



**29 September 2010**

The Chairman  
Australian Energy Market Commission  
Level 16, 1 Margaret Street  
SYDNEY NSW 2000

By email to [submissions@aemc.gov.au](mailto:submissions@aemc.gov.au)

Dear Chairman,

### **Transmission Frameworks Review - Issues Paper**

AGL Energy welcomes the opportunity to comment on the Transmission Frameworks Review - Issues Paper. As Australia's leading investor in renewable energy in Australia, AGL is well placed to comment on transmission policy. AGL operates across the supply chain and has investments in coal-fired, gas-fired, renewable and embedded electricity generation and electricity retailing. AGL is Australia's largest private owner, operator and developer of renewable generation in Australia and has invested well over \$2 billion in renewable energy and has much more in its portfolio of development opportunities. Within the next few years, AGL will own or operate approximately 1,420 MW of renewable energy generation assets.

AGL supports the Australian Energy Market Commission's (AEMC) objective of seeking to ensure that the transmission frameworks and the regulatory market arrangements that govern investment in, and the funding, pricing and operation of transmission networks will be responsive to future changes in patterns of generation and network flow that are expected to drive the need for significant levels of new transmission investment.

AGL supports the objective for transmission frameworks that "in an efficient market the delivered cost of energy to consumers is minimised";

A major impediment to efficient market outcomes is the inefficient allocation of the risk of transmission scarcity to competitive market participants.

The Commission has described the NEM as an "open access" regime where a generator's "right" to use the transmission system or ability to access the wholesale market is reduced as a result of;

1. a transmission outage or network congestion due to a NSP's operational or maintenance activities, and

2. the failure of the transmission framework, planning and access arrangements to provide and maintain network augmentations to support the desired level of access<sup>1</sup>.

The transmission frameworks have transferred these risks to generators however have not provided generators with the means of hedging against these risks. The inappropriate allocation of these risks creates a major impediment to efficient outcomes in decentralised decision making.

### **An Alternative Interpretation of the Access Provisions**

AGL does not agree with the above description of the access provisions, the fundamental issue is the understanding that "generator funded network augmentations do not bestow any physical or financial rights to the network." In our view this is inconsistent with the access provisions. Our reasons for this view are explained briefly below and in the answer to Question 8.

The current provisions for the connection of generators and large end users mirror each other and generally provide for;

- a right of access under commercial terms,
- the requirement to document and maintain an agreed transfer capability, and
- for the NSP to assess the cost of all necessary augmentations to ensure that the levels of service and supply for existing customers are maintained.

These provisions when applied for customers including large end users provide access to the transmission system; customers can pay for access, have the network augmented and have that access maintained in the face of other connections to the network.

However it is generally claimed that generators have "non firm" access and therefore the provisions are not applicable, despite the obvious inefficiencies of this position as identified below.

In AGLs' view the major issue to be addressed in the transmission framework review are the access provisions for generators.

Addressing the above issues should be through the implementation of changes to the transmission frameworks that provide competitive market based solutions that are hedgeable and provide certainty to participants.

This should include implementation of an access regime for generators which protects incumbents access by providing an access right for a fixed cost as envisaged by the connection provisions in the Rules which, will:

- eliminate a the current barrier to entry, i.e. revenue uncertainty due uncertain transmission access,
- assist in congestion management by addressing supply induced congestion at its source,
- provide a transmission cost to assist in minimising the delivered cost of energy to consumers.

AGL view is that, given the dynamic nature of the energy market, the transmission planning framework should support competitive market solutions to the issues identified in this review wherever practical, to encourage efficient outcomes and avoid the distortionary impacts of the regulated approach with the potential for asset standing.

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<sup>1</sup> Ref Attachment 1

Should you have any questions in relation to this submission, please contact Roger Oakley, Manager Wholesale Markets Regulation, at roakley@agl.com.au or on (03) 8633 7665.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'AC', is positioned above the name and title of the sender.

**Alex Cruickshank**  
Head of Energy Regulation

## **AGL Submission to the Transmission Frameworks Review**

### **AEMC Objective for Transmission Frameworks**

The Commission proposes to determine an appropriate role for transmission consistent with the NEO and the objective for transmission frameworks that;

*“In an efficient market, total system costs across the whole supply chain are minimised. This does not mean that transmission investment should be minimised in isolation, but rather that investment in transmission and in other parts of the supply chain, in particular generation, should be optimised in combination.*

*The role of transmission therefore needs to be specified in a way that facilitates this minimisation of total system costs. Detailed arrangements for transmission investment, funding, pricing and operation can then be informed by this settled role.”*

AGL takes this to mean that the objective is that the delivered cost of energy to consumers be minimised.

AGL supports the objective, i.e. transmission policy and cost allocation should be set in a way which ensures that overall economic efficiency (including allocative, dynamic and productive efficiency) of transmission and generation investment is maximised while security of electricity supply is maintained.

The Commissions has provided a description of the NEM access arrangements which can be interpreted<sup>2</sup> to read;

The NEM is an “open access” regime where a generator’s “right” to use the transmission system or ability to access the wholesale market is reduced as a result of;

1. a transmission outage or network congestion due to a NSP’s operational or maintenance activities, and
2. the failure of the transmission framework, planning and access arrangements to provide and maintain network augmentations to support the desired level of access.

We prefer this interpretation because it provides a useful categorisation for identifying and analysing the access issues.

All participants’ are subject to reductions in transmission access due to point 1 above, however only generators are said to be subject to a reduction in transmission access due to the failure of the transmission planning framework to support or provide their desired level of access.

The uncertainty of access that generators face leads to inefficient outcomes. These are discussed below;

### **The Transmission Access Arrangements Create a Barrier to Entry**

Transmission provides a vital service in the competitive market connecting generators to consumers, providing electricity to consumers and revenue to generators. Transmission access (capacity and reliability) underpin the financial viability and bankability of existing and new projects.

Currently generators can fund an increase in network capacity to match their supply side investment however funding network expansion does not stabilise uncertain revenue streams as generators do not receive priority access over the transmission assets they have funded.

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<sup>2</sup> Attachment 1

Revenue uncertainty increases project risk and cost and hence is a barrier to market entry.

Providing a right of access to each generator funded network augmentation which bestows a physical or financial right at the level chosen for a specified period and paid for by the generator provides a hedge against future revenue reductions by ensuring that the network capacity is expanded and access available to existing generators is maintained.

Provision of an access right for generator funded network extensions will reduce project risk and funding costs and provide investment certainty that will contribute to minimising the delivered cost of energy.

Access rights should be tradeable to inform efficient retirement decisions.

### **The Transmission Access Arrangements Distort Minimising Total System Costs for Decentralised Decisions**

To ensure efficient generator investment decisions the decentralised decision maker must be in possession of all the relevant information with respect to each investment decision across the supply chain, from fuel source to the RRN.

Efficient decentralised investment decisions require generation investors to consider the capital and operating costs of the supply chain from fuel source to the Regional Reference Node (RRN), which include;

- Fuel source, fuel transport planning and infrastructure, capital and operating costs
- Generator capital and operating costs and associated site costs,
- Environmental costs,
- Access to a deep and liquid financial market at the RRN, and
- Transmission costs (fixed and variable) to provide financial access to the RRN

These investment decisions are made in a competitive environment where agreements can be reached with suppliers which provide certainty with respect to all the above costs except for electricity transmission.

The failure of the transmission framework, planning and access arrangements to provide location specific transmission costs with associated access rights means that investors do not have sufficient information or certainty regarding transmission access and cost to efficiently minimise total system costs across the supply chain.

### **The Transmission Access Provisions for Generators are a Primary Source of Congestion**

Transmission scarcity is the prime cause of congestion. Congestion is best managed by ensuring that an efficient level of transmission investment occurs commensurate with increases in generation or load.

Load is provided with energy at a defined level of service capacity and reliability and is not impacted by congestion, except as previously noted.

Providing new generation participants with a choice of the level of transmission access they require, at a stable cost, will allow generation investors to choose the level of access that minimises total delivered costs across the supply chain for their project, i.e. investors can choose the level of congestion they wish to face. This is the first level of congestion management.

The second level of congestion management is through further refinement of market based incentives for TNSPs to maximise the network capacity and availability at least cost.

The third level of congestion management is by incentivising TNSPs, to minimise the impact of their operational and maintenance activities on the market, such as the AER transmission performance incentives.

Because the above measures are unlikely to eliminate all congestion (congestion would be minimised at an efficient level) residual congestion should be allocated between participants on a rational basis through a capacity allocation or congestion allocation process, to minimise inefficient scheduling outcomes and provide certainty as to access sharing in times of constraint.

### **An Alternative Interpretation of the Access Provisions**

The NEM access provisions will reduce barriers to entry for generators and support the objective of minimising total system costs across the supply chain, if they are applied to generators in the same manner as loads.

The current provisions for the connection of generators and large end users mirror each other and generally provide for;

- a right of access under commercial terms,
- the requirement to document and maintain an agreed transfer capability, and
- for the NSP to assess the cost of all necessary augmentations to ensure that the levels of service and supply for existing customers are maintained.

These provisions when applied for customers including large end users provide access to the transmission system; customers can pay for access, have the network augmented and have that access maintained in the face of other connections to the network.

The NEM access provisions for generators mirror those for customers<sup>3</sup> however the outcomes are entirely different. Generators do not currently receive access rights despite that being the clear intent of the ACCC NEM access Code Decision<sup>4</sup>.

This issue is discussed in our response to Question 8 & Attachments 2 & 3.

### **AGL proposes the following Principles for Reform of the Access Provisions**

As a basis for assessing the current and any revisions to the transmission frameworks against the AEMC objective for transmission, AGL has prepared the following investment principles. They are based on the existing cost allocation principles in the Rules and are considered to be consistent with the objectives of the National Electricity Rules and a competitive market.

Any revisions to the framework and generator access should be consistent with the following principles.

1. Transmission policy should deliver efficient transmission prices which incentivise generation proponents, all other things being equal, to locate their investments as close to load centres as possible.
2. Access charges for generators should be specifically oriented to the type and timing of the decisions they are making, specifically to ensure that when making:
  - long-term locational investment decisions; generators face the location specific short-run signals provided by transmission congestion and losses or location specific long-run cost of any transmission investment required which reflects the cost of removing that congestion; and
  - short-term production and consumption decisions; generators face the location specific short-run signals provided by transmission congestion and losses.

