### NATIONAL GENERATORS FORUM

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#### **Review of Energy Market Frameworks in light of Climate Change Policies**

Dear Dr Tamblyn,

The NGF is of the view that the issues and questions identified in the scoping paper provide a sufficiently broad scope for the review.

The aspects of the market framework that are most material and hence should be considered as a priority are those that impact investment decisions. The energy market framework should support efficient investment decisions in gas, electricity generation, transmission and demand response. This means that the market price signals and location specific costs should support the total investment in infrastructure being made at least cost, with the appropriate mix of plant types or demand management to meet forecast demand.

Investment infrastructure or market frameworks of this nature would ensure that within the constraints of the climate change policies which in effect change participant long or short run marginal cost and where existing plant may retire or operating regimes may change, the least cost investment with the appropriate plant mix will also be made in renewable energy assets with the appropriate balance between the alternatives such as wind, biomass, solar, or hot rocks for example.

#### Materiality of the Issues

At this early stage of the review it is difficult to assess the relative materiality of the issues identified, however the NGF is undertaking a significant market modeling exercise to assess the relative materiality of some issues. A useful way to prioritise or assess the materiality of the issues being evaluated may be to categorise them as relevant to:

• investment decisions<sup>1</sup>,

<sup>&</sup>lt;sup>1</sup> This would cover the bulk of the topics - Convergence Of Gas And Electricity Markets Q1 & 2; Generation Capacity in the Short Term Q3 & 4; Electricity & Gas Access Regimes and Dynamic Efficiency; Transmission Planning; Retailing and the Contract Market:

- operational decisions<sup>2</sup>,
- market operator response<sup>3</sup>,
- other factors<sup>4</sup>

on the basis that if the market framework supports efficient investment by exposing investors to efficient price signals and avoiding exposure new investors and existing participants to unnecessary risk should minimize the impact on subsequent operational decisions and reliability.

#### Issues, objectives and evaluation framework

The NGF notes that the objective of the review is to determine whether the energy market frameworks should be amended to accommodate the planned introduction of the CPRS and the expanded RET. To achieve this, the Review will analyse a series of specific issues to test whether the new policies operating in concert with <u>existing</u> market frameworks will deliver the desired outcomes of efficient, reliable and secure long-term supplies of electricity and gas.

The NGF supports this objective however suggests an amendment be made to the approach outlined. The Scoping paper has identified at least one area (the market access arrangements) where the framework may not currently be supporting efficient outcomes. The NGF agrees that this may be the case and suggests that an additional step be included in the process<sup>5</sup> of reviewing the current market framework and in particular the market access arrangements which determine the interface between regulated and market based investment. The purpose of this additional step is to identify the risks and the options for reducing those risks through amendment to the existing market frameworks, prior to assessing the impact of the climate change policies on behavior.

The proposed amended process is as follows;

"This requires us to identify:

- the factors that condition behavior in energy markets currently;"
- whether the current market framework has significant risks and should be amended to promote more desirable outcomes
- "how the new policies may alter behavior;
- whether the altered behavior results in desirable outcomes; and
- how we may change the factors to promote behavior for more desirable outcomes."

As requested in the Scoping Paper the NGF has reviewed the issues identified and agrees that the scoping is adequately covered but has suggested a regrouping of the questions consistent with the above major behaviors and the amended process.

<sup>&</sup>lt;sup>2</sup> Operating the System with Increased Intermittent Generation Q8, 9 &11: and Managing Congestion.

<sup>&</sup>lt;sup>3</sup> Question 5 &10.

<sup>&</sup>lt;sup>4</sup> Although very important issues the questions in "Investing to meet Reliability Standards" and "Financing New Energy Investments" appear to be covered by the other topics.

<sup>&</sup>lt;sup>5</sup>, Section 1.2 Evaluation Framework.

The attached table provides an expanded and modified set of questions with comments on;

- whether the scope of issues has been identified appropriately;
- what issues are most material; and
- what evidence is relevant to assessing the materiality of each issue?

If you require any further information, please contact the undersigned.

