, the regulatory test provisions require consideration of options which are without bias to energy source or technology.[4]

We consider that the AEMC could consider modifying the regulatory test if it considered there were barriers to its effective operation.

In terms of other alternative options being explored by the AEMC, we note that GridAustralia has previously supported a market led approach, which would involve connection applicants jointly funding a larger asset.[5] We note that this would mitigate the risk that consumers bear the risk of asset stranding, but further thought would be needed on the particular measures that would encourage market developments.

We strongly encourage the AEMC to first explore whether the potential market failure can be adequately addressed within the existing framework, with minor adjustments. If the AEMC were to take an alternative view, we would like to understand why the regulatory test cannot be used to assess the economic basis for extensions of the network, or why minor changes to the test could not accommodate these issues.

4 High level concerns with the SENE model

In the previous section, EnergyAustralia provided reasons why the AEMC should fully explore alternative options within the existing framework to address the potential market failure. In this section, we outline our high level concerns with the proposed Rule, further demonstrating the need for a review of alternative options. Our view is that if the AEMC considered that a SENE framework was required to address the potential market failure, that significant changes to the model would be required to ensure that the approach better promotes the National Electricity Objective.

In addition to our high level concerns, we have set out our particular concerns with the planning, connection and pricing processes proposed by the new Rule at Appendix B to this submission. A key recommendation in Appendix B is that AEMO should be the responsible party for forecast generation profiles, as this is consistent with its planning responsibilities.

At a high level, the proposed Rule introduces an entirely new regime to address a very limited instance of market failure. A key theme of this section is that the Rule has the real potential to lead to a large number of oversized network extension that are never fully utilised. This cost of asset stranding will be borne by customers. As such, the Rule will not:

- result in efficient investment in network connection assets in respect of size, location and timing, compared to the status quo; and

[3] Allens Consulting Group, Climate change policies and the application of the Regulatory Investment Test for Transmission, December 2008. p8
[4] Clause 5.6.5A(c)(3) of the National Electricity Rules.
[5] Grid Australia, Response to First interim report, 20 February 2009, p10.

- will not minimise risks to consumers compared to the status quo.

Below we outline the reasons why we have come to this view.

1. There are insufficient safeguards for consumers from asset stranding. We advocate that the Rule (if made) should define minimum size and remoteness of a SENE area, establish cost-benefit criteria to guide AEMO's classification of SENE, and establish a minimum threshold of committed capacity before a SENE is developed.

2. The SENE duplicates regulatory planning and pricing frameworks, when it could have utilised existing structures in the Rules. We consider the Rule (if made) should be altered to classify the SENE as a prescribed/ standard control service. This would enable the application of the RIT (least cost design) and enable cost reflective pricing through the established pricing framework that applies to prescribed/ standard control services.

4.1 Customer safeguards

EnergyAustralia considers that the Rule does not adequately mitigate risks to consumers from asset stranding. We therefore consider that these costs will outweigh the inefficiencies that may potentially arise under the potential market failure, and may even result in the SENE applying to connections where no market failure exists. Our reasoning and suggested changes are set out below.

4.1.1 Define size and remoteness of a SENE

As noted in section 2, there are very limited circumstances where market failure may occur, and consequently changes to the current arrangements should be limited to these occurrences. This appears to be the intent of policymakers, for instance proposed Rule notes that:

> "…. this clause is intended to address the issue that scale efficient network extensions are unlikely to be relevant to some Network Service Providers (e.g. Murraylink, Basslink, and EnergyAustralia)."[6]

We support the AEMC's position on this issue. We note that it is unlikely that scale efficiencies would arise when connecting large amounts of renewable generation to the distribution network, particularly if the connection point is at a long distance from the load centre. This would greatly increase the costs of connection, due to the significant deeper costs of augmenting the network to reinforce the security, safety and reliability of the network. It is therefore unlikely that there will be market failures in EnergyAustralia's network of the type identified by the AEMC.

While it appears to be the intention of the Rule to exclude distributors like EnergyAustralia, there are no defined thresholds for the generation capacity.

For example, the Rule indirectly defines scale efficient generation zones as having 'substantial scale efficiencies'.[7] In an economic sense, scale efficiencies may occur when connecting large or small generation capacity.[8] EnergyAustralia considers that the provisions would need to limit connections

6 AEMC, Consultation paper: Scale Efficient Network Extensions, April 2010, p29

7 Proposed Rule 5.6A.2(b)(2a)

8 Scale efficiencies are defined as the increase in efficiency of production as the number of goods being produced increases. Typically, economies of scale lowers the average cost per unit through increased production since fixed costs are shared over an increased number of goods.

to transmission only, or alternatively restrict AEMO from classifying an area as a SENE, unless it meets a size threshold (for example 100- 150MW).

