



PARLIAMENTARY STANDING COMMITTEE OF PUBLIC ACCOUNTS

REPORT

ON

**The financial position and performance of Government
owned energy entities**

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MEMBERS OF THE COMMITTEE

LEGISLATIVE COUNCIL

Hon Ivan Dean MLC (Chair)



Hon Ruth Forrest MLC



Hon Michael Gaffney MLC



HOUSE OF ASSEMBLY

Mr Scott Bacon MP



Ms Sarah Courtney MP (Deputy Chair)



Mrs Joan Rylah MP



GLOSSARY

<u>TERM</u>	<u>MEANING WITHIN THE CONTEXT OF THIS REPORT</u>
2IC	Second Tasmanian Interconnector
ACCC	Australian Competition and Consumer Commission
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AETV	Aurora Energy Tamar Valley
ARENA	Australian Renewable Energy Agency
B&BP	Babcock and Brown Power
BBPS	Bell Bay Power Station
BoM	Bureau of Meteorology
CAPEX	Capital Expenditure
CCGT	Combined Cycle Gas Turbine
CER	Clean Energy Regulator
COAG	Council of Australian Governments
CSO	Community Service Obligations
EBIT	Earnings before interest and taxes
ESI Act	<i>Electricity Supply Industry Act 1995</i>
ESIEP	Electricity Supply Industry Expert Panel
FiT	Feed-in-tariff
FRC	Full retail contestability
GWh	Gigawatt hours
HEC	Hydro-Electric Commission
IOD	Indian Ocean Dipole
KIREIP	King Island Renewable Energy Integration Project
LGC	Large-Scale Generation Certificate
MW	Megawatt
MWh	Megawatt hour
NEL	National Electricity Law
NEM	National Energy Market
NEMMCO	National Electricity Market Management Company Limited
NERL	National Energy Retail Law

<u>TERM</u>	<u>MEANING WITHIN THE CONTEXT OF THIS REPORT</u>
OCGT	Open Cycle Gas Turbine
OPEX	Operating expenditure
OTTER	Office of the Tasmanian Economic Regulator
RAB	Regulatory Asset Base
REC	Renewable Energy Certificate
TMEC	Tasmanian Minerals and Energy Council
TER	Tasmanian Energy Regulator
TGP	Tasmanian Gas Pipeline
TNSP	Transmission network service provider
TVPS	Tamar Valley Power Station

CHAIR'S FOREWORD

The Inquiry of the Public Accounts Committee was initiated following a motion by the Member for Murchison, the Hon Ruth Forrest MLC, to establish a Legislative Council Select Committee into the financial position and performance of Government owned energy entities.

The Leader of the Government in the Legislative Council, the Hon Dr Vanessa Goodwin MLC wrote to the Committee and suggested the Public Accounts Committee could undertake such an Inquiry.

The Committee resolved to initiate the Inquiry on 16 March 2016. The terms of reference adopted by the Committee were expanded from the financial position and performance of the entities to take account of the energy supply crisis of 2015-16.

The Committee's intention to complete the Inquiry by the close of 2016 was impacted by the complexity of the subject, the need to recall witnesses and difficulty in obtaining information. The Committee's deliberations were further protracted by the Government providing a redacted copy of the Tamar Valley Power Station letter of 9 April 2015 and refusing to provide an unredacted copy as requested on a number of occasions and as detailed in Special Report No. 5 to Parliament. In addition Special Report No. 4 to Parliament dealt with claims of unauthorised disclosure of information from the Committee.

The Inquiry had commenced in a climate of uncertainty about the security of electricity supply in Tasmania. The State faced an electricity supply crisis starting in December 2015 and ending in June 2016. The electricity supply emergency was created by a set of unprecedented events including the lowest spring rainfalls on record and the coincident extended failure of the Basslink interconnector.

This situation dominated the attention of the Committee and the course of the Inquiry. There was substantial public discussion and debate about prior decisions and management of the response. These factors included:

- The management of water levels;
- The uncertainty around return to service of Basslink;

- The previous decisions for the dry lay-up and potential sale of the Tamar Valley Power Station Combined Cycle Gas Turbine, which delayed its return to service;
- The commercially agreed load reductions by some major industrial customers; and
- The concern for possible load reduction by other customers.

The actions taken to ensure supply were effective, but came at a significant cost to Hydro Tasmania and the Tasmanian Government.

The Committee's intention was to gather evidence and to address the issues being raised and provide an opportunity for Government, the energy entities and other parties to put on public record their response to the energy supply event. The intent of the eight recommendations of the Committee is to provide some framework for the management of similar future events.

In conjunction with this Committee's Inquiry the Government also commissioned the Tasmanian Energy Security Taskforce *"to identify ways to help future proof Tasmania from the types of energy security challenges the State has experienced in early 2016."*

While no rationing of energy to residential and business users occurred, some major industrial customers did agree to voluntary reduction of load on commercial terms.

