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15 September 2016

Energy Security Taskforce Secretariat
c/o Department of State Growth
GPO Box 536
Hobart
Tasmania 7001

Via email: energysecuritytaskforce@stategrowth.tas.gov.au

Dear Sir or Madam

RE: TAS GAS SUBMISSION TO TASMANIAN ENERGY SECURITY TASKFORCE CONSULTATION PAPER

I am pleased to submit Tas Gas' response to the Tasmanian Energy Security Taskforce Consultation Paper. This submission outlines the joint position of both Tas Gas Networks and Tas Gas Retail.

Natural gas has played an important role in Tasmania's energy mix for more than a decade, with around 12,500 homeowners, 900 commercial customers and 58 major industrial users choosing natural gas to heat their homes and power their businesses. Natural gas was pivotal in managing recent energy challenges, and we consider natural gas continues to have a critical role in Tasmania's energy security, both as a direct fuel and as a reserve energy source in times of electricity constraint.

To ensure natural gas remains a sustainable option for Tasmania and the many customers who depend on it, we recommend the State Government takes the following actions:

- maintain natural gas as part of a managed energy portfolio;
- facilitate industry-wide cooperation to improve natural gas commodity and transportation capacity buying power;
- maintain the capacity of the Tamar Valley Power Station, and support gas distribution penetration; and
- maximise the value of existing energy infrastructure before investing in new infrastructure.

These actions require a whole-of-industry approach and careful consideration to ensure we strike the correct balance between energy security and long-term efficiency and sustainability.

The current focus on Tasmania's future energy needs presents an opportunity for the Tasmanian State Government to drive lasting improvements to our state's energy sector. We welcome the opportunity to participate in the consultation process, and look forward to engaging in further discussion with the Taskforce and other interested parties on this important issue.

If you have any questions regarding our submission, please feel free to contact me.

Yours sincerely

Simon Himson

Chief Executive Officer
Tas Gas Networks Pty Ltd and Tas Gas Retail Pty Ltd

Tasmanian Energy Security Taskforce Submission

September 2016

Contents

1. Executive summary

We are pleased to present this submission on behalf of Tas Gas[1], in response to the Tasmanian Energy Security Taskforce's August 2016 Consultation Paper. This submission outlines Tas Gas' position on several of the energy security questions raised in the Taskforce's paper[2], as well as discussing the role of natural gas in Tasmania's energy security portfolio. We welcome the opportunity to participate in the consultation process, and look forward to engaging in further discussion with the Tasmanian State Government (Government) and other interested parties on this critical issue.

Natural gas has played an important role in Tasmania's energy mix for more than a decade. Since natural gas was introduced to Tasmania in 2005, around 12,500 homeowners, 900 commercial customers, and 58 major industrial users have chosen gas to heat their homes and power their businesses. Though the vast majority of Tasmanian energy demand is met by hydro-electric power, natural gas provides around 972,000,000 KWhs of energy to our state each year, just under 10% of total demand. As a cleaner alternative to coal and diesel, and a more reliable option than many renewables, natural gas has a valuable role in meeting Tasmania's energy needs.

For a long time, natural gas has played an understated yet critical role in the security of Tasmania's energy supply. Never has the importance of natural gas been better illustrated than during the recent energy crisis, where access to natural gas through existing contracts and infrastructure substantially lessened the impact of the Basslink failure.

The ability to activate the natural gas-fired Tamar Valley Power Station (TVPS) was the single biggest mitigant[3] of the energy shortfall, allowing thousands of Tasmanians to continue to run their homes and businesses. Major industries connected to the natural gas network were also insulated to some extent from the crisis, as they were able to draw upon gas as a substitute fuel. Had natural gas not been a viable alternative fuel source, it is fair to say the impact of the energy crisis would have been far worse.

For this reason, Tas Gas requests the Government takes measures to ensure natural gas continues to have a significant role in Tasmania's energy future. While hydro-electricity will remain our state's primary energy source, we propose the Government can seize the opportunity presented by the crisis, as well as the review of several natural gas transportation contractual arrangements, to preserve natural gas as a sustainable partner to hydro and other renewables.

Tas Gas recommends the Government takes a managed portfolio approach to Tasmania's energy needs, which would utilise a mix of resources in response to demand, energy policy, and market signals. Natural gas would be a key part of this energy portfolio, used as a back-up to renewable energy, and to mitigate any future shortfalls in electricity supply. Natural gas would also act as a cleaner alternative to the coal-fired electricity imported from the National Energy Market (NEM), and could be used to maximise opportunities for renewable energy export.

Stimulating demand for natural gas, and facilitating sustainable access to it, benefits all Tasmanian energy customers. Natural gas is a competitive, efficient and relatively clean fuel

[1] This paper is a joint response from Tas Gas Networks Pty Ltd and Tas Gas Retail Pty Ltd, wholly owned entities of Brookfield TGN Holdings Pty Ltd, and referred to collectively as Tas Gas.

[2] Though not reproduced verbatim, the relevant questions under consideration in this submission are questions 1, 6, 9 and 10.

[3] From January to May 2016, the TVPS contributed more than 300MW of electricity per day, almost entirely replacing the capacity lost via the inability to import coal-fired electricity from the National Electricity Market, see Figure 2.3 on page 10 of this document.

source. Greater use of natural gas offsets growth in electricity demand, thereby reducing costly network augmentations, while broader use of natural gas across the economy reduces the impact of unexpected constraints on supply. A summary of recommended actions that will maximise the benefits of natural gas are provided below.

1.1 Recommended actions

Tas Gas recommends several actions the Government could take in order to enhance natural gas's role in Tasmania's sustainable energy future. These are:

- maintain natural gas as part of a managed energy portfolio;
- facilitate industry-wide cooperation to improve natural gas commodity and transportation capacity buying power;
- maintain the capacity of the TVPS, and support natural gas distribution penetration; and
- maximise the value of existing energy infrastructure before investing in new infrastructure.

