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# GOVERNMENT SUBMISSION TO THE PARLIAMENTARY STANDING COMMITTEE OF PUBLIC ACCOUNTS

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INQUIRY INTO THE FINANCIAL POSITION  
AND PERFORMANCE OF GOVERNMENT  
OWNED ENERGY ENTITIES

# Contents

<b>Contents.....</b>	<b>2</b>
<b>1. Introduction.....</b>	<b>4</b>
<b>2. Financial Performance of Government owned energy entities .....</b>	<b>5</b>
2.1 Hydro Tasmania.....	5
2.2 TasNetworks.....	6
2.3 Aurora Energy.....	8
<b>3. Overview of the 2015-16 Energy Security Event .....</b>	<b>11</b>
3.1 Background .....	11
3.2 Hydro inflows and water storages .....	11
3.3 Timeline of events leading up to Basslink outage .....	12
3.4 Response to the Basslink Outage.....	13
3.5 Energy Supply Plan .....	15
3.5.1 Cost of the Energy Supply Plan.....	17
3.5.2 Success of the Energy Supply Plan.....	18
3.6 Managing Environmental and Health and Safety Issues .....	19
3.6.1 Diesel generation .....	20
3.6.2 Low Water Levels.....	21
3.6.3 Health and Safety.....	22
3.7 Tamar Valley Power Station – Combined Cycle Gas Turbine.....	22
<b>4. Managing for Energy Security.....</b>	<b>24</b>
4.1 Managing Energy Security in Tasmania.....	24
4.2 Electricity.....	24
4.2.1 Legislative Framework .....	26
4.2.2 Australian Energy Market Operator.....	26
4.2.3 Responsible Officer.....	27
4.2.4 Jurisdictional System Security Coordinator.....	27
4.2.5 Director of Energy Planning.....	27
4.2.6 Water Storage Advisory Committee.....	27
4.3 Gas.....	28
4.3.1 Legislative Framework .....	28
4.3.2 Jurisdictional Contact Officer.....	28

4.4	Petroleum.....	29
4.4.1	Legislative Framework .....	29
4.5	Department of State Growth.....	29
4.6	Department of Treasury and Finance.....	30
4.6.1	Legislative Framework .....	31
4.6.2	Government Business Enterprises and State-Owned Companies.....	32
4.7	Tasmanian Economic Regulator.....	34
<b>5.</b>	<b>Power prices.....</b>	<b>35</b>
<b>6.</b>	<b>Future considerations.....</b>	<b>37</b>
	<b>Appendix 1 - Chart 1: Hydro Storage levels.....</b>	<b>39</b>
	<b>Appendix 2 – Chart 2: Tasmanian Spring Rainfall .....</b>	<b>40</b>
	<b>Appendix 3 - Chart 3: Spring 2015 Rainfall Deciles .....</b>	<b>41</b>
	<b>Appendix 4 – Chart 4: Tasmanian Monthly Electricity Supply by Source .....</b>	<b>42</b>
	<b>Appendix 5 – Table 1: Weekly Changes in Total Energy in Storage, 1 June 2015 to 23 May 2016 .....</b>	<b>43</b>
	<b>Appendix 6 - Website references .....</b>	<b>44</b>

# I. Introduction

The Government welcomes the Parliamentary Standing Committee of Public Accounts Inquiry into the Financial Position and Performance of Government Owned Energy Entities and is pleased to provide this submission to assist the Committee undertake the Inquiry.

The Government notes the Terms of Reference of the Committee and that the Committee intends to inquire and report on the following matters:

1. the financial positions of the Government owned energy entities (Aurora Energy, Tasmanian Networks and Hydro Tasmania) and their interrelationships, considering their recent financial reporting, including their half yearly financial statements and Corporate Plans;
2. factors currently impacting on the financial performance of the energy entities;
3. any strategies being implemented by the energy entities to address their current and future financial performance;
4. past and current Government's energy security policies and management including risk management strategies and plans;
5. past and current Government's and Government owned energy entities energy mix policy decisions and challenges; and
6. any other matter incidental thereto.

The Government acknowledges that the Committee has sought and received submissions from other stakeholders, including Hydro Tasmania, TasNetworks and Aurora Energy. This submission seeks to broadly address the Committee's Terms of Reference and also to provide a more detailed overview of the circumstances leading up to this year's energy security challenges and the Government's response to those challenges.

The submission provides:

- An overview of the financial position of the government owned energy businesses;
- Overview of the 2015-16 Energy Security Event;
- Managing for Energy Security;
- Power Prices; and
- Future considerations.

## 2. Financial Performance of Government owned energy entities

### 2.1 Hydro Tasmania

Hydro Tasmania operates in the National Electricity Market although the majority of its revenue is derived from selling energy into the Tasmanian market. With the physical connection to the NEM through the Basslink interconnector, Hydro Tasmania also generates revenue opportunities on the mainland either backing their retail business Momentum or on the Victorian spot market during high priced times. Two significant sources of revenue for Hydro Tasmania are derived through long term contracts with major industrial customers and the wholesale contracts to support the regulated retail market. This latter source of revenue is regulated through the wholesale regulatory instrument introduced during the reform process in 2012-13 to help manage wholesale market pricing risk for retailers in the Tasmanian market. This wholesale regulatory instrument is predominantly influenced by the Victorian contract market prices. In essence the revenue sources for Hydro Tasmania align to the Victorian wholesale market price. This means Hydro Tasmania is a price taker and must adjust to the market to manage the financial risk associated with this arrangement.

Hydro Tasmania's performance has been driven by the ability to generate more revenue through the carbon tax period of 2012-13 and 2013-14. During these two years, underlying profit exceeded \$200 million per annum.

Since then underlying profit has dropped due to lower prices in the market as well as lower inflow levels. In 2014-15 a profit before tax of \$62.4 million was achieved. This was better than budgeted due to the successful implementation of its cost efficiency measures and significant inflows at the end of the year.

Hydro Tasmania's debt to equity ratio is within the range generally expected of a BBB rated generation business.

	Bench Mark	2014-15 (000's)	2013-14 (000's)	2012-13 (000's)	2011-12 (000's)
<b>Financial Performance</b>					
Net profit (loss)		<b>128 675</b>	<b>143 549</b>	<b>(196 280)<sup>1</sup></b>	<b>13 872</b>
Underlying profit (loss)		<b>62 352</b>	<b>241 113</b>	<b>230 261</b>	<b>103 440</b>
EBIT (\$'000s)		<b>134 279</b>	<b>320 953</b>	<b>297 762</b>	<b>190 127</b>
EBITDA (\$'000s)		<b>227 197</b>	<b>409 183</b>	<b>389 135</b>	<b>272 400</b>
Operating margin	<b>&gt;1.0</b>	<b>1.18</b>	<b>1.26</b>	<b>1.33</b>	<b>1.35</b>

<sup>1</sup> The loss reflects the impairment of the Tamar Valley Power Station following its transfer from Aurora Energy

Return on assets	<b>5.21</b>	<b>2.6%</b>	<b>6.3%</b>	<b>5.4%</b>	<b>3.4%</b>
Return on equity		<b>6.6%</b>	<b>8.0%</b>	<b>(10.0%)</b>	<b>0.7%</b>
<b>Financial Management</b>					
Debt to equity		<b>41.4%</b>	<b>47.6%</b>	<b>50.6%</b>	<b>40.2%</b>
Debt to total assets		<b>16.5%</b>	<b>17.2%</b>	<b>17.7%</b>	<b>14.8%</b>
Interest cover - EBIT	<b>&gt;2</b>	<b>1.87</b>	<b>4.02</b>	<b>4.41</b>	<b>2.19</b>
Interest cover - EBITDA	<b>&gt;2</b>	<b>3.16</b>	<b>5.13</b>	<b>5.76</b>	<b>3.14</b>
Interest cover - operating cash flows		<b>1.50</b>	<b>5.68</b>	<b>6.90</b>	<b>2.75</b>
Current ratio	<b>&gt;1</b>	<b>0.92</b>	<b>0.55</b>	<b>0.66</b>	<b>0.59</b>
Cost of debt	<b>7.9%</b>	<b>6.7%</b>	<b>7.4%</b>	<b>7.9%</b>	<b>7.1%</b>
Debt collection	<b>30 days</b>	<b>62</b>	<b>44</b>	<b>52</b>	<b>50</b>
Creditor turnover	<b>30 days</b>	<b>27</b>	<b>18</b>	<b>19</b>	<b>20</b>
<b>Asset Management</b>					
Investment gap %	<b>100%</b>	<b>108.4%</b>	<b>141.9%</b>	<b>154.9%</b>	<b>203.4%</b>
<b>Returns to and from Government</b>					
Dividends paid (\$'000s)		<b>118 576</b>	<b>116 058</b>	<b>50 686</b>	<b>49 008</b>
Income tax paid (\$'000s)		<b>80 069</b>	<b>104 208</b>	<b>52 769</b>	<b>54 799</b>
Government guarantee fees ('\$000s)		<b>8 719</b>	<b>11 222</b>	<b>8 595</b>	<b>8 697</b>
Total return to the State (\$'000s)		<b>207 364</b>	<b>231 488</b>	<b>112 050</b>	<b>112 504</b>
Dividends recommended (\$'000s)		<b>25 000</b>	<b>118 576</b>	<b>116 481</b>	<b>50 686</b>
Dividend payout ratio	<b>90%</b>	<b>57.3%</b>	<b>70.3%</b>	<b>72.3%</b>	<b>70.0%</b>
Dividend to equity ratio		<b>1.3%</b>	<b>6.6%</b>	<b>5.9%</b>	<b>2.4%</b>

Source: Tasmanian Audit Office, Report of the Auditor-General No. 5 of 2015-16, Volume 2: Government Businesses 2014-15, November 2015

## 2.2 TasNetworks

TasNetworks receives a regulated return on the assets it owns and manages. This return is set typically every 5 years for the distribution and transmission assets (note the next distribution period will be 2 years from 2017-18 and 2018-19 to allow alignment with the next transmission period). The returns are set by the Australian Energy Regulator (AER) based on good industry practice and the balance sheet of TasNetworks aligns to the assumptions used by the AER. The regulatory framework provides incentives for TasNetworks to operate its transmission and distribution networks in an efficient manner. The AER sets a maximum allowable revenue as well as network tariff based on this maximum allowable revenue. Given the long term nature of the assets, this

Submission to the Parliamentary Standing Committee of Public Accounts - Inquiry into the financial position and performance of Government owned energy entities

process ensures a reasonable return on assets and provides a revenue stream aligned to the returns required.

The 2014/15 financial year was the first full year of operation for TasNetworks as an integrated poles and wires business with the consolidation of the distribution assets of Aurora Energy with the Transend transmission assets. The aim of consolidating these assets into one business was to capture synergies which were conservatively estimated to result in savings of up to \$8 million per annum.

After one year the benefits of this consolidation is demonstrated in the annual results, which has seen a recurring \$34 million cost saving which has assisted in TasNetworks delivering a \$112 million profit after tax.

TasNetworks was also able to deliver a return to the Government of \$152 million. In addition, there was a transfer of \$205 million in debt from Hydro Tasmania as a result of the capital structure review of the energy entities.