Similarly, the market failure seems to be limited to connecting remote areas to the shared network. While we acknowledge that remoteness is difficult to define, we consider there should be some principles to apply a 'connection size' threshold. In the absence of these thresholds, there is a danger that SENEs will be developed in areas where there is no market failure. This would lead to inefficient investment decisions in the energy market.

4.1.2 Develop economic test to ensure customer benefits are maximised from investment

A particular shortcoming of the Rule is that AEMO has no role in quantifying the customer benefits, costs, and risks from an extension of the shared network to remote generators. This has two disadvantages:

- AEMO may identify areas where the customer takes on the risks and costs of extensions, and does not receive a net benefit.
- There is no transparency for the customer that has taken on the risk.

As expressed in section 3, and explained further in section 4.2.3 our view is that the regulatory test is the proper instrument for economic assessment of extensions to the network. If the Rule is adopted instead, AEMO should be required to quantify the benefits, risks and costs to customers from investment in a particular zone. The economic assessment should also include consideration of deeper costs in the network, where the augmentation to connect the generator would be funded by the NSP's customers. This would obviously reduce the benefits to customers from the SENE development proceeding.

If the Rule was made, we consider that SENE zones should be limited to areas where there is a demonstrated high likelihood of providing customer benefits. We consider that a cost-benefit and 'cut-off' process would be preferable to the current drafting. This would better meet the AEMC's criteria of minimising risks to consumers (given that customers have no ability to mitigate the risk themselves), and efficient investment with respect to size, location and timing.

4.1.3 Threshold for development of SENE

Under the current Rules, the development of the SENE is triggered by the first applicant, but there is no requirement for the first applicant to be a significant contributor to the capacity of the SENE. The NSP's customers could bear the entire risk of the investment, as prospective generators do not face a financial penalty from locating elsewhere.

We consider that a minimum 25 per cent threshold takeup in the SENE area would provide an appropriate trigger point for the development of 'oversized' elements of the network. This would mitigate the risk to customers from severe asset stranding incidents.

4.2 Working within existing frameworks

EnergyAustralia is concerned that the proposed Rule is a marked departure from the current arrangements and results in administrative inefficiency. The proposed Rule bypasses the existing economic structures, and constructs a new, complex and duplicative regulatory structure.

In our view, the complexity arises from classifying the SENE as a negotiated asset, when the costs and benefits of the investment are shared between generator and customer. This results in a regime which is termed ‘negotiated’ but in substance is subject to ‘heavy handed’ regulatory scrutiny, including:

- regulatory oversight of investment decisions;
- regulatory determination of price to be charged; and
- regulatory determination of terms of connection.

While we acknowledge that such careful regulatory scrutiny may be appropriate for an asset funded by the customer, we consider it can be achieved through existing regulatory instruments set up for that purpose. Below, we demonstrate why the asset should be classified as providing prescribed/ standard control services. If this occurs, the Rule could use existing regulatory test and pricing processes which have been working effectively, rather than create duplicative and complicated new regulatory structures.

4.2.1 Classify asset as prescribed service

EnergyAustralia considers that the SENE is more analogous to an extension of the shared network, rather than a dedicated connection asset. For instance:

- customers and generators share the costs of the asset;
- the customer takes on the risk that the capacity of the asset may not be fully utilised,
- the purported benefits are shared between customer (lower electricity prices) and generator (lower cost of connecting).
- the terms, conditions and price are all subject to regulatory scrutiny.

Most importantly, unlike dedicated connections, there is no opportunity for negotiation on the terms and charges to apply for the use of the SENE. This was made clear in the AEMC’s final report which stated that:

> “The SENE connection offer will also provide for the minimum requirements of relevant services, terms and conditions. This arrangement recognises that some terms and conditions will be common to all connecting generators. For example, the service standard applied to the SENE cannot be differentiated amongst its users.”[9]

In this respect we note that in making a decision on a Rule change, AEMC must take into account the form of regulation factors and any other matter the AEMC considers relevant in making a Rule that specifies an electricity network service as a direct control network service or negotiated network service[10]. In 2006, the AEMC completed a review into transmission pricing and revenue Rules, which developed principles to guide the interpretation of the form of regulation factors. In its review, the AEMC noted that:

> “The Commission considers that the increased clarity provided in the Rules on the definition of services should ensure that services are allocated on an appropriate basis. The Rules are now drafted in such a manner to provide a clear delineation between services that are a

[9] AEMC, Final report: Review of energy market frameworks in light of climate change policies, 30 September 2009, p21.
[10] National Electricity Law, Schedule 1, section 88A

normal part of the standard service and those that result from a request for service or the negotiation of a service different from the normal standard service."