These actions are discussed in the following sections.

1.1.1 Maintain natural gas as part of a managed energy portfolio

In Tasmania we are in the privileged position where we can export much of our high-value renewable energy to the NEM. However, the ability to export is heavily dependent on the water level in the hydro-electric dams. If a portfolio approach was adopted where natural gas is sustained as a standby resource, it would allow greater reserves of water to be used for trading, maximising the value of energy export without compromising energy security.

Some of the additional value created in the renewables sector can be invested in maintaining capacity in the natural gas delivery system, as well as the upkeep of the TVPS. Customers would also benefit from lower natural gas delivery prices, as the gas delivery costs are spread over a larger customer base. Essentially, a portfolio approach would improve the competitiveness of the natural gas sector, and enable some of Tasmania's largest gas-dependent industries to continue to operate efficiently.

A further advantage is that natural gas is a cleaner alternative to coal-fired electricity. While the vast majority of Tasmania's energy is generated by Hydro Tasmania, during periods of exceptionally high demand or low water supply, electricity is imported via the Basslink connection with Victoria. The majority of electricity in the NEM (76% of all output) is generated by burning coal[4]. This means during periods of Basslink import, Tasmania's green energy credentials are somewhat compromised. Natural gas produces around half the carbon under combustion than coal and other fossil fuels. If electricity import can be reduced via increased gas penetration or gas-fired generation, it would help sustain Tasmania's record of being Australia's cleanest energy state.

Government energy policy is a critical part of maximising the efficiency of a managed energy portfolio. Potential policies would include mandating maintenance of the TVPS, consolidating purchasing power to counteract the monopoly position of the Tasmania Gas Pipeline (TGP), and taking measures to consolidate Tasmania's gas commodity purchasing power. We believe a portfolio approach to managing Tasmania's energy needs is an efficient and practicable

[4] p27, State of the Energy Market 2015, AER.

energy security solution, and we look forward to working with the Taskforce and the Government to deliver the best outcome for our state.

1.1.2 Facilitate industry-wide cooperation to improve natural gas commodity and transportation capacity buying power

The delivered cost of natural gas comprises two components; commodity and transportation capacity. Tasmania's entire retail market is less than 1% of the Victorian market; roughly equivalent to a large Melbourne-based consumer. However, under current arrangements, natural gas demand is aggregated via Hydro Tasmania, which means despite its relatively small size, the Tasmanian market can secure natural gas at reasonably competitive costs.

Hydro Tasmania has signalled its exit from the market as a shipper of gas when its TVPS contracts roll off at the end of 2017. Any disaggregation of demand as result of Hydro Tasmania no longer playing this role may lead to lower economies of scale and reduced purchasing power of consumers. This in turn may increase natural gas prices, making it unsustainable for the many business and residential customers that depend on it.

One solution is for the Government to facilitate an industry-wide approach to purchasing. For example, demand can be aggregated through Hydro Tasmania or a similarly prominent industry participant, and the Government, retailers and major industrial users can combine their purchasing power to secure natural gas at a sustainable price.

This approach could also be extended to gas transportation from Victoria to Tasmania, which is currently controlled via the TGP. Again, bringing major energy market participants together to secure pipeline capacity will introduce countervailing measures against the TGP monopoly, helping keep natural gas transportation costs (and end prices) competitive. Without such measures there is a risk natural gas, which plays such a vital role in Tasmania's economy, may no longer be a sustainable option.

Legal advice on Competition Law implications would need to be obtained before entering into any collective purchasing arrangement. However, our initial view is that aggregation of Tasmanian gas and gas transportation demand would provide significant public benefits.

This issue is of increasing importance as the two major gas producers that supply the Tasmanian market have indicated high demand from elsewhere could mean natural gas supply is fully subscribed after 2017. Therefore, it is important we act quickly to secure long-term natural gas commodity and capacity.

1.1.3 Maintain the capacity of the TVPS, and support natural gas distribution penetration

The energy crisis demonstrated the value of the TVPS and the natural gas network to Tasmania. From an energy security perspective, it would be wise to maintain the capacity of the TVPS as a standby or peaking generation measure, as it provides a degree of 'insurance' against future energy challenges. Maintaining the capacity of the TVPS mitigates power shortages in times of low water levels, without a significant negative impact on Tasmania's green credentials. Compared with coal, natural gas is a relatively low-carbon fuel, and the TVPS would only be run in times of energy constraint (or where market signals indicate it is efficient to do so).

Maintaining TVPS capacity will help keep the delivered price of gas competitive in Tasmania. TGP revenues are derived mainly from the current 'take or pay' arrangements with TVPS for the shipping of up to 20 petajoules of gas annually until December 2017[5]. A similar amount of booked out TGP capacity should be retained beyond the existing contract in order to keep natural gas transportation costs sustainable. Similarly, if any incentives could be developed to increase the uptake of natural gas as a direct fuel in Tasmania, it would also increase TGP utilisation, while assisting energy security (due to offset of electricity demand).

1.1.4 Maximise the value of existing energy infrastructure before investing in new infrastructure

An option currently under consideration by Government is whether to construct a second electricity interconnector to Victoria[6]. Tas Gas urges caution before undertaking such a substantial infrastructure investment[7], not least because a second interconnector already exists – the Tasmania Gas Pipeline.

The TGP connects Tasmania to Victoria and has spare capacity of around 100 terajoules per day. This spare capacity is readily available should unforeseen events occur. Before building a second electricity interconnector, which will impose additional costs on Tasmanians over a long period of time, it is worth considering how we can better utilise assets that have already been built and paid for. Further, any decision regarding a second Basslink should be made within the broader context of the NEM evolution. We advise that making better use of existing infrastructure and markets would be a prudent and efficient course of action.