The Inquiry generated immense interest and presented challenges to the Committee. As mentioned above, two matters held up the process of the Inquiry. The first involved the disclosure of Committee material in the public arena. The second event was the continuing refusal of the Treasurer to provide the Committee an unredacted copy of a document titled *"Sale of the Tamar Valley Power Station"*, considered by the Committee to potentially contain essential information for the Inquiry.

These matters resulted in the tabling of Special Reports to Parliament.

- With regard to the unauthorised disclosure of Committee deliberations, the *Special Report No.4 -Unauthorised Disclosure Of Committee Deliberations* found that:
 1. Its deliberations relating to the issue of a summons were improperly disclosed to a third party, which resulted in the information being reported by the ABC on 21 March 2017;

2. Prima facie, the disclosure of the information appears to be in contravention of House of Assembly Standing Order 355; and
 3. This disclosure follows previous alleged disclosures of information.
- With regard to the Committee's request for information from the Treasurer during the course of its Inquiry and the Treasurer's refusal to supply the document, the *Special Report No. 5- Failure To Comply With Summons* found that:
 1. The Treasurer's claim to public interest immunity in relation to the Letter remains unsubstantiated;
 2. There is nothing on the face of the Letter which would indicate that it contains any details of the deliberations of Cabinet, for example no marking such as "Cabinet in Confidence";
 3. The Treasurer consistently incorrectly relies upon the provisions of the *Right to Information Act 2009* as being relevant to the question of whether, or to what extent, he is required to comply with a request from the Committee for the production of documents;
 4. Legal advice received by the Committee makes clear that the Treasurer's duty to a Committee of the Parliament is higher than that afforded an applicant under the *Right to Information Act 2009*;
 5. The Treasurer has not complied with the summons issued to him by the Chair of the Committee on 21 March 2017 as he did not provide the unredacted copy of the Letter.

Two Members of the Committee, Ms Sarah Courtney MP and Mrs Joan Rylah MP submitted a dissenting statement relating to the *Special Report No. 5- Failure To Comply With Summons*.

The matters raised in the two Reports may be subject to further action at the discretion of the Committee and/or the Parliament.

The Committee during the course of the Inquiry was mindful of the terms of reference established for the purposes of the Inquiry. The evidence presented within this Report is limited to that which is relevant to these terms of reference. All public evidence can be accessed on the Committee's website¹ but not all areas raised by witnesses are contained within this Report. Some matters regarding the circumstances of the Basslink outage were not investigated as they are potentially the subject of legal proceedings.

The Committee wishes to acknowledge the work and input from those who made submissions to the Inquiry and appeared at hearings, and for some witnesses this occurred on multiple occasions. The Committee acknowledges in particular the contribution of Hydro Tasmania.

Some matters raised during the Inquiry continue to develop and this has also contributed to the time taken to finalise this Report.

As recently as May 2017 legislation was introduced and passed to amend the instrument which sets Hydro Tasmania's wholesale energy prices for regulated tariff customers. This is intended to insulate these customers from the substantial increase in wholesale prices that are affecting customers in the southern and eastern Australian states.

An agreement for the transport of gas beyond December 2017 is yet to be determined between Hydro Tasmania and Tasmanian Gas Pipeline (TGP). At the time of writing the TGP and Hydro Tasmania had not reached an agreement. Mr Steven Davy CEO of Hydro Tasmania was quoted in the media as having said *"TGP's offer was not acceptable, and the parties may have to resort to arbitration."*² A timely and satisfactory resolution of this issue is necessary for certainty of prices for other gas users including small and medium businesses, major industry and residential customers.

The Committee wishes to thank and acknowledge the commitment of the Secretary, Research and other staff. The Committee also expresses its appreciation for the support of the Specialist Adviser Mr Andrew Reeves who was appointed to assist the Committee during the Inquiry.

¹ <http://www.parliament.tas.gov.au/ctee/Joint/pacc.htm>

² ABC news online 5 July 2017

As Chair I acknowledge and appreciate the commitment of all Committee Members to this complex and challenging Inquiry.

The Committee urges the Government to support the recommendations of the Inquiry in the best interests of energy security and supply within Tasmania.

A handwritten signature in black ink, consisting of a large, stylized loop followed by a horizontal line extending to the right. The signature is positioned to the left of a vertical line.

The Honourable Ivan Dean APM MLC
Chair
1 August 2017

1. ESTABLISHMENT AND CONDUCT OF THE INQUIRY TERMS OF REFERENCE

The Public Accounts Committee is a Joint Standing Committee of the Tasmanian Parliament constituted under the *Public Accounts Committee Act 1970* (the Act).

