

9 September 2016

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Tasmanian Energy Security Taskforce – Consultation Paper (August 2016)

Dear Mr Willis

The Energy Networks Association (ENA) welcomes the opportunity to make a submission to the Tasmanian Energy Security Taskforce's Consultation Paper (August 2016).

The ENA is the national industry association representing the businesses operating Australia's electricity transmission and distribution and gas distribution networks. Member businesses provide energy to virtually every household and business in Australia.

Energy security is one element of the energy 'trilemma' of balancing security, environmental sustainability and cost. The ENA suggests that all technologies and options be considered to increase energy security in Tasmania but that the energy security issues need to be addressed at a national level.

The ENA supports an approach to Tasmanian energy security which:

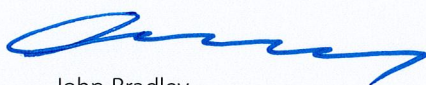
- » reflects a nationally consistent framework for transmission reliability standards;
- » ensures a robust, nationally consistent approach to estimating the Value of Customer Reliability (VCR). Estimating VCR requires an adequately resourced, expert body, with the commitment of funding to develop and update robust measures. VCR estimation in Australia has a relatively limited history and could benefit from further examination of different methodologies and estimation approaches
- » establishes regulatory frameworks for the development of conventional and unconventional gas supplies which are based on international scientific principles and evidence; and
- » ensures a technology neutral approach to carbon policy.

The ENA and its relevant member businesses are willing participants to assist the Taskforce in elaborating on the responses provided to some of the more relevant Consultation Paper questions.

The responses to relevant questions in the Consultation Paper are provided in Attachment 1.

Should you have any additional queries, please feel free to contact Norman Jip, ENA's Senior Program Manager – Transmission on (02) 6272 1521 or njip@ena.asn.au.

Yours sincerely



John Bradley
Chief Executive Officer

Attachment 1 – ENA responses to selected Consultation Paper Questions

Question 1: What are the specific risks to Tasmanian energy security that you think the Taskforce should consider?

The Taskforce should holistically examine the single points of failure in Tasmania's overall energy supply chain and undertake a Cost/Benefit analysis of proposed solutions to address these risks.

Some of the potential risk factors that the Taskforce should consider include: climatic and weather-related, technical, operating, investment frameworks, regulatory, obsolescence, and cyber/physical risks.

The Paper correctly identifies that energy security and the level of energy (predominantly electricity) reliability should reflect the willingness of customers to pay for an optimal balance of energy 'insurance'. This involves a robust assessment of the desired level of energy adequacy, reliability and security. There are clear tradeoff between costs and service outcomes in such assessments which are a recognised part of establishing an efficient service level. The assessment of such trade-offs requires evaluating the extent to which customers accept the risk of short periods of time when the service becomes unavailable or is in short/tight supply.

Any analysis needs to be considered over a number of time-frames. The Taskforce clearly identifies short term (one to five years), medium term (five to ten years), and longer term (10 years and beyond). Failures or key disruptions/events in any one of these timeframes will lead to energy supply reliability and security impacts.

In undertaking such an examination, the Value of Customer Reliability (VCR) should be considered in the context of a national methodology with the scope for some regional/locational variability. The Taskforce should also consider frameworks to address, and plan for, those risks which are not well accommodated by VCR assessments, such as High Impact, Low Probability events.

Question 5: What existing frameworks for assessing and monitoring energy security might the Taskforce wish to consider?

The Taskforce already correctly identifies in the Consultation Paper at page 6, the prescribed regulatory roles that exist for Australian Energy Market Operator (AEMO) the Tasmanian Government (and officials) and TasNetworks "to manage energy security threats" and the Energy Adequacy Assessment Projection process that AEMO undertakes in assessing different rainfall scenarios upon the risk of breaching Unserved Energy standards across the NEM's jurisdictions.

As far as possible a national framework should be utilised. From a National Electricity Market (NEM) and system operator perspective, the AEMO has a key national energy security role as does the NEM's Transmission and Distribution Network Service Providers (in particular TasNetworks for this jurisdiction) in a complementary way. Tasmania already operates under nationally reliability standards for unserved energy (USE)¹. However, the ENA highlights that the Scope of the Reliability Standard for Generation and Bulk Supply measure only includes USE associated with power system reliability incidents that result from:

- (i) a single credible contingency on a generating unit or an inter-regional transmission element, that may occur concurrently with generating unit or inter-regional transmission element outages; or
- (ii) delays to the construction or commissioning of new generating units or inter-regional transmission network elements, including delays due to industrial action or 'acts of God'².