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<sup>3</sup> International Power Truenergy AGL and Loy Yang submission to the AEMC Market Framework Review dated 23 February 2009 in particular Appendix 1 page 35.

<sup>4</sup> *ibid* - Appendix 2 page 39.

3. Extensions of transmission networks that are directly attributable to a particular network user should be financed solely by the benefiting.
4. To encourage negotiated services the entities financing transmission network infrastructure should receive tradeable financial access rights to the RRN, (or dispatch priority over those that do not fund transmission expansion and cause congestion). This may include rights in parts the shared network, that have been financed both as prescribed and negotiated services.
5. The risks and returns of developing infrastructure should be appropriated on the same entities.
6. Electricity customers should not be required to underwrite the development of transmission services for generators as customers do not receive any share of the profits, should the investments generate economic returns.
7. Investment decision should to the maximum extent practicable be made in a competitive environment.
8. When making generation or load investment decisions the viability of transmission investment should be determined by the particular network user who pays for the network extension.

# Responses to the Transmission Frameworks Review Issues Paper Questions

## 1. Determining the appropriate role of transmission (Chapter 3)

### Question 1 Application of the NEO

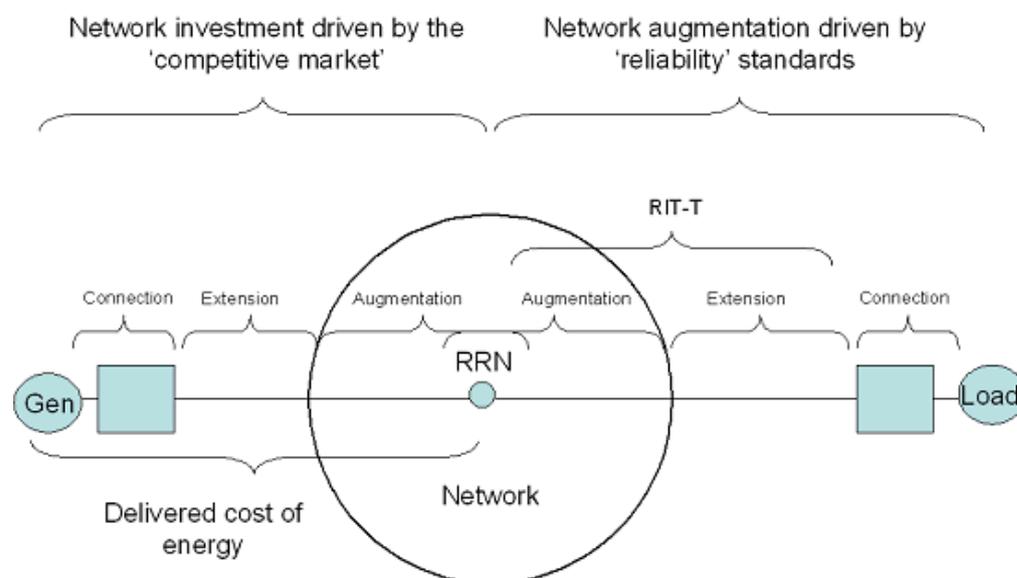
*Do frameworks governing electricity transmission allow for the minimisation of total system costs and for overall efficient outcomes in accordance with the NEO? What evidence, if any, is there to demonstrate that this is or is not the case?*

The frameworks governing electricity transmission do not allow minimisation of total system costs and overall efficient outcomes where the "open access" regime is of the nature described by the Commission. A framework "where generator funded network augmentations do not bestow any physical or financial rights to the network", i.e. access uncertainty, leads to inefficient outcomes as described below.

Further AGL does not agree that the NEM was designed to incorporate access uncertainty for generators. The reason for this is that it leads to inefficient outcomes, is inconsistent with the Rules, and the ACCC access determination. It is also inconsistent with all the other components in the supply chain from fuel source to customer where investors can contract with certainty. This issue discussed in our response to Question 8.

### Minimisation of Total System Costs across the Supply Chain

The decisions about minimising supply costs across the whole supply chain are no longer totally centrally planned.

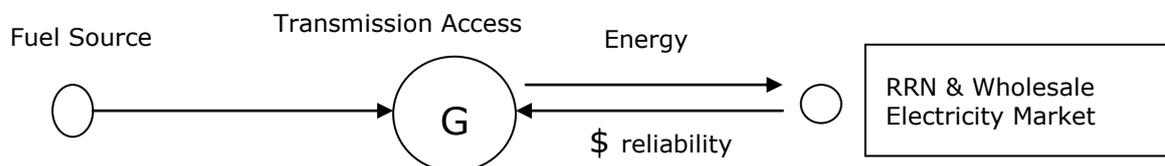


The supply chain can be represented by two components as shown in the above diagram;

- Network investments driven by customer reliability standards and obligations, i.e. network augmentations between the Regional Reference Node (RRN) and the customer, which except in the case of large loads, are centrally planned, and
- Network investment driven by the competitive market, i.e. network augmentations between the fuel source and the Regional Reference Node (RRN). These decisions are made on a decentralised basis by investors in the competitive energy market, on a project by project basis.

In answering this question we are concerned primarily with the role of the network service providers in providing network augmentations between the fuel source and the Regional Reference Node (RRN) to support individual new generation investment decisions.

To ensure efficient investment decisions the decision maker must be in possession of all the relevant information with respect to each investment decision across the supply chain.



Investment decisions are driven by investor revenue forecasts based on the pool price and wholesale market prices and government policies.

Efficient decentralised investment requires generation investors to consider the capital and operating costs of the supply chain from fuel source to the Regional Reference Node (RRN), which include;

- Fuel source, fuel transport planning and infrastructure, capital and operating costs
- Generator capital and operating costs and associated site costs,
- Environmental costs,
- Access to a deep and liquid financial market at the RRN, and
- Transmission costs (fixed and variable) to provide financial access to the RRN

These investment decisions are made in a competitive environment, subject to broader financial market constraints, but where agreements can be reached with suppliers which at the investors' discretion can provide a level certainty with respect to a price and agreed level of service and tenor for all the supply chain costs except for electricity transmission.

The failure of the transmission framework, planning and access arrangements to provide location specific transmission costs with associated access rights means that investors do not have sufficient information or certainty regarding transmission access and therefore are unlikely to be able to minimise, for their investment, the delivered cost of energy to consumers.

The Commission has effectively described the NEM As an "open access" regime<sup>5</sup> where a generator's "right" to use the transmission system or ability to access the wholesale market is reduced as a result of;

1. a transmission outage or network congestion due to a NSP's operational or maintenance activities, and
2. the failure of the transmission framework, planning and access arrangements to provide and maintain network augmentations to support the desired level of access.

The above definition of a generators "right" to use the transmission system describes a regime where there a generators ability to access the transmission depends on the performance of a TNSP in carrying out their primary functions of (a) operating and maintaining and planning and (b) augmenting the network to meet the required transmission service levels. This means there are two types of "non firmness", "non firmness for operational reasons" and "non firmness for planning activities".

It is worth noting in this regard that the access of customers, including large loads, may also be reduced by "a transmission outage or network congestion due to a NSP's

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<sup>5</sup> Refer Attachment 1 to this submission.

*operational or maintenance activities*” and therefore could also be described as facing an element of “non firm” access.

Customer and generator access is compared in the following table.

<b>AEMC Description of the Transmission Access Framework Level of Service</b>		
<b>Reason for lack of access to the market</b>	<b>Generator Access<sup>6</sup></b>	<b>Load Access</b>
<b>Operation &amp; Maintenance</b> A transmission outage or network congestion due to a NSP’s operational or maintenance activities.	Non firm	Non firm
<b>Planning &amp; Infrastructure</b> The failure of the transmission framework, planning and access arrangements to provide and maintain network augmentations to support the desired level of access or reliability standards.	Non firm	Access protected

The table shows customers or loads do not have their access degraded due to the connection of others and are provided with physical access rights with respect to capacity and reliability of supply. We see no reason why generators could not be provided with the same quality of access as customers.

AGL is of the view that it was not intended by the NEM designers and drafters of the Rules or Code that generators would be subject to reductions in access due to *“the failure of the transmission framework, planning and access arrangements to provide and maintain network augmentations to support the desired level of access for generators”*<sup>7</sup>. The reasons for this are discussed in the answer to Question 8.

The Commission’s interpretation leads to the following inefficient outcomes.

**The Transmission Access Arrangements Create a Barrier to Entry**

Transmission provides a vital service in the competitive market connecting generators to consumers, providing electricity to consumers and revenue to generators. Transmission access (capacity and reliability) underpin the financial viability and bankability of existing and new projects.

Currently generators can fund an increase in network capacity to match their supply side investment however funding network expansion does not stabilise uncertain revenue streams as generators do not receive priority access over the transmission assets they have funded.

Revenue uncertainty increases project risk and cost and hence is a barrier to market entry.

Given the way current access arrangements are being interpreted it is not possible for generators to manage the risk of being congested at some time in the future. This has the following impacts on generators:

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<sup>6</sup> Access is as described by the Commission

<sup>7</sup> The Rules do provide a basis for providing access rights for generators with respect to TNSP planning activities. This is the access provisions Chapter 5 where generators are provided with the cost of transmission augmentation so that other generators or customers are not impacted or payment of compensation, in clause 5.4(A), should another participants access be impacted.

- new entrant generators are unable to manage their access to the reference node for the life of the project, and therefore will face difficulty in justifying the investment (or at a minimum will have to factor a significant risk premium into their investment decision); and
- incumbent generators face unmanageable risks, and may be forced to (should congestion arise) reduce their levels of contracting at the system node as the only way to minimise exposure to congestion.

Both of these outcomes are not consistent with facilitating a deep and efficient contract market at the reference node, and consequently are likely to push up energy prices in the longer-term.

Provision of an access right for generator funded network extensions will reduce project risk and funding costs and provide investment certainty that will contribute to minimising the delivered cost of energy.