The Committee is comprised of six Members of Parliament, three Members drawn from the Legislative Council and three Members from the House of Assembly.

Its functions under the Act (Section 6) are to inquire into, consider and report to Parliament on any matter:

- a) referred to the Committee by either House relating to:
 - i. the management, administration or use of public sector finances; or
 - ii. the accounts of any public authority or other organisation controlled by the State or in which the State has an interest;
- b) arising in connection with public sector finances that the Committee considers appropriate; and
- c) referred to the Committee by the Auditor-General.

On 16 March 2016 the Committee resolved of its own motion to inquire into and report upon:

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 Committee resolved at its first meeting in relation to this Inquiry, to invite by way of advertisement, interested persons and organisations to make a submission to the Committee in relation to the Terms of Reference.

The Committee received 16 submissions and held eight public hearings and one private hearing in Hobart.

2. RECOMMENDATIONS

The Committee makes the following recommendations:

1. The Tamar Valley Power Station Combined Cycle Gas Turbine should be retained in the current supply environment for the purposes of energy security within the State.
2. The importance of the Tamar Valley Power Station gas turbine units in relation to energy security should be reconsidered if there is significant expansion of energy sources and associated change to the energy mix.
3. Hydro Tasmania storage management policy should be reconsidered in the context of revised assumptions on Basslink reliability, availability of Tamar Valley Power Station and improved rainfall forecasting.
4. Energy security should be the responsibility of Government and energy standards should be set by the Tasmanian Government on expert advice. In particular:
 - a. The setting of security standards and Hydro Tasmania storage management policy should be a transparent and inclusive process to increase business and community confidence in the reliability of the Tasmanian electricity supply;
 - b. Hydro Tasmania's compliance with energy security standards and storage management policy should be monitored and reported to the public regularly and in the case of exceptional events, be reported frequently; and
 - c. Any claims of commercial confidentiality by Hydro Tasmania in regard to energy security should be balanced against the public interest in determining these critical issues.
5. Significant planned changes in energy security management practice should only be made following consultation with major users.
6. Planning for energy security should not include any assumptions of voluntary or forced load shedding.

7. Hydro Tasmania and the Government should take account of the impact of the Tamar Valley Power Station contracts with Tasmanian Gas Pipeline on other gas users. Any negative financial impacts for Hydro Tasmania should be disclosed.
8. Tasmanian energy entities actively support the opportunities from emerging technologies for energy efficiency, reliability, production and storage, with due consideration to the energy mix, thereby reducing reliance on imported energy supply.

3. SUMMARY OF FINDINGS

Term of Reference 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

2015-16 Financial Performance

1. Hydro Tasmania's revenue from sale of products and services was \$1.34 billion (\$1.47 billion: 2014-15). Total expenditure was \$1.66 billion (\$1.308 billion: 2014-15)
2. TasNetworks revenue from regulated distribution services was \$336.8 million (\$328.2 million: 2014-15) and from regulated transmission services was \$191.5 million (\$192.8 million: 2014-15). Operating expenditure was \$172.5 million (\$168.8 million: 2014-15).
3. Aurora Energy's Sales revenue was \$821.3 million (\$903.8 million: 2014-15). Energy and network expenditure was \$736.6 million (\$817.9 million: 2014-15).

2015-16 Reconciliation from underlying result to net profit/(loss)

4. Hydro Tasmania had an underlying loss before tax of \$65.4 million (underlying profit of \$63.4 million: 2014-15). This was impacted by revaluation and impairment expense of \$58.7 million (\$232.1 million: 2014-15) and movements in fair value of \$285.6 million (\$102.9 million: 2014-15). The net loss before tax after the impact of these adjustments was \$292.3 million (Net profit before tax of \$191.5 million: 2014-15). The Total Comprehensive Income was a loss of \$3.658 million.
5. TasNetworks had an underlying result before tax of \$162.2 million (\$161.4 million: 2014-15). This was impacted by net loss recognised on debt restructure \$23.3 million (NA: 2014-15), impairment of assets \$6.7 million (NA: 2014-15) and capital contributions from Forestry \$8.2 million (NA: 2014-15). The net result before tax after the impact of these adjustments was \$140.5 million (Net profit before tax of \$161.4 million: 2014-15).

6. Aurora Energy had an underlying profit before tax of \$43.0 million (\$43.8 million: 2014-15). This was impacted by unrealised electricity derivative fair value movements of \$120,000 (\$1.1 million: 2014-15). The net profit before tax after the impact of this adjustment was \$43.1 million (\$44.9 million: 2014-15).