Yours sincerely,

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John Boshier Executive Director

# AEMC Review of Energy Market Frameworks in light of Climate Change Policies Scoping Paper Questions

ISSUE		QUESTION	(\	Is the scope properly identified? What are the specific issues that should be addressed?)	What evidence is relevant to assessing the materiality of the issue?	Which issues are most material?
1 Convergence of gas and electricity markets	1.	How capable are the existing gas markets of handling the consequences of a large increase in the number of gas-fired power stations and their changing fuel requirements?	• • • • •	<ul> <li>Will there be enough gas available to meet the increased demand for gas?</li> <li>Will pricing of gas remain attractive in the face of this demand increase?</li> <li>Will the export of gas reduce the quantity of gas available for internal consumption?</li> <li>Can infrastructure be built in a timely manner to transition to gas generation: <ul> <li>Gas plants?</li> <li>Adequate reserves identified?</li> <li>Transmission infrastructure?</li> </ul> </li> <li>To replace a 1000MW coal plant, approximately 320TJ/d of capacity infrastructure is needed, and likely to require in excess of a TCF of gas reserves. Therefore reserve is a key issue, as is ability to deliver infrastructure.</li> <li>What are the problems in regulated investment regime (eg. PTS)?</li> <li>Assumes power generation is interruptible, therefore does not build enough infrastructure to support it.</li> <li>This could threaten security as gas power generation begins to take a base load role.</li> <li>Also doubts about its ability to invest early enough to underpin major increase in gas power generation off take.</li> <li>Will congestion on gas networks occur as a consequence of the access regime? Refer to discussions below on the Access regime.</li> </ul>		Material
	2.	What areas of difference between gas and	•	Electricity market 5 minute response vs. gas market daily (post STTM) or longer – likely to lead to inefficient		May be Material

ISSUE	QUESTION	Is the scope properly identified? (What are the specific issues that should be addressed?)	What evidence is relevant to assessing the materiality of the issue?	Which issues are most material?
	electricity markets might be cause for concern and how material might the impacts of such differences be?	<ul> <li>resource/cost allocation to some participants.</li> <li>Current perverse incentives prevent efficient investment in liquid backup: <ul> <li>Government intervention – gas taken without compensation creates disincentives to invest in liquid reserves for example.</li> <li>Lack of daily/intra-day pricing to provide commercial investment signals</li> </ul> </li> <li>The STTM is a step in the right direction, but ultimately greater intra-day signals will be needed.</li> </ul>		

ISSUE		QUESTION	Is the scope properly identified? (What are the specific issues that should be addressed?)	What evidence is relevant to assessing the materiality of the issue?	Which issues are most material?
2 Generation capacity in the short term	3.	What are the practical constraints limiting investment responses by the market?	<ul> <li>Risk &amp; uncertainty due to govt. policies eg CPRS &amp; RET may discourage investment in the short term.</li> <li>Project planning and lead time to investment may be inconsistent with CPRS &amp; RET targets.</li> <li>Energy only market – no payment for capacity.</li> <li>Wholesale contract market outcomes (refer item 7 Retailing Access arrangements (see items 5 &amp; 6 Access regimes below).</li> <li>Energy only market requires lower reserve than may be politically acceptable.</li> <li>Risk of government intervention stranding assets.</li> <li>Availability and cost of plant &amp; equipment.</li> <li>Absence of DSM &amp; inelastic demand.</li> </ul>	This is a question that the NGF modeling is attempting to answer in part <sup>6</sup> . Not all the constraints can be assed by modeling due to the complexity of the modeling exercise and the potential range of the inputs. Models are generally not capable of assessing all the behavioral impacts. <sup>7</sup>	Material
	4.	How material are these constraints, and are they transitional or enduring?		See above.	Material
	5.	How material is the likelihood of a need for large scale intervention by system operators? How likely is it that this will be	<ul> <li>What are the operational issues that could generate the need for intervention?</li> <li>What is the impact of the RET &amp; CPRS on reliability (Ref item 4 below)?</li> <li>What is the impact of a changed operating regime forcing</li> </ul>		Possibly Material

<sup>&</sup>lt;sup>6</sup> The NGF has undertaken economic modeling on the impact of the CPRS and the RET and is in the process of undertaking market based modeling to better capture the plant operating constraints, congestion and some of the likely behavioral responses (at least those that can be represented in the model) as well as the resultant impact on USE and participant revenues.