> "The Revenue Rule defines Prescribed Transmission Services as those services provided by shared network infrastructure, where there are strong economies of scale and network externality benefits, such that competition for these services is not economically feasible. Prescribed Transmission Services are also limited to services that have relatively uniform performance characteristics across the network. Negotiated Transmission Services are defined in the Revenue Rule as services dedicated to or requested by specific parties which are characterised by either a lack of homogeneity, limited market power, or material countervailing buyer power."[11]

In EnergyAustralia's view, because the assets are shared and are not subject to negotiation on service standard, the provision of services through a SENE is more akin to the provision of standard control services based on the principles established by the AEMC.

Further, the AEMC also needs to consider the important distinction between transmission and distribution revenue regulation in respect of the identification and classification of services. Transmission rules largely codify the identification and regulation of services, whereas the AER is responsible for the making of decision on how distribution services should be classified and regulated   Therefore, any deeming of a distribution service as negotiated may not sit comfortably within a framework where the AER needs to make decision on other services and how they should be regulated.

This view is consistent with policy statements made by the MCE, when it undertook consultation on the connection regime to apply to distributors:

> "The connection process models set out in this paper are not intended to limit or direct the AER in classification of services under Chapter 6 of the NER… The form of regulation to apply would be determined by the AER according to the principles currently set out in the NER"[12]

There are also pragmatic reasons why the SENE should be classified as a prescribed asset in the case of a distribution extension. There is a greater potential for load to connect the SENE in the future. Ringfencing the asset in this case increases the risk that the DNSP will need to construct separate network augmentation to meet load.

In summary, the key reasons in support of our position that the SENE should be prescribed asset include:

1. the nature of the service naturally lends itself to a regime that supports shared access;
2. the nature of the arrangements minimises the extent of commercial negotiation on service;
3. the nature of the service is more appropriately classified as a prescribed asset based on the AEMC's previous policy position on form of regulation factors;
4. the AER is responsible for making economic regulatory decisions on how distribution services are to be regulated; and
5. overcomes the likely issues of transferring the asset between services when additional load and generation sources come on.

[11] AEMC, Final determination, Economic Regulation of services Rule, November 2006, pxvi and p39
[12] MCE, Electricity Distribution network planning and connection, 15 December 2008, p12

4.2.3 The investment should be subject to the regulatory test.

We see benefit in a consistent set of arrangements for ensuring efficient investment in, and use of, electricity services. The AEMC, in its assessment framework has already raised the possibility of using existing regulatory arrangements (for example the RIT-T) as an alternative option to the proposed rule[13]. We support this approach.

If issues associated with service classification can be appropriately resolved, the RIT could be used to provide a regulatory test of the investment decision. This would be based on the least cost design to meet forecast generation.

In this way, the process would be analogous to circumstances where the DNSP prudently 'oversizes' an asset to meet the forecast demand requirements of load customers. This would occur if the DNSP considered that additional capacity would be required in the future to meet future load. Such an investment would be subject to the RIT to determine the overall least cost design. The load customer would only pay for its contribution to the over-sized asset.

Under our proposed approach, AEMO's forecast of the capacity and timing of generation developments in the cluster would in effect substitute for the DNSP's forecasts of customer load. The SENE asset would be developed using the RIT in the same least-cost manner as network developments designed to meet a specific security criterion.

4.2.4 Apply charging regime in Chapter 6

EnergyAustralia agrees with the principle that unless generators pay for their contribution to the cost of augmenting the network, there will be a risk of cross subsidy between generators and load customers in certain circumstances, leading to allocative inefficiencies in the market.

Generator charges can be best accommodated within the existing economic regulation framework, and network pricing for generators would follow the same cost-reflective principles as those which apply to load customers. Two potential options seem available:

1. Using the existing customer contributions framework. Under this approach the initial generator contributes up front to the construction of the extension, based on its proportion of capacity use of the line. The unpaid proportion is included in the NSP's RAB. When new generators come on board, they pay for their contribution of the extension, thus reducing the value of the RAB. The NSPs load customers pay for residual value through regulated network charges.

2. Similar to Cost Reflective Network Pricing customers (major load), connected generators pay an annual charge based on their use of the SENE. This could be accommodated through a capacity tariff on generators connected to the SENE ($/ MVA) each year, in accordance with installed capacity. This is consistent the SENE charges proposed under the draft rule.

4.2.5 Worked example

EnergyAustralia is developing an example to demonstrate the issues surrounding the SENE framework. The example will compare the framework in the proposed Rule, with the changes suggested by EnergyAustralia. We hope to provide this at a later date.