	Bench Mark	2014-15 (000's)
<b>Financial Performance</b>		
Net profit (loss)		<b>112 931</b>
Underlying Profit (Loss) (\$'000s)	<b>≥\$167 000*</b>	<b>161 396</b>
EBIT (\$'000s)	<b>≥\$247 000*</b>	<b>253 345</b>
EBITDA (\$'000s)		<b>414 863</b>
Operating margin	<b>&gt;1.0</b>	<b>1.77</b>
Return on assets	<b>≥8.4%*</b>	<b>8.1%</b>
Return on equity	<b>≥10.5%*</b>	<b>31.8%</b>
<b>Financial Management</b>		
Debt to equity		<b>161.8%</b>
Gearing	<b>60%</b>	<b>61.8%</b>
Debt to total assets		<b>51.8%</b>
Interest cover - EBIT	<b>&gt;2</b>	<b>2.8</b>
Interest cover - Funds from operations	<b>&gt;2</b>	<b>3.3</b>
Current ratio	<b>&gt;1</b>	<b>0.50</b>
Cost of debt		<b>11.2%</b>
Debt collection	<b>30 days</b>	<b>11</b>
Creditor turnover	<b>30 days</b>	<b>12</b>
<b>Asset Management</b>		
Asset investment ratio	<b>100%</b>	<b>88%</b>

<b>Returns to Government</b>		
Dividends paid (\$'000s)		<b>61 000</b>
Income tax paid (\$'000s)		<b>79 089</b>
Guarantee fees		<b>11 954</b>
Total return to the State (\$'000s)		<b>152 043</b>
Dividends paid or payable (\$'000s)	**	<b>63 200</b>
Dividend payout ratio	<b>60%</b>	<b>56.0%</b>
Dividend to equity ratio	<b>6%</b>	<b>6.2%</b>

\* *Internal benchmark set by the TasNetworks.*

\*\* *Dividend approved by the Directors after 30 June 2015.*

Source: Tasmanian Audit Office, *Report of the Auditor-General No. 5 of 2015-16, Volume 2: Government Businesses 2014-15, November 2015*

## 2.3 Aurora Energy

The 2014/15 financial year was the first full year of operation for Aurora Energy as a retail only business for electricity and gas. This followed the transfer of the distribution business to TasNetworks effective 1 July 2014.

The majority of Aurora Energy's revenue is based on the regulated retail electricity price in Tasmania although they also derive revenue in the unregulated electricity and gas retail markets in Tasmania. The regulated retail price is determined by the Tasmanian Energy Regulator (TER). Most of the components of the regulated retail price have little discretion to be influenced by the TER. Over 50 percent of the price is made up of network costs. These costs are set by the Australian Energy Regulator over five years for both the distribution and transmission components of the network costs. Another 27 per cent is the wholesale energy cost (based on Wholesale Pricing Regulatory Framework set by legislation and administered by the TER. Another 6 per cent of the costs are related to the renewable energy target and this is set by liability percentages determined by the Clean Energy Regulator and the prevailing market price for the renewable energy certificates. Add in the costs associated with Australian Energy Market Operator market charges and metering costs set by the AER then these costs make up nearly 88 per cent of the total cost associated with the retail revenue for regulated customers. The remaining 12 percent of costs (ie comprising the cost to serve allowance and retail margin) are the areas where the TER has some discretion in setting the prices. These later areas are also where Aurora Energy needs to cover its costs and capture its margin with the majority of costs passed through to customers.

This means that Aurora Energy's performance will be based on how well they manage their internal costs and the potential loss of customers. While lower consumption or higher consumption can create variations in revenue and profit, these variations can typically be corrected in subsequent years.

In its first year of operation, Aurora Energy recorded a strong financial result of \$31.5 million after tax profit, driven by a strong performance in relation to sales as well as robust cost management. In achieving this, Aurora Energy managed to reduce its operating costs due to the low cost operating

Submission to the Parliamentary Standing Committee of Public Accounts - Inquiry into the financial position and performance of Government owned energy entities



model Aurora Energy is implementing. It has also delivered approximately \$33 million in returns to Tasmanian taxpayers through income tax equivalents. No dividends were paid in 2014-15, as dividends in respect of the 2013-14 financial year were paid in that year.

The prices Aurora Energy can charge to the majority of their customers is regulated by the Tasmanian Energy Regulator. This is called the standing offer price and applies to residential and small business customers.

As of January 2014, the retail market in Tasmania became fully contestable allowing other retailers to enter the market to compete with Aurora. So far no competition has entered the residential or small business market, although this continues to be a risk Aurora Energy will need to manage.

	Bench Mark	2014-15 (000's)
<b>Financial Performance</b>		
Net profit (loss) (\$'000s)		<b>31 487</b>
EBIT (\$'000s)		<b>45 201</b>
EBITDA (\$'000s)		<b>52 448</b>
Operating margin <sup>1</sup>	<b>&gt;1.0</b>	<b>1.05</b>
Return on assets <sup>1</sup>	<b>5.6%*</b>	<b>15.0%<sup>3</sup></b>
Return on equity <sup>1</sup>	<b>3.7%*</b>	<b>51.2%<sup>3</sup></b>
<b>Financial Management</b>		
Current ratio	<b>&gt;1</b>	<b>1.34</b>
Debt collection	<b>30 days</b>	<b>44</b>
Creditor turnover	<b>30 days</b>	<b>51</b>
<b>Returns to Government</b>		
Dividends paid (\$'000s)		<b>0<sup>4</sup></b>
Income tax paid (\$'000s)		<b>32 932</b>
Total return to the State (\$'000s)		<b>32 932</b>
Dividends payable (\$'000s)		<b>27 600</b>
Dividend payout ratio <sup>2</sup>	<b>90%</b>	<b>87.7%</b>
Dividend to equity ratio		<b>44.9%</b>
* <i>Internal benchmarks come from Aurora's corporate plan and are not subject to audit.</i>		
<sup>1</sup> <i>These values differ from those described by Aurora in its annual report in order to align calculations with other Government entities</i>		

<sup>2</sup> *These values differ from those described by Aurora in its annual report in order to align calculations with other Government entities.*

<sup>3</sup> *This is derived net of the transfer of \$523.379m in Net Assets to TasNetworks on 1 July 2014.*

<sup>4</sup> *Dividends in respect to the 2013-14 financial year were paid in that year.*

Source: Tasmanian Audit Office, *Report of the Auditor-General No. 5 of 2015-16, Volume 2: Government Businesses 2014-15, November 2015.*

# 3. Overview of the 2015-16 Energy Security Event

## 3.1 Background

Over the course of this last year Tasmania has experienced one of the most significant energy security challenges in its history. This was a consequence of the combined impact of two extreme events – the record low rainfall over the Spring/Summer period combined with the first ever substantive outage of the Basslink cable.

We have experienced similar challenges during previous periods of severe drought including in 1968 and more recently, during the term of the previous Government between 2006 and 2008.

On each previous occasion Tasmania has managed its way through the challenge and we are doing so again.

In responding to the issue, the Tasmanian Government put a plan in place, together with the energy businesses, to ensure that the energy requirements of the State could continue to be met. The implementation of the Energy Supply Plan has been a success and critical in achieving the Government's stated objectives which were:

- maintaining energy security;
- avoiding forced power rationing;
- protecting jobs and the economy; and
- keeping power prices as low as possible.

Over the course of May 2016, Tasmania has experienced a record inflow into the Hydro catchments providing much needed relief from our declining dam water storages. As a consequence of recent rains and the successful implementation of the Energy Supply Plan we have definitely turned the corner in the acute management of this issue. However we still face ongoing challenges which require a continued focus on careful and prudent management. We need to see a further increase in our dam storages and we continue to deal with the ongoing outage of the Basslink cable. The Energy Supply Plan continues to be adjusted to ensure that these ongoing issues are managed appropriately.

## 3.2 Hydro inflows and water storages

The State has historically relied heavily on hydro power to generate the energy that Tasmania needs. While diversification of Tasmania's generation mix (particularly wind, gas and Basslink) and changes in demand over the past two decades has reduced this reliance, hydro power is still the dominant and crucial source of energy for Tasmania's energy needs.

Before outlining the key dates and events that occurred over 2015-16, it is important to provide some historical context. Storage levels generally increase and decrease throughout a year based on

rainfall patterns that are different across seasons. Over the long term, rainfall is highest in winter and spring, and lower in summer and autumn.

While storage levels tend to follow this pattern in terms of rising in the first half of a financial year, and declining in the second half, there are other influences such as the starting point for storages, trading across Basslink, changes in demand and the use of other sources of generation. Furthermore, there is considerable observed variation from 'average' rainfall and inflows to Hydro Tasmania's catchment that occurs on both a seasonal and annual basis. This complexity makes comparing water storage levels over time challenging.

Due to this complexity, Hydro Tasmania's current Ministerial Charter requires Hydro Tasmania to prudently manage its water resources consistent with the long run energy capability of its system. In practice, Hydro Tasmania does this according to prudent storage management guidelines it has developed. These guidelines set out for Hydro Tasmania how it will manage its water storages to ensure it can comply with its water licence, comply with a range of third party agreements, and operate sustainably, including by ensuring storages are managed to maintain the long run capability of the system. A key feature of these guidelines is the establishment of a preferred operating minimum level for storages and risk lines. Both the preferred operating minimum and risk lines change through the year, reflecting the rainfall variation associated with seasonality referred to above.

Hydro Tasmania is best placed to explain in detail the storage operating rules and triggers associated with its guidelines. Both Hydro Tasmania and Government will be reviewing how storages are managed to account for learnings from the recent events, and the Energy Security Taskforce's work will be important in this regard.

Chart I in Appendix I shows Hydro Tasmania's storages over the past 10 years since Basslink was commissioned.

### 3.3 Timeline of events leading up to Basslink outage

The last time Tasmania experienced an energy security challenge as a result of low water storages was in the period 2006 to 2008. A prolonged period of dry inflows resulted in storage levels falling to a low of 16.5 per cent in June 2008. During this period Basslink and the decommissioned Bell Bay Power Station were used extensively to help keep storages up. The reliance on Basslink during this period was high with Basslink close to full import through 2007-08 and 2008-09 financial year (ie just below 5 000 GWh of net import to Tasmania).

Following that period, solid inflows saw a recovery in water storages over a period of approximately 4 years.

In the lead up to the carbon tax, Hydro Tasmania commenced the process of building up water storages to maximise export capacity during the carbon tax period consistent with a drawdown strategy developed in response to the carbon price opportunity.

Up until the introduction of the carbon tax, Hydro Tasmania storages were set at a preferred minimum level of 30 per cent at 1 July each year.

Following the introduction of the carbon tax, in September 2012, the preferred minimum level was lowered by 5 per cent to 25 per cent at 1 July each year.

Hydro Tasmania exported aggressively during the carbon tax period to take advantage of the higher price period.

On 1 July in each subsequent year storages have been around 30 per cent. On 1 July 2013 water storages were just under 33 per cent. On 1 July 2014 they were just over 28 per cent.

There was a period where water storages fell below Hydro Tasmania's preferred operating minimum for a period (ie December 2014 to the start of May 2015), although the medium risk line was not breached (the trigger level upon which the Government's Water Storage Advisory Committee begins meeting monthly and increases its monitoring of, and advice on, water storages). Significant inflows in May 2015 raised water storages above Hydro Tasmania's preferred operating minimum (29.1 per cent on 1 June).

Tasmania started the 2015-16 financial year with Total Energy in Storage (TEIS) just under 30 per cent, which is within what had historically been considered a 'safe' level for that time of year (according to current and past Hydro Tasmania prudent water management guidelines). Indeed storages increased from that point to close to 33 per cent at the end of August. Basslink was used to export excess Tasmanian electricity during that period, consistent with practice since Basslink's commissioning.

From September 2015 Tasmania experienced the lowest rainfall for a Tasmanian Spring ever recorded in 115 years of Bureau of Meteorology (BoM) records (see Charts 2 and 3 in Appendix 2). The inflows to Hydro Tasmania's catchments were only 7 per cent of average for October and only 18 per cent of average for November. The deficit in inflows for September through November 2015, when compared to average, was over 2 000 GWh, or nearly 14 per cent in terms of storage. As the dry conditions became more evident, Hydro Tasmania began to use Basslink on 'full import' to reduce the rate of decline in water storages. This strategy saw Basslink meeting approximately 35 percent of Tasmania's demand in the months of October and November 2015. Hydro Tasmania also reviewed plant utilisation to identify opportunities for deferring planned maintenance at its power stations.

As the dry conditions continued, Hydro Tasmania began steps in November 2015 to take the Combined Cycle Generation Turbine (CCGT) at the Tamar Valley Power Station (TVPS) out of dry lay up, and began the commissioning process to have the CCGT operate during the summer and early to mid autumn period, where rainfall conditions in Tasmania are normally low and water storages usually fall.

As water storages declined further with the record low Spring rains, the Committee to Co-ordinate the Response to Energy Supply Emergencies (CCRESE) met on 17 November 2015 to take advice from Hydro Tasmania regarding the situation. The Water Storage Advisory Committee (WSAC) then convened on 17 December 2015 to prepare advice to the Minister for Energy on the situation (for information on WSAC's role, see section 4). WSAC met again on 23 December 2015 for updated advice from Hydro Tasmania on the water storage situation immediately following the Basslink outage (see below). WSAC has met at least weekly from that time until recently when the improved storage situation has seen the frequency of meetings go to fortnightly.