Providing a right of access to each generator funded network augmentation which bestows a physical or financial right at the level chosen and paid for by the generator provides a hedge against future revenue reductions by ensuring that the network capacity is expanded and access available to existing generators is maintained. The Commission's attention is drawn to a submission by a number of generators to the AEMC Congestion Management Review dated 23<sup>rd</sup> November 2006<sup>8</sup> provides a further explanation as to why funded access rights are not a barrier to entry.

Access rights should be tradeable to inform efficient retirement decisions and to avoid creating barriers to new entry.

### **The Transmission Access Arrangements Create an Inefficient Level of Congestion.**

The transmission access arrangements as described are a primary cause of congestion because network capacity is not always expanded to match new generation investments. The consequences of congestion include:

- discouraging new investment, as noted above, and unnecessary or inefficient network investment;
- suboptimal management of trading risks;
- reduced efficiency due to the effects of congestion; and
- further inefficiencies that result from the "disorderly bidding" incentivised by the current market arrangements (which leads to an inefficient distribution of dispatch within a group of generators that are jointly limited by congestion).

In essence, putting aside the minimum level of congestion which reflects balance within an efficient network, congestion undermines the desired market outcome and does not best serve market participants or customers.

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<sup>8</sup> Congestion Management Review – Barriers to New Generation Entry; by International Power (Hazelwood, Syngren, Pelican Point, Loy Yang B), Loy Yang Marketing Management Company Pty. Ltd., InterGen (Australia) Pty. Ltd., TRUenergy Pty. Ltd., AGL Hydro Pty. Ltd., Hydro Tasmania & Flinders Power, dated 23rd November 2006

## Evidence of Inefficient Outcomes

Evidence that the frameworks governing electricity transmission do not allow for the minimisation of total system costs and support overall efficient outcomes with respect to the NEO was submitted to the AEMC Congestion Management Review in November 2006.

The submission<sup>9</sup>, provides examples, on pages 22 to 28, where the access arrangements have resulted in inefficient outcomes.

This document is available on the Commissions website at:

<http://www.aemc.gov.au/Media/docs/International%20Power%20LYMMCO%20InterGen%20TRUenergy%20AGL%20Hydro%20Hydro%20Tasmania%20Flinders%20Power%20Supplementary-c23585e0-eb7c-4d74-a873-bef36d2a0a2c-0.pdf>

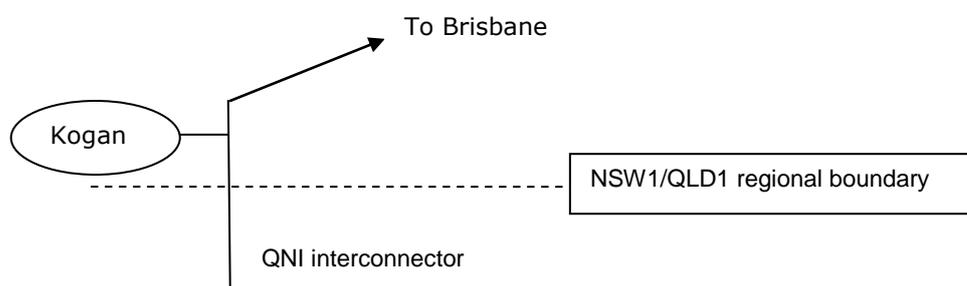
The submission includes;

- an example in Victoria (the Latrobe Valley) where a more efficient outcome would have resulted if there had been transmission access rights,
- an example in Queensland where InterGen paid for a shallow connection line to access the shared network which was later became operationally part of the shared network. InterGen still pays for the line, but has been constrained due to congestion created by new entrants. InterGen's transmission asset has been appropriated by others and InterGen will not be compensated,
- an example in NSW where new entrants will cause congestion and network planners will only respond after congestion occurs, thus reducing access certainty and
- an example in SA which is described in more detail below.

In addition two further examples from Queensland are provided, Kogan Creek and Oakey and Daandine.

### Kogan Creek (744MW)

Commission late in 2007, the Kogan Creek plant became the largest single unit in QLD (and the NEM). After Kogan was built, a constraint was added, to ensure system security, that now limits the interconnector flow into Queensland, in case Kogan trips as it is now the largest unit in Queensland, (previously Tarong North was at 443MWs). The introduction of this plant has effectively reduced the import limit into the QLD1 region by around 300MW.



The reduction of the import capacity reduces the inter-regional settlement residues available and hence reduces competition in the wholesale market in Queensland. This reduces the benefit to consumers of increased competition by having an additional 744 MW in Queensland.

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<sup>9</sup> Ibid pages 22 to 28

If Kogan creek had to bear the cost of maintaining the capacity of the interconnector they may have chosen to install two plants of smaller capacity and avoided the need to reduce the interconnector flow into Queensland. Presumably the capital cost of one 774MW unit is less than 2 units half the size.

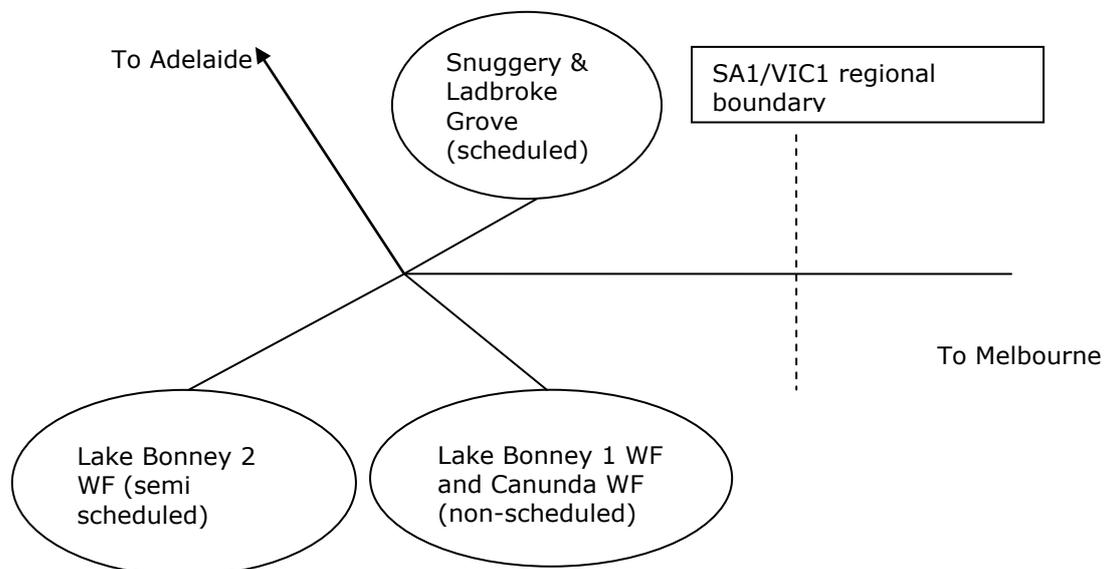
### Oakey and Daandine

Oakey is a 320MW open cycle station located in QLD. In 2007, a 27MW non-scheduled plant was built at Daandine near Oakey. Very shortly after, a system study found that a constraint ( $Q > MRTA$ ) would be needed to prevent the overloading of a nearby line during a contingency since the combined capacity of Oakey and Daandine could not be supported by a single line. The constraint only limits Oakey's output since it is the only scheduled unit, Daandine is not affected.

### South East South Australia

The Mt Gambia region of South Australia has in recent years become one of the most congested regions in the NEM. Located on the Heywood interconnector, the introduction of extra capacity in the region has resulted in the crowding out of interconnector flow towards Adelaide and the constraining down of the dispatch of some, but not all plants in the region. Originally, only Snuggery was located here, then in 2000 Ladbroke Grove was built.

Ladbroke Grove power station is located close to the gas field that fuels it, on the SA-Vic interconnector in the south east of South Australia. This would have been optimal for the investor, as it minimises the cost of gas transmission and also enables LGPS to receive the SA price, which would generally be higher than the Victorian price



As a result of its location, there is now congestion between the South East and Adelaide. A feature of regional pricing is that local generation has precedence over the interconnector flow, i.e. Victorian generation. When these generators operate they act to constrain the Vic-SA interconnector and therefore constrain off Victorian or NSW generation. Thus, it creates additional congestion costs but does not face the costs of congestion or the cost of upgrading the line to avoid congestion.

It may be the case that an efficient decision would have been to locate closer to Adelaide and build a gas pipeline. Typically, gas transportation is cheaper than electricity transportation and central planners usually locate gas-fired power stations at load centres.

Consider the Ladbroke Grove investment from the perspective of the long-term interest of Adelaide consumers: they have received no benefit of this power station – from either added security or enhanced competition - as its generation has simply displaced other generation that the consumer previously had access to. Furthermore, Ladbroke Grove's ability to displace other generation does not imply that it is more efficient, as the regional model does not permit fair competition between them.

This was followed by the non-scheduled wind farms Lake Bonney 1 and Canunda and then by the scheduled wind farm (now semi-scheduled) Lake Bonney 2, totalling up to 280MW.

As with Ladbroke Grove, this generation further impacts Victorian imports, although the windfarms will not bear the cost of this and will receive the SA price. As non-scheduled generation, the output of these units also receives priority over all scheduled generation output at present, worsening the congestion impact.

Windfarms need to locate where it is windy. However, if the windfarm investors had borne the full cost of the additional congestion that they create, they may well have decided to locate their windfarms elsewhere on the SA network: there are numerous alternative windy - but also uncongested - network locations.