<sup>&</sup>lt;sup>7</sup> This work does not include the assessment of the impact of market externalities such as commercial uncertainty risk availability and cost and availability of funds, resource constraints and the capacity of the economy to support new investment. These risks would apply independent to the market framework, however some frameworks my better accommodate or ameliorate these risks and uncertainty for participants

ISSUE	OUESTION	Is the scope properly identified?	What evidence is relevant to assessing		
	QUESTION	(What are the specific issues that should be addressed?)	the materiality of the issue?	material?	
	ineffective or inefficient?	<ul> <li>earlier retirement of plant?</li> <li>What tools does the system operator have to intervene to maintain the system in a stable condition?</li> <li>What will be the Govt. response to market failure/</li> </ul>			

ISSUE		QUESTION	Is the scope properly identified? (What are the specific issues that should be addressed?)	What evidence is relevant to assessing the materiality of the issue?	Which issues are most material?
3 Investing to meet reliability standards with increased use of renewables	6.	How material is the risk of a reduction in reliability if there is a major increase in the level and proportion of intermittent generation?	<ul> <li>What is the likely rate of introduction of new renewables?</li> <li>Will the pool and contract market facilitate investment in reserve to cover for intermittent generation?</li> <li>How will the standby capacity be rewarded?</li> </ul>	This is a question that the NGF modeling is attempting to answer. The risk of a reduction in reliability will depend on the targets and trajectories of the CPRS and the RET, ie how much investment is forced into the market that would not have otherwise occurred under competitive entry conditions.	This issue is very material however the specific issues that may lead to reduced reliability are covered in the other topics.
	7.	What responses are likely to be most efficient in maintaining reliability?	<ul> <li>Will the current market framework and access arrangements ensure efficient investment occurs (in generation or transmission) to meet the reliability standards?</li> <li>What other arrangements (such as FCAS, 2 or 4 hour response) could be put in place to maintain reliability standards and how could it be rewarded?</li> </ul>		See above

ISSUE		QUESTION	(\	Is the scope properly identified? What are the specific issues that should be addressed?)	What evidence is relevant to assessing the materiality of the issue?	Which issues are most material?
	8.	How material are the challenges to system operations following a major increase in intermittent generation?	•	Will the structure of the ancillary services market and the basis for payment for ancillary services provide an effective and efficient response?	This is a question that the NGF modeling where the NGF modeling may provide some insight. International experience may also be relevant.	Possibly material as the reliability outcomes will depend on the effectives of the investment framework.
4 Operating the system with increased intermittent generation	9.	Are the existing tools available to system operators sufficient, and if not, why?	• •	Will sufficient FCAS be available? Is the wind forecasting facility adequate? Is the SO control over wind generators adequate?	System operators to advise.	See above.
	10.	How material is the risk of large scale intervention by system operators and why might such actions be ineffective or inefficient?			This is a question where the NGF modeling may provide some insight.	See above.
	11.	How material are the risks associated with the behavior of existing generators, and why?	•	Will spinning reserve be required to compensate for the large ramp rates of some renewable technologies? How will the increased ramping of steam based plants be managed? How will early plant retirement of plant and changed operating regimes impact reliability?	This is a question that the NGF modeling is attempting to answer.	See above.

ISSUE	QUESTION	Is the scope properly identified? (What are the specific issues that should be addressed?)	What evidence is relevant to assessing the materiality of the issue?	Which issues are most material?
5 Connecting new generators to energy networks and 6 Augmenting networks <sup>8</sup> Electricity and Gas Access Regimes <sup>9</sup>	16 How material are the risks associated with continuing with an "open access" regime in the NEM?	Before this question can be answered a more detailed description of the electricity and gas access regimes is required. The description of the NEM access regimes in the scoping paper is incomplete Open access regimes can have a wide range of forms which are not adequately described by reference to congestion only.	The NEM & NGM access regimes should be described in full in terms that are consistent with the Rules before proceeding with any assessment of their relative merits or inconsistencies. We have proposed a framework for describing the access regimes as a basis for evaluating the differences both in practical implementation and the economic effect. Refer attached table 1. <sup>10</sup>	Material