The recommendations summarised above present opportunities and risks, and should be considered as part of a Tasmania-wide approach to managing energy. At Tas Gas we have strong relationships with Government, industry participants, and customers. We are willing to share our insight and expertise to help bring the public and private sector together for the benefit of our state's energy security, and we look forward to working with the Taskforce on this.

In March 2016 the Hon. Matthew Groom MP, Minister for Energy said:

> *The Government can't control the rain; the Government can't control the timing of Basslink. What we can control are contingencies that we can put in place to make sure that we can meet Tasmania's ongoing energy requirements.*[8]

Natural gas is a sustainable contingency that merits its place at the forefront of energy policy. We believe it would be prudent to seriously consider options to leverage natural gas' value and importance to Tasmania's energy future.

We trust this submission will assist the Taskforce in understanding what energy security solutions can be implemented, and we look forward to working with the energy sector to develop the most efficient and robust outcome for our state.

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5 p30, The Tasmanian Gas Market, Goanna Energy Consulting, August 2016.

6 '*In April 2016, the Commonwealth and Tasmanian governments announced a joint feasibility study of whether building a second interconnector would help address long-term energy security issues.*', p9, Tasmanian Energy Security Taskforce Consultation Paper, August 2016.

7 Tas Gas understands that current cost estimates of building a second Basslink are in the region of $1.5 billion. This equates to around $6,000 per household.

8 ABC News, 3 March 2016, visit: http://www.abc.net.au/news/2016-03-08/energy-minister-gives-update-on-power-crisis/7228572

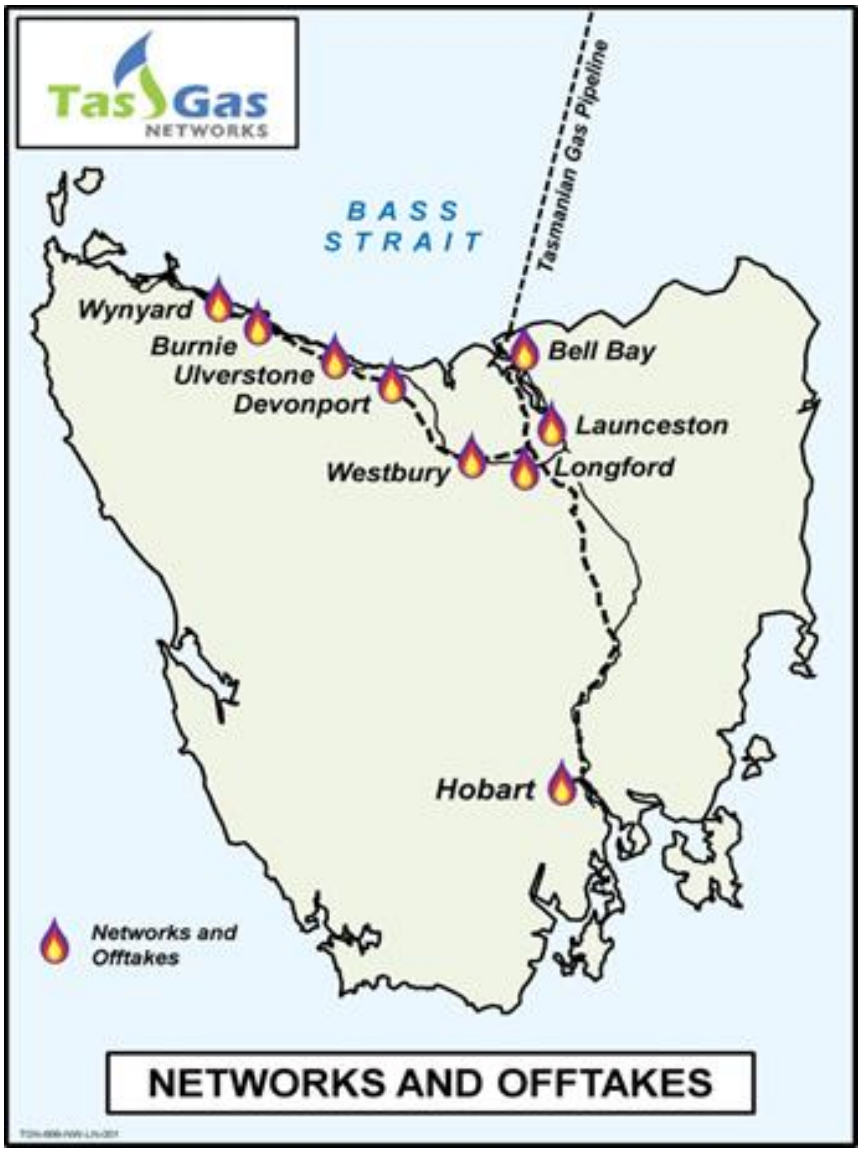
2. Natural gas in Tasmania

2.1 The natural gas network

Natural gas is distributed throughout Tasmania by Tas Gas Networks, a ring-fenced, privately owned business. All natural gas enters Tasmania via the Tasmanian Gas Pipeline. The TGP is owned by Palisade Investment Partners Ltd, and connects to the interconnected natural gas network at Longford, Victoria. The TGP has a nominal sustainable Natural Gas capacity of 129TJ per day.

Tas Gas Networks operates the distribution network, which features nine independent offtake points from the TGP (see Figure 2.1).