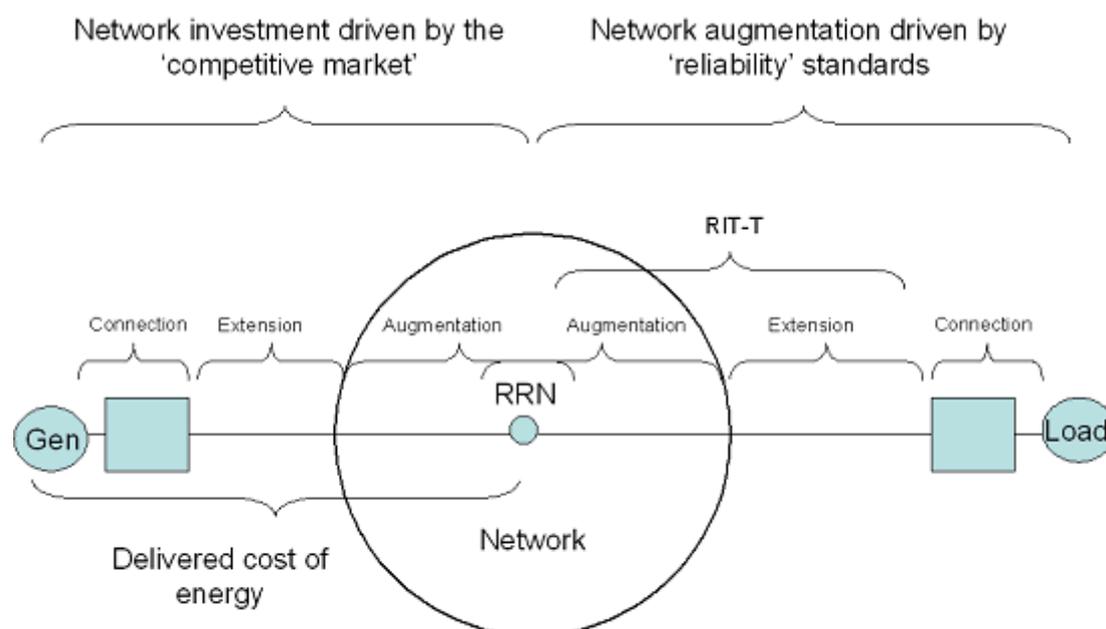
The SA TNSP is now considering upgrading the South-East to Tailem Bend capacity. As the generation investments will be committed (i.e. sunk) during the test, it is very likely that such an upgrade will appear as an efficient investment. However had an assessment been taken prior to commitment, the costs of a gas pipeline and windfarm relocation would likely have been lower than the cost of a new line.

## Question 2 The role of transmission

*Is there a need to consider the appropriate future role of transmission in providing services to the competitive sectors of the NEM? What evidence, if any, is there to suggest that the existing service provided to facilitate the market, or the definition of this service, is inappropriate or insufficient?*

### Interactions between Framework Areas

As noted in the previous answer, as well as transporting electricity from generators to consumers, transmission provides these participants, particularly retailers and generators vital access to the wholesale financial market. The whole supply chain for electricity is depicted in the following diagram.



For generators the component of the supply chain that is relevant is from fuel source to the RRN, i.e. the cost of energy delivered to the RRN. A particular application for access to the network RRN may include assets that are;

- connection and extension assets - the costs of which will be directly attributable to the user,
- augmentations to the shared network which may in part provide system wide benefits and be funded as prescribed services and in part be negotiated services funded by the user.

As a service provider this requires the TNSP to integrate the regulated component of their business with providing access for new entrants, this may create difficulties for the following reasons.

### TNSP is an Infrastructure Provider not a Service Provider

TNSPs' come from a background of being intimately involved in the centralised planning process within a state based supply system. NSPs' are involved in providing load forecasts and planning of the shared network based on jurisdictional customer reliability targets. The main focus of TNSPs' appears to be on the development of an infrastructure program to meet these targets. Based on their close relationship with the jurisdictions they

sometimes see their role as supporting or enhancing state based development agendas' such as renewable energy targets.

NSPs' do not see themselves as the provider of an essential service to support the efficient functioning of the competitive market.

**\_Risk Allocation**

TNSPs operate in a risk free environment with respect to both their operational and planning decisions. As can be seen from the following table the transmission framework allocates the risk of transmission failure to participants.

<b>AEMC Description of the Transmission Access Framework Level of Service</b>		
<b>Reason for lack of access to the market</b>	<b>Generator Access<sup>10</sup></b>	<b>Load Access</b>
<b>Operation &amp; Maintenance</b> A transmission outage or network congestion due to a NSP's operational or maintenance activities.	Non firm	Non firm
<b>Planning &amp; Infrastructure</b> The failure of the transmission framework, planning and access arrangements to provide and maintain network augmentations to support the desired level of access or reliability standards.	Non firm	Access protected

This engenders a low risk culture, TNSPs' see no need to take on any risk. Further because they are monopoly providers there is little incentive in the framework to take on risk or provide a level of service, customers have no alternative service provider.

**Service Levels**

With respect to the planning and providing access to the transmission system the same Rules apply to loads and generators however in practice there is a service level provided for customers but not for generators. (Ref Answer to Q1). Service levels for customers are generically defined with respect to the capacity of supply and a level of reliability.

Because of their background or risk averse nature or because they believe generators have "non firm" access to the transmission system NSP are reluctant to provide a level of service for generators because they perceive they will be taking on an unacceptable level of exposure to volatile pool prices. This may be the case if generators guarantee a level of access with respect to outages caused by operation and maintenance however does not have to be the case for planning and infrastructure risk.

The transmission framework should be modified to ensure that Service levels for generators can be specifically negotiated between TNSPs' and the connecting party, be defined in terms of "financial access" to the RRN under system "normal" conditions, or the conditions for which planning is undertaken.

TNSPs' should be responsible for translating these individual service agreements to a combined capability of the system as a whole and incorporating them into their planning process in the same way they incorporate customer connection requests. The only risk they face is a failure of their planning and augmentation processes to build sufficient transmission capacity.

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<sup>10</sup> Access is as described by the Commission

## **Regulatory and Incentive Issues**

To facilitate the provision of access or service levels for generators obligations may need to be placed on TNSPs through the Rules with respect to;

- The required terms and conditions to be included in connection agreements for individual generators which include at least the obligatory specification of the access requirements.
- Delivery of access in a timely and efficient manner
- Efficient trade off between capital and operating expenditure
- Efficient trade off between capacity and capital cost, (Refer also to Question 5).

## **Network Pricing**

Pricing should support efficient production and consumption decisions and be based on a level of transmission service. Principles for pricing for generators and large loads are discussed in Question 8.

## **Dealing with Monopoly Suppliers**

Apart from not being provided with a level of service or having access to funded transmission dealing with a monopoly service provider is problematic. These issues are elaborated in the NGF submission to the issues paper.

AGL has provide input to and supports the NGF submission which outlines the issues in dealing with monopoly service providers.

## 2. Key Issues for efficient investment (Chapter 4)

### Question 3 Transmission planning

*Does the current transmission planning framework appropriately reflect the needs and intention of the market (including generators, loads and demand side response)? Will this adequately provide reliable information to TNSPs on where and when to invest, or when to defer or avoid investment, in an uncertain planning environment, or is there a case that additional market based signals might be beneficial.*

To accurately reflect the needs of the market and to provide reliable information to TNSPs' the transmission frameworks must ensure that investment occurs under the following two paradigms where;

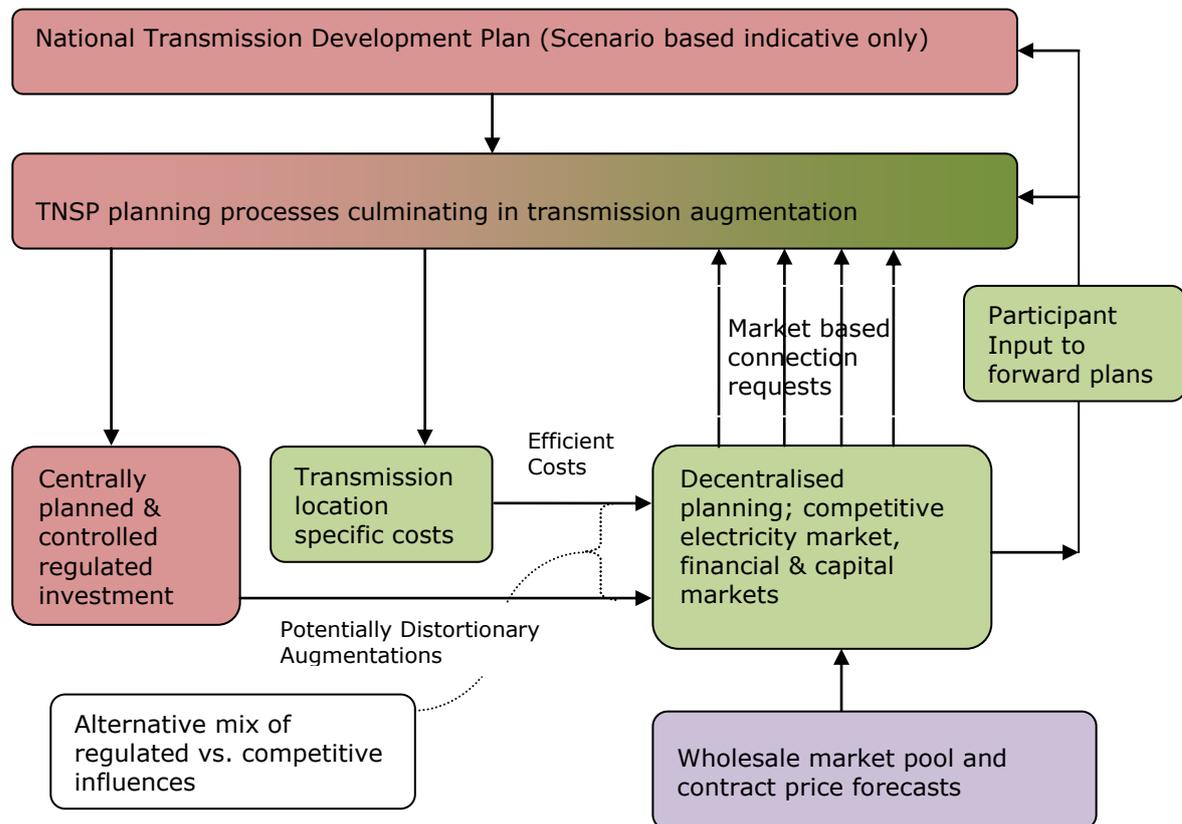
- Regulated investment to meet reliability standards at least cost to meet the level of transmission service established for consumers, this process will ensure congestion driven by increases in load will be at an efficient level (power quality and reliability standards justified by RIT-T)
- Negotiated services for connection of large loads and new generators, new generators will seek access to the transmission system and should pay for connection and extension assets and augmentations to the shared network to avoid constraining others. The level of congestion that a generator faces will be determined by their access decisions and their agreed levels of service. Paying for transmission provides an investment market signal, based on transmission scarcity

This will provide the appropriate information on where and when to invest, or when to defer or avoid investment, in an uncertain planning environment.