¹ Reliability standard and reliability settings review (2014), Australian Energy Market Commission. <http://www.aemc.gov.au/Markets-Reviews-Advice/Reliability-Standard-and-Settings-Review-2014>

² It excludes unserved energy associated with power system security incidents that results from: (a) multiple or non-credible contingencies; (b) outages of transmission or distribution network elements that do not significantly impact the ability to transfer power into the region where the USE occurred; or (c) industrial action or 'acts of God' at existing generating or inter-regional transmission facilities.

The AEMC's Reliability Panel remit also includes it determining standards and guidelines as part of the framework for maintaining a secure and reliable NEM power system, while not extending to all aspects of energy security. These tend to focus more on operational timeframes for maintaining and restoring power system security.

Under the current National Electricity Rules (NER), the Australian Energy Market Commission (AEMC) has a last resort planning power. Rules Clause 5.22 (b) states "The purpose of a *last resort planning power* is to ensure timely and efficient *inter-regional transmission* investment for the long term interests of consumers of electricity". Under NER, Clause 5.22 (c) the AEMC can direct one or more *Registered Participants* to (1) identify a potential transmission project and apply the *regulatory investment test for transmission* to that project; or (2) to apply the *regulatory investment test for transmission* to a potential transmission project identified by the AEMC.

Question 6: Which potential energy security solutions should the Taskforce consider?

All available and emerging technologies and solutions that are applicable to Tasmania should be considered. This should be a holistic approach and could consider the efficient contribution of different options including:

- water storage options (supporting security of hydro-electricity generation);
- natural gas options (both for power generation and direct use);
- Distributed Energy Resources including dispatchable renewable generation, demand response, storage and other solutions; and
- network solutions including enhanced interconnector options.

It is acknowledged that natural gas is an ideal accompaniment to renewable generation, specifically intermittent generation such as solar, wind or tidal power. In addition to the rapid response and security of electricity supply afforded by the Tamar Valley (gas) Power Station, there may be opportunities to embed small natural gas-fired units in the power system as small scale partners for intermittent generation. This solution would be particularly relevant at the extremities of the electricity network, where they could provide network benefits.

A diversified generation mix also increases energy security across the various locations of the electricity network.

The Taskforce should be technologically neutral and avoid 'picking winners' in its approach to potential solutions. It should seek to establish energy security objectives in a transparent manner, and to support the reliability and security outcomes with the most efficient energy portfolio. These alternatives must be assessed in the long term interest of consumers and prevailing energy sector laws, objectives and regulatory frameworks, as well as having regard to relevant revenue and pricing principles.

Question 9: What economic opportunities and risks are there for Tasmania associated with a second Bass Strait interconnector, and how would it improve Tasmania's energy security?

In general, the ENA considers greater interconnection in the NEM can improve wholesale market competition, allow access to lower-cost generation at times of high demand, and allow customers to connect with new technology and cleaner sources of generation, while benefiting from the back-up provided by a very reliable grid. Interconnection also supports the overall reliability of the energy system and helps to maintain power system security.

ENA also recognises that energy can be provided through either gas pipelines and/or electricity transmission networks. The Taskforce should evaluate the extent to which existing energy resources are being utilised to provide energy security and reliability of supply. Tasmania may be able to better utilise existing assets that have already been built and paid for - such as the Tasmanian gas pipeline which connects Tasmania to Victoria and has sustainable capacity of 129 TJ per day.

The ENA also recognises that a second Bass Strait interconnector could be a longer-term mechanism to connect and integrate renewables to deliver a cleaner energy future for both Tasmania and the Mainland. The ENA supports the current investigation into the feasibility of a second electricity interconnection with Victoria, and

looks forward to the outcomes of the joint Australian-Tasmanian Government feasibility study, due at the end of 2016.