2015-16 Financial position

7. Hydro Tasmania's Generation assets were valued \$4.29 billion (\$3.89 billion: 2014-15). Net financial liabilities increased to \$788.3 million (\$473.8 million: 2014-15) and borrowings increased to \$910.1 million (\$855.0 million: 2014-15). An equity contribution of \$70.0 million was transferred from TasNetworks (\$205.0 million: 2014-15).
8. TasNetworks borrowings increased to \$1.749 billion (\$1.644 billion: 2014-15) and net assets were \$920.1 million (\$1.01 billion: 2014-15).
9. Aurora Energy had cash on hand of \$62.2 million (\$37.3 million: 2014-15), working capital of \$93.5 million (\$57.5 million: 2014-15) and net assets of \$108.7 million (\$83.3 million: 2014-15).

Tasmanian Government returns

10. Hydro Tasmania's returns to Government were \$8.5 million government guarantee fee (\$8.7 million: 2014-15), \$5.0 million income tax equivalent paid (\$80.1 million: 2014-15), and \$25.0 million dividends paid (\$118.6 million: 2014-15).
11. TasNetworks returns to Government were \$63.2 million dividends paid (\$61.0 million: 2014-15), \$55.6 million income tax equivalent paid (\$79.1 million: 2014-15), \$11.9 million government guarantee fee (\$11.9 million: 2014-15), return of capital contribution of \$50.0 million (\$20.0 million: 2014-15) and \$70.0 million debt assumed from Hydro Tasmania (\$205.0 million: 2014-15).
12. Aurora Energy's returns to Government were \$27.6 million dividends paid (Nil: 2014-15) and \$14.5 million income tax equivalent paid (\$32.9 million: 2014-15).

Term of Reference 2: Factors currently impacting on the financial performance of the energy entities

13. The Gillard Labor Government carbon pricing scheme (carbon tax) was in operation from 1 July 2012 to 1 July 2014. In the lead up to the carbon tax Hydro Tasmania commenced building up water storages to maximise export capacity during the carbon tax period. Up until the introduction of the carbon tax, Hydro Tasmania storages were set at a preferred minimum level of 30 percent at 1 July each year.
14. In September 2012 the preferred minimum level was lowered by 5 per cent to 25 per cent at 1 July each year. The change was based on Hydro Tasmania's assessment that the combination of Basslink and thermal generation at Tamar Valley Power Station (TVPS), together with increased wind generation capacity and changed demand projections would result in the ability to operate storages at the lower levels.³ The reduction in preferred minimum operating level saw the storage buffer to the medium risk line reduced by approximately 700 GWh.
15. Hydro Tasmania electricity exports during the carbon tax period (1 July 2012 to 30 June 2014) were designed to maximise the opportunity of the higher prices.
16. From September 2015 Tasmania experienced the lowest spring rainfall recorded in 115 years of Bureau of Meteorology (BoM) observations. The deficit in inflows for September through November 2015, when compared to average, was nearly 14 per cent less in terms of storage (which equates to over 2 000 GWh).
17. As the dry conditions continued Hydro Tasmania began to utilise Basslink on 'full import' during October and November 2015.
18. Hydro Tasmania began steps in November 2015 to recommission the combined cycle gas turbine (CCGT) at the TVPS.
19. On 20 December 2015, Basslink experienced what was to be a significant outage. Prior to this outage, Basslink had experienced 65 outages in its nearly 10 years of operation, lasting from less than an hour and up to a maximum outage of just over 9 days, but the majority were less than a day.

³ Tasmanian Energy Security Taskforce Interim Report, December 2016, p 54

20. The TVPS CCGT unit operated continuously from 20 January 2016 at its full capacity of 208 MW until late May 2016⁴; the 58 MW Trent open cycle gas turbine (OCGT), had its return to service expedited with it coming on line at the beginning of April 2016⁵; Significant use was made of the three 40 MW FT8 (120 MW total capacity) OCGT; Gas fired generation was then reduced in early May in response to significant inflows into the Hydro catchments.
21. Gas generation amounted to 745 GWh, equivalent to 5.0 per cent of total energy in storage. Hydro Tasmania estimated the cost of gas generation as a result of low inflows and the Basslink outage to be approximately \$47 million.
22. Approximately 220 MW of diesel generation was installed and operated over a period of two months from 15 March 2016 and contributed 55 GWh. The estimated cost of approximately \$64 million includes the initial leasing and set up cost of approximately \$50.5 million.
23. Hydro Tasmania reached commercial agreements with Bell Bay Aluminium, TEMCO and Norske Skog for voluntary load reductions.
24. There was a cost to the Major Industrials' business and customer confidence as a consequence of voluntary load reductions during the energy supply event.
25. Hydro Tasmania commenced cloud seeding in April 2016, one month ahead of its usual schedule.
26. Storages rose strongly with significant rainfall commencing in May 2016.
27. Basslink was returned to service on 13 June 2016 - an outage of 176 days.