### 3.4 Response to the Basslink Outage

On 20 December 2015, Basslink experienced an outage. Prior to this outage, Basslink had experienced 65 outages in its nearly 10 years of operation, lasting from less than hours and up to a

Submission to the Parliamentary Standing Committee of Public Accounts - Inquiry into the financial position and performance of Government owned energy entities

maximum outage of just over 9 days, but the majority were less than a day. The trip of Basslink was immediately visible in the National Electricity Market through the Australia Energy Market Operator's website/systems and all market participants would have been aware of the outage. What was unknown at this time was the nature, extent and the likely time to rectify the issue. Basslink Pty Ltd formally advised the NEM, the Government and general public with an announcement on 22 December 2015 that the fault was with the cable, the first fault of this nature it had experienced in its operating life. In this announcement, Basslink Pty Ltd advised that the return to service date was 20 February 2016.

On hearing this news, the Cabinet was immediately informed and the Government held a meeting with the Chair and CEO of Hydro Tasmania to discuss the immediate response. The Government was advised that Hydro Tasmania had taken immediate steps to return the CCGT to service as soon as possible and the available open cycle gas peaking generators at Tamar Valley Power Station commenced operations.

The Government also established direct contact with Basslink Pty Ltd to ascertain the actions being taken by them to restore the cable as soon as possible. The Government has maintained close and regular contact with both Basslink Pty Ltd and Hydro Tasmania since that time. Hydro Tasmania also engaged with major users to keep them informed of the situation and explore the potential opportunities for future load reductions under commercial agreed terms should they be required.

On 14 January 2016, Basslink Pty Ltd announced that the return to service date for the Basslink cable was extended to 19 March 2016. With this news, the Government immediately established the Energy Security Committee of Cabinet to provide a whole of Government oversight to the Government's response to the energy security situation. The Committee is made up of the Minister for Energy as Chair, Premier, Deputy Premier and Treasurer. The Cabinet Committee first met on 15 January 2016 and has met on approximately a weekly basis since that time.

The Energy Security Committee of Cabinet has also been supported by a Heads of Agencies committee, consisting of the Secretaries of the Departments of State Growth; Premier and Cabinet; Treasury; and Primary Industries, Parks, Water and Environment. Considerable coordination across Hydro Tasmania, TasNetworks, Aurora Energy and Government departments has also been a feature of the response. This has also been achieved through a Coordinating Committee established and chaired by the Director of Energy Planning (see section 4 for an explanation of this role). The role of the Coordination Committee consisting of senior representatives from the energy businesses was to:

- identify tasks and actions that required coordination across Hydro, TasNetworks, Aurora and Government and resolve any impediments that might impede rapid implementation; and
- identify other opportunities that can assist the situation and agree responsibility for progressing.

The Government also appointed an expert advisor in Mr Andre Botha, who currently works for Vector Limited in New Zealand. Mr Botha has extensive experience in the energy industry and previously held a senior role at Aurora Energy (when it was a retail and distribution business). Mr Botha's role, supported by two of his staff who have significant energy security experience, included the provision of expert, independent advice on the robustness of the Energy Supply Plan, as well as providing practical assistance and guidance to Hydro Tasmania, TasNetworks, Aurora Energy and the Government.

On 22 February 2016, the Government and Hydro Tasmania announced the Energy Supply Plan which included significant gas and temporary diesel generation to ensure demand could be met even if dry conditions continued and Basslink remained out of service for longer than expected.

On 8 March 2016, Basslink Pty Ltd announced that the outage was now expected to last until late May. On 29 March 2016, Basslink announced that it had successfully located and removed the fault, but that the return to service date was further delayed until mid-June due to the length of cable to be replaced. The return to service date was further extended to late June due to the poor weather conditions. The Energy Supply Plan was designed to deal with those delays.

## 3.5 Energy Supply Plan

In response to the unprecedented record low rainfalls and prolonged Basslink outage, Hydro Tasmania and the Government worked closely to manage the current situation together with others across government including Aurora Energy and TasNetworks.

The Energy Supply Plan was developed and put in place to cover a range of actions and contingencies and is designed to ensure Tasmania's ongoing energy requirements continue to be met, even if extreme conditions continue. It demonstrated a measured, prudent approach in the response to the ongoing challenges of low inflows and the Basslink outage. The Energy Supply Plan has needed to be responsive to the changing situation and as such has evolved over time since it was implemented.

The key objectives of the Plan were to:

- maintain energy security
- avoid forced power rationing;
- protect jobs and the economy; and
- keep power prices as low as possible.

The Plan has worked, despite continued dry weather through April which saw water levels fall to a low of 12.5 per cent in the last week of April, before recovering with the onset of the winter rains. Storage levels were sitting at 23.6 per cent as at 6 June 2016.

The key elements of the Plan included:

### *Gas Generation*

- The Tamar Valley Power Station combined cycle gas turbine unit operated continuously since 20 January 2016 at its full capacity of 208 MW until late May;
- The 58MW Trent open cycle turbine, with a capacity of 58 MW, had its return to service expedited with it coming on line at the beginning of April 2016;
- Significant use was made of the three 40 MW FT8 (120 MW total capacity) open cycle gas turbines;
- Gas fired generation was then reduced in early May in response to significant inflows into the Hydro catchments in order to avoid spill.

### Supplementary Diesel generation

- Hydro Tasmania, TasNetworks and Government agencies delivered on a key element of the plan that saw over 220 MW of temporary diesel generation installed at seven sites across the State (including three 25 MW dual fuel units with a combined output of 75 MW at Bell Bay).
- The decision to install temporary generation was made based on advice that it, as well as increased gas generation, was necessary to ensure sufficient generation in the required timeframe. In total, the temporary diesel generators have the capacity to save approximately one percentage point per month of Hydro Tasmania's total storage capacity.
- While diesel generation is expensive it has been a critical component of a diversified approach to mitigating energy security risks in the current situation. Diesel generators can be mobilised and installed at very short notice, and diesel fuel is readily available, so it was the logical first choice for an effective short term response.
- All sites for the generators were chosen for their ability to connect additional generation to the grid, the ability to supply diesel to the generators, and also to minimise the impact on the community and environment.

Site	Nominal installed capacity	Continuous Rating	First Generation Date
Catagunya Power Station	24 MW	20 MW	15 March
Meadowbank Power Station	26 MW	23 MW	30 March
George Town Substation	19 MW	17 MW	1 April
Port Latta Substation	18 MW	16 MW	9 April
Que River Substation	48 MW	42 MW	14 April
Que River 2 (Hellyer Mine)	12 MW	11 MW	Installed and available if required
Bell Bay	75 MW	72 MW	Installed and available if required
<b>Total</b>	<b>222 MW</b>	<b>201 MW</b>	

### Commercially agreed major industrial load reductions

- Hydro Tasmania reached commercial agreements with Bell Bay Aluminium, TEMCO and Norske Skog for voluntary load reductions, which made a significant contribution to reducing pressure on water storage levels and maintaining energy security during the extended dry period.
- This amounted to over 100 MW for the period February through May and at times over 140 MW when all load reductions aligned.
- TEMCO load reduction commenced in mid-January aligned to an outage of their plant while the Bell Bay Aluminium load reduction commenced in early February.



- The Norske Skog load reductions aligned to maintenance outages and maintenance opportunities during April and May.

All major industrial load reductions were commercially agreed between Hydro Tasmania and the customer having regard to the individual circumstances of the user. All load reductions were implemented without loss of employee positions.

It is important to note that the combined generation from the Tamar Valley Power Station at its full capacity, planned temporary diesel generation and voluntary load reductions exceeded the full import capacity of Basslink.

#### *Cloud seeding*

In addition to the above the Energy Supply Plan Hydro Tasmania commenced cloud seeding at the start of April, which is one month earlier than usual. Hydro Tasmania has advised that a number of successful cloud seeding operations have been undertaken since operations commenced.

### 3.5.1 Cost of the Energy Supply Plan

The costs of the Energy Supply Plan while not insignificant are far less than the impact to the Tasmanian economy had the Plan not been implemented and widespread power rationing had been required. The most significant additional cost involves the leasing, site establishment and operation of the diesel generation. The initial leasing and set up cost of the approximately 220 MW of diesel generation was approximately \$50.5 million. This included extending some of the leases of the initial sites (i.e. Catagunya and Meadowbank) to the end of June to ensure the availability of the full 220 MW if low inflows continued or the Basslink outage was extended further.

The operating cost for the diesel generation was approximately \$11 million per month for 100 MW of generation. As at the end of April the operating costs of generating the supplementary diesel was \$8.4 million. There has been very little diesel generation utilised after this time due to the significant May inflows. With the leasing and site establishment costs this brings the total cost to just under \$60 million.

These costs will be offset by revenue received from energy sales and the avoided costs of the Basslink facility fee, which is currently estimated to be in the order of \$40 million.

It will take some time to reconcile the full financial cost of the Energy Supply Plan on Hydro Tasmania. There are some variables that will take some time to work through including of course any contractual outcomes with Basslink. While the final costs will not be known for some time, it is important to appreciate that the potential economic damage to the broader Tasmanian economy and community would have been significantly greater if the Government had not acted.

The Government has announced in the budget that as a result Hydro Tasmania will have its returns to Government written down by around \$100 million over the forward estimates and is not expected to deliver a dividend for three years while storages are rebuilt.

Hydro Tasmania continues to advise the Government that it is in a position to absorb any anticipated financial impact. The Government will continue to work with Hydro Tasmania to ensure that remains the case.

### 3.5.2 Success of the Energy Supply Plan

As part of ensuring Tasmanian demand could continue to be met, a key objective of the Energy Supply Plan was to reduce the rate of decline in water storages through the traditionally dry summer to mid autumn period until winter rains arrived and began to rebuild storages.

Chart 4 in Appendix 3 shows Tasmania's supply mix on a monthly basis since June 2015. It shows all forms of generation, Tasmanian consumption and Hydro Tasmania's Total Energy in Storage.

The chart shows that following the Basslink outage in December 2015, the contingencies put in place progressively replaced a significant proportion of hydro generation. In particular, gas generation increased significantly from January 2016, whilst diesel generation came online in March 2016 and increased further in April 2016. Similarly, the impact of major industrial load reductions can be seen in the difference between Tasmanian consumption in the months of March and April 2016 with consumption levels in these months in 2015 (noting that the difference is also due to other factors, such as weather conditions).

Table I in Appendix 4 also demonstrates the effectiveness of the Energy Supply Plan in reducing the rate of decline in storages. When the Basslink outage first occurred in late December 2015, storages declined by over 1 percentage point per week in the absence of any contingencies (other than the FT8s).

Following the commencement of operation of the CCGT in mid January 2016 and voluntary Major Industrial load reductions, storages generally declined by less than 1 percentage point per week (fluctuations in rainfall and wind generation in some weeks also assisted in reducing the rate of decline, particularly in the week ending 1 February following a high rainfall event).

In March and April 2016, the rate of decline in storages reduced further as gas generation was maximised, diesel generation came on line and Major Industrial load reduction agreements came into full force, together with some rainfall and wind generation. The rate of decline in storages tended to fall to around or below 0.5 percentage points per week, particularly in April.

While weather played its part in some weeks, the impact of the Energy Supply Plan is obvious when comparing the initial period of the Basslink outage to late January onwards, when significant contingencies were employed and took effect. On average storages declined each week by:

- 1.2 percentage points in the five weeks between the week ending 28 December 2015 and the week ending 25 January 2016;
- 0.5 percentage points in the five weeks between the week ending 1 February and the week ending 29 February;
- 0.5 percentage points in the four weeks between the week ending 7 March and the week ending 29 March; and
- 0.3 percentage points in the four weeks between the week ending 4 April and the week ending 25 April.

The amount of energy saved or injected into the system with the Energy Supply Plan has been equivalent to over 7 per cent in storages as detailed in the table below.