Figure 2.1: Tas Gas Networks TGP offtakes

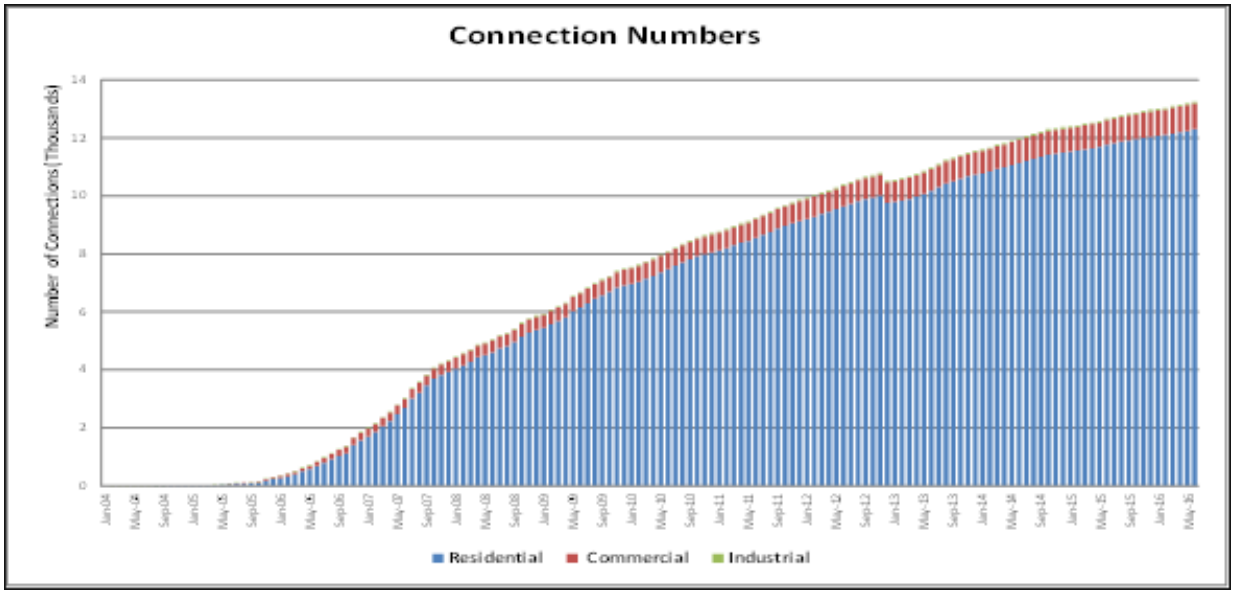


Source: Tas Gas Networks.

The network contains 800km of pipeline, passes 57,000 residences, and has 12,500 domestic connections. Tas Gas Networks also connects approximately 900 small-to-medium[9] commercial enterprises and 58 large[10] industrial customers. time.

Figure 2.2 shows how customer connections have grown over time.

Figure 2.2: Tas Gas Networks connection growth 2005 to 2015.



Source: Tas Gas Networks.

Tasmania's gas market is fully contestable, meaning customers purchase natural gas from a choice of gas retailers. Tasmania's largest gas retailer is Tas Gas Retail, with more than 8,000 customers. Both Tas Gas Retail and Tas Gas Networks are owned by Brookfield Infrastructure Partners.

2.2 The role of natural gas in Tasmania

Growth in natural gas usage has been gradual but important to the Tasmanian energy market. Natural gas was introduced to the market in 2005 and has played a vital role in Tasmania's industrial growth, offering major customers and some of Tasmania's largest employers a clean (in comparison to coal or diesel), accessible and low-cost alternative to electricity.

Natural gas is ideally suited for heating, particularly where a large industrial heat load is required. Historically, natural gas has also been more competitively priced than liquid petroleum gas (LPG), diesel, and other oil-based fuels. As such, many major customers, particularly those in energy-intensive industries such as food production and mineral processing, have taken the opportunity to switch to natural gas.

Industrial customers used a combined total of 2.8 petajoules of gas in 2015. Table 2.1 presents the ten largest consumers connected to Tasmania's natural gas distribution network.

[9] Using less than 10 TJ per annum.
[10] Using more than 10 TJ per annum.

Table 2.1: Ten largest distribution-connected gas consumers at 30 June 2016

Customer name	Business type	Aggregated consumption
Simplot (Ulverstone)	Vegetable processor	These 10 organisations account for 72% of total natural gas consumption in in the natural gas distribution network
Fonterra (Spreyton)	Dairy factory	
Fonterra (Wynyard)	Dairy factory	
Tas Alkaloids	Pharmaceuticals manufacturer	
Cadbury (Claremont)	Confectionary factory	
Nyrstar (Hobart)	Zinc smelter	
Lion D&D (Burnie)	Cheese factory	
Launceston General Hospital	Primary hospital for Northern Tasmania	
JBS Australia (Longford)	Abattoir and meat processing plant	
Impact fertilizers	Fertiliser production plant	

Source: Tas Gas Networks.

These ten consumers account for 72% of natural gas consumption in the natural gas distribution, and are among our state's largest energy users. Other significant users of natural gas are Grange Resources and Bell Bay Aluminium. These two major users are connected directly to the TGP and account for 36% of Tasmania's entire natural gas consumption. All industrial consumers are heavily dependent on natural gas for their day-to-day activities and ongoing productivity.

As well as direct use as a heating source, an important role of natural gas is that it helps reduce peak electricity demand. The Tasmanian electricity system has a peak demand of around 1,800 MW[11], which occurs during the winter. Peak electricity demand generally occurs in residential areas during the early morning and evening, as people heat their homes and water systems. Areas with a high number of natural gas connections typically have a lower electricity peak (on average) than those with few or no gas connections.

A house that connects to the natural gas network removes around 6,000 KWhs from electricity demand on average[12]. Therefore, the 12,500 homes that have connected to natural gas over the last decade have helped curtail Tasmania's electricity demand significantly, reducing the need for costly electricity network augmentation.