<sup>&</sup>lt;sup>8</sup> We agree with the statements in the issues paper, on page 30, that the access regime and *"the process through which the shared network is augmented is very important because can materially affect market outcomes"*. Because it is the interface between the regulated and competitive market and the process which drives efficient investment both in transmission and generation. For this reason we suggest that the issues and questions raised in sections 5 and the Augmentation issues in 6 be combined under the heading Electricity & Gas Access regimes with separate sections for Dynamic efficiency, Congestion Management and Transmission Planning.

<sup>&</sup>lt;sup>9</sup> The NGF agrees with the proposition in the scoping paper that the interface between regulated networks and unregulated generation is a critical interface and more specifically that there is a risk that investment decisions are skewed because of the different connection regimes between gas and electricity.

<sup>&</sup>lt;sup>10</sup> The NGF notes that strictly speaking the interface for unregulated generators is with unregulated transmission investment (ie "negotiated services") which then has an interface with regulated transmission investment. Regulated transmission is regionally or centrally planned, negotiated transmission services and

12 How material are the risks

of decision-making being "skewed" because of differences in connection regimes between gas and electricity, and why?

We agree that this is an important issue. The objective of the access regimes and their differences need to be outlined and agreed before this question can be answered sensibly. Alternatives to 12 &16 are proposed in the following section.

There are two potential issues identified:

- 1. connections may not be adequately coordinated, and
- 2. there may be inefficiencies in the scale of connections with an approach based on bilateral negotiation

both of which may result in inefficient transmission investment.

13 How large is the coordination problem for new connections? How material are the inefficiencies from continuing with an approach based on bilateral negotiation?

The scope is not properly described because it considers transmission investment for connections in isolation ie ignores the associated generation investment which is the reason for requiring a connection.

The question therefore relates to the NEM access provisions and to whether or not dynamic efficiency in the NEM will be increased by coordinating <u>transmission and generation</u> <u>investment</u>, through some level of centralised planning or by modifying the access provisions. There is currently no requirement for coordination of connection applications. (Refer to the table attached) the NGF is not aware of any significant inefficiency in the investment process due to lack of co-ordination of transmission investment.

generation investment are market driven and not centrally planned. This is consistent with the gas market where gas transmission and generation investment are not centrally planned.

Material

ISSUE	QUESTION	Is the scope properly identified? (What are the specific issues that should be addressed?)	What evidence is relevant to assessing the materiality of the issue?	Which issues are most material?
	In the absence of climate change policies will the access provisions for gas and electricity when considered as a whole provide outcomes consistent with the NEM objective?	<ul> <li>What are the underlying economic principles on which the respective rules are based?</li> <li>Are the Electricity provisions consistent (in economic terms) with the gas Rules access provisions?</li> <li>Do the current access regimes for transmission access (gas &amp; electricity) encourage generation investors to take into account location specific costs (such as in remote and resource rich locations) and make efficient investment decisions, ie "ensure an appropriate trade off between gas and electricity network infrastructure costs"?</li> </ul>		Very Material
Dynamic Efficiency	In the presence of climate change policies will the access provisions for gas and electricity when considered as a whole provide outcomes consistent with the NEM objective?	<ul> <li>Do climate change policies distort the underlying economic principles?</li> <li>Are the Electricity provisions still consistent (in economic terms) with the gas Rules access provisions?</li> <li>Will the current access regimes for transmission access (gas &amp; electricity) encourage renewable generation investors to take into account location specific costs (remote and resource rich) and make efficient investment decisions, ie "ensure an appropriate trade off between gas and electricity network infrastructure costs"?</li> </ul>		Very Material
	Are the access regimes the likely causes or sources of future congestion?	<ul> <li>Identify the causes of physical (or contractual) congestion in gas and electricity transmission assets.</li> </ul>		
	14 Are the rules for allocating costs and risks for new connections a barrier to entry, and why?	Refer above		Very Material
	19 How material is the risk of changing loss factors year- on-year?			Potentially material