[13] AEMC, Consultation paper: Scale Efficient Network Extensions, April 2010,, pp14-15

Appendices

- Appendix A - Responses to questions posed by AEMC's consultation paper
- Appendix B – Further comments on SENE Framework

Appendix A – Response to AEMC questions in consultation paper

AEMC Question	EnergyAustralia response
Question 1: Will the proposed framework improve efficiency in the construction of connection assets?	
1.1 Under the existing Rules, are inefficiencies likely to arise as a result of the significant new investment in renewable generation?	Our detailed comments are set out in Section 2 of our submission. EnergyAustralia considers that the current 'market' based regime provides efficient location signals for prospective generators. We agree however with the AEMC that in very special circumstances, the current arrangements may result in high entry costs for individual prospective generators wishing to locate in remote areas, and/or create duplicative network infrastructure if multiple generators connect in a similar area. This is because each proponent pays for a dedicated connection to the network, where a more optimal investment may have been a higher capacity 'shared' asset that would reduce average costs for each connecting or prospective generator. The cornerstone assumption of the proposed Rule is that the expanded RET scheme will have the effect of driving significant new renewable generation investment, creating the potential for the inefficient duplication of connection assets. That is, there will be an increase in the number of instances where this potential market failure may arise. We have seen little evidence or anecdotal information to suggest that the current Rules have discouraged efficient renewable generation investment, or have led to inefficient development of the shared network. EnergyAustralia accepts that, to the extent that this cornerstone assumption holds, this Rule change is intended to reflect emerging RET and CPRS incentives which drive investment in new forms of renewable generation. Nevertheless, our view is that the potential market failure would only occur under a very limited scenario: (i) The remote area is comprised of several 'small' size generation proponents. The costs of dedicated connection are high for a single proponent, resulting in a disincentive to invest. (ii) The connection costs for each generator will be reduced by building a larger connection asset to service all the generators. That is, there are economies of scale from a single large connection asset that would make it economic for the individual generators to enter the market.

AEMC Question	EnergyAustralia response
	(iii) Generators connect to the shared network over a period of time; (iv) Most importantly, there is likely to be an overall benefit to the market that exceeds the cost of investment and therefore the investment is in the long term interest of customers.
1.2 If so, do the costs associated with these inefficiencies justify amendments to the Rules?	Please see our comments in section 4 of our submission. We note that the AEMC's discussion paper is focused on addressing the market failure (described in question 1.1) by building a single extension of the shared network to meet prospective generation in areas remote from the shared network. EnergyAustralia considers that any amendment to the Rules would need to balance: ▪ The potential cost inefficiencies arising from duplicated investment under the current regime because different proponents choose to invest in isolation, where a more optimal investment may have been a higher capacity shared network investment; and ▪ The potential cost inefficiencies arising from investment in larger scale networks that are simply never utilised, as may occur from the proposed amendment to the Rule. We consider that there is a real risk that the proposed Rule will result in cost inefficiencies with respect to asset stranding. There are inadequate safeguards to limit the number of developments that may proceed, and there is significant risk of generation forecast error, particularly given that prospective generators do not take on any risk from not locating in the area. We consider that the existing regulatory test is a more appropriate instrument for assessing whether there would be a market benefit from extending the network, and for quantifying the 'optimal' size of the asset. We believe that at a certain point, there may be inefficiencies (diseconomies of scale) from building additional capacity to meet prospective generation, and this can be quantified through the regulatory test. In contrast, the proposed Rule will does not utilise an economic 'cost-benefit' framework to determine the market benefit of the oversized asset , or determine the optimal cost-efficient development.