A key issue is whether a second interconnector is required for the economic viability of future Tasmanian renewable energy projects, and if so, whether this is justified from a national energy market perspective. Some of the key issues for this interconnector study include:

- its technical performance,
- its impact on the design of the Tasmanian transmission network, and
- whether there are likely to be net customer and market benefits.

The ENA acknowledges that relevant due diligence will need to be undertaken when making these assessments, and appropriate caution is required when undertaking such potentially significant investments.

In addition, the ENA intends to work with TasNetworks, governments, and other key stakeholders on the recently announced "review [of] the regulatory test for investment for new transmission assets to ensure it is effective in the current market environment ..." as announced in the 19 August 2016 COAG Energy Council Meeting Communiqué. This review is to ensure stability and connectivity of the NEM, and is also currently scheduled to be completed concurrently with the release of the Final Report into the feasibility of the second interconnector.

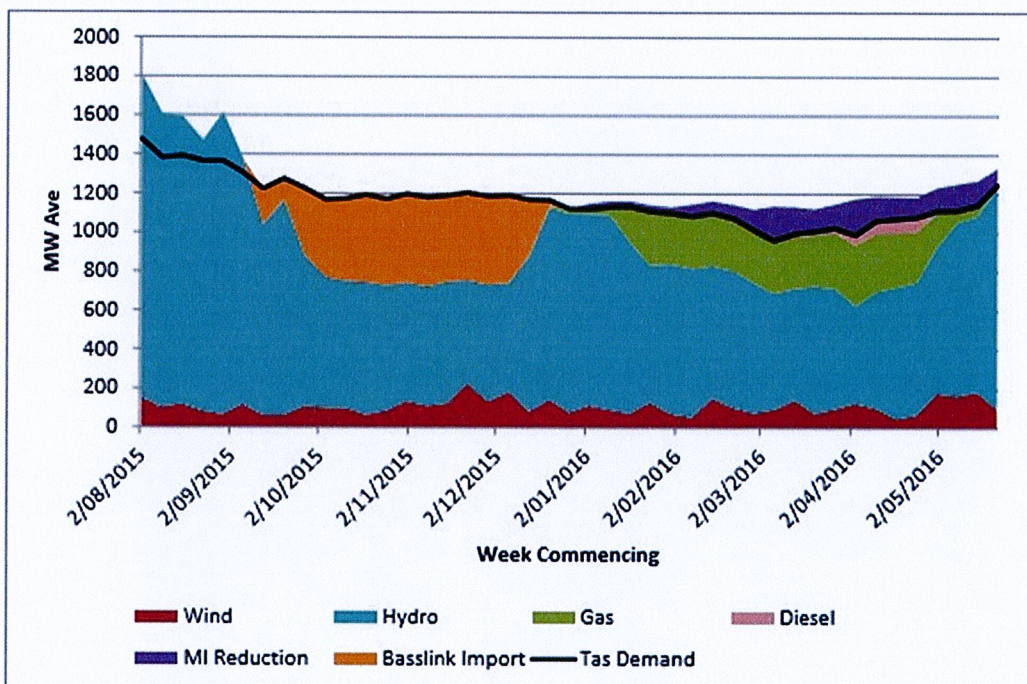
The Taskforce should ensure that its recommendations are consistent with the national approach implied in the application of the Australian Energy Regulator's Regulatory Investment Test – Transmission.

Question 10: How might the Taskforce consider the role for gas generation in Tasmania relative to other options to maintain energy security and the associated costs and risks?

Gas provides energy diversity and security in two ways.

Firstly, within power generation, gas is a flexible fuel that can be used to complement intermittent renewable generation but can also be used to provide baseload power. This was evident during the recent Tasmanian energy crisis. While most of the attention was on the diesel generators that were deployed to Tasmania, the energy mix data shows that gas generation provided the majority of the electricity for Tasmania during that period. The Tamar Valley (gas) Power Station that was restarted during the Basslink outage contributed to the energy security for the State.

Data from Hydro Tasmania (below) shows that gas provided nearly the equivalent power to Tasmania in the first four months of 2016 compared to the Basslink connection in late 2015. Maintaining the current Tamar Valley power station currently provides robust energy security for Basslink, without a second interconnector.



Source: Hydro Tasmania Energy Supply Plan Update, 6 June 2016.