ISSUE	QUESTION	Is the scope properly identified? (What are the specific issues that should be addressed?)	What evidence is relevant to assessing the materiality of the issue?	Which issues are most material?
Transmission planning	13 How large is the coordination problem for new connections? How material are the inefficiencies from continuing with an approach based on bilateral negotiation? <sup>11</sup>	Question 13 raises an issue with respect to transmission planning or "coordination of connections" <sup>12</sup> which may arise in a period of rapid expansion of the network. The following alternative questions are suggested.		
	In a period of rapid growth in	What are the benefits in coordinating investment in "negotiated		May be Material

in a period of rapid growth in	
new connections can dynamic	Services ?
efficiency be increased by	
coordinating or centrally	What are the costs ie the impact on generation investment?
planning generation	
investment and connection	
decisions? ie ("negotiated	
services", generation	

<sup>11</sup> The scoping paper has questioned whether, in a period of growth in new connections ("negotiated services and generation investment), competitive market outcomes may not lead to the most efficient investment strategy. The question suggests that there may be a problem with the size of transmission connections because they are driven by individual bilateral negations between generators or large customers and transmission entities, there is a strong incentive to "size" a connection to be the minimum necessary. This incentive to "size" a connection to be the minimum necessary derives from the competitive market where there is an incentive to minimize the total cost of a supply investment including the transmission connection. This is consistent with the competitive market objective to deliver the least cost delivered energy for consumers. The scoping paper suggests that "It is unlikely to be efficient to treat each application in isolation." ie there may be economies of scale in coordinating transmission investment which implies that generation investment could also have some increased element of central planning.

<sup>&</sup>lt;sup>12</sup> In the NEM access frame work as described in the attached table transmission network connections, generation investment and if relevant gas network connections are all decisions made in the competitive market, ie made by investors based on market signals (pool and wholesale market contracts) and are not centrally planned.

investment and gas transmission).<sup>13</sup>

How could connection decisions be coordinated with least impact on competitive market outcomes <sup>14</sup> ?	<ul> <li>What is the role of the central planter?</li> <li>What is the role if any for TNSP's in coordinating connections?</li> <li>How should the negative impact of generation investment decisions on inter connector capacity be managed?</li> <li>Funding of inter-connectors and inter-regional transmission charging</li> </ul>	intervention by the central planner in the competitive market the more material the issue becomes.
Should transmission of captured carbon dioxide to the sequestration area be centrally planned and coordinated or be left to market forces?		
18 How material is the risk of inefficient investment in the shared network, and why?		

<sup>&</sup>lt;sup>13</sup> Any intervention in the competitive market investment process is likely to distort the nature and timing of generator investment decisions may lead to countervailing inefficiencies in the energy market resulting in increased cost to consumers or increased risk for investors. The generator capital costs are generally likely to be much higher than the connection assets cost and there is a risk that any savings from economies of scale for transmission will be more than offset by increase energy costs for consumers if generation investment is delayed or distorted. The extent of these inefficiencies will depend on the extent of the intervention.

<sup>&</sup>lt;sup>14</sup> If transmission is to be funded in large "chunks" then the risk of this investment (due to initial or continuing underutilization) could be funded by customers through TUOS charges, which should then be recovered from new generators that connect and utilize that asset in proportion to the capacity utilized (to ensure dynamic efficiency). As an interim measure during the market transition this could be funded by the government infrastructure fund. The risks of the under utilization of these assets may be able to be minimized by TNSP planning. This approach would support independent investment decisions by generators.

ISSUE	QUESTION	Is the scope properly identified? (What are the specific issues that should be addressed?)	What evidence is relevant to assessing the materiality of the issue?	Which issues are most material?
	15 How material are the potential increases in the costs of managing congestion, and why?			
	What are the likely causes or sources of future congestion?	<ul> <li>Generation Investment.</li> <li>Transmission planning &amp; investment.</li> <li>Transmission and generation forced outages.</li> <li>Transmission and generation planned outages.</li> <li>Will congestion be at an economically efficient level in the future?</li> </ul>		Very Material
6A Managing Congestion	If the source of congestion for gas and or electricity arises from the access regime how might this be addressed?	Refer to "Access Regimes" above.		See above.
	If the source of congestion for gas or electricity does not arise from the access regime how might this be addressed?	What are the alternative congestion management regimes and what is their implementation cost?		See above.
	17 How material are the risks of contractual congestion in gas networks and how might they be managed?	This question has been transferred to the section on the access regimes as it is more efficient to firstly address the causes of congestion rather than managing congestion when it occurs.		