AEMC Question	EnergyAustralia response
1.3 Do you agree that the proposed Rule change will lessen the risk of the inefficient duplication of assets?	As described in our response to question 1.1, cost inefficiency from duplicative connection assets would only arise in very limited circumstances. We consider that in these limited circumstances, there is merit in the concept of building a single extension of the network that is 'oversized' to connect future generation. However, this would give rise to the risks of asset stranding. This is further explored in our response to question 2.2 below.
Question 2. Will SENEs be efficiently sized and located so as to minimise risk to consumers?	
2.1 Are NSPs likely to construct SENEs that are efficiently sized and located? Is there a significant risk of over-investment?	<u>Incentives for NSPs to oversize assets</u> Australian NSPs have been constructing and augmenting networks for almost a century, both to connect generators to the shared infrastructure and to supply load customers. EnergyAustralia argues that with very rare exceptions, this has been done efficiently and with appropriately sized equipment, given the technology and expectations of the day. EnergyAustralia does not consider that NSPs have a financial incentive to oversize networks in the current regulatory framework. If such a financial incentive existed, the NSP would build the asset to a sufficient scale in advance of future connection commitments and no changes to the Rules would be required. Both the MCE and AEMC are trying to overcome a perceived problem that NSPs do not have the commercial incentive to so this. In creating a regime which effectively requires customers to underwrite the risk of under-utilised capacity, the proposed Rule does create additional risks for over investment and stranding. <u>Generation forecasts</u> We consider that there is significant risk of over-investment (asset stranding) if generation forecasts are inaccurate. This is an inherent risk with the SENE framework, where prospective generators do not face any penalty from walking away from the investment. For this reason, it is important to mitigate the risk of forecasting error to the extent possible. One means of (partially) mitigating the risk is ensure that AEMO is the responsible party for forecasting the number of generation proponents, size, and location. Currently, the proposed Rule requires NSPs to be the responsible party for forecasting generation as part of the SENE report/ connection offer process. AEMO has a role in verifying the forecast generation.

AEMC Question	EnergyAustralia response
	NSPs do not have the expertise or market knowledge to forecast generation. We consider that generation forecasts would be consistent with AEMO's national transmission planning role. AEMO has a statutory requirement to establish and maintain a database of information relevant to planning the development of the national transmission grid (schedule 1, section 50 of the NEL). The requirement to maintain such a database means that it would be closer to market information on potential generation location and probability of connection. A link to AEMO's database is provided below: http://www.aemo.com.au/data/gendata_prop.shtml
2.2 Are the risks associated with asset stranding outweighed by the potential efficiency gains from efficiently sized network extensions?	We have made detailed comments on this issue in sections 3 and 4 of our submission. Under the proposed Rule, the risks of asset stranding will far outweigh the potential scale efficiencies of building a larger asset. We consider that the proposed Rule will <u>not</u> result in efficient investment with respect to size, location and timing, compared to the status quo. Our reasons for coming to this view are that the proposed Rule has: ▪ No thresholds on the size of generation area (total MW) and remoteness of a SENE area, meaning that the arrangements will apply to areas where there is no market failure with the existing regimes. ▪ No requirement for AEMO to undertake robust analysis of customer benefits, risks and costs before an area is identified as a SENE. ▪ No requirement for a minimum capacity commitment from generators before the asset is built.
2.3 Does the Rule change, as proposed, provide sufficient checks and balances to minimise risks to consumers?	We have provided detailed comments on this issue in Section 4.1 of our submission We consider there are insufficient checks and balances to minimise risk to consumers. We note that under the existing arrangements, generators wholly bear the costs and risks of inefficient network development or stranding of connection assets. This is because the existing regime requires the generator to pay the costs of the connection.

AEMC Question	EnergyAustralia response
	In contrast, the proposed Rule transfers the risk of asset stranding from generators to customers. For this reason, we consider that the framework needs to provide sufficient certainty and transparency that customer benefits (through lower electricity prices) will <u>outweigh</u>: ▪ The costs from funding the residual costs of the asset until new generators locate); and ▪ The potential risks from paying for a perpetually under-utilised asset (asset stranding). The proposed Rule does not require AEMO to undertake robust such economic assessment before identifying SENE areas. This contrasts with alternatives such as the market benefit limb of the regulatory test, which enable an assessment of benefits and also quantify the optimal capacity of the extension. Section 4.1 of our proposal has outlined three mechanisms that would minimise the risk to consumers from paying for over-sized assets that remain under-utilised over the economic life of the investment. In brief this would entail: ▪ Establishing a minimum size (MW of generation in the area) and remoteness threshold. This would ensure that the SENE only applies to areas where the AEMC has identified a potential market failure. ▪ Requiring AEMO to undertake an economic assessment of customer benefits, costs and risks of extending the network to meet potential SENE areas. ▪ Establishing a minimum capacity threshold, where 25 per cent of capacity of the SENE must be reached to trigger its development. This would reduce the amplitude of risk to consumers from asset stranding.
Question 3 Are alternative risk mitigation measures more appropriate?	
3.1 Who benefits from SENEs and who is best placed to manage the risk of asset stranding?	<u>Beneficiaries</u> The intended beneficiaries of the SENE are: 1. Generators that connect to the SENE, who benefit from lower connection costs. This would enable the generator to have a more competitive cost structures in the market. This would only occur:

AEMC Question	EnergyAustralia response
	- if there are economies of scale from the SENE, such that costs of connection are lower than what would have occurred in the absence of the regime. - if the generator considers the lower connection costs are more valuable than the opportunity to negotiate a specific service level to meet its needs. 2. The customer base, who benefits from lower electricity prices than what would have occurred in the absence of the framework. This would only occur if: a. the framework results in the least cost renewable generators (including the connection costs) entering the market (ie that market signals are not distorted); and b. the costs and risks of the SENE do not outweigh the benefits to customers. The NSP a beneficiary of the scheme, only to the extent that the framework allows it to recover at least its efficient costs. However, the NSP may suffer a financial penalty if the revenue recovery arrangements are inappropriate to recover its efficient costs; or if it bears financial or investment risk that it is not compensated for. <u>Risk management</u> Prospective generators are in the best place to manage the risk of asset stranding. The utilisation of the SENE is heavily dependent on future generators locating as indicated at the time of the SENE. However, prospective generators do not receive a financial penalty if they walk away from the investment. The regime transfers this risk to customers, who are not in a position to manage the risk. This exposes the SENE to substantial risks of asset stranding. We consider that market led developments would be an alternative means of enabling scale efficient assets to be built, and that this would appropriately ensure that the generator takes on the risk of asset stranding. The AEMC should explore options that increase the opportunities for market led development within the existing framework. If the SENE model is adopted, we consider AEMO should apply a high threshold before it identifies SENE zones, such that zones with a very high likelihood of customer benefits and relatively low risk are selected. This would be appropriate given that customers are not in a position to mitigate the risk.

AEMC Question	EnergyAustralia response
3.2 Should the framework include a more explicit economic efficiency test? If so, what form might it take?	Yes. A particular shortcoming of the Rule is that AEMO has no role in quantifying the customer benefits, costs, and risks from an extension of the shared network to remote generators. This has two disadvantages: ▪ AEMO may identify areas where the customer takes on the risks and costs of extensions, and does not receive a net benefit. ▪ There is no transparency for the customer that has taken on the risk. Our view is that the regulatory test is the proper instrument for economic assessment of extensions to the network. If the proposed Rule is adopted instead, AEMO should be required to quantify the benefits, risks and costs to customers from investment in a particular zone. Only zones which provide a very reasonable likelihood of providing customer benefits should be identified as SENE zones. We consider that a cost-benefit and ‘cut-off’ process would be preferable to the current drafting. This would better meet the AEMC’s criteria of minimising risks to consumers, and efficient investment with respect to size, location and timing.
3.3 Would a market-based approach to the sizing and location of SENEs be more appropriate? If so, what form might it take?	The AEMC should consider whether market led developments could be used to address the potential market failure. There is nothing in the Rules which preclude generators from building a more scale efficient connection asset, which services their joint needs at a lower connection cost. This would also mean that the risk of asset stranding would lie with generators, who are in the best position to mitigate the risk. The AEMC could consider changes to the Rules to encourage market led developments. For instance: ▪ AEMO could undertake economic assessment to identifying generation areas where there were likely to be benefits to the customer from encouraging scale-efficient developments to the area. ▪ Open seasons for identified SENE areas, which provide opportunities for prospective generators to understand whether there would be any scale efficiencies from joint connections. ▪ Transparency of information in the public domain.

AEMC Question	EnergyAustralia response
	EnergyAustralia does not support the other alternative of generators purchasing 'options' for capacity on the SENE. We consider this would be an overly complex solution, and would not reduce the risk borne by customers from asset stranding.
Question 4 Will generators be able to connect to the SENEs in the most efficient configuration?	
4.1 Should the draft Rule allow for configurations other than a "hub and spoke"?	EnergyAustralia notes that the design of a SENE will be a complex matter, and this needs to be recognised in the timing requirements for NSPs to design the least cost configuration. In our view, the configuration should not be limited to hub and spoke, although this could be provided as the default design. The least cost configuration will vary with the characteristics of each SENE, particularly location of the SENE and the network configuration at different parts of the shared network. It is important to recognise that the least cost design of the SENE is heavily dependent on expected location of generators, and the size of generation. For instance, in certain cases it may be more cost effective to design a SENE that has a number of hubs. There may be occasions where the least cost design results in a prospective generator paying higher connection costs than would have been the case under the existing regime. This may lead to under-utilisation of the SENE if the generator opts to connect under the existing regime, or alternatively disincentives to invest if it is compelled to connect to the SENE We consider that these design complications raise further questions about whether the Rule will result in efficient investment or workable solutions.
4.2 If so, how could the charging arrangements best promote efficient locational decisions by generators and by NSPs in locating SENEs?	We see no reason to move away from the principles of the current connection regime, where prospective generators pay for the costs of the dedicated asset. This would provide effective cost signals to locate closer to the SENE. In addition, the proponent would pay a capacity charge (installed) for its share of the capacity of the SENE. We consider these arrangements may be complex if the optimal design of the SENE is to construct a hub halfway in the SENE. This would mean that the generator is only utilising a portion of the SENE.