2.3 The role of natural gas during the energy crisis

Tasmania's natural gas supply and infrastructure was pivotal in managing the recent energy crisis. Natural gas has long been an understated player in Tasmania's energy security. Most natural gas is used for heating, and though some distributed generation capacity exists, electricity generation is predominantly limited to the gas-fired TVPS. The TVPS is owned and

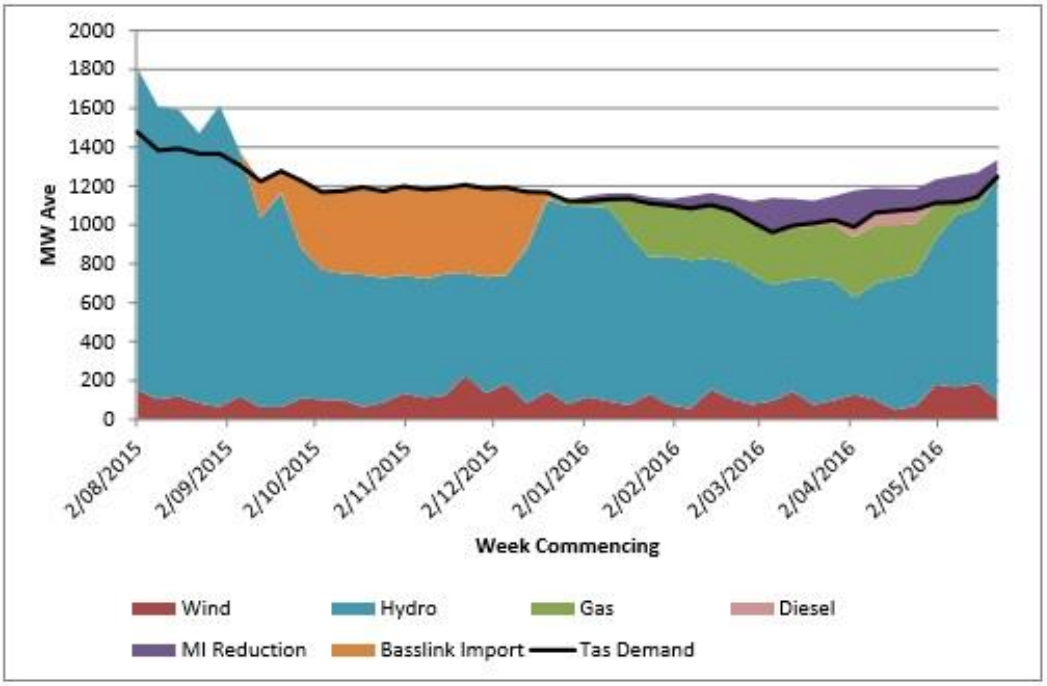
[11] Page 4, Table 1, National Electricity Forecasting Report, AEMO, June 2016.

[12] Based on figures provided by the Australian Government website energymadeeasy.gov.au, the average electricity consumption for a four-person all electric home in Launceston is 11,744 KWhs per year. The same home connected to natural gas used 5,761 KWhs per year, thus reducing consumption by 6,013 KWhs. This figure is an average and may vary by household.

operated by Hydro Tasmania, and has maximum generation capacity of 386 MW. Due to the abundance of hydro-electricity available in Tasmania, combined with the perceived security of the Basslink electricity interconnector with Victoria, the TVPS had effectively been in a state of decommission since July 2013, with the last significant electricity generation occurring during 2012/13.

However, when the Basslink failed and water levels fell to unexpected lows during 2015/16, the TVPS was recommissioned and played a major role in meeting the energy shortfall. Figure 2.3 illustrates how natural gas met Tasmania's energy needs during the crisis.

Figure 2.3: Electricity generation supply during the 2015/16 Tasmania Energy Crisis



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

The TVPS operated at near full capacity from January through to May 2016, contributing more than 300 MW of electricity daily. Natural gas-fired generation alone almost covered the loss of supply normally provided by the Basslink import, and was further complemented by industrial consumers reducing their electricity consumption. As previously discussed, many of Tasmania's largest businesses are connected to natural gas, which itself mitigated electricity demand during the crisis.

Diesel generation capacity was installed in March 2016 to supplement other resources and mitigation activities during the crisis. However, as can be seen in Figure 2.3, diesel's contribution to mitigating the Basslink loss was relatively minor.

Though the TVPS had been underutilised since 2013, the ability to recommission the power station quickly and draw on Tasmania's gas infrastructure capacity was fundamental in navigating the energy shortfall. However unlikely the simultaneous failure of the Basslink and water resources was, Tasmania was in the fortunate position that it had surplus natural gas capacity, already installed, with much of it already dedicated to power production. In addition, natural gas was available under contract or via spot markets.

Natural gas insulated thousands of residents and businesses against the full effects of the Basslink failure, allowing the wheels of industry to continue turning. Had natural gas not been

a viable alternative fuel source, it is fair to say the impact of the energy crisis would have been far worse.

2.4 Natural gas as a cleaner alternative to coal and diesel

Natural gas is a relatively clean fuel. Natural gas generates fewer carbon emissions than other fossil fuels, its chemistry meaning it releases half the amount of carbon into the atmosphere under combustion than other hydrocarbon fuels[13].

Part of the justification for introducing natural gas into the Tasmanian market was to displace carbon emissions. Coal can generate up to 228.6 lbs (103.7 kg) of CO_2 per Btu of energy, whereas natural gas produces around 117 lbs per (53.1 kg) Btu[14]. Since natural gas was introduced to the Tasmanian market in 2005, the following organisations have been able to reduce carbon emissions by adopting natural gas as a fuel source:

- Cascade - 6,500 tonnes of CO_2 per annum
- Cadbury - 10,500 tonnes of CO_2 per annum
- Simplot - 38,500 tonnes of CO_2 per annum per annum
- Fonterra (Spreyton) - 23,000 tonnes per of CO_2 per annum[15]

Tasmania's green credentials improved significantly in 2009 when the natural gas-fired TVPS was commissioned, replacing the bunker fuel burning Bell Bay Power Station. Natural gas has also displaced approximately 2.0 PJ per annum[16] of bunker fuel/oil burnt by Grange Resources.