Natural gas is also an ideal accompaniment to renewable generation, specifically intermittent generation such as wind or tidal power. In addition to the rapid response and security of supply afforded by the Tamar Valley power station, there may be an opportunity to embed small natural gas-fired units in the power system as small scale partners for intermittent generation. This solution would be particularly relevant at the extremities of the electricity network, where large-scale power input is not feasible.

Secondly, the direct use of gas by industry, commerce or the household offsets electricity demand and provides additional energy security during times of electricity constraints. The direct use of gas also provides energy at a lower greenhouse gas intensity compared to electricity imports. The TasGas network makes gas available to approximately 46,500 homes and businesses in Tasmania.

Question 11: What can be done to strengthen the Tasmanian gas market without significant subsidy from Government and costs on taxpayers or consumers?

The Tasmania gas pipeline currently has spare capacity. This capacity can be used to provide diversity and security to the Tasmanian energy market. Natural gas has a well-established position as an alternative and complementary energy source. It provides the flexibility to be able to prudently manage renewable energy export and storage, while providing an affordable level of insurance against the economic risk of energy supply shortfall.

Supply of gas in the Australian East Coast gas market has been a topic under consideration for the last couple of years, reflecting more technically and regulatory restrictive settings and growing export demand through the LNG trains in operation in Gladstone, Queensland.

It is important that regulatory frameworks for unconventional and conventional gas are evidence-based, as encouraging industry to further explore and develop gas resources will increase availability of gas and ultimately reduce the price. This will be a benefit to Australian east coast and Tasmanian gas consumers.

Question 14: Is there a limit on the level of intermittent renewable generation that Tasmania can sustain without affecting the reliability of the network, or requiring significant cost to strengthen the network?

The ENA notes that TasNetworks continues to connect low emission generation at both a transmission and distribution level. The ENA is also aware that TasNetworks is of the firm view that connection standards for intermittent generation technologies will need to be strengthened. Network Service Providers have the experience, expertise, and responsibility to successfully connect all forms of generation and where economically viable, integrate demand management options. The performance standards that newer forms of generation technology must meet in relation to output consistency, intermittency, quality, and power system stability and the scope of mechanisms by which those performance standards can be met, needs robust consideration.

This may require some regulatory changes to existing arrangements as to what are known as *minimum access standards* in Chapter 5 of the National Electricity Rules.

Question 17: What impact will the national commitment to reduce carbon emissions have on renewable energy development in Tasmania and in the wider NEM?

ENA recently published³ a study by Jacobs that investigated different policy options for reaching national carbon abatement targets of 26 to 28% or 45% by 2030. All these scenarios showed that the Renewable Energy Target could be met with a range of carbon policy frameworks. However, technology neutral carbon policy will produce significantly lower carbon abatement and reduced average residential bills between 2020 and 2030.

The analysis indicated there is growth in both renewable energy generation, beyond the RET, and gas fired generation required to reach Australia's abatement targets. The location of renewable energy projects across the NEM, including Tasmania, will need to consider the development of, or upgrades to interconnectors, and other technical considerations including growth in non-synchronous generation in the wider NEM, networks constrains and limitations. Development of new renewable energy projects should reflect the renewable energy resource, the economic merit of the solution and the commercial assessment of project proponents.

Question 19: Are there other scenarios with energy security implications in Tasmania that the Taskforce should be considering?

The ENA considers that the Taskforce engages with TasNetworks, TasGas, AEMO and the Department of State Growth on the development of these planning scenarios. The suggested scenarios outlined on page 14 of the Paper are quite extensive. These involve:

- a second interconnector;
- significant changes in demand (both up or down);
- the potential impact of a carbon market;
- the impact of significant changes in the spot market price in the NEM and for gas prices;
- changes to storage inflows;
- rapid technological change with distributed generation and storage; and
- the impact of changing minimum operating levels for storage.

However, the option of utilising the spare capacity in the Tasmanian gas pipeline to provide Tasmania with energy security should also be considered. Robust consideration of these scenarios combined with some sensitivity testing and potential differential probability weightings and permutations would appear to make this a challenging task. This is particularly the case if the Taskforce attempts to explain this in 'layman's terms'.

³ Jacobs (2016), *Australia's climate policy options – Modelling of alternate policy scenarios*, available from www.ena.asn.au