Energy supply option	GWh	% of Total Energy in Storage
Supplementary gas generation	722	5.0
Supplementary diesel generation	55	0.4
Negotiated MI load reduction	274	1.9
<b>Total</b>	<b>1 051</b>	<b>7.3</b>

The storages reached a low point of 12.5 per cent in late April. Without any additional response (ie generation or load reductions) storages could have dropped to just over 5 per cent. At these levels energy security risk would have been very high and the risks around further plant outages and risk to supply could have escalated.

The Energy Supply Plan was delivered due to the significant resources that were devoted to the Plan and the dedication and commitment of the people involved.

The installation of approximately 220MW of diesel generation in period of around two months was a significant achievement given it is equivalent to building a new power station. Typically such development would take in excess of 18 months making the delivery of this amount of capacity in such a short time an exceptional achievement.

It is estimated more than 470 people across the State-owned energy businesses and contractors, including the Basslink repair itself, had contributed more than 55 000 hours towards the effort over recent months.

While much of the effort was concentrated in operational activities to install diesel generation across the seven sites, there was also significant efforts 'behind the scenes' to ensure the Plan remained on track. Staff in parts of the public service ensured that regulatory requirements (and changes where necessary) were implemented as soon as possible to allow the installation of the generation to remain on schedule.

For example, the Government amended regulations so that the temporary generation located with existing generation plants, substations and switchyards, and major industrial plants, was exempted from formal planning approvals under the *Land Use Planning and Approvals Act 1993* (LUPA). While this amendment was critical to ensure the temporary generation installation schedule was not stalled due to the timeframes that would have had to have been observed under the LUPA process, it is important to recognise that the installations still had to comply with environmental approvals processes (as discussed below).

### 3.6 Managing Environmental and Health and Safety Issues

The Energy Supply Plan and low water storages raised a number of challenges with respect to environmental, health and safety issues. Regulatory requirements were recognised and complied with and significant efforts were applied to manage and mitigate risks.

This involved considerable work across the businesses and Government, and interaction with the Regulator in a compressed timeframe. Hydro Tasmania also had to work with numerous stakeholders in a short period of time to ensure the installation of the diesel generators could be

achieved. This involved engagement with numerous councils and local residents near each diesel site, to ensure all issues were identified and managed. Ultimately Hydro Tasmania compiled a detailed environmental impact assessment for each site covering off on all environmental considerations for the sites including transport, flora, fauna environmental heritage, aboriginal heritage, air quality, noise etc. for submission to the regulator.

### 3.6.1 Diesel generation

The key environmental issue associated with the operation of the majority of the temporary diesel generating units is the emission of mono-nitrogen oxides (NO<sub>x</sub>).

Temporary diesel generation installations throughout the State are subject to approval by the Environment Protection Authority (EPA). This is because diesel generators that burn more than 1 tonne of fuel per hour are considered to be Level 2 Activities under the *Environmental Management and Pollution Control Act 1994* (EPMCA). The consequence of being categorised as a Level 2 activity is that the activity must be referred to the EPA Board for approval under section 27 of the EPMCA prior to use.

A statutory assessment, to undertake an activity that does not require a permit, usually takes at least six months for the proponent to prepare the necessary documentation and for the statutory steps to be completed, and the activity assessed, by the EPA Board.

Hydro Tasmania made the decision to install diesel generation on a temporary basis based on an assessment that it was the only option to ensure sufficient generation in the timeframe required. Given that the roll out of the temporary diesel generation locations was such a critical component to the Energy Supply Plan, the EPA Director was asked to progress the assessment of the diesel generation units in less than eight weeks.

The EPA Director, or the EPA Board, has no power to exempt such an activity from the statutory assessment process required under section 27 of the EPMCA. As the EPA Director determined that it would not be possible to undertake the required assessment in the timeframe needed, a decision was made to issue emergency authorisations, under section 34 of the EPMCA, for each temporary diesel generation location. This authorisation allows the temporary diesel units to be used at each location, until 31 July 2016, while the assessment process is undertaken.

The emissions from the temporary diesel generating units, at each location, were extensively modelled by external technical experts. The results were found to exceed the long term environmental limits specified in the National Environmental Protection Measure for air quality at the boundary of the land controlled by Hydro Tasmania, in worst case scenario weather conditions.

The emergency authorisation from the EPA Director was granted subject to strict management conditions which varied across the locations depending on the proximity of residents in the area. In some locations noise was also a further matter of concern and noise modelling was undertaken and where necessary management conditions imposed on the emergency authorisation.

The assessment information, project proposals and authorisations are all available on the EPA Tasmania website.

Despite the careful management of the installation and operations of the diesel generation, Hydro Tasmania has experienced a number of fuel spills typically during refuelling of the tanks on site. Most have been small although one at Meadowbank was reported to the EPA. However, the Meadowbank

spill was well contained and managed so there were no impacts on Lake Meadowbank. The contaminated material was disposed of in accordance with EPA regulations.

### 3.6.1.1 Carbon emissions

In terms of carbon emissions, Tasmania is, by international standards, a very low emitter. In 2013-14 Tasmania's greenhouse gas emissions totalled 1.56 mega-tonnes of carbon dioxide equivalent. This is a decrease in emissions of over 90 per cent since 1990 and means the State has exceeded its emissions reduction target, under the *Climate Change (State Action) Act 2008*, of 60 per cent below 1990 levels by 2050.

A emissions resulting from the use of diesel generators are modest in the context of the State's overall emissions profile. The diesel carbon emissions to the end of May are estimated to be in the order of 0.04 mega-tonnes of carbon dioxide equivalent. In addition, it needs to be considered that in a typical dry year, with Basslink in service, there would have been extensive importing from Victoria utilising power with a higher emissions profile. Over the long term emissions associated with the implementation of the Energy Supply Plan will not have a significant impact on the State's emissions profile.

### 3.6.2 Low Water Levels

Hydro Tasmania has acted to limit the environmental impact of the current energy security challenges on its storages, particularly at Great Lake through water level management. After the previous drought, Hydro Tasmania established a set of risk bands in Great Lake to help manage potential environmental issues when the lake is drawn-down to low levels.

The low level of Great Lake raised the risks of potential environmental impacts on various fauna and flora species in the lake. Hydro Tasmania accessed expertise and information from previous research and current monitoring programs to inform its environmental risk assessment and mitigation measures.

Hydro Tasmania continues to monitor low lake levels, particularly in Great Lake and Woods Lake, to assess the impacts on aquatic species and the lake ecosystems and has ensured that mitigation plans are in place. This included the formation of a scientific experts group in November 2015 in response to low spring inflows with experts from UTAS, independent researchers, Hydro Tasmania and Entura to update the risk assessment for Great Lake, and to design monitoring and mitigation measures. Hydro Tasmania continues to work with key stakeholders, including the Inland Fisheries Service (IFS) and DPIPWE, to keep them informed.

In January 2015, Great Lake entered its high risk environmental level. Hydro Tasmania continued to monitor the impact on flora and fauna species and started to look to manage the rate of decline of the lake. This resulted in reduced use of the lake through reduced operations of the Poatina Power Station. The rate of decline also was reduced by pumping water from Arthurs Lake into Great Lake.

With the good rainfall in May, Great Lake's water level has increased out of its high risk environmental level. Monitoring continues to understand any potential impact on the various flora and fauna species in the lake.

### 3.6.3 Health and Safety

Both Hydro Tasmania (and its contractors) and TasNetworks ensured that the health and safety of its work force were a high priority during the installation of the temporary generation and associated work. While the implementation of diesel generation was completed in a compressed time frame, under a heightened sense of urgency, the health and safety considerations were first and foremost in the implementation.

At all times, Hydro Tasmania, TasNetworks and the various contractors have ensured strict compliance to health and safety values and systems to ensure a successful role out of the temporary diesel generation. All businesses directly involved had plans and reporting mechanisms in place to manage and monitor health and safety risks and incidents. Health and safety matters were also reported on a regular basis by both Hydro Tasmania and TasNetworks to the Energy Security Cabinet Committee to ensure Government was fully informed of how risks were being monitored and reported. Overall, no significant occupational health and safety issues were experienced although there were a number of minor incidents reported and managed during the implementation of the Energy Supply Plan.

## 3.7 Tamar Valley Power Station – Combined Cycle Gas Turbine

The Tamar Valley Power Station is made up of five turbines which, at maximum capacity, can deliver up to 386 MW of energy. One of those turbines is the Combined Cycle Gas Turbine which has a maximum capacity of 208 MW. The balance is made up of four Open Cycle Gas Turbines.

The partly constructed Tamar Valley Power Station was purchased by the previous Government in 2008 through the retail energy business Aurora Energy. It cost the Tasmanian people \$330 million to acquire and bring into operation.

In March 2012 the Expert Panel released its report into the structure of the Tasmanian electricity industry. The Panel made a number of observations and recommendations in relation to the Tamar Valley Power Station.

The Panel confirmed that the Government at the time was advised that the total cost paid by the Government exceeded the value of the asset at the time of purchase by approximately \$150 million. It also confirmed that the power station had proven to be a financial burden to Aurora Energy because of its high cost of operation and associated debt.

The Expert Panel recommended the Tamar Valley Power Station, including the CCGT, be sold or transferred to Hydro Tasmania.

In May 2012, the former Government announced its response to the Expert Panel. While acknowledging the energy security value of the Tamar Valley Power Station, the former Government announced that it would be seeking an independent commercial analysis of the asset and investigate the potential sale of all five generators, including the Combined Cycle Gas Turbine, so long as it did not compromise energy security. It further committed to either transfer ownership of the Tamar Valley Power Station to Hydro Tasmania or to sell the power station, if the price was right, before June 2013.

In June 2013, the Tamar Valley Power Station was transferred to Hydro Tasmania together with its associated debt of \$205 million. In transferring the asset it was recognised that Hydro Tasmania had the potential to reduce the operating losses associated with the CCGT by electing to not operate the asset when it was not optimal to do so.

On 8 July 2013, Hydro Tasmania commenced the process of putting the Combined Cycle Gas Turbine into dry layup (which it maintained until November 2015 other than for a 6 month period between 10 December 2013 to 3 June 2014). This was due to the ongoing running costs of the CCGT being well in excess of the expected forecast NEM wholesale prices such that continuing to operate the unit would have resulted in significant ongoing losses. It did not operate through the 2014-15 financial year.

In January 2015, Hydro Tasmania wrote to the Tasmanian Government seeking permission to sell the Combined Cycle Gas Turbine but retain the other four Open Cycle Gas Turbines at the Tamar Valley Power Station.

Following extensive consideration over a period of approximately 6 months, including extensive advice and analysis from the Department of State Growth and Department of Treasury and Finance, in August 2015 the Government wrote to Hydro Tasmania and advised that it would conditionally allow Hydro Tasmania to seek expressions of interest for the sale of the CCGT. The conditions required by Government in this process were:

- Hydro Tasmania would be formally given responsibility for energy security;
- Hydro Tasmania had to review its prudent water storage management guidelines and extreme credible event plans in the absence of the CCGT; and
- the Board had to provide written confirmation to the Government that Hydro Tasmania could meet its energy security responsibility without the CCGT, prior to the execution of any sale agreement.

These conditions envisaged that there would be significant 'checks and balances' in place prior to any decision being made to divest the CCGT. These may have included increasing the preferred operating minimum level of water storages to provide additional 'insurance' against extreme risks, in the absence of the CCGT.

In November 2015, Hydro Tasmania commenced the process of recommissioning the CCGT and it returned to operation on 20 January 2016. As previously publically confirmed, the Government has withdrawn the approval given to Hydro Tasmania to seek expressions of interest for the sale of the CCGT. That sale is now completely off the table.

# 4. Managing for Energy Security

## 4.1 Managing Energy Security in Tasmania

The management of energy security in Tasmania has historically been heavily focused on the management of hydrological risk associated with our hydro dam storages and the delivery of a secure electricity supply. Energy security of course extends beyond this to also include other forms of energy such as gas and petroleum. In the context of electricity itself, our sources of generation also extend beyond hydro generation and include gas, wind and solar among others.

Ultimately the Government is responsible for the effective management of energy security in Tasmania. The Government sets the policy and legislative framework within which energy security is managed. There are a myriad of roles and responsibilities for the managing of energy security within this policy and legislative framework.