⁴ A component of the Energy Supply Plan was returning the CCGT to service. The unit had been in dry lay-up since June 2014. To make the CCGT operational required a new temporary workforce. The CCGT was successfully returned to service on 20 January 2016 and operated until 19 May 2016 when it was no longer required as there was ample hydro and wind generation available to meet Tasmanian demand. It remains in standby mode and can be brought online within two weeks (2016 Hydro Tasmania Annual Report p. 32)

⁵ In September 2014, Hydro Tasmania was advised by Rolls Royce that the OCGT, a Rolls Royce 'Trent' unit, contained a design fault that required off-site repair. The unit was shipped to Abu Dhabi for repair in September 2015, prior to the Basslink fault. The 'Trent' was expected to return in mid-2016. However, as storage levels deteriorated, and Basslink remained out of service, Hydro Tasmania expedited its return to service by 31 March 2016. The open cycle gas units provided significant support both in terms of energy output and the ancillary services required for the stability of the electricity system. Some major components are currently in the USA for repair, as they deteriorated through use (2016 Hydro Tasmania Annual Report p. 32)

28. Hydro Tasmania estimates that the combined impact of low inflows and the Basslink outage is at the lower end of a range between \$140 million and \$180 million.
29. The negative financial impacts arose from foregone generation and large –scale generation certificate (LGC) production and electricity sales, increased cost of generation for electricity sold and a range of miscellaneous costs. The adverse effect of these impacts is partially offset by reduced Basslink costs and receipts on weather hedges or insurance products. The impacts occurred over the 2015-16 and 2016-17 financial years, with the majority in 2015-16.
30. Fewer than 200 larger commercial and industrial customers incurred higher costs as a result of higher National Electricity Market (NEM) prices in Tasmania. The Government worked with retailers and Hydro Tasmania to compensate affected customers.
31. The compensation package was a payment to all who contracted with a retailer operating in Tasmania in the first quarter of 2016 who were required to pay a higher wholesale price than would otherwise have been the case.
32. The impacted customers were reimbursed for the difference between the contract price they entered into and the price they would have entered into in the week immediately preceding the Basslink outage. The total expenditure by Government was \$805,563.
33. Prices for the regulated customer base (residential customers and small business customers who consume less than 150 MWh of electricity per annum) were not affected.
34. Apart from the commercially agreed load reductions, no Tasmanian customer's supply was affected as a result of the exceptional circumstances.
35. Hydro Tasmania has raised target levels of storage as an interim response to the 2015-16 events. It has revised key assumptions in its energy security modelling to reflect updated rainfall and Basslink outage experience and is working with the Energy Security Taskforce to develop long term responses.
36. Hydro Tasmania has offtake agreements with Woolnorth Wind Farm Holdings, the joint venture of Hydro Tasmania and Shenhua Clean Energy Holdings which

owns the Woolnorth and Musselroe wind farms. Hydro Tasmania's reported financial performance is subject to movements in market prices relative to its contracted prices.

37. Hydro Tasmania is further exposed to market circumstances in other States through its ownership of Momentum Energy.
38. An extended Basslink outage exposes Hydro Tasmania to higher costs through: reduced capacity for trade; higher levels of gas fired generation; supplementary generation such as diesel generation; and costs of contracted reduction in load. These costs may be offset to some extent by contractual arrangements under the Basslink Operating Agreement.
39. The Auditor-General regards TasNetworks debt to equity ratio of 190.1 percent as high.
40. An environment of low interest rates reduces the regulated return on assets and is reflected in reduced customer charges.
41. The responsibility for funding the solar Feed-in-tariff (FiT) has transferred to TasNetworks which negatively impacts on the entity's financial performance.
42. There is a trend for customers to reduce consumption from the network partly as a consequence of solar photovoltaic (PV). TasNetworks is taking steps to address long term impacts of distributed generation through an extended transition to different distribution tariff structures.
43. The Australian Energy Regulator (AER) has commenced the 2 year process to determine prices TasNetworks may charge customers for use of transmission and distribution networks from 1 July 2019.
44. The risk to Aurora Energy of a significant financial impact from competition is relatively low as it currently faces little active competition for business customers and no active competition for residential customers.
45. Aurora Energy faces some regulatory risk as the majority of its revenue is based on the regulated retail price determined by the Tasmanian Economic Regulator.

Term of Reference 3: Any strategies being implemented by the energy entities to address their current and future financial performance

46. Hydro Tasmania is paying down debt to improve its financial resilience to shocks such as occurred in 2015-16.
47. During 2015–16, Hydro Tasmania spent more than \$75 million on capital projects to sustain the safe operation, reliable performance and future capability of its ageing hydro generation portfolio.
48. TasNetworks has commenced a long term transition to tariffs that are more cost-reflective and more appropriate with changing consumer behaviour.
49. The new TasNetworks business has realised savings from the merger through removal of duplication (redundant positions) and not filling vacant positions, while maintaining safety of employees and the public and the reliability of the network.
50. The Ajilis project, with an estimated capital cost of \$58 million, is part of the ongoing merger activity to replace the disparate Aurora and Transend information technology systems.
51. Aurora Energy is positioned to achieve a reduction of 10 per cent in underlying operating cost by 2018-19.