AEMC Question	EnergyAustralia response
4.3 Should the costs of the SENE be spread across all generators irrespective of where they locate?	As stated above, the generator should pay for its dedicated connection asset to the SENE, as per the existing framework. This provides efficient cost signals.
Question 5 Will capacity be efficiently allocated to connecting generators?	
5.1 Will the framework promote the efficient allocation of capacity on the SENE?	The proposed compensation regime will be unduly complex and burdensome to administer for assets which are shared by multiple parties. It would require NSPs that have no current market involvement to establish and administer a 'capacity rights' settlements system that would operate in parallel with the existing market settlements system for individual SENE assets. Furthermore, this proposal is out of step with the current 'open access' regime, which does not provide capacity rights for existing generators which use shared network infrastructure and does not expose NSPs to market risk.
5.2 More generally, will the SENEs framework result in efficient outcomes in the wholesale market?	No comment.
5.3 Could an interruptible generator connect to the SENE? If so, what arrangements would need to be in place to ensure the full cost of the SENE can be recovered?	We consider that a generator should pay for its capacity use of the SENE based on its installed capacity. This would be consistent with the existing regime where an interruptible generator would pay for a dedicated connection that would presumably withstand the installed capacity of the asset.
Question 6 How could loops to the shared network and load connections to SENEs best be accommodated?	
6.1 Should SENEs be "ring fenced" from the shared network to enable the framework to operate? If so, should a time limit apply to such ring fencing arrangements?	We do not consider the SENE should be ring-fenced from the shared network. Ostensibly the asset is a 'shared' extension of the network, and therefore should be defined as a prescribed/ standard control asset. Please refer to section 4.2.1 of our submission, which sets out our reasons in detail. We note that the SENE is more analogous to an extension of the shared network, than a dedicated connection asset:

AEMC Question	EnergyAustralia response
	▪ customers and generators share the costs of the asset; ▪ the customer takes on the risk that the capacity of the asset may not be fully utilised, ▪ the purported benefits are shared between customer (lower electricity prices) and generator (lower cost of connecting); and ▪ the terms, conditions and price are all subject to regulatory scrutiny. We consider that the AEMC has appropriately identified that load may connect to the SENE. This demonstrates the impracticality of ring-fencing the asset through the 'negotiated services' form of regulation. We note that the primary function of distribution networks is to connect load, and that under these conditions it is likely that there may be occasions where it is more cost effective to connect the load to the SENE. The ring fencing of the SENE may result in perverse outcomes for the distributor to bypass the SENE and build duplicative and inefficient network to connect load.
6.2 Alternatively, how could SENEs best be incorporated into the shared network? In particular, how could the challenges arising from capacity rights to the former SENE best be addressed?	As noted above, and explained in section 4.2.1 of our submission, the asset should form part of the shared network and be classified as providing prescribed/ standard control services. Distributors would then be able to apply cost reflective pricing to generators for the capacity use of the asset through network regulated charges (capacity charge based on installed capacity). As explained in our response to question 5.1 we consider that a capacity rights regime is out of step with the current 'open access' regime, which does not provide capacity rights for existing generators which use shared network infrastructure and does not expose NSPs to market risk. We therefore do not see this as an issue.

Appendix B – Further comments on SENE framework

EnergyAustralia has not had an opportunity to undertake a detailed review of the proposed Rules. Below we have made a number of comments on the framework underlying the proposed SENE framework.

Proposed policy	EnergyAustralia comments	EA position
Planning processes		
NSP must undertake forecast generation profile as part of the connection offer/ SENE planning report.	DNSPs do not have the expertise to forecast generation profile. NSPs responsibilities should lie with it core competency of designing the least cost option to meet generation profile. We consider this role is closely tied to AEMO's planning function. For this reason, we consider that AEMO should have responsibility for advising the NSP on the generation forecast profile, and the NSP would then develop least cost design options to meet that generation profile. This would also avoid a duplicative process of AEMO verifying the forecast, when it would have to undertake the assessment in any case. This additional time could be allocated to the DNSP to ensure the least cost design is developed.	AEMO should be required to undertake a forecast of generation size, location of proponents and timing of connection.
DNSP must plan credible options for SENE and publish by 30 June after publication of the NTNDP.	The date of publication of the NTNDP may not permit sufficient time for options of a SENE to be prepared.	DNSP should be provided with at least six months to undertake initial design options
DNSP must design options within 30 business days of a connection	We note that design of a SENE is a complex matter, given the number of configurations that may provide the least cost design.	DNSP provided with at least 60 days to design final option. This could be achieved by having