## 4.2 Electricity

Prior to Tasmania's entry into the NEM and the commissioning of Basslink, Hydro Tasmania had formal responsibility for ensuring electrical energy security in Tasmania.

When Tasmania joined the NEM in May 2005, the legislative obligation Hydro Tasmania had for ensuring electricity supply was repealed and responsibility for maintaining electrical energy security was assumed by AEMO (formally NEMMCO) under a national legislative framework.

Notwithstanding AEMO's formal role, given Tasmanian's heavy dependency on hydro generation, the Government continued to consider Hydro Tasmania's effective management of hydrological risk associated with its dam water storages of such importance to the overall management of electrical energy security in Tasmania that it imposed an obligation on Hydro Tasmania to ensure the prudent management of its water storages consistent with the long run energy capability of its system. This obligation is set out in Hydro Tasmania's Ministerial Charter.

In giving effect to Hydro Tasmania's obligation of prudent water management, in 2006 Hydro established a set of prudent water management guidelines that were designed to ensure that water storages were being managed sustainably and so there was sufficient water in reserve to ensure the short and long term reliability of electricity supply.

The prudent water management guidelines establish a preferred operating minimum level for storages and risk lines. Both the preferred operating minimum and risk lines change through the year reflecting the seasonal rainfall variation. These guidelines provide a basis to assess the health of the current storage situation across the entire hydro system. As storages fall below the preferred operating minimum level this represents an increasing risk of being able to generate from the hydro system to its long-term capability and therefore requires an appropriate response.

When the guidelines were originally adopted in 2006 they established a preferred minimum operating level for 30 June each year. This was originally set at 30 per cent but was then adjusted down to 25 per cent in September 2012. The reduction effectively saw the storage buffer to the medium risk line reduced by approximately 700 GWh.



Despite there being a clear obligation on Hydro Tasmania to responsibly manage Tasmania's hydrological risk through the prudent management of its water storages, there has been a view that effective management of energy security in Tasmania would be further enhanced through a more explicit acknowledgement of Hydro Tasmania's responsibility for delivering a secure electricity supply.

There have been concerns about a perceived conflict between Hydro Tasmania's obligation to deliver commercial returns and its obligation of prudent water management. However Hydro Tasmania's obligation, as set out in section 7 of the *Government Business Enterprises Act (1995)*, is to deliver a *sustainable* commercial rate of return, which necessarily requires Hydro Tasmania to responsibly manage hydrological risk associated with its water storages. In this sense then, Hydro Tasmania's obligation to deliver a commercial return is subject to its obligation to prudently manage its water storages. This is of course further reinforced by its explicit obligation to ensure prudent water management as set out in the Ministerial Charter. Section 38 requires that the Board of the Corporation ensure that the affairs of the Corporation are conducted in a manner consistent with the Charter.

Despite Hydro Tasmania's obligation to deliver commercial returns being qualified in this way, given the critical importance Hydro Tasmania's effective management of hydrological risk plays in the effective management of energy security more broadly, the Government considers it appropriate that there be a more explicit acknowledgment of Hydro Tasmania's responsibility for delivering a secure electricity supply in its governance arrangements.

Accordingly the Government has proposed an amendment to the Ministerial Charter that recognises Hydro Tasmania's responsibility for energy security through its obligation to manage water storages for the express purpose of ensuring a secure electricity supply. A draft of the proposed amendment has been provided to Hydro Tasmania.

In fact the previous Government had also proposed to give Hydro Tasmania a more explicit responsibility for managing energy security to Hydro Tasmania.

In its "Energy for the Future Report, May 2012" the previous Government committed to a series of actions including at 3.2:

Hydro Tasmania will be given explicit responsibility for managing energy security for the State. It will have the ability to achieve this through its control of hydro generation; the Tamar Valley Power Station and Basslink. This will remove any risk that Tasmanians will be exposed to power rationing as a result of commercially-driven strategies by competing government-owned electricity generators. This responsibility will also be enshrined in a way that ensures that Hydro Tasmania cannot pursue commercial interests on the mainland at the cost to energy security in Tasmania.

The previous Government failed to act on this commitment.

Other elements of the framework for managing energy security in Tasmania are set out below.

#### 4.2.1 Legislative Framework

At a national level the basis for the management of system security and emergency response is embodied in the National Electricity Law (NEL) and associated National Electricity Rules (NER). The emergency management arrangements in the NEM are embodied in the below documents, that Tasmania is a signatory to, that provide a common framework for an integrated response by all participants in the NEM:

- the Memorandum of Understanding (MOU) between the States and AEMO on the Use of Emergency Powers;
- NEM Emergency Protocol; and
- AEMO's Power System Emergency Management Plan (PSEMP).

Tasmanian specific emergency management arrangements are embodied in the:

- *Electricity Supply Industry Act 1995* (ESI Act) - Part 6 of the ESI Act covers emergency restriction of electricity use and sets out the circumstances under which the Minister may make mandatory restrictions; and
- *Energy Co-ordination and Planning Act 1995* - Provides for a public officer to co-ordinate and advise on energy policy and to assist in planning the energy needs of the State and for related matters.

In addition, all holders of licences issued by the Office of the Tasmanian Economic Regulator to generate, transmit, distribute or retail either electricity in Tasmania are required to maintain an emergency management plan. The plans are reviewed by an independent appraiser every second year to ensure they meet industry best practice.

The Department also maintains an industry specific emergency management plan for electricity which describes the practices and procedures employed to manage electricity emergencies that may impact Tasmania.

#### 4.2.2 Australian Energy Market Operator

The Australian Energy Market Operator's (AEMO) functions are prescribed in the NEL while procedures and processes for market operations, power system security, network connection and access, pricing for network services in the NEM and national transmission planning are all prescribed in the National Electricity Rules.

The AEMO is responsible for managing the National Electricity Market (NEM) and ensuring that system security is maintained. The role includes assessing the potential for supply shortfalls, especially where the market may not respond in a timely manner. AEMO is not responsible for ensuring the maintenance of supply. This is important in the Tasmanian context where Tasmania's electricity system is energy constrained, rather than capacity constrained, as is generally the case in other parts of the NEM. The practical consequence of this is that management of water storages, and the electricity supply consequences associated with this management, rest with Hydro Tasmania as the owner and operator of all the major generation assets in Tasmania (particularly the hydroelectric system). This obligation is acknowledged in the Ministerial Charter as described above.

The AEMO also works with market participants and jurisdictions to plan for situations where load shedding may be required to ensure overall system security. This can relate to emergencies relating

to damage to transmission/distribution infrastructure and, particularly in the case of Tasmania, where there is a shortfall in generation capacity such as may occur due to very low water storages.

#### 4.2.3 Responsible Officer

The Responsible Officer (RO) for each jurisdiction is provided for in the NEM Memorandum of Understanding on the use of Emergency Powers and associated NEM Emergency Protocol. The RO is the key jurisdiction operations contact for AEMO and for Tasmania is the General Manager Customer Engagement from TasNetworks.

The RO for Tasmania has the key responsibility to enact load shedding directed by AEMO, or the jurisdiction, as part of an emergency response. In effect, the RO manages the Tasmania's energy system response to load shedding decisions and makes the technical decisions and arrangements.

#### 4.2.4 Jurisdictional System Security Coordinator

The JSSC is appointed by the Tasmanian Minister for Energy in accordance with Section 110 of the NEL. Responsibilities are detailed in sections 111 to 117 of the NEL. In practice, the JSSC works closely with the RO as the JSSC relies on technical advice from the RO on network characteristics and load shedding options. The JSSC for Tasmania is currently the Director, Industry Policy in the Department of State Growth.

The JSSC has the key responsibility to prepare Load Shedding Priorities and sensitive loads for Tasmania and arrange their authorisation. In practice, the JSSC works closely with the RO as the JSSC relies on technical advice from the RO on network characteristics and load shedding options.

#### 4.2.5 Director of Energy Planning

The statutory position of Director of Energy Planning is appointed by the Minister for Energy under section 4 of the *Tasmanian Energy Co-ordination and Planning Act 1995*. The current occupant of the position is the Director, Industry Policy in the Department of State Growth, who also holds the position of JSSC which allows for integration between national responsibilities and jurisdictional implementation.

While some of the functions of the position have effectively been superseded following Tasmania's entry into the NEM, the position still has a key role in relation to energy security management. This mostly rests with the information gathering powers of the Director, as well as the capacity to advise the Minister for Energy on potential energy security strategies.

#### 4.2.6 Water Storage Advisory Committee

The Water Storage Advisory Committee (WSAC) is established by the Minister for Energy, under section 67 of the ESI Act. WSAC is chaired by the Director of Energy Planning, and includes senior representatives from the Department of Premier and Cabinet; Department of Treasury and Finance; and Department of Primary Industries, Parks, Water and Environment. Non-members (including Hydro Tasmania) attend as required, to brief WSAC on matters relevant to its function. Under its Terms of Reference, WSAC is required to meet annually, but meets more frequently when water storages drop below certain levels or as determined by the Chair.

The Water Storage Advisory Committee (WSAC) has the sole role to advise the Minister for Energy on whether there are adequate available water supplies to sustain hydro-electric electricity generation at the level of current demand. Specifically, the Minister for Energy's power to invoke mandatory restrictions on the basis of water shortages may only be exercised after consideration of advice from WSAC, however the WSAC does not itself advise on the restrictions, but provides information that must be taken into account by the Minister for Energy.

## 4.3 Gas

Tasmania's gas system is connected to the mainland Australian market through a transmission pipeline from Longford (Victoria) to Bell Bay and supplied to customers from on-island transmission laterals to the South and North West of the State, and distribution networks in Hobart, Launceston, Devonport, Burnie and other regional towns.

### 4.3.1 Legislative Framework

The Tasmanian market is subject to the National Gas Law (NGL) and the National Gas Rules (NGR) that provide the overarching national regulatory framework for the gas transmission sector.

Tasmania is obligated to comply with the Memorandum of Understanding in relation to the National Gas Emergency Response Protocol which provides high level details on the roles and responsibilities when a jurisdiction proposes using its emergency powers in response to a natural gas supply emergency. It also provides the objectives and guiding principles for managing a major natural gas supply shortage across jurisdictions.

In Tasmania, the legislative instruments governing the gas industry are the *Gas Act 2000 (GA)*, *Gas Pipelines Act 2000*. Both acts are assigned to the Minister for Energy for the most part, and to the Minister for Justice and Workplace Relations in so far as they relate to the appointment, functions, powers, and duties of the Director of Gas Safety.

The GA provides that the Minister for Energy may direct customers connected to the Distribution Network not to use gas during certain energy supply emergency events to ensure the most efficient and appropriate use of the available gas or to ensure no gas is drawn from the system except for allowed purposes.

In addition, all holders of licences issued by the Office of the Tasmanian Economic Regulator to transmit or distribute natural gas in Tasmania are required to maintain an emergency management plan. The plans are reviewed and approved by the Director of Gas Safety in accordance with the relevant Acts.

The Department also maintains an industry specific emergency management plan for gas which describes the practices and procedures employed to manage gas emergencies that may impact Tasmania.

### 4.3.2 Jurisdictional Contact Officer

In the event of an advisable incident the Jurisdictional Contact Officer, in the jurisdiction that the incident occurs, is required to advise all other jurisdictional contact officers providing details of the

nature of the event, location, time it occurred, likely effect and estimated time to restore. AEMO's bulletin board is to be used in assisting the market manage an emergency situation.

## 4.4 Petroleum

Petroleum products are supplied to the State via sea tankers from mainland and international refineries and distributed to retailers from storage facilities located at Self's Point (Hobart), Devonport, Burnie and Bell Bay.

The Department also maintains an industry specific emergency management plan for petroleum which describes the practices and procedures employed to manage petroleum emergencies that may impact Tasmania.

### 4.4.1 Legislative Framework

At a national level petroleum supply emergency incidents are regulated by the *Liquid Fuel Emergency Act 1984* and the National Liquid Fuel Emergency Response Plan. The Inter-Governmental Agreement in Relation to a National Liquid Fuel Emergency between the Australian Government and the states and territories sets out the guiding principles, roles and responsibilities and process each jurisdiction has agreed to follow during a liquid fuel emergency.