	ISSUE	QUESTION	Is the scope properly identified? (What are the specific issues that should be addressed?)	What evidence is relevant to assessing the materiality of the issue?	Which issues are most material?
		20 How material is the risk of an efficient retailer not being able to recover its costs, and why?	<ul> <li>Price caps threaten a retailer's viability when supply costs increase.</li> </ul>		
	7 Retailing	21 What factors will influence the availability and pricing of contracts in the short term?			Very material
		22 How material are the risks of unnecessarily disruptive market exit, and why?			Material
7 <i>1</i> M	7A Contract Market	What are the factors that limit the tenor of contracts in the electricity market?	<ul> <li>Does the risk to retailers in taking long term contracts with the risk of loss of the customer base limit the availability of long term contracts?</li> </ul>		Very material
		How can the tenor of contracts be increased?			Very material

ISSUE	QUESTION	Is the scope properly identified? (What are the specific issues that should be addressed?)	What evidence is relevant to assessing the materiality of the issue?	Which issues are most material?
8 Financing new energy investments	23 What factors will affect the level of private investment required in response to climate change policies?	<ul> <li>What aspects of the market framework increase the risks of investing in the energy markets?</li> <li>Competitive Market <ul> <li>Risk of changing government policies.</li> <li>Government intervention in the market.</li> <li>Lack of firm access &amp; inconsistent access regimes.</li> <li>Contract tenor.</li> </ul> </li> </ul>	The NGF modeling will provide an estimate of the level of finance (debt and equity) required to fund investment in renewable energy and gas and electricity transmission.	These are all material issues but the market factors that affect financing are the same as those that facilitate economically efficient investment and investor certainty.
	24 What adjustments to market frameworks, if any, would be desirable to ensure this investment is forthcoming at least cost?	<ul> <li>How can these risks be reduced of eliminated</li> <li>Firm access (refer to Access regimes above)</li> <li>Capacity payments?</li> <li>Increased contract tenor?</li> </ul>		

- Capacity payments?
  Increased contract tenor?

	Electricity Transmission	Electricity Transmission	Gas Transmission	Gas transmission (Victoria)
Function	<ul> <li>Transport a bulk supply of energy</li> <li>in the case of sunk assets from the generation or production sources to major demand centres, i.e. small customers</li> <li>between major demand centres</li> <li>to large customers directly</li> </ul>	<ul> <li>Transport a bulk supply of energy</li> <li>from the generation or production sources to major demand centres</li> <li>to large customers directly</li> </ul>	<ul> <li>Transport a bulk supply of energy</li> <li>from the production sources to the generation or major demand centres,</li> <li>between major demand centres</li> <li>to large customers directly</li> </ul>	<ul> <li>Transport a bulk supply of energy</li> <li>from the production sources to the generation or major demand centres,</li> <li>between major demand centres</li> <li>to large customers directly</li> </ul>
Туре	Prescribed transmission services	<b>Negotiated transmission service</b> <sup>iii</sup> (Could also be a <i>contestable service</i> )		Extensions or expansions under GasNet Access Arrangement (AA)
	Transmission services which are regulated under a revenue cap 1. shared transmission services	<ul> <li>Transmission services which fall outside the revenue cap and for which prices and conditions of supply are determined through bilateral negotiation, subject to the availability of a dispute arbitration process;</li> <li>1. shared transmission services that <ul> <li>exceed the jurisdictional</li> </ul> </li> </ul>	Contestable conditions (bilateral negotiation) are developing in the gas transmission pipeline sector, particularly in south-eastern Australia, introducing scope for the degree of access regulation to be reduced or removed entirely.	Extensions Where GasNet provides notice to the regulator, Extensions will not be regulated. Expansions
Scope	2. services that are to be provided by a TNSP under the Rules	<ul> <li>performance requirements or</li> <li>performance is &gt; or &lt; system standards (5.1a or 5.1)</li> </ul>		regulated, except for the increase in capacity at Culcairn above current 17TJ/day capacity. Regulated network expansions are required to
	<ol> <li>TNSP to NSP connection 2 services</li> <li>3</li> </ol>	<ol> <li>Connection services TNSP to network user</li> <li>Use of system services for augmentations or extensions ref 5.4A(f) (3)</li> </ol>		<ul> <li>system wide benefits test</li> <li>incremental revenue test</li> </ul>