### TNSPs Planning Role

The centralised planning process is an issue to the extent that it has the potential to distort investment decisions in the competitive market. TNSPs planning role in delivering transmission services ahead of generation investment decisions should be limited to avoid distorting market outcomes

There are a range of possible approaches to ensuring that "In an efficient market, total system costs across the whole supply chain are minimised" these range from a centrally planned and controlled regulated market to a totally decentralised competitive market. The NEM potentially contains both of these planning approaches which must be combined to achieve an efficient outcome. An approach to coordinating these activities is illustrated in the diagram below.



The diagram represents the TNSP planning process including both prescribed and negotiated services. Forward planning based on non market information should be for guidance only. In particular, the market operator and planner should facilitate investment by providing likely transmission plans to guide investors when developing their investment plans. There should be no long term commitments by central planning bodies that are based on current government policies, as investment of this nature carry the risk of being stranded.

Minimisation of the delivered cost of energy to the RRN requires primarily the flow of location specific transmission cost and service level information from TNSP to investor to complete the financial investment picture.

- This should be guided by
- the NTNDP
- information transfer which will be an iterative process from investors to TNSPs' and from TNSPs' to investors as generation investment plans and transmission cost information firms.

The Commission has sought views as to whether further market based signals are required to incentivise the planning and we comment as follows.

The efficiency or not of a particular generation investment is determined by a decision made in the competitive market by an individual investor at that investors risk. AGL does not see the need for further market signals.

- Market based investment signals apart from the projected wholesale market contract and pool price are not required.
- These market based signals are converted into requests for access as shown in the process outlined above.
- Introduction of other so called "market" based signals increase uncertainty and risk as they are generally not hedgeable.
- There is deep and liquid financial market to hedge pool price volatility.

- A fixed access charge for generators which funds transmission and provides a level of access which in effect is a hedge against revenue volatility created by congestion and which also provides a “market based” signal for transmission planning and augmentation.

### **The Energy Market is a Dynamic Market**

The regulated monopoly NSPs’ are the last remnant of the old State based centrally planned electricity systems where;

- generation and transmission were planned together on a least cost basis,
- Load growth was the primary driver for investment,
- Government policies were static but generally focussed on supporting over investment as a precautionary measure,
- a least cost approach based on economies of scale of transmission and generation was supported.

This approach led to inefficient overbuilding of the electricity supply chain and has been replaced by the competitive energy market except for the electricity transmission and distribution monopoly elements.

However these monopoly organisations now provide a vital link in the competitive energy market providing transport services between generators and consumers.

They now must operate in an environment where because they are not market facing and generation is no longer centrally planned they have less certain information about likely future investments. The energy market is dynamic, investment is market driven, market prices are driven by externalities, government policies are continually being adjusted and where the market is capable of rapid response to these changes.

With respect to transmission planning the most reliable information that NSPs’ now have is a connection request from a participant.

In addition to the capital and associated cost of plant, (identified in our answer to Question 2), commitment to build new electricity generation plant requires input from a host of people with discrete skills in a range of fields. The spectrum of commitment from announcement through to construction ultimately requires a satisfactory view from:

- investment banks - to assess the probability of success of equity capital raisings;
- corporate institutional and project finance banks - to assess the probability of success of structured and project finance raisings;
- merchant utility energy trading desks - to assess whether the commodity hedge contracts are profitable, bankable and reflect an appropriate allocation of risk;
- engineering firms - to assess whether the technology, and the manufacturer selected represents a bankable proposition; and
- power development business units of the utility businesses sponsoring such projects - to assess whether the project is in fact likely to be committed to by a Board of Directors.

The planning process must support these investment decisions made in the wider financial market by providing timely transmission cost and performance information to investors and timely cost efficient augmentations and rely less on TNSPs making their own decisions on likely generation investment locations to avoid the distortionary impacts of the regulated approach with the potential for asset standing.

It is recognised that planning biased towards responding to competitive market requests for access may present problems with respect to timely delivery of transmission infrastructure this may be addressed in part as follows;

- for connection and extension assets - transmission investment should occur with generation investment, individual generation or groups of investors should be able

individually fund, or join together to obtain economies of scale, and deliver timely investment, and

- for augmentations to the shared network – given the assets could have benefits for customers (thus reducing the risk of asset stranding), their may be a basis for transmission development to lead generation development, noting that the extent to which this occurs could be problematic.

The transmission planning framework should support competitive market solutions to the issues identified in this review wherever practical and the planning process's should be transparent with strong information flow from NSPs' and with participant input at all stages, of the planning process.

#### **Question 4 Promoting efficient transmission investment**

*Will existing frameworks, including the recently introduced RIT-T, provide for efficient and timely investment in the shared transmission network?*

As the AEMC notes efficient transmission investment per se is not the prime objective.

The sources of funds for investment in the shared transmission network, (Ref Question 2), are;

- The RIT-T which is primarily a least cost test for regulated transmission investment and although including a market benefits component is highly unlikely to justify network expansion for new generators. The RIT\_T will keep load induced congestion at an efficient level, and potentially
- Network expansion funded by new entrants (Large load and generation) will keep the remaining congestion at an efficient level

Together with improved planning arrangements funding from both sources is required to provide timely investment in the shared network.

#### **The RIT-T & Planner of Last resort**

- The RIT-T can be gamed by generators to pass the cost of transmission investment to consumers.
- Planner of last resort would be activated to late and relies upon the RIT-T to justify investment.

As discussed elsewhere in this submission the existing frameworks with some minor modification so that transmission funded by new entrants is provided with an agreed level of service will address supply induced congestion and provide for timely and efficient network investment.

TNSPs' could be incentivised to invest efficiently however because they are not primarily responsible for making all the investment decisions which minimise total system costs across the whole supply chain, these incentives must be aligned with and support the decentralised decision making process.

### **Question 5 Economic regulation of TNSPs**

*Does the current regime for the economic regulation of transmission lead to efficient network investment? Do the incentives on TNSPs lead to appropriate investment decisions and the efficient delivery of additional network capacity?*

This section relates to transmission augmentations that are funded through the prescribed transmission services provisions for the shared network.

To the extent that the reliability targets reflect the value of lost load to consumers' investment of prescribed services should be at an efficient level. It would appear that there is sufficient latitude in these service levels that allows for overinvestment in transmission rather than under investment.

We agree that there should be incentives on TNSPs to

- maximise the value of network services provided,
- deliver timely and efficient investment decisions,

but we are of the view that these are secondary to addressing the transmission access issues.

## **Question 6 Network charging for generation and loads**

*Is a price signal of locational network costs for generators required to promote overall market efficiency? Would there be any consequential impacts on transmission pricing arrangements for load?*

To promote overall market efficiency access charges for generators should be specifically oriented to the type and timing of the decisions they are making, specifically to ensure that when making:

- long-term locational investment decisions; generators face either
  - a. the location specific short-run signals provided by transmission congestion and losses or
  - b. location specific long-run cost of any transmission investment required which reflects the cost of removing that congestion; and
- short-term production and consumption decisions generators face the location specific short-run signals provided by transmission congestion and losses.

With respect to large loads a stable (fixed) location specific network cost already applies.

With respect to (b) above the long run cost of transmission, can be based on the provisions already in the Rules.

As noted previously there are two sources of funding of transmission expansion.

- Pricing principles for prescribed transmission services (in 6A) that fund the shared transmission services to meet the service levels for load. (The shared transmission service generally has the characteristics of economies of scale and network externality benefits).
- Negotiated transmission services relating to the cost of a generators access to the transmission system. (Ref Chapter 5 including 5.4A) These provisions allow the generator to specify the level of access they require and then pay for.

The Commission characterises the latter as relating to connection or extension assets only i.e. shallow connection. We do not see that the present Rules limit negotiated services to shallow connection only and agree that this approach is inefficient because generators do not see the cost they impose on the shared network. We see no provision in the Rules that prevent a generator paying for "deep connection charges" which will insure against reduction in access. (Currently loads are provided with a deep connection, i.e. supply is not curtailed due to TNSP planning activities.)

We therefore see no need to introduce an alternative transmission access charge but seek clarification with respect to the existing provisions of Chapter 5, specifically with respect to generators being provided with a level of service for the payment of a fixed charge.

The funding required for negotiated services as described above should provide a price signal in the form of;

- a. a fixed locational network cost for generators, the charge to the extent possible should reflect the incremental cost of increasing the transmission capacity to the level of access required by the generator, or
- b. if the generator elects not to augment the network, the location specific short-run signals provided by transmission congestion and losses, and the payment of compensation to generators who are constrained off as envisaged by clause 5.4(A)

The charges should be connection point specific not averages of a number of connection points.

In order to promote an efficient investment climate for generation supply, there should be minimal uncertainty in relation to the future transmission charges once the connection agreement has been signed.

The access charges should be tradeable.

### Question 7 Nature of access

*Would it be appropriate for generators and load to have the option of obtaining an enhanced level of transmission service? Would this help generators to manage risks around constraints and dispatch uncertainty?*

The concept of an enhanced level of transmission service first requires the definition of a base level of service and the table provided in the answer to Question 1, which describes the Commissions view of the Current access arrangements is repeated here.

<b>Current Transmission Access Framework Level of Service</b>		
<b>Reason for lack of access to the market</b>	<b>Generator Access<sup>11</sup></b>	<b>Load Access</b>
A transmission outage or network congestion due to a NSP's operational or maintenance activities.	Non firm	Non firm
The failure of the transmission framework, planning and access arrangements to provide and maintain network augmentations to support the desired level of access.	Access Uncertain	Access Protected

The following describes a desired base level of service where generators are provided with a protected level of access with respect to entry by others.