In Tasmania, petroleum products supply incident management responsibilities and authorities are identified in the *Petroleum Products Emergency Act 1994* (PPEA). The PPEA provides the Governor with discretion to declare a period of emergency restriction and/or rationing.

During a period of emergency restriction, the Minister may give directions in relation to the production, supply, storage, distribution, transportation, sale, purchase, use or consumption of the petroleum products in respect of which the period of emergency restriction is in force. In addition, the Minister may dictate that petroleum products may only be bought by and sold to permit holders during any declared period.

Historically the petroleum products supply industry has resolved supply shortages through normal market mechanisms.

## 4.5 Department of State Growth

The Department of State Growth's Industry Policy Branch provides policy advice on energy issues to the Minister for Energy in regards to his portfolio responsibilities relating to the Tasmanian and national energy sector. This includes:

- Implementing the Government's Energy Strategy;
- Engaging with Tasmania's energy businesses and providing policy advice to the Minister on the objectives and performance of state-owned businesses as they relate to the Government's energy policies (except energy policy related to contestable customers, price regulation and contracts which is the Department of Treasury and Finance's responsibility under the *Electricity Supply Industry Act 1995*);

- Supporting the Director of Energy Planning in meeting responsibilities specified in the *Energy Co-ordination and Planning Act 1995*. The Director's principal function is to advise the Minister for Energy on all aspects of energy policy including energy security;
- Supporting the statutory position of the Jurisdictional System Security Coordinator. The Jurisdictional System Security Coordinator has particular responsibilities for setting priorities for the Australian Energy Market Operator (AEMO) in how power system security is managed in Tasmania;
- Supporting the Water Storage Advisory Committee undertake its statutory function;
- Helping to maintain an efficient and effective regulatory structure for Tasmanian energy by administering relevant energy legislation as assigned under Administrative Orders;
- Actively representing Tasmania's interests in national energy policy development and in ongoing reforms and development of the regulatory and market framework for Australia's electricity and gas sectors, including advocating for Tasmania's interests in national reform processes, principally through the COAG Energy Council; and
- Ensuring arrangements are in place to respond to any major disruption to supplies in Tasmanian electricity, gas or petroleum products.

## 4.6 Department of Treasury and Finance

Part of the Department of Treasury and Finance's (Treasury) responsibilities includes monitoring and the provision of strategic advice to Shareholding Ministers on the performance and management of all Government businesses. This includes the three Government owned Energy Entities – Aurora Energy, Hydro Tasmania and Tasmanian Networks.

In regard to the Government business portfolio, the Department provides advice to the Treasurer on:

- the governance framework for Government businesses;
- financial issues relating to Government businesses, including financial performance targets and general financial performance.
- the financial position and performance of the Government businesses; and
- the achievement of the Government's policy objectives for Government businesses, in particular the Fiscal Strategy.

Independent "shareholder" performance monitoring of Government businesses is an integral part of the governance framework. Its analogy in the private sector is the role played by market analysts in the capital markets. Treasury takes the role of the analyst providing investment advice to the Government on its portfolio. This framework reinforces managerial autonomy and obviates the need for the Ministers to become involved in day-to-day organisational or managerial issues of the businesses.

While the Department provides detailed financial analysis of Government businesses in terms of monitoring and analysing quarterly performance and the analysis of Corporate Plans, it does not have a role in the day to day operations of the businesses or the setting of business strategies. The Department provides advice to the Treasurer on a range of financial matters, but any decisions that are made are by the Shareholding Ministers who may accept advice from Treasury and from other

sources including the respective business. Once a decision is made, Treasury may be involved in the implementation of the decision.

In regard to the energy entities, Treasury does not have responsibility for energy policy or energy security, although it may provide advice on these matters from a whole of State financial perspective if required.

Treasury does have representation on a number of committees established in regard to energy related issues, although it does not chair any of the committees. These include:

- Energy Security sub-committee of Cabinet;
- Energy Security Heads of Agencies Coordination Committee; and
- Water Storage Advisory Committee.

#### 4.6.1 Legislative Framework

Under the Administrative Arrangements Order 2016, Treasury is responsible for the administration of a number of Acts relating to the Government business portfolio. Those that are relevant to the Government owned energy entities are:

- *Economic Regulator Act 2009*;
- *Electricity Companies Act 1997*;
- *Electricity Reform Act 2012*;
- *Electricity Supply Industry Act 1995* (only Part 2 and Divisions 3, 4, 4A, 5, 5A, 6 and 10 of Part 3 and in so far as it relates to contestable customers, price regulation and contracts and the making of regulations under section 122, in so far as those regulations relate to that Part, those Divisions and those matters those parts relating to);
- *Government Business Enterprises Act 1995*; and
- *Government Business Enterprises (Sale) Act 2003*.

The governance framework for the Government Business portfolio is described in the Governance Framework Guide which is available on the Department's website. The framework describes the two different types of businesses that are currently used in in the State, specifically Government Business Enterprises (GBEs) and State-owned Companies (SOCs).

GBEs are established under their own Portfolio Act and the framework of the *Government Business Enterprises Act 1995*, and have special requirements beyond those of their counterparts in the private sector.

SOCs are established under their own Portfolio Act and are incorporated under the *Corporations Act 2001*. SOC's also have a number of special requirements, due to Government ownership, which do not apply to their private sector counterparts.

## 4.6.2 Government Business Enterprises and State-Owned Companies

### 4.6.2.1 Governance

The overall treatment of all GBEs and SOCs are similar and the reporting requirements and overall commercial expectations are the same for both types of entities.

Of the three Energy Entities, Hydro Tasmania is a GBE while Aurora Energy and Tasmanian Networks are SOCs.

Government businesses including the three energy entities are established as commercial businesses with a Board of Directors. The board of a GBE, through the requirements in the Government Business Enterprises Act, is responsible to the Shareholder Ministers for ensuring that the GBE:

- manages and conducts its business and affairs in a manner that is in accordance with sound commercial practice and consistent with its ministerial charter;
- performs its functions; and
- achieves its objectives as specified in the GBE Act, or any other relevant Act, its ministerial charter and corporate plan.

Similarly, the Members' Statement of Expectations for a SOC states that it is the responsibility of the board of directors to act in the interests of the company and, in doing so should take into account the shareholders' interests. The chief executive officer and other managers are responsible to the board, which is responsible to the shareholders.

To fulfil these responsibilities, the board of a Government business must be actively involved in:

- setting strategic directions;
- securing and continually monitoring organisational performance;
- ensuring compliance with statutory requirements; and
- managing risk.

As part of the overall governance framework, Treasury prepares and administers a range of governance documents to provide guidance to the Government businesses and to ensure that the Shareholding Ministers' expectations for the specific businesses are met. These include Treasurer's Instructions and Guidelines for Government businesses. Treasurer's Instructions have been issued dealing with the following matters:

- Corporate Plans and Charters
- Financial Affairs
- Investments
- Accounting Records, Financial Statements and Reports
- Community Service Obligations
- National Taxation Equivalent Regime

Guidelines for Government businesses have been prepared on the following:

- Assessing Board Performance

Submission to the Parliamentary Standing Committee of Public Accounts - Inquiry into the financial position and performance of Government owned energy entities



- Buy Local Guidelines
- Capital Investment
- Corporate Planning
- Director and Executive Remuneration
- Director Induction, Education and Training
- Dividends
- Borrowing Arrangements
- Overseas Travel
- Payment of Accounts
- Reporting Guidelines
- Subsidiary Companies and Joint Ventures
- Superannuation Guidelines
- Board Appointments; and
- Appointing the CEO as a Member of the Board.

Copies of the Treasurer's Instructions and Guidelines can be found on the Treasury website.

#### 4.6.2.2 Reporting

The Government businesses, whether they are a GBE or SOC, operate on a commercial basis with a commercially focused Board of Directors. As such, they are bound by the same reporting arrangements as any other business. The three electricity entities are required to produce an annual report which is released in November each year. The annual reports are also required to be tabled in the Parliament by the relevant Portfolio Minister.

As part of the overall oversight of the performance of the Government businesses, the electricity entities are subject to scrutiny by the Parliament through the Government Business Scrutiny Hearings held each year. This provides Members of Parliament an opportunity to directly question the businesses on aspects of their performance over the previous financial year.

As part of the reporting requirements under the Reporting Guidelines, the three electricity entities are required to provide quarterly reports to Treasury for the quarters of September, March and June and a half yearly report to the Shareholding Ministers. Quarterly reports are not public but it is up to the business as to whether it wishes to publically release its half yearly report. Treasury provides the Treasurer with an analysis of the quarterly and half yearly reports.

In addition to Treasury's ongoing analysis of the performance of the businesses, the Auditor-General provides an annual financial audit report of the financial statements of all Government businesses. The latest report was released on 17 November 2015.

#### 4.6.2.3 Corporate Planning

The Corporate Planning Guidelines outline the Shareholding Ministers expectations in regard to the content and development of the Corporate Plan and Statement of Corporate Intent of the business.

Submission to the Parliamentary Standing Committee of Public Accounts - Inquiry into the financial position and performance of Government owned energy entities

A draft Corporate Plan is required to be submitted by 31 March each year unless an alternative date is agreed.

For the 2016-17 planning period, Aurora Energy and Tasmanian Networks submitted their draft Corporate Plans in March 2016, while Hydro Tasmania was given an extension to 31 May 2016 given the uncertainties around the current energy security situation. The Corporate Plan is not a public document as it contains commercially sensitive information. However the business may choose to publish a version of the Corporate Plan.

Once submitted, Treasury analyses and provides advice to the Treasurer on the draft Corporate Plan and Statement of Corporate Intent. The Statement of Corporate Intent is a high level summary of the Corporate Plan and includes a performance agreement between the Board and the Shareholding Ministers which details the key performance targets for the budget year and estimates for the remaining years of the Corporate Plan. The Statement of Corporate Intent is required to be published in the annual report of the business which is available on the website of the business.

As commercial entities, the three electricity entities must develop appropriate strategies to ensure that they are able to operate on a sustainable basis. The Boards of the businesses are responsible for setting strategies taking into account any specific legislative requirements or expectations of the Government, as owner of the businesses. The strategies adopted by the Board are outlined in the Corporate Plan which is then presented to the Shareholding Ministers for approval or endorsement. While the Boards will develop strategies in the best interest of the business, the Shareholding Ministers can take a whole-of-portfolio view to ensure that the business collectively operate in the best interest of the State.

Appendix 5 provides references to websites that contain detailed information on Government business corporate governance and related matters.

## 4.7 Tasmanian Economic Regulator

The Tasmanian Economic Regulator (TER) is responsible for setting maximum retail prices for the sale and supply of electricity services, including standing offer prices. Information on the 2016 Standing Offer Price Investigation, including Aurora Energy's submission, can be found on the TER web site. The TER also administers the wholesale regulatory instrument.

The TER is also required to establish and monitor proper standards of safety, reliability and quality in the supply of electricity in Tasmania and protect the interests of electricity consumers. The latest Energy in Tasmania Performance Report can be found on the TER web site.

## 5. Power prices

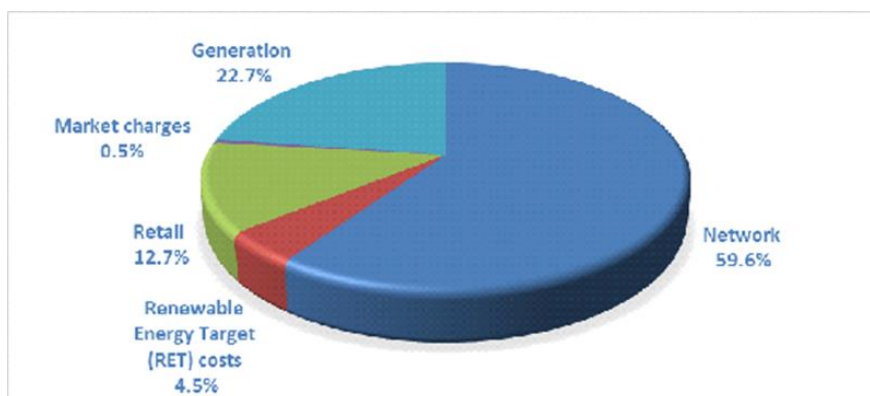
The Government continues to be focussed on ensuring that power prices in Tasmania remain as low as possible.