Natural gas' relatively low carbon footprint and immediate accessibility (via the TGP) makes it the perfect fuel to help Tasmania maintain its outstanding 'green energy' record. While Tasmanians are fortunate that approximately 90% of the island's electricity generation capacity is renewable (with around two-thirds of this being hydro-electric), Tasmania's carbon footprint increases substantially when electricity is imported via the Basslink. This is because the majority of electricity in the NEM (76% of all output) is generated by burning coal[17]. As a result, during periods of electricity import we are consuming energy produced by 'dirty' fossil fuels. If electricity import can be reduced via increased natural gas penetration or gas-fired generation, it would help sustain Tasmania's record of being Australia's cleanest energy state.

13 p11-13, National Greenhouse Accounts factors, Department of the Environment, July 2014.
14 https://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11
15 Tas Gas Networks, public presentations 2010/11.
16 p31, The Tasmanian Gas Market, Goanna Energy Consulting, August 2016.
17 p27, State of the Energy Market 2015, AER.

3. Recommended actions

Natural gas has played a key role in Tasmania's energy mix for more than a decade. Substantial investment has been sunk in natural gas infrastructure, and it is used by a broad cross-section of domestic, commercial and industrial customers. Though natural gas would not replace hydro-electric generation as Tasmania's primary energy source, it clearly has a role in Tasmania's energy future.

The recent energy crisis has provided the necessary focus on Tasmania's future energy requirements, and has created a unique opportunity to drive genuine change. Sections 3.1 to 3.4 present actions relating to the future of natural gas, which the Tasmania Energy Security Taskforce may wish to consider.

3.1 Maintain natural gas as part of a managed energy portfolio

Central to Tas Gas' recommendations is using a 'portfolio approach' to manage Tasmania's future energy requirements. A portfolio approach would involve maintaining a balanced mix of hydro-electricity, wind generation, natural gas use (and potentially generation), and Basslink import. As a managed portfolio, different energy resources can be used depending on the prevailing demand, supply, market conditions and green energy policy.

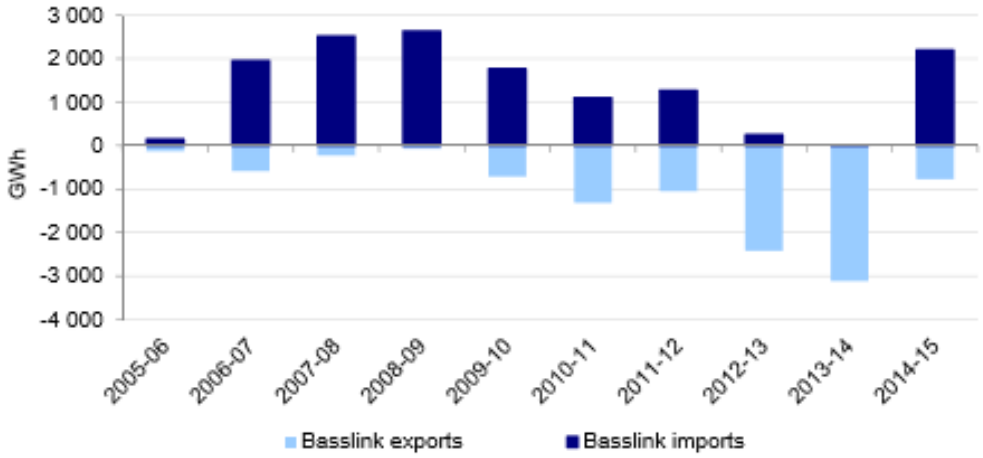
The Tasmanian electrical power system has 3,000 MW of generation capacity in a market that requires peak load of up to 1,800 MW. We are fortunate that hydro-electricity can play such a prominent role in our energy mix, and that almost all of our energy needs can be met by renewable generation. It is also prudent that we continue to exploit our natural advantage, selling high-value renewable energy into the National Electricity Market where feasible.

However, the amount of renewable energy Tasmania can export to the NEM depends on water storage levels compared with energy demand. While the Basslink offers some security, experience has shown that interconnector failure at the wrong time can bring unfortunate consequences.

A conceivable response to the recent energy crisis could be to increase the mandatory minimum water storage levels to the historical 30% level, or potentially higher. While this may go some way to protecting Tasmania's energy supply, it may also forfeit a substantial portion of Tasmania's energy export business.

As can be seen in Figure 3.1, in the years prior to the crisis Tasmania was a net exporter of energy. A portfolio approach, featuring natural gas as a sustainable partner for renewable energy would negate the need to reduce exports and forgo revenue from renewable energy sales into the NEM.

Figure 3.1: Basslink import and export 2005 to 2015



Source: Energy in Tasmania Performance Report 2014-15, Office of the Tasmanian Economic Regulator.

Natural gas benefits energy security in two ways. First of all, natural gas as a direct fuel offsets electricity consumption. The average electricity consumption of an electric-only four-person home in Launceston is more than 6,000 KWh greater than a similar home connected to the gas network. The disparity between electricity-only and natural gas-connected commercial and industrial customers is even greater. This reduction in electricity demand improves energy security, but also has the potential to increase Hydro Tasmania's capacity to export high-value renewable energy.

The second benefit of gas is its use as a peaking generation or a standby option. Annual Tasmanian power consumption is around 10,800 GWh[18], of which natural gas fired power generation at the TVPS could contribute up to 35%[19] if required. While we do not conceive a scenario where the TVPS returns to maximum continuous output, having natural gas-fired generation on standby offers the insurance and flexibility to allow a greater portion of water reserves to be used for exporting energy to the NEM, without compromising Tasmania's energy security.