<b>Base Level Transmission Access Framework Level of Service</b>		
<b>Reason for lack of access to the market</b>	<b>Generator Access</b>	<b>Load Access</b>
A transmission outage or network congestion due to a NSP's operational or maintenance activities.	Non firm	Non firm
The failure of the transmission framework, planning and access arrangements to provide and maintain network augmentations to support the desired level of access.	<b>Access Protected</b>	Access Protected

This can be achieved by providing funding to TNSPs to build to prevent supply induced congestion and hence provide protected access or "financial" access with respect to planning as described in our answers to Question 4 & 6. This does not require TNSPs' to be exposed to the wholesale market.

Some participants may be prepared to pay for an enhanced level of service.

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<sup>11</sup> Access is as described by the Commission

<b>Enhanced Level Transmission Access Framework Level of Service</b>		
<b>Reason for lack of access to the market</b>	<b>Generator Access</b>	<b>Load Access</b>
A transmission outage or network congestion due to a NSP's operational or maintenance activities.	<b>Firm up</b>	<b>Firm up</b>
The failure of the transmission framework, planning and access arrangements to provide and maintain network augmentations to support the desired level of access.	Access Protected	Access Protected

Transmission access could be "firmed up" to help all participants manage risks around constraints and dispatch uncertainty with respect to congestion arising from TNSP operational and maintenance decisions (Refer Q10).

Depending on the level of "firmness" desired this could range from expansion of the TNSP performance incentives to minimise congestion (such as being put in place by the AER) to the TNSPs' being exposed to paying compensation for constraints based on the wholesale market prices.

## Question 8 Connection arrangements

*Do current arrangements for the connection of generators and large end-users reflect the needs of the market? To the extent that more fundamental reforms to transmission frameworks are considered under the review, would it be appropriate to revisit the connection arrangements?*

The fundamental issue with the transmission frameworks is the access and connection arrangements for generators. These should be revisited.

As noted in our response to questing 1 the Commission has described the NEM as an "open access" regime where a generator's "right" to use the transmission system or ability to access the wholesale market is reduced as a result of;

1. a transmission outage or network congestion due to a NSP's operational or maintenance activities, and
2. the failure of the transmission framework, planning and access arrangements to provide and maintain network augmentations to support the desired level of access.

With respect to 1 all participants have non firm access.

With respect to 2, the fundamental issue is the understanding that "generator funded network augmentations do not bestow any physical or financial rights to the network."

In our view this is inconsistent with the access provisions. Our reasons for this view are explained in the International Power Truenergy AGL and Loy Yang submission to the AEMC Market Framework Review dated 23 February 2009 in particular Appendices 1 & 2 to that submission which are included here for ease of reference. (Ref Attachments 2 & 3).

The current provisions for the connection of generators and large end users mirror each other and generally provide for;

- a right of access under commercial terms,
- the requirement to document and maintain an agreed transfer capability, and
- for the NSP to assess the cost of all necessary augmentations to ensure that the levels of service and supply for existing customers are maintained.

These provisions when applied for customers including large end users provide access to the transmission system; customers can pay for access, have the network augmented and have that access maintained in the face of other connections to the network.

However TNSPs' have rejected these provisions because in their view they are inconsistent with a regime that provides generators with "non firm" access and therefore the provisions are not applicable and or not workable.

The reasons for this are not clear but may be in part due to the following.

- The access provisions for generators include an additional clause, 5.4A, which is intended to allow negotiation of a reduced level of access or service level and a commensurately reduced access charge. There is as yet no agreed means of implementing this,
- The provisions in chapter 6A are not properly integrated with Chapter 5 in particular 5.4A consequently there is uncertainty for TNSPs and large transmission users,
- The access provisions lack clarity,
- The access rights are embodied in connection agreements between generators and monopoly NSPs',
- TNSPs' are concerned that providing access rights for generators will accepting large financial risks,

- No matter how big or large the suppliers are and even when acting as a group they are unlikely to be a counterweight when dealing with a monopoly, TNSPs' confuse the concepts of economic efficiency and equity,
- The NSPs' are monopoly service providers who sometimes act as quasi regulators applying their own interpretation of the Rules.

It is clear that if the Commission's objective is to be met, i.e. "the delivered cost of energy to consumers is to be minimised" the issues associated with providing physical or financial access for generators need to be identified and addressed.

These access provisions in the Rules provide at least conceptually a well thought through connection process which includes all the essential elements of an access regime that will promote economically efficient outcomes. These Rules provisions should be included for consideration in future reviews.

### 3. Key issues for efficient operation (Chapter 5)

#### Question 9 Network operation

*Are more fundamental reforms required to financial incentives on TNSPs to manage networks efficiently and to maximise operational network capability for the benefit of the market? Should further options for information release and transparency on network availability and outages be considered?*

There should be fundamental reform to increase the ability of participants to competitively purchase negotiated services as an alternative to provision through the monopoly TNSP. The provision and operation of transmission services through investors other than the monopoly suppliers would act as a benchmark to evaluate the performance of the monopoly suppliers.

AGL supports the AER service target performance Incentive scheme, (Refer Q10), and to the extent practicable would support expansion of the scheme with more TNSP revenue at risk to further incentivise;

- the reduction of congestion at all times rather than just during plant outages,
- maximising the capacity of network elements by avoiding the use of ratings that understate network capability, and by providing up to date limit advice to AEMO,
- maximising the utilisation of existing assets by the use of technology that monitors environmental conditions,
- scheduling outages when value of network capacity is low, (fixing outages to provide certainty of timing or rescheduling outages to low value times)

AGL supports competitive provision of NSS and NCS.

## Question 10 Dispatch of the market and management of congestion

*Is there a need for material congestion to be more efficiently managed in the NEM?*

There is a need for material congestion to be managed effectively. There must be a multifaceted approach to congestion management by recognising that transmission scarcity causes congestion, i.e. if transmission capacity is not increased commensurate with demand or supply side investment congestion will result.

The first level of congestion management is by investing in an efficient level of transmission capacity.

- Demand induced congestion is deemed to be at an efficient level as a consequence of investment in prescribed services to meet customer reliability targets and service levels
- Supply induced congestion should be managed by funding transmission access for generators as described in this submission.

The second level of congestion management is through further refinement of market based incentives for TNSPs' to maximise the network capacity and availability at least cost, as proposed in Question 9.

The third level of congestion management is by incentivising TNSPs, to minimise the impact of their operational and maintenance activities on the market, such as the AER transmission performance incentives, as discussed in Question 9.

Residual and transient congestion, such as due to plant outages should then be managed by a congestion management regime which allocates scarce transmission capacity and makes dispatch more efficient.

Mispricing and dispatch risk and disorderly bidding should be managed by exposing generators to its local or "nodal price" when congestion occurs

Subject to the above process to minimise supply induced congestion AGL supports the CCR Final Report proposal to introduce congestion pricing.

The congestion pricing should;

- cover the whole market,
- it should be a permanent feature,
- be activated automatically when congestion occurs, and
- have a response that is proportional to the level of congestion.

A practical and proportionate proposal has been proposed by some Victorian generators. AGL supports a proposal of this nature.

Any congestion management regime should have two essential characteristics –

- It should not deprive affected participants of their existing entitlement to settlement at the Regional Reference Node price unless this right is replaced by the free provision of an alternative right as nearly equivalent as possible while still achieving the objective of efficient dispatch in the presence of congestion,
- The regime should be designed to maintain as far as possible the benefits of the regional market design in allowing intra-regional hedging without basis risk.

Additional incentives to provide a congestion management scheme arise from (a) the opportunity to enhance the value of inter-regional settlement residues as a tool for managing inter-regional price risk, and (b) the opportunity to place an economic value on production from plant which has a "positive gate-keeper" role, and hence make dispatch more efficient.

### The NEM open access regime as described by the Commission

The AEMC describes the NEM as an "open access" regime on where a generator's "right" to use the transmission system depends on whether;

*"The NEM operates under an open access system, where a generator's "right" to use the transmission system depends on whether it is dispatched by AEMO. Where a generator is unable to access the wholesale market as a result of a transmission outage or network congestion it has no means of recourse to the TNSP (or AEMO) for any failure in service delivery or entitlement to any compensation for this.*

*Furthermore, when a generator is considering investing in new plant it has no means of managing such risks associated with that plant in the future. Even if augmentation of the shared network is deemed to be economically beneficial to customers, a generator has no means of managing the risk that the augmentations are not delivered in a timely manner. While there is scope for generators to fund network augmentation, the nature of the open access regime implies that generator funded network augmentations do not bestow any physical or financial rights to the network. (This issue is discussed further in Chapter 4.)"<sup>12</sup>*

In summary the Commissions description includes two elements where a generator's "right" to use the transmission system depends on whether;

1. a generator is unable to access the wholesale market as a result of a transmission outage or network congestion, and
2. where generator funded network augmentations do not bestow any physical or financial rights to the network.

This description of the NEM access regime for generators sometimes called "non firm"<sup>13</sup> access and effectively describes the transfer of the risk of transmission scarcity, from a TNSP to generators, without providing generators with the means of managing these failures.

In addressing the access issue it is useful to describe a generator's right to use the transmission system with respect to a NSP's;

- operational and maintenance activities, and
- planning and network augmentation activities.

This categorisation avoids overlap<sup>14</sup> between the two elements of access as described and means the Commissions description can be interpreted to read;

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<sup>12</sup> Issues paper Page 17

<sup>13</sup> The terms "open access" and "non firm access" are not defined in the Rules. We do not agree that the above definition provided by the Commission for an "open access" regime is a complete definition of open access as it applies in the NEM. This definition probably better describes the non firm component of the access arrangements. To avoid confusion and misunderstanding these expressions should be defined in terms of the Rules provisions that describe the access arrangements.

<sup>14</sup> That "generator funded network augmentations do not bestow any physical or financial rights to the network" is as a consequence of network congestion which is a subset of the first category. It is more useful to distinguish between short term (operational) and long term (planning and investment) causes of reduction access rights as the means of addressing them are different.

The NEM is an “open access” regime where a generator’s “right” to use the transmission system or ability to access the wholesale market is reduced as a result of;

- a transmission outage or network congestion due to a NSP’s operational or maintenance activities, and
- the failure of the transmission framework, planning and access arrangements to provide and maintain network augmentations to support the desired level of access.

The above definition of a generators “right” to use the transmission system describes a regime where there a generators ability to access the transmission depends on the performance of a TNSP in carrying out their primary functions of operating and maintaining and planning and augmenting the network to meet the required transmission service levels. This means there are two types of “non firmness”, “non firmness for operational reasons” and “non firmness for planning activities”.