In implementing the Energy Supply Plan the Government has made it clear that all costs associated with the Plan are to be met by Hydro Tasmania and not passed on to regulated customers.

Regulated power prices, which cover households and most small businesses, are set independently by the Tasmanian Economic Regulator each year. The regulator noted in a release on 5 May that:

“Given the regulated nature of wholesale electricity costs in Tasmania, the current Basslink outage and the actions taken to secure electricity supply have no impact on the regulated electricity prices that will apply from 1 July 2016 to residential and small business customers.”

The Regulator determines regulated retail prices for small customers by using a “building block” approach to calculate a Notional Maximum Revenue that Aurora Energy may earn. The Regulator has discretion over about 12 per cent of the Notional Maximum Revenue (being retail margin and cost to serve). The other components of the Notional Maximum Revenue are passed through. These passed through costs include transmission, distribution, market participation and renewable energy program costs as well as wholesale energy costs. The key cost components of a typical electricity bill for 2015-16 are:



Source: Tasmanian Economic Regulator

Wholesale energy costs are determined using prices resulting from the wholesale contract regulatory framework that applies to Hydro Tasmania, which largely determines forward contract prices for electricity in Tasmania based on observed prices in the Victorian forward contract market adjusted for estimated transmission losses over Basslink.

Given the regulated nature of wholesale electricity costs in Tasmania, the current Basslink outage and the actions taken to secure electricity supply have no impact on the regulated electricity prices that will apply from 1 July 2016 to residential and small business customers.

The expectation at this time is any standing offer increase will be moderate. The pricing for the 2016-17 year is expected to be finalised in mid-June 2016. Even with the anticipated moderate

Submission to the Parliamentary Standing Committee of Public Accounts - Inquiry into the financial position and performance of Government owned energy entities

increase on 1 July 2016, regulated power prices in Tasmania are still anticipated to be lower than when the Hodgman Liberal Government came to office. This of course stands in stark contrast to the record of the previous Government that oversaw power price increases of more than 65 per cent over a 7 year period.

In addition, more vulnerable customers will continue to be protected from any price rise by the concession rates applicable to those customers increasing by the same rate. This is one of the most generous concessions arrangements in Australia and this will help protect the most vulnerable in our communities.

Some contract customers who had to recontract in the first quarter of 2016 may have been exposed to higher than expected wholesale energy price movement during the Basslink outage. The Government has recognised this and is working with those affected energy users to ensure any additional costs associated with the outage are minimised.

## 6. Future considerations

The recent record May rainfall has been welcome from an energy security perspective although it is important to recognise that rebuilding Tasmania's dams will take time and that careful monitoring and management will still need to occur. A priority is rebuilding storages to above Hydro Tasmania's preferred minimum operating level while also ensuring that contingencies are in place to deal with extreme conditions should they eventuate again.

While the immediate priority is to restore storages to above the preferred minimum operating level prior to the next summer, a key consideration will be the prudent management of water over the longer term. Previous decisions around water management and the decision to reduce the preferred minimum operating level will be reconsidered in the context of recent events and the Government's commitment to ensuring energy security.

The Tasmanian Energy Security Taskforce has been established to undertake an energy security risk assessment and report back to Government with recommended actions to ensure future energy security for Tasmania.

The Taskforce has three members, Mr Geoff Willis, Ms Sibylle Krieger and Mr Tony Concannon. The Taskforce will be chaired by Mr Willis, the former Chairman of Aurora Energy.

Mr Willis has extensive experience in the energy sector having previously been CEO of Hydro Tasmania as well as a Member of the AEMC Reliability Panel.

Both Ms Krieger and Mr Concannon bring a wealth of national experience in the energy sector and an independent perspective to the work of the Taskforce.

Ms Sibylle Krieger is a current non-executive director of the Australian Energy Market Operator (AEMO) and a former member of Independent Pricing and Regulatory Tribunal (IPART) in NSW.

Mr Tony Concannon is the current Chair of Reach Solar Energy, a former executive director of International Power and previous Chair of the Electricity Supply Association of Australia.

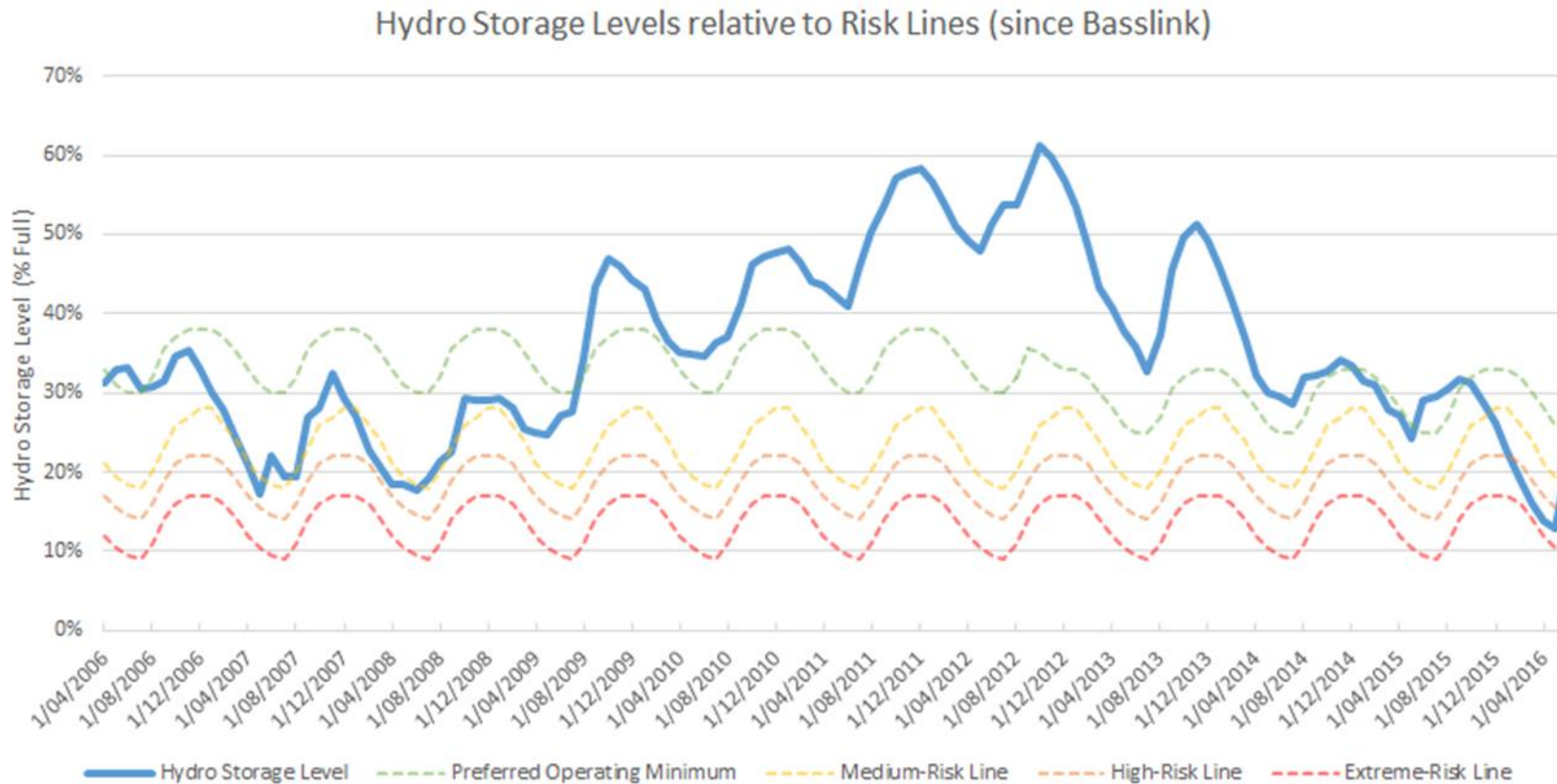
The Taskforce has been charged with undertaking a future energy security risk assessment for Tasmania having regard to:

- best practice water management including consideration of water requirements across a range of stakeholders;
- Tasmania's future load growth opportunities and risks and likely impact on projected energy supply and demand;
- the opportunity for further renewable energy development in Tasmania, including in wind, solar, biomass and other renewable technologies considered in the context of anticipated transition of the national electricity market and the potential for a second interconnector;
- likely developments in technology, such as battery storage and electric vehicles;
- Tasmania's future exposure to gas price risk;
- the potential impact of climate change on energy security and supply; and
- a review of energy security oversight arrangements.

The Taskforce will also review the planning and response to the extreme event we are currently experiencing to ensure key learnings are built into future preparedness.

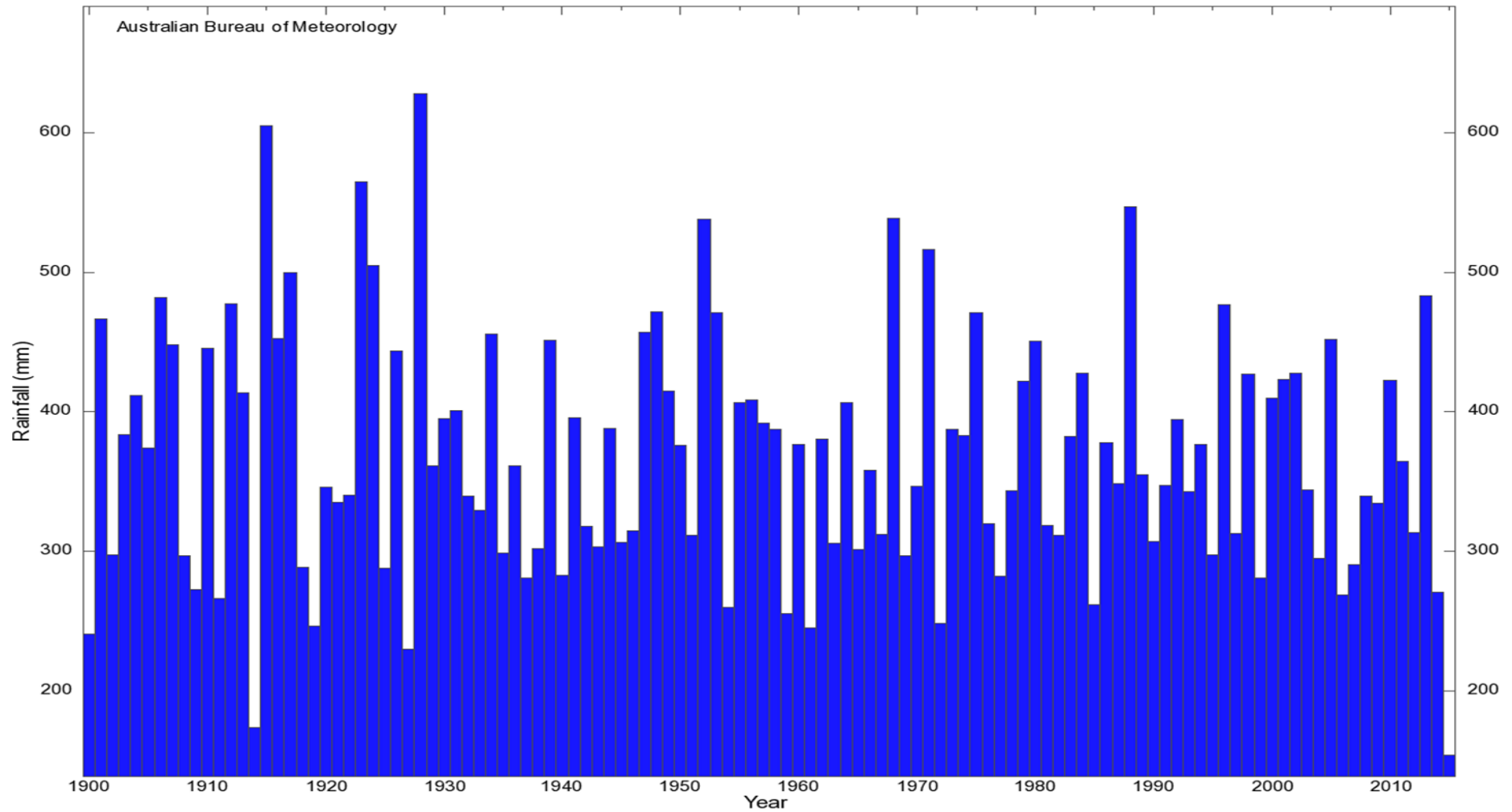
An interim report will be delivered within 6 months of the Taskforce's establishment and a final report within 12 months. The Taskforce will engage with relevant stakeholders and the broader community in developing its recommendations.