Having natural gas in the energy portfolio may also allow Tasmania to respond to market signals more effectively. While current market conditions mean natural gas-fired generation would likely only be maintained as a standby option, should the market change and the gas import price be relatively low (and the renewables export price high), greater use of gas could free up more of Tasmania's high-value water power commodity.

In a symbiotic strategy, natural gas (and/or natural gas-fired generation) would be used as a back up to the renewable power market, enhancing system security. The benefit to the natural gas sector is that some of the additional value created in the renewables sector can be invested in maintaining capacity in the natural gas delivery system and the upkeep of the TVPS. A flow-on benefit to customers would be lower natural gas delivery prices, as the broader energy industry would contribute toward the costs of system capacity, spreading the gas delivery costs over a larger customer base. Essentially, a portfolio approach would increase the competitiveness of the natural gas sector, and enable some of Tasmania's largest gas-dependent industries to continue to operate efficiently.

[18] section 3.1, Tasmania's Energy Sector – an Overview, Electricity Supply Industry Expert panel, April 2011.
[19] http://www.abc.net.au/news/2016-02-23/tasmanias-energy-crisis-explained/7194234

3.2 Facilitate industry-wide cooperation to improve natural gas commodity and transportation capacity buying power

As we have discussed, substantial evidence points towards natural gas' importance to Tasmania's energy future. Natural gas infrastructure is in place, consumers are already set up to use natural gas, and it offers a clean and versatile reserve energy supply.

If gas is to remain integral to Tasmania's energy security, a key consideration for the Government is price. As highlighted in the Taskforce's consultation paper, major gas users face uncertainty with their gas transportation arrangements and pricing beyond current contracts, many of which are scheduled to cease in late 2017[20]. However, we consider this environment of change presents an opportunity for Government to take steps to manage gas pricing, and put in place purchasing agreements to keep natural gas and the natural gas industry competitive.

Hydro Tasmania holds the legacy gas supply agreements that underpin the TVPS and supply contracts to approximately 80% of the Tasmanian retail market. Hydro Tasmania has signalled its exit from the market as a shipper of gas when its contracts for the TVPS roll off at the end of 2017. Hydro Tasmania's withdrawal may result in disaggregation of demand between retailers and potentially, large industrial users.

The delivered cost of natural gas comprises two components; commodity and transportation capacity. Tasmania's entire retail market is less than 1% of the Victorian market, and roughly equivalent to a large Melbourne-based consumer. Any disaggregation of demand has potential to reduce Tasmania's commodity purchasing power, not least because the economies of scale currently enjoyed by the aggregated market would be lost. In a disaggregated Tasmania market with multiple entities, customers are likely to pay a significantly higher price for natural gas than they would pay under the aggregated services provided by Hydro Tasmania.

Disaggregation would have a similar impact on natural gas transportation costs. Tasmania currently has the highest gas transportation costs in Australia, with Tasmanian customers paying up to four times the transportation costs of those in Victoria[21]. The pricing is high due to the underutilisation of the TGP. However, if the market remains aggregated, there is an opportunity to correct this through improved contractual arrangements and purchasing power.

Tasmania's retail market consumption profile (that is total consumption less gas-fired generation) is reasonably flat. This is an ideal profile for natural gas when purchasing both transportation and commodity. Capacity is booked and paid for 365 days of the year whether it is used or not. With a flat profile, utilisation is high and it reduces the cost of paying for capacity not utilised. However, the benefit of a flat profile is only brought about when demand is aggregated and different users share system capacity. Joint purchasing arrangements help achieve this.

If the demand becomes disaggregated, the benefits of a flat profile are lost as individual entities are more exposed to seasonality and variability. Disaggregation is likely to lead to a situation where more capacity is booked by the market than is required, which causes the market to bear the costs of underutilisation. Further, transportation between Victoria and Tasmania is controlled via the TGP. The owners of the TGP may choose to use its position as a monopoly

[20] p10, Tasmanian Energy Security Taskforce Consultation Paper, August 2016.
[21] p17, Australian Competition and Consumer Commission, 'Inquiry into the east coast gas market' April 2016.

to increase prices, as disaggregated entities would have less capacity purchasing power than Hydro Tasmania has currently.

A solution to address the commodity and transportation costs issues is to facilitate an industry-wide approach to purchasing. For example, demand could be aggregated through Hydro Tasmania or a similarly prominent industry participant, and the Government, retailers and major industrial users can combine their purchasing power to secure the commodity and capacity at a sustainable price.

Legal advice on Competition Law implications would need to be obtained before entering into any collective bargaining arrangement. However, our initial view is that the aggregation of Tasmanian gas and gas transportation demand would provide significant public benefits.

Bringing major energy market participants together to secure commodity and pipeline capacity will introduce countervailing measures against the TGP monopoly and gas suppliers, helping keep natural gas prices competitive. Without such measures, there is a risk natural gas, which plays such a vital role in Tasmania's economy, may no longer be a sustainable option.

This issue is of increasing urgency as there is the potential for natural gas supply restrictions in the near future. Tas Gas understands that the two major natural gas producers that supply the Tasmanian gas market are currently looking to secure gas sales for 2018 and beyond. Both producers have indicated they expect to be fully subscribed due to high demand from domestic and international markets.