It is worth noting in this regard that the access of customers, including large loads, may also be reduced by “a transmission outage or network congestion due to a NSP’s operational or maintenance activities” and therefore could also be described as facing an element of “non firm” access.

Customer and generator access is compared in the following table.

<b>AEMC Description of the Transmission Access Framework Level of Service</b>		
<b>Reason for lack of access to the market</b>	<b>Generator Access<sup>15</sup></b>	<b>Load Access</b>
<b>Operation &amp; Maintenance</b> A transmission outage or network congestion due to a NSP’s operational or maintenance activities.	Non firm	Non firm
<b>Planning &amp; Infrastructure</b> The failure of the transmission framework, planning and access arrangements to provide and maintain network augmentations to support the desired level of access or reliability standards.	Non firm	Access protected

The table shows customers or loads do not have their access degraded due to the connection of others and are provided with physical access rights with respect to capacity and reliability of supply. We see no reason why generators could not be provided with the same quality of access as customers.

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<sup>15</sup> Access is as described by the Commission

### The Rules provisions describing the NEM “open access” regime

#### Appendix 1: The Open Access regime in the NEM

The following summary and overview of the provisions in the rules relevant to customer and generator access shows that:

- The objective of the access provisions is to ensure that the agreed level of access for existing generators and customers will not be reduced as a consequence of the new connection; but only to the extent that all facilities or equipment associated with the power system are in service;
- for customers this is achieved by new customers paying to augment the shared network so that other generators or customers level of access is not impacted;
- The provisions for generators mirror the provisions for customers, (Except for the addition of 5.4A(h) which provides compensation for generators constrained on or off);
- access certainty for generators is achieved by new generators paying to augment the shared network so that other generators or customers level of access is not impacted and/or the payment of compensation should another generators access be reduced.

#### Customer clauses

The obligation to connection customers, and to charge for any augmentations necessary to maintain supply to others is contained in:

- Rule 5.1.3(a) to (c), which covers the right of access and that access is to be in under commercial terms;
- Rule 5.2.3(e) and (e1), which covers the requirement to document and maintain agreed transfer capability;
- Rule 5.2.4, which requires a connecting customer to provide forecasts as part of its application to connect;
- Rule 5.3.5(d), which requires an NSP to assess requirement for (and the costs of) all necessary augmentations to ensure that the levels of service and supply are maintained for existing customers; and
- Rule 5.3.6, which requires an offer to connect to include necessary charging detail.

For almost all customers rule 5.3.5(d), is of little significance since they have little impact on their neighbours but for large customers the cost of any deep augmentation to connect, and to maintain supply to neighbours, is currently included in the connection and TUOS charges. This can include what is termed “capital contributions”.

#### *Generator access provisions*

A more complete description of the generator access provisions is provided in the attached legal advice to the Victorian generators from Norton Gledhill.<sup>16</sup>

Generators access is defined by the following clauses:

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<sup>16</sup> See Norton Gledhill advice to the Victorian Generators dated 10<sup>th</sup> April 2008

- Rule 5.1.3(a) to (c), which covers the right of access and that access is to be in under commercial terms;
- Rule 5.2.3(e) and (e1), which covers the requirement to document and maintain agreed transfer capability;
- Rule 5.2.5, which requires a connecting generator to provide forecasts as part of its application to connect;
- Rule 5.3.5(d), which requires an NSP to assess requirement for (and the costs of) all necessary augmentations to ensure that the levels of service and supply are maintained for existing customers;
- Rule 5.3.6, which requires an offer to connect to include necessary charges and also a requirement to conform to Rule 5.4A; and
- Rule 5.4A, which:
  - reiterates the requirement to assess changes to networks from Rule 5.3.5 (d), in f.4A (e); but
  - which allows negotiated levels of service from forecasts and charging for the agreed capability 5.4A (f) (3), including
  - negotiated variations from forecasts are supplemented by an ability to gain payments from the generators where the agreed transfer capability required under Rule 5.2.3(e) is reduced for another party 5.4A(h); and
  - payment to that other party under the same clauses where the agreed transfer capability cannot be maintained.

Except for the addition of 5.4A(h) these provisions mirror the provisions for customers. They make economic sense since the cost of connection for generators can be large and when included as part of the project cost which will influence investors to locate in positions that minimise the total project cost and ensure the delivered cost of energy to consumers is considered in making investment decisions.

The access charges or the costs that are directly attributable to a generator participant's connection to a network include the cost of *connection, extension, augmentation* and *access charges* in accordance with Rule 5.4A(h). (Refer also to the Victorian Generators letter to the AEMC dated 3 Feb 2009 re Clarification of the terms used by the AEMC in Issue A6 – Augmenting networks and managing congestion.)

Rule 5.4A(h) has the effect that if congestion occurs as a consequence of a new generator creating a constraint the full cost of that congestion will be allocated to the causer and not distributed to other participants. This is most likely to occur if a generator elects not to pay for augmentations.

It makes sense for large generators (and large customers) to locate where there is surplus capacity on the network or where their location would reduce constraints. This allows maximum use of the network. If additional network was to be constructed to allow connection then the newly connecting party should pay those costs since it was an additional cost solely due to them. In time it was considered that generators would be paying an appropriate proportion of all network augmentations.

Existing generators were exempt from the shared TUOS charges. This position was argued by the existing generators (and accepted by the ACCC) on the basis that:

- the level of access available to generators was constructed at the time the generator was constructed and it was difficult to determine a fair share of costs now. Generators that had been sold to private parties had included their purchase price the level of access that was defined in the Code; and

- no economic advantage would arise from applying a transmission charge to incumbent generators, which is a locational signal, to generators that had already been constructed since moving them was impossible.

At the time of market start the shared TUOS charge (a sunk cost) should be treated as a large fixed amount that should be allocated in an economically efficient way, that is with least distortion, and that implied as need to allocate the cost to the final consumers as far as possible

In negotiating access the Rules provide for:

- transmission capacity to be built and the shared network to be augmented to a level agreed in the connection agreement so that other generators agreed level of access will not be reduced as a consequence of the new connection (only to the extent that all facilities or equipment associated with the power system are in service) ; and
- a right to compensation where a generator's output is reduced in the presence of a network constraint, due to the output of another generator or on the occasions when it was constrained off due to a failure of the NSP to meet the minimum standards of performance set by the Rules.

(The economic effect of these two provisions is essentially the same however providing compensation has the potential to apply in a broader range of circumstances than augmenting the network and therefore has been described as being "stronger". The effect of these two types of access is discussed in more detail in the advice provided by Synergies economic consulting to the NGF included as Attachment 5.)

The Rules require the TNSP to provide the cost of *connection* and *extension assets* as well as *augmentation* and *access charges* in accordance with Rule 5.4A(h), and for generators to pay them. If a new generator does not pay for *connection* and *extension assets* it is unlikely that it would be connected to the network, however in practice it appears that at least in some cases, TNSP's see no obligation to include the cost of *augmentation* and *access charges in connection agreements*. The reasons for this are not clear.

Possible reasons for neither TNSP's nor new entrants to include *augmentation* and or *access charges* in connection agreements may be:

- It is commonly accepted view that in an open access regime generators have no access rights,
- New entrants wish to avoid the additional costs and don't understand the consequences,
- TNSP's have been able to connect new entrants because there has been surplus transmission capacity and there has be no need to consider *augmentation* and or *access charges* in negotiating connection agreements,
- TNSP's have been able to avoid congestion by funding transmission upgrades by other means,
- Calculating the access charges or compensation payments based on market outcomes is outside the TNSP's area of expertise.

A more complete description of the access provisions in the Rules is provided in the attached legal advice from Norton Gledhill to the Victorian generators dated 10<sup>th</sup> April 2008 included at Attachment 1.

The generator access provisions are also consistent with the "Efficiency and Transmission Pricing Key Concepts" that guided the AEMC in their recent Transmission Pricing Review. This is discussed in more detail in Appendix 3.

## Analysis of the intent of the access of the NEM “open access” regime with respect to generator access

### Appendix 2: Analysis of the intent of the access of the NEM “open access” regime as described in the “NEM access code - Decision (16 September 1998)” with respect to generator access.

This analysis in our view;

- demonstrates that there is at least consistency between the Rules as interpreted in this submission and the ACCC access code decision and
- the ACCC’s objective was that in the ‘open access’ regime described by the ACCC any person seeking access to the network must not materially or adversely affect the levels of service and quality of supply to other network users

The following is a review of the relevant extracts from the NEM access code - Decision which describes the NER ‘open access regime’.

Although the Rules may not suffer from any of the particular kinds of problems for which it is valid to turn to extrinsic material, this information has been provided because it appears that there may be different views as to the collective effect of the Rules.

The ACCC considered that the access provisions in the Rules are consistent with the Commissions objectives and in particular that incumbent generators are entitled to have their access protected. It can also be seen that the NEM access code - Decision is consistent with;

- the economic analysis by Synergies Economic Consulting for the NGF which provides economic argument supporting the provisions in the Rules and hence the Commissions view, (Attachment 5), and
- legal advice from Norton Gledhill that identifies the relevant Rules, describes the nature of the generator access provisions and shows that the Rules are consistent with the Decision (Attachment 6).

#### 4.1 Overview of connection and use of system arrangements

The following statements appear in the introductory section:

“The code aims to create a workable, non-discriminatory right of access to the physical ‘natural monopoly’ network which enables users to participate in the competitive electricity market.”<sup>17</sup>

“These procedures are governed by a set of connection principles, objectives and obligations (see Box 4.1). In bringing these procedures together in the access code, the applicant (sub. p. 216) argued that:

It needs to be recognised that arrangements and procedures for connection to transmission and distribution networks have existed for many years but these differ between jurisdictions and between Network Service Providers. One objective of these provisions is to provide a common set of procedures for connection to simplify entry for parties seeking access.”<sup>18</sup>

and

“Connection to a network at the wholesale level typically will be covered by a connection agreement between an NSP (transmitter or distributor), a generator or a customer (eg a mine or industrial plant). Provided other users are not adversely affected, the connection agreement may override code provisions and must include:

- the legal and financial terms and conditions of the connection;

<sup>17</sup> NEM access code - Decision (16 September 1998) Page 75

<sup>18</sup> ibid Page 75

- service standards for ongoing use of the network;
- technical specifications for the type of connection involved and its operation; and
- details on payment for connection and network service”.<sup>19</sup>

It is clear then from the summary that creating a workable, non-discriminatory right of access to the physical 'natural monopoly' network is not inconsistent with ensuring existing users are not adversely affected.