Proposed policy	EnergyAustralia comments	EA position
application	We consider this requirement will lead to poor design options, which do not provide optimal scale efficiencies. Alternatively, detailed design work would need to commence well before the 30 day timeframe, however the NSP is not assured of recovering these costs unless the connecting applies for connection.	AEMO undertake generation forecasts in a parallel and consultative process, rather than verifying the forecasts.
Connection processes		
No clear bounds for application of the SENE connection regime	It is unclear whether an initial (or future) connection applicant in the SENE area would be obliged to follow the SENE connection processes, or whether a prospective generator has the opportunity to connect under the existing regime. There may be some instances (particularly where the extension is a short distance from the shared network) where it may be less costly for a connection applicant to bypass the SENE, and instead build a dedicated connection. Further, some connection applicants may seek a higher level of standard than the SENE, and are willingly to enter into negotiation with a DNSP on the terms and conditions for a dedicated connection asset.	AEMC should clarify whether a generator located in a SENE is required to use the connection process set out under proposed clause 5.3.1(e)
Connection offer (including SENE charge) is required to be made within 30 days, before environmental and planning approval can be obtained	EnergyAustralia notes that it can only seek environmental and planning approval after the design is settled. Under NSW legislation, NSPs must provide Councils with a 40 day period to examine the design. There is also a 21 day notification period under the EPA Act although this can be run concurrently with environmental approval. Importantly, the design of the capital project may be altered due to environmental and planning objections, particularly if the project threatens species or raises other environmental issues.	The SENE charge should be established when the connection agreement is finalised.

Proposed policy	EnergyAustralia comments	EA position
	Existing clause 5.3.7(d) (in respect of finalising the connection agreement), provides that the provision of connection may be made subject to gaining environmental and planning approval. However, under the proposed Rule, the annual SENE charge (based on capital costs of design option) is 'locked' in once there is an offer to connect. This means any change to the capital costs to address environmental planning obligations cannot be reflected in the SENE charge.	
Pricing provisions		
NSP to administer a scheme that compensates constrained generators.	The proposed compensation regime will be unduly complex and burdensome to administer for assets which are shared by multiple parties. It would require NSPs that have no current market involvement to establish and administer a 'capacity rights' settlements system that would operate in parallel with the existing market settlements system for individual SENE assets. Furthermore, this proposal is out of step with the current 'open access' regime, which does not provide capacity rights for existing generators which use shared network infrastructure and does not expose NSPs to market risk. EnergyAustralia advocates an arrangement for generators that mirrors that for loads. Generators would to pay a cost reflective capacity charge based on their installed capacity and its implied share of specific network assets installed for generators.	Remove requirement for DNSP to administer compensation regime. Institute capacity charges based on installed capacity.
The Rule requires SENE charges to be set at a level that recovers the aggregate costs over the life	We consider that the asset should be part of the building block costs for standard control services, and that charges should be recovered from generators on a cost reflective basis, similar to the arrangements that apply to load customers. This would mean that	Classify the asset as a standard control service. Use the existing pricing structure to cost reflectively charge generators for the costs associated with the asset through

Proposed policy	EnergyAustralia comments	EA position
of the asset.	the investment would be subject to the incentives that apply to prescribed services. In any case, the Rules should explicitly require the NSP to recover its efficient costs in accordance with the principles established for prescribed services. The Rule could refer to the building block costs identified in Chapter 6 including a return on and of for the asset, operating costs, tax, equity and debt raising costs. The calculation of annual revenue requirement would also need to consider methods for indexation.	regulated network charges. In the alternative, ensure that the revenue recovery arrangements specifically provide for the recovery of costs that would normally be included in a building block proposal.
SENE charges are reviewed every 5 years.	It is unclear whether the 5 yearly review of SENE charges will include an ex-post review of costs already incurred when establishing the SENE, or whether this would follow the principles of financial capital maintenance (that is, recovery of a locked in RAB value).	Include costs in the building block framework.
A nominated coordinating NSP is responsible for allocating the charges to customers (where there is a revenue shortfall from generator charges to recover costs of the SENE)	The concept of a 'coordinating NSP' is complex and does not lead to administrative efficiency. This can be seen in Figure 1 on the next page. EnergyAustralia notes that a far simpler process is for the cost to be recovered through the distribution customer base, through annual regulated charges. The alternative approach is set out in Figure 1.	Include capital costs in the RAB of the NSP, and recover costs through the customer base of the NSP through the building block framework.

Figure 1: Revenue recovery arrangements for customers