## The Electricity and Gas, Transmission Access Regulation Regimes

	Electricity Transmission	Electricity Transmission	Gas Transmission	Gas transmission (Victoria)
QUALITY OI	F SERVICE			
System Standards	System Standards and Network Performance requirements apply Quality of supply to comply with schedule 5.1 or 5.1a.	Performance negotiated around system standards Like a shared asset but provided at a reliability = or less than 5.1 or 5.1a.	No system standards except to the extent of safety regulation.	GasNet owns the principal transmission system (PTS) in Victoria. However, Vencorp provides gas transmission services in Victoria under the MSO Rules. However, there is no system Standard attached to this.
CAPACITY	OF SERVICE or ACCESS			
Network Operation & Maintenanc e	Access not guaranteed in an operational time frame, access may be reduced due to network failures or because of maintenance activities.	Access not guaranteed in an operational time frame, access may be reduced due to network failures or because of maintenance activities.	Access rights below defined by bilateral negotiation, access may be reduced due to network failures or because of maintenance activities	
Planning Processes	Central planning on a Regional basis by each TNSP with oversight by the NTP with respect to the NTP long term plan.	<ul> <li>Not centrally planned. Investment decisions are market driven and based on bilateral negation between: <ul> <li>large consumers and the TNSP and</li> <li>suppliers (generators) and the TNSP</li> </ul> </li> <li>Investment decisions may be guided by the NTP long term plan.</li> </ul>	Gas distributors and transmission businesses are generally not subject to regulatory requirements with respect to planning.	VENCorp is the independent system and market operator Accordingly, it has the responsibility of major planning role in the gas market. Here, it Produces a Gas Annual Planning Review which provides information on the future development requirements of the system in the next five years.
Access Provisions	Obligation to serve new load. Planning standards apply which have the effect of requiring the transmission network to be built – and for new investments to be undertaken – so that supply to customers is unaffected by	Large Consumers TNSP's have an obligation to serve new load but customers must pay. Suppliers There is no obligation for a TNSPs to serve new supply or for generators to pay however a planning standard	No obligations to serve new load, however tradable capacity rights are available and customers must pay. As tradeable capacity rights are typically created and allocated for gas transmission pipelines, access prices need only divide up the capital costs	No planning standard applies to gas Transmission in Victoria. Level of access is defined by AMDQ Access to transmission system is based on competitive bidding in the

Electricity Transmission	Electricity Transmission	Gas Transmission	Gas transmission (Victoria)
certain events (albeit with the requirements on the different	applies, i.e. no generators access is to be reduced without compensation	between users in proportion to the share of the asset that each uses –	Victorian gas market.
prescribed to differing degrees).	constrained off by the new entrant.	create an opportunity cost for the use of a capacity right, and so provide users with signals that encourage the	identical bids, then participant with AMDQ is dispatched. Also, AMDQ provides protection against
Relevant clauses to be identified	Relevant clauses for Customers to be identified	optimal use of pipeline capacity.	congestion Uplift.
	Relevant clauses for Generators to be identified		

<sup>&</sup>lt;sup>i</sup> Could also be a *Contestable service* - a service which is permitted by the laws of the relevant participating jurisdiction to be provided by more than one Transmission Network Service Provider as a contestable service or on a competitive basis. (Except in Vic because Vencorp calls for competitive tenders) This may be subject to a less intrusive form of regulation at the discretion of the AER or not regulated at all.