Term of Reference 4: Past and current Government's energy security policies and management including risk management strategies and plans

52. Prior to joining the NEM, Hydro Tasmania had formal responsibility to maintain electrical energy security in Tasmania.
53. When Tasmania joined the NEM, the responsibility for maintaining security was transferred to Australian Energy Market Operator (AEMO) (formerly NEMMCO) under national legislative arrangements.
54. In 2006 Hydro Tasmania was directed, through a revised Ministerial Charter, to ensure the prudent management of its water storages consistent with the long run energy capability of its system.

55. AEMO, the Director of the Office of Energy Planning, the Tasmanian Economic Regulator and TasNetworks each have various reporting responsibilities relevant to electrical energy security.
56. Both the previous Government and the current Government proposed to give Hydro Tasmania explicit responsibility for electrical energy security in Tasmania, recognising that Hydro Tasmania can achieve this through its control of its storages, the TVPS and Basslink.
57. The Government has ultimate responsibility for electrical energy security. Its Energy Supply Plan included establishing the Tasmanian Energy Security Taskforce to advise Government on how it can better prepare for and mitigate the risks of future energy security threats. The December 2016 Interim Report of the Taskforce recommended better definition of responsibilities and strengthened independent monitoring and assessment.
58. TVPS is currently integral to Tasmania's electrical energy security.
59. Following an Expert Panel review in 2012, the then Minister for Energy, Mr Bryan Green MP announced the Government would be seeking an independent commercial analysis on the valuations of the TVPS, its associated assets and the gas supply contracts. Should that advice show the State would achieve greater value from the sale of the TVPS and related assets without compromising energy security the Government would explore this further. It further committed to either transfer ownership of the TVPS to Hydro Tasmania or to sell the power station, if the price was right, before June 2013.
60. TVPS was transferred from Aurora Energy to Hydro Tasmania on 1 June 2013. 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.
61. On 8 July 2013 Hydro Tasmania commenced the process of putting the CCGT into dry lay-up. This was 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.

62. In January 2015 Hydro Tasmania wrote to the Government seeking permission to sell the CCGT but retain the OCGTs.
63. On 12 August 2015 the Government advised Hydro Tasmania that it would conditionally allow Hydro Tasmania to seek expressions of interest for the sale of the CCGT. Those conditions included a requirement of an assurance of energy security from Hydro Tasmania and further advice to Hydro Tasmania that it would be given formal responsibility for electrical energy security.⁶
64. On 12 August 2015 Hydro Tasmania announced that it planned to sell the CCGT because it was not cost-effective and was not needed to provide energy security.⁷
65. Record low rainfalls from September 2015 led to a Hydro Tasmania decision to recommission the CCGT on 17 November 2015. This was immediately communicated to TVPS personnel who then took immediate steps towards returning the CCGT to service. It commenced generation on 20 January 2016.
66. In August 2015 Hydro Tasmania actioned ten redundancies on the premise the CCGT was to be decommissioned.
67. The need to engage and train staff following the decision to return the CCGT to service on 17 November 2015 contributed to the additional time taken to bring the CCGT into service.
68. The manufacturer strongly recommended maintenance to the gas turbine air cooler (TCA Cooler) following the extended dry lay-up which contributed to time taken to return the CCGT to service.
69. The Interim Report of the Taskforce has recommended, as one of five Priority Recommendations, that the TVPS be retained 'as a backup power station for the present'.
70. A return to service of the CCGT under a scenario where no maintenance or additional staffing is required, is now approximately two weeks. For planning

⁶ M. Groom, Minister for Energy (2015) *'Tamar Valley Power Station'*, Media Release, 12 August.

⁷ Hydro Tasmania (2015) *'Changes to the Operation of Tamar Valley Power Station'*, Media Release, Hydro Tasmania website, 12 August

purposes within Hydro Tasmania a more conservative assumption of 30 days is used.

Term of Reference 5: Past and current Government's and Government owned energy entities energy mix policy decisions and challenges

Hydro generation

71. The most recent hydro-electric development in the State, the Anthony Scheme, was commissioned in 1994.

Thermal generation

72. The 240 MW oil-fired thermal Bell Bay power station (BBPS) was commissioned in 1967-68 following a severe drought. It was converted to gas in 2003-04 and decommissioned when the TVPS was commissioned in 2008. The TVPS now consists of a 208 MW CCGT, a 58 MW and three 40 MW OCGTs.