# Appendix I - Chart I: Hydro Storage levels



# Appendix 2 – Chart 2: Tasmanian Spring Rainfall

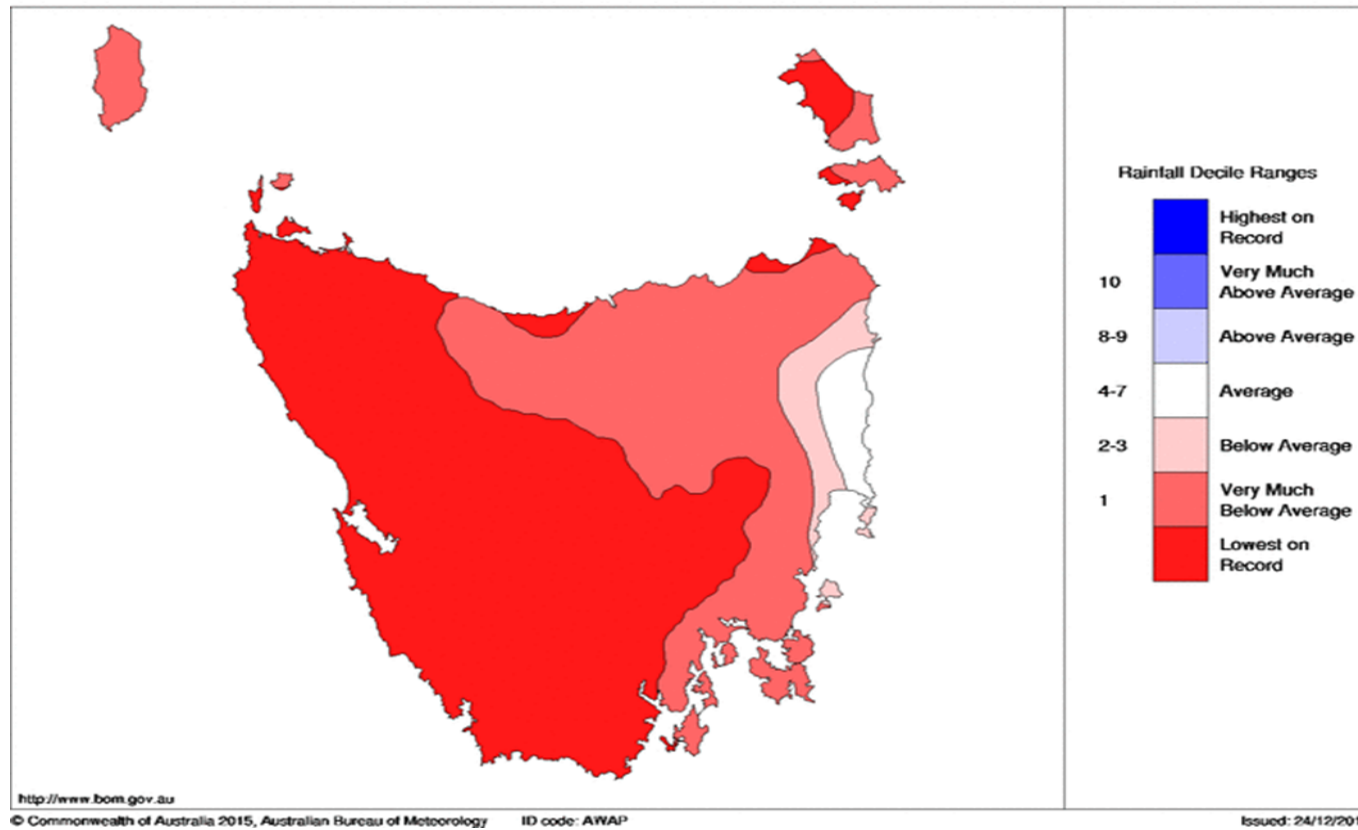
Spring rainfall - Tasmania (1900-2015)



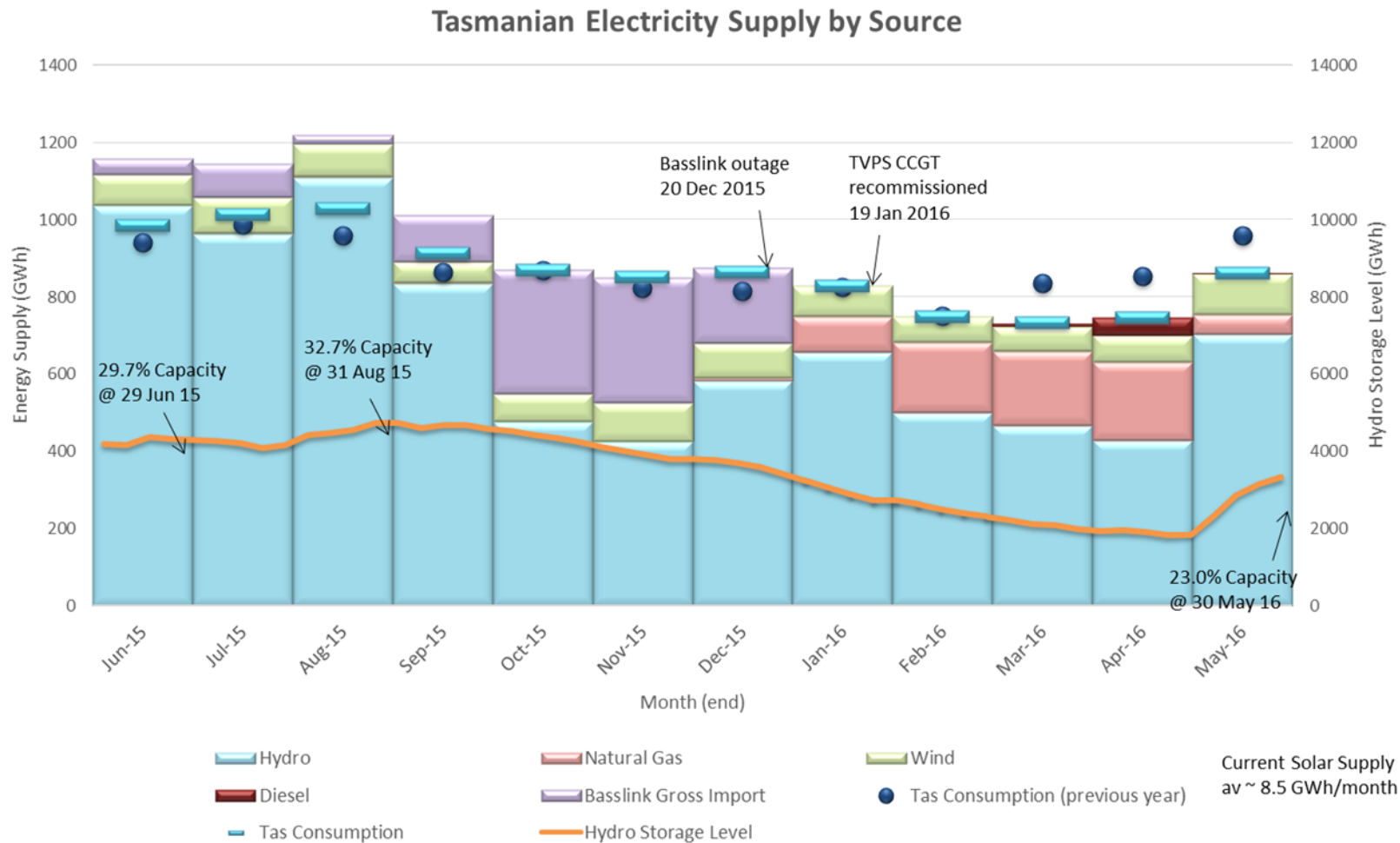


# Appendix 3 - Chart 3: Spring 2015 Rainfall Deciles

Tasmanian Rainfall Deciles 1 September to 30 November 2015  
Distribution Based on Gridded Data  
Australian Bureau of Meteorology



# Appendix 4 – Chart 4: Tasmanian Monthly Electricity Supply by Source



# Appendix 5 – Table I: Weekly Changes in Total Energy in Storage, 1 June 2015 to 23 May 2016

	GWh in Storage	% Full	Per cent Change from previous week			GWh in Storage	% Full	Change from previous
Monday 01-Jun-15	4197	29.1%			Monday 07-Dec-15	3766	26.1%	-0.2%
Monday 08-Jun-15	4154	28.8%	-0.3%		Monday 14-Dec-15	3710	25.7%	-0.4%
Monday 15-Jun-15	4364	30.2%	1.5%		Monday 21-Dec-15	3587	24.8%	-0.9%
Monday 22-Jun-15	4310	29.9%	-0.4%		Monday 28-Dec-15	3422	23.7%	-1.1%
Monday 29-Jun-15	4294	29.7%	-0.1%		Monday 04-Jan-16	3247	22.5%	-1.2%
Monday 06-Jul-15	4274	29.6%	-0.1%		Monday 11-Jan-16	3063	21.2%	-1.3%
Monday 13-Jul-15	4205	29.1%	-0.5%		Monday 18-Jan-16	2884	20.0%	-1.2%
Monday 20-Jul-15	4087	28.3%	-0.8%		Monday 25-Jan-16	2727	18.9%	-1.1%
Monday 27-Jul-15	4157	28.8%	0.5%		Monday 01-Feb-16	2735	18.9%	0.1%
Monday 03-Aug-15	4416	30.6%	1.8%		Monday 08-Feb-16	2636	18.3%	-0.7%
Monday 10-Aug-15	4471	31.0%	0.4%		Monday 15-Feb-16	2505	17.4%	-0.9%
Monday 17-Aug-15	4542	31.5%	0.5%		Monday 22-Feb-16	2397	16.6%	-0.7%
Monday 24-Aug-15	4726	32.7%	1.3%		Monday 29-Feb-16	2322	16.1%	-0.5%
Monday 31-Aug-15	4727	32.7%	0.0%		Monday 07-Mar-16	2241	15.5%	-0.6%
Monday 07-Sep-15	4593	31.8%	-0.9%		Monday 14-Mar-16	2139	14.8%	-0.7%
Monday 14-Sep-15	4685	32.5%	0.6%		Monday 21-Mar-16	2104	14.6%	-0.2%
Monday 21-Sep-15	4674	32.4%	-0.1%		Monday 28-Mar-16	2012	13.9%	-0.6%
Monday 28-Sep-15	4583	31.7%	-0.6%		Monday 04-Apr-16	1962	13.6%	-0.3%
Monday 05-Oct-15	4519	31.3%	-0.4%		Monday 11-Apr-16	1965	13.6%	0.0%
Monday 12-Oct-15	4429	30.7%	-0.6%		Monday 18-Apr-16	1931	13.4%	-0.2%
Monday 19-Oct-15	4330	30.0%	-0.7%		Monday 25-Apr-16	1844	12.8%	-0.6%
Monday 26-Oct-15	4232	29.3%	-0.7%		Monday 02-May-16	1874	13.0%	0.2%
Monday 02-Nov-15	4119	28.5%	-0.8%		Monday 09-May-16	2325	16.1%	3.1%
Monday 09-Nov-15	4018	27.8%	-0.7%		Monday 16-May-16	2883	20.0%	3.9%
Monday 16-Nov-15	3915	27.1%	-0.7%		Monday 23-May-16	3164	21.9%	1.9%
Monday 23-Nov-15	3798	26.3%	-0.8%		Monday 30-May-16	3327	23.0%	1.1%
Monday 30-Nov-15	3800	26.3%	0.0%					

# Appendix 6 - Website references

- Tasmanian Government Energy Strategy  
[www.stategrowth.tas.gov.au/energy/strategy](http://www.stategrowth.tas.gov.au/energy/strategy)
- Governance Framework Guide:  
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