The uncertainty surrounding the cessation of the TVPS natural gas capacity contract with the TGP in December 2017, means the future price of gas transportation in 2018 and beyond is unknown. This uncertainty has the flow-on effect of making it difficult to forecast demand accurately, which in turn impacts gas commodity purchasing power. Greater certainty of demand improves a buyers' purchasing position, however, the current uncertain environment means Tasmania is not best positioned to secure natural gas at a competitive price beyond 2017. Therefore, it would be beneficial to all Tasmanian energy market participants if the natural gas sector could agree a purchasing strategy as a matter of urgency. This will enable Tasmania retailers and major industrial customers to participate efficiently in the current wholesale market, and acquire natural gas at the right time and for the right price.

3.3 Maintain the capacity of the TVPS, and support natural gas distribution penetration

As discussed in section 2 of this paper, natural gas plays a major role in Tasmania's energy mix. Natural gas offsets electricity demand, provides customers an efficient heat source, and can be used to generate electricity.

The energy crisis demonstrated the value of the TVPS and the natural gas network to Tasmania in mitigating the impact of sudden and unexpected constraints on electricity supply. From an energy security perspective, it would be wise to maintain the TVPS as a standby or peaking generation measure, as it provides a degree of 'insurance' against future energy challenges. Maintaining TVPS capacity mitigates power shortages in times of low water levels, without a significant negative impact on Tasmania's Green credentials. Though current gas prices suggest it may not always be economic to run the TVPS, it is unlikely to run that often, and the generation quantity is likely to be relatively small. Further, maintaining the capacity of the TVPS will help keep the delivered price of gas competitive in Tasmania.

As discussed in section 3.2 above, gas transportation costs in Tasmania are high and would potentially be higher if the current levels of booked TGP capacity are not maintained. As the single largest gas consumer in the state (when operational) the TVPS offers considerable leverage in negotiations. By electing to secure energy via the TVPS, Hydro Tasmania (and by extension State Government) can negotiate a transmission agreement that maintains a competitive transportation price, which would ultimately benefit distribution-connected customers.

Similarly, any support or incentives to increase the uptake of natural gas as a direct fuel in Tasmania would also assist energy security (due to offset of electricity demand), while also increasing TGP utilisation. The gas distribution network passes 57,000 residences, and the TGP has ample spare capacity to increase gas flows. Therefore, much of the groundwork and infrastructure already exists to incentivise greater gas consumption.

3.4 Maximise the value of existing energy infrastructure before building new infrastructure

The Basslink to Victoria is one of Tasmania's most important assets. It serves as an umbilical cord to the NEM and provides both opportunity and security in equal measure. The Basslink's failure in December 2015, though unprecedented, served a rude awakening to Tasmania's energy sector. An obvious solution to mitigating the impact of future Basslink failure is to build a second interconnector. We understand that this option is being considered by Government[22].

Tas Gas urges caution before undertaking an infrastructure investment likely to cost upwards of $1.5 billion (which equates to around $6,000 per household), and requests State Government considers how existing infrastructure could be used to address the energy challenge. Significantly, Tasmania already has a second interconnector that was used to great effect during the energy crisis – the Tasmanian Gas Pipeline.

The TGP connects Tasmania to Victoria and has sustainable capacity of 129 TJ per day, with a current peak utilisation of around 30 TJ per day. This means spare capacity of around 100 TJ per day is readily available should unforeseen events occur. Similarly, the TVPS is an established, operational asset, which has already been substantially written down.

While building a second electricity interconnector is an option, it is worth considering how we can better utilise assets that have already been built and paid for. One advantage of a second electricity interconnector between Tasmania and Victoria is that it would allow greater export of renewable energy into the NEM. However, current export levels indicate that the single Basslink has sufficient capacity to allow Hydro Tasmania to export the surplus energy it has available. Before committing to a second Basslink, careful consideration must be given to:

a) whether Tasmania will produce sufficient surplus renewable energy to merit a second interconnector; and

b) whether the NEM will continue to demand renewable energy in sufficient quantities over the medium-to-long term.

It is likely that penetration of renewables and battery storage will increase in the NEM. Several Australian energy networks are trialling distributed generation solutions, micro-grids and co-

[22] '*In April 2016, the Commonwealth and Tasmanian governments announced a joint feasibility study of whether building a second interconnector would help address long-term energy security issues.*', p9, Tasmanian Energy Security Taskforce Consultation Paper, August 2016.

generation and storage solutions. For example, the Lyon Group's $400 million Kingfisher Project in South Australia proposes a 100MW solar plant and a 100 MW battery storage unit, which it claims will be able to store enough electricity to deal with a breakdown in the Heywood interconnector between SA and Victoria[23]. The NEM of tomorrow will likely look very different to the NEM of today. While there are no guarantees new technology will take-off in the NEM, it would be wise to adopt a watching brief and plan infrastructure investment around certainties rather than possibilities.

The balance between reliability and cost is important and clearly needs to be addressed. To that end, greater and smarter utilisation of existing gas assets that have written down over nearly 20 years, and with spare capacity, should be the lowest cost option, as well as providing an immediate energy security solution.

A further advantage of natural gas is that it is a relatively clean fuel, generating fewer carbon emissions that other fossil fuels. This makes natural gas 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 TVPS, 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.

Perhaps most importantly, using natural gas as part of Tasmania's energy security solution would not significantly impact our state's green credentials. As stated in the Taskforce's consultation paper, *even with extensive operation of the TVPS, the generation profile in Tasmania was around 85 per cent renewable in 2012-13 (the last year in which significant gas generation occurred)*.[24] This is still substantially ahead of all other Australian states and territories, and meets Commonwealth Government renewable energy targets.

Natural gas is clean, accessible and is always there to be called upon when needed. We see natural gas as the ideal accompaniment to renewable generation, acting as a reliable reserve fuel that will keep CO_2 emissions on a declining trend while the Australian energy sector makes the transition to renewables as a long-term substitute.

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[23] p3, Australian Financial Review, 8 September 2016.
[24] p11, Tasmanian Energy Security Taskforce Consultation Paper, August 2016.