73. The Tasmanian Natural Gas Pipeline was commissioned in 2002, supplying gas for electricity generation (initially by conversion of the BBPS) and for major industrial facilities.

74. Hydro Tasmania inherited the gas supply contract from Aurora when it became the owner of the TVPS in June 2013.

75. Hydro Tasmania and TGP undertook negotiations to renew the contract between November 2013 and February 2015 but did not reach an agreement.

76. The gas transportation agreement covering supply for generation and for the major customers is now managed by Hydro Tasmania. The agreement expires in December 2017.

77. Decisions on the usage of gas for TVPS impact on the terms and conditions of supply for other major customers.

78. The Taskforce Interim Report recommended that key features of the gas transport agreements Hydro Tasmania reaches with the pipeline owners, be communicated by end of March 2017 to assist other users to reach commercial agreements.

79. The deadline recommended by the Taskforce has passed and at the time of finalising this Report it appeared the parties Hydro Tasmania and TGP were likely to resort to arbitration.

80. The tightening of gas supply on the mainland due to Liquefied Natural Gas export will be a challenge for Tasmanian customers seeking long term supply beyond 2017.

Basslink Interconnector

81. The Basslink cable connects the Tasmanian and Victorian electricity grids. It commenced transmitting power in April 2006 and operated reliably until December 2016.

Wind generation

82. Between 2000 and 2009 Hydro Tasmania developed 140 MW of wind farms in stages on the Woolnorth property in North West Tasmania.

83. A further 168 MW was added in 2013-14 from the Musselroe wind farm in North East Tasmania. The combined developments are now owned and operated by a joint venture of Hydro Tasmania (25 per cent) and Shenhua Clean Energy Holdings (75 per cent).

84. Tasmania has the potential for further wind farm development, including by parties other than Hydro Tasmania.

Solar/Photovoltaic (PV) generation

85. From 2009 there has been a significant increase in Tasmanian households installing solar PV, facilitated by State Government FiT schemes and Commonwealth renewable energy incentives.

86. Reducing costs of solar PV and of battery storage are likely to see further growth in distributed electricity production.

Diesel generation

87. In 2016 diesel generators were imported to support the State's energy generation capacity and contributed 55 GWh power during the Basslink outage.

Diesel generators were turned off in May 2016 and decommissioning commenced in June 2016.

Term of Reference 6: Any other matter incidental thereto

88. Tasmanian Minerals and Energy Council (TMEC) members were not consulted about divestment of the TVPS CCGT prior to the announcement of the Government's decision regarding its proposed sale.

89. The proposed sale raised concerns of TMEC members regarding the due diligence and risk assessment undertaken prior to the Government's announcement to sell the CCGT.

4. BACKGROUND

KEY EVENTS IN TASMANIA'S ENERGY SECTOR FROM 1998 TO 2016

- 4.1 The Tasmanian energy sector has undergone significant changes since the late 1990s. These changes include the disaggregation of the Hydro-Electric Commission (HEC) into various State-owned entities and Tasmania becoming part of the NEM.
- 4.2 There has been an increase in the diversity of energy supply in Tasmania, with the introduction of natural gas and electricity from Victoria via the gas pipeline and Tasmanian-Victorian interconnector (Basslink), and from the construction of wind farms and installation of rooftop solar panels.
- 4.3 More recently, low rainfall combined with a fault in the Basslink cable led to a situation where diesel generators were imported to support the State's energy generation capacity.

Disaggregation of the Hydro-Electric Commission

- 4.4 Prior to 1998, the Tasmanian Government's HEC operated as a statutory monopoly and was responsible for the generation, transmission, distribution and retailing of electricity in the State.⁸
- 4.5 The HEC had undertaken a large construction program during the twentieth century, damming rivers and building power stations across Tasmania. The last hydro-electric development, the Anthony Power Development, was commissioned in 1994 and marked the end of the HEC construction era.⁹
- 4.6 In the 1990s at the national level, the electricity sector was subject to initiatives designed to reform publically owned electricity monopolies and increase competition.
- 4.7 These included the Council of Australian Governments (COAG) electricity reform agenda and, more broadly, the National Competition Policy reform agenda.¹⁰
- 4.8 The Tasmanian Government participated in these reforms and introduced policies and legislation designed to provide for competition and new energy options to the State.¹¹

⁸ Electricity Supply Industry Expert Panel (ESIEP) (2011) *The Evolution of Tasmania's Energy Sector: Discussion Paper*, p. 14.

⁹ Hydro Tasmania (2014) *'Past: 100 Years of Achievement'*, Hydro Tasmania 100 centenary website.

¹⁰ ESIEP (2011) op. cit., p. 9.