Also it was noted that that the intent was to provide a standardised set of that arrangements and procedures for connection to transmission and distribution networks that replicate those that have existed for many years, . Replicating these historical arrangements would also mean an incumbent’s access would be protected.

#### 4.2 Connection negotiation procedures

##### 4.2.1 Issue for the Commission

In accepting the Code the major issues that the Commission assessment focused on were;

- The impact on barriers to entry, i.e. ensuring that the Code did not create a barrier to entry, and
- Spill over effects, i.e. protecting the legitimate business interests of incumbents, (both network owners and users), from the impact of new entrants

This is demonstrated from the following statements”

‘The Commission’s assessment of the access code’s connection arrangements focuses on their likely impact on entry barriers and spillover effects. The assessment criteria of particular importance addresses the issue of how the connection arrangements:

- promote the public interest by not unnecessarily adding to entry barriers which would reduce contestability in other markets;
- protect the legitimate business interests of:
  - the existing network owners and users from potential spillover effects from the operation of new connections; and
  - new connectors from potential spillover effects from the operations of existing network owners and users.”<sup>20</sup>

“In terms of the network connection procedures, the Commission has focussed on whether the connection procedures create an entry barrier and, if so, whether these entry barriers are non-discriminatory between existing, new and potential entrants and between differing technologies.”<sup>21</sup>

In its assessment the Commission did not find that the access arrangements created a barrier to entry or were discriminatory and therefore accepted the access arrangements proposed by NECA, the applicant.

##### 4.2.2 What the applicant says.

The following extracts demonstrate that NECA, (the applicant), also noted that the a major principle in formulating the Code was that connection arrangements were not to materially or adversely affect the level of service to others, but new entrants could obtain access at defined (fair and reasonable) prices which accurately reflect the cost of providing the necessary assets to allow connection at the specified capacity and level of performance. This means that incumbent generators have their access protected from degradation by new entrants and new entrants would pay for the assets required so that others level of service would not be materially or adversely affected.

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<sup>19</sup> ibid Page 76

<sup>20</sup> ibid Page 76

<sup>21</sup> ibid Page 77

## In the decision the Commission noted that”

“The applicant indicated that (sub. p. 216):

The major principle of the connection requirements provisions is that a party is to be provided physical access to a transmission or distribution network on a fair and reasonable basis provided that the connection arrangements do not materially or adversely affect the levels of service and quality of supply to other network users.”<sup>22</sup>

“The applicant stated (sub. p. 220) the connection requirements are based on the principle of commercial negotiation and are synonymous with the concept of ‘light handed regulation’ as:

- NSPs and parties seeking access must negotiate a connection agreement that:
  - meets the needs of the connection applicant; and
  - does not adversely or materially affect the levels of service and quality of supply received by other network users.”<sup>23</sup>

Clause 5.3.5d is consistent with this argument and the following position.

“In addition, the applicant (sub. p. 221) argued that these arrangements give participants full control over network service options, with scope to make appropriate trade-offs between cost and the performance and reliability of the network service provided, for instance: New entrants can seek access to a transmission or distribution network and will be able to obtain access at defined (fair and reasonable) prices which accurately reflect the cost of providing the necessary assets to allow connection at the specified capacity and level of performance.”<sup>24</sup>

The ACCC acknowledged NECA's intention that the compensation provisions in the Code (clause 5.5f now 5.4Ah) provided generators with “firm access”, and NSPs are also required to negotiate in good faith to in relation to augmentations and other “firm access” agreements, which could also be based on the compensation provisions in 5.4Ah.

“The applicant also argued (sub. pp. 158–9) that the code provides the option of ‘firm access’ arrangements for generators. NSPs are to negotiate in good faith to provide compensation in the event that a generator is constrained-off because the level of service and capability of the network is not consistent with the terms of the connection agreement.<sup>25</sup>

They are also required to provide adequate information to support negotiations and use best endeavours to meet each generator’s request, consistent with good industry practice and related decisions on augmentations and other firm access agreements. NSPs can also negotiate similar arrangements with customers and other NSPs but they are not obliged to do this:

A major concern for generators arises from the possibility that such an outage could coincide with a high pool price incident in the energy sub-market. This would expose generators with contracts for differences in the energy sub-market with very high difference payments.

The compensation provisions in clause 5.5(f) are to enable the generator and the Network Service Provider to come to an appropriate risk sharing arrangement...<sup>26</sup>

Neither the ACCC nor NECA distinguished between different levels of “firm access” discussed in the decision; however the discussion demonstrates that that there could be different levels of “firm access”. The Code provisions provide one level of firm access under 5.3.5d and 5.5f (i.e. 5.4Ah). That the term “firm access” can encompass a range of different levels or conditions of access is evident in the discussion below on the “Commissions considerations”.

### 4.2.4 The consultant’s views

These consultants’ views as elaborated below are consistent with the applicants and the Commissions objectives and are embodied in the Code.

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<sup>22</sup> ibid Page 77

<sup>23</sup> ibid Page 80 & 81

<sup>24</sup> ibid Page 81

<sup>25</sup> ibid Page 82

<sup>26</sup> ibid Page 82

“Nevertheless, Western Power argued that the code’s connection inquiry and offer process would be improved if:

- existing agreements were honoured when affected by someone else’s new connection, unless the parties agree otherwise or the change is to ensure the safety, quality and reliability of supply;
- any new agreement should not, as far as possible, impose a barrier to entry to future participants.<sup>27</sup>

#### 4.2.5 The Commission’s considerations

##### *Firm access*

“The Commission is aware that firm access is much debated and the current code provisions are the latest of several versions. In addition there has been a profound change in the commercial relationship between generators and transmission networks, as well as others in the industry, as a result of structural separation and privatisation along with the wholesale markets and access arrangements. Previously, firm access arrangements were determined by administrative decisions, often internalised in a single organisation or at least in a public sector framework.”

The Commission noted that NSPs were not obliged to provide firm access in every case however the Commission did note that the Code contained some “firm access” provisions (it would appear that the access provisions in the Code generally replicate in an economic sense at least the access provisions previously determined by administrative decisions, i.e. the central planner). The Commission described the “firm access” provisions generally as follows;

“Although NSPs are not obliged to provide firm access in every case, the code includes a set of obligations in terms of negotiation, information and compensation arrangements. Similarly, generators are limited to their maximum power input and any arrangements must account for its impact on firm access for other generators.”

The provisions to which the Commission was referring are those in chapter 5 of the Rules that define generator access provisions, the operation of which is described in detail in the Norton Gledhill legal advice.<sup>28</sup>

##### Strengthening of the Firm Access Provisions

During the consultation process on the application by NECA, generators sought a significant strengthening of the firm access provisions in clause 5.5 (now 5.4A). The Commission summarised the generators position as follows;

“For instance, at the pre-decision conference and in subsequent submissions<sup>8</sup>, generators argued for a significant strengthening of the firm access provisions in clause 5.5. They requested that NSPs be obliged under the code to negotiate and offer firm access hedge arrangements with compensation whenever generators are constrained-off the network. They argue that, under the present provisions, NSPs presently negotiate from a monopoly position and thus have no incentive to bear extra risk of network constraints and the adverse impact these constraints can have on access to favourable pool prices. The incumbent generators argue that NSPs should offer a choice of access arrangements including, but not restricted to, firm access. They also argue that obliging NSPs to offer firm access would be the most efficient allocation of network risks to the party most able to bear the risks and would reinforce locational pricing on different parts of the network, thus removing uncertainty for new generators connecting to the network.”<sup>29</sup>

The Commission noted that the Code supported negotiations between NSPs and generators to provide generators with a “firmer” level of access than that defined as a minimum level of service.

“Improved cash flow provides a major incentive for both generators and NSPs to bargain firm access. Generators are either compensated when constrained-off or are able to bid unconstrained (because of network improvements) when spot prices are favourable; and NSPs derive revenue from the sale of firm access rights which can partly fund those network improvements. Consistent with these incentives, the code provides for maximum prices for a defined (minimum) network service. It also envisages that

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<sup>27</sup> ibid Page 84 & 85

<sup>28</sup> Refer to the section in this submission headed “The Open Access regime in the NEM”

<sup>29</sup> NEM access code - Decision (16 September 1998) Page 91

participants can negotiate discounts for the defined service or can negotiate for an improved level of service but at a higher price. In this context it should be remembered that generators pay little in the way of TUOS charges.”<sup>30</sup>

The Commission further stated;

“However, firm access and insurance arrangements will make the relationships between generators and NSPs more complex due to the sharing of risk. Consequently, the Commission believes that while the code is largely neutral on firm access arrangements, the code includes sufficient flexibility for generators and NSPs to negotiate access arrangements (including firm access) which is in the commercial interests of both parties. Nevertheless, if the generators’ concerns are realised, and the NSPs refuse to negotiate terms and conditions, then at that stage it may be appropriate for the Code Change Panel to consider alterations to the code which provide NSPs with additional incentives or obligations to provide firm access arrangements.”<sup>31</sup>

The Commission declined to address the generators requests for a significant strengthening of the firm access provisions in clause 5.5 (now 5.4A), and instead referred the issue to NECA.

“At an appropriate time after the commencement of the market, the national Electricity Code Administrator should review the arrangements for firm access so the code change processes can consider any amendments required to introduce further incentives and/or obligations regarding the provision of firm access.”

This review therefore was to be in relation to “further” incentives and/or obligations regarding the provision of “firm access”, i.e. in relation to the feasibility of and options for increasing the firmness of the access provisions already in the Code or Rules.

The fact that the Commission did not support the “further firm access” provisions does negate the firm access provisions in the Code/Rules.

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<sup>30</sup> ibid Page 89

<sup>31</sup> ibid Page 90