- 4.9 Policies included introducing natural gas and a Tasmanian-Victorian electricity interconnector (Basslink), in adopting the NEM in Tasmania, and structural reform of the HEC.¹²
- 4.10 On 1 July 1998, the HEC was split into three government-owned businesses:
- Hydro Tasmania (power generation and system control);
 - Transend Networks (transmission) and;
 - Aurora Energy (distribution and retail).¹³

Tasmanian Natural Gas Pipeline

- 4.11 In the 1990s, successive Tasmanian Governments formulated policies designed to introduce competition and new energy options to the State. The introduction of natural gas to Tasmania was a key feature of the Government's energy strategy. In 1997, the Groom Tasmanian Government conducted an Expression of Interest process for the development of a natural gas supply to the State, and selected Duke Energy as the preferred developer in 1998. Duke Energy undertook a feasibility study (completed in 1999) which found that there was sufficient demand for natural gas in Tasmania to develop a viable industry.
- 4.12 In 2000, the Bacon Tasmanian Government introduced legislation to provide for natural gas to be introduced to the State.¹⁴
- 4.13 In 2001, the Bacon Tasmanian Government entered into a Development Agreement with Duke Energy to supply gas from Victoria to Tasmania via a 'Tasmanian Natural Gas Pipeline'.¹⁵
- 4.14 Construction on the pipeline started in late 2001 and was completed in 2002. The pipeline has a capacity of 129 TJ per day and runs between Longford in Victoria to Bell Bay in northern Tasmania, then west to Port Latta and south to Bridgewater.¹⁶
- 4.15 Hydro Tasmania has contracts with TGP (owned by Palisade Investment Partners since 2011) which provide that the TGP will supply the TVPS and non-TVPS customers with gas until December 2017. The 'take or pay' contract for the supply of up to 20 petajoules of gas annually to the TVPS, is the TGP's main

¹¹ *ibid.* pp. 7-13.

¹² *ibid.* pp. 12-13.

¹³ *ibid.* p. 14.

¹⁴ *ibid.* p. 19.

¹⁵ *ibid.* p. 20.

¹⁶ *ibid.* Tasmanian Government (2014) *Energy Strategy Issues Paper*, Department of State Growth, p. 12.

source of revenue.¹⁷ Hydro Tasmania inherited the contract from Aurora when it became the owner of the TVPS in June 2013.¹⁸ Hydro Tasmania and TGP undertook negotiations to renew the contract between November 2013 and February 2015 but did not reach an agreement.¹⁹

4.16 The Tasmanian gas market is dominated by the TVPS when it is in use, but gas is also supplied to industrial, commercial and residential customers.²⁰ TGP states that its five largest industrial customers are: Grange Resources, Simplot, Bell Bay Aluminium, Fonterra and Tasmanian Dairy Products.²¹ Tas Gas also lists Tas Alkaloids, Cadbury, Nyrstar, Lion D&D, Launceston General Hospital, JBS Australia, and Impact Fertilisers, as among its largest customers.²²

4.17 A number of stakeholders have expressed concern over the uncertainty of future gas supply arrangements and the potential for it to lead to price increases for Tasmanian gas consumers. For example, Goanna Energy Consulting has stated that the long-term 'take or pay' contract for gas fired power generation, provides a stable revenue base for the TGP and reduces the cost of gas transmission and infrastructure for Tasmanian business and household customers. It suggests that 'If the contract were not renewed or contract demand was significantly reduced, it could result in increased gas prices for remaining customers'.²³

4.18 The Tasmanian Economic Regulator has also identified the expiry of the gas supply contract between the TVPS and TGP as likely to impact on the future of the Tasmanian natural gas sector:

*The expiry of the existing TVPS – TPG 'Take or Pay' gas supply contract in 2017 will potentially have a financial impact on the gas transmission sector which in turn could flow through to the gas retail sector in terms of price impacts.*²⁴

4.19 The Tasmanian Economic Regulator also identifies the smaller than anticipated number of gas customers in Tasmania as a significant issue: 'The under-

¹⁷ Goanna Energy Consulting (2016) *The Tasmanian Gas Market: Building the Pipeline to Opportunities*, Prepared for the Tasmanian Small Business Council, August, pp. 11-12, 30; S. Davy, Hydro Tasmania (2016) Transcript, 4 August, Parliament of Tasmania website, pp. 52-53; Tas Gas (2016) 'Tas Gas Submission to Tasmanian Energy Security Taskforce Consultation Paper', 15 September, p. 6.

¹⁸ S. Davy, Hydro Tasmania (2016) Transcript, 4 August, op. cit., p. 53.

¹⁹ S. Davy, Hydro Tasmania (2016) Transcript, 20 June, Parliament of Tasmania website, pp. 72-73; Tasmanian Gas Pipeline (2016) *Submission to the Public Accounts Committee Energy Inquiry*, pp. i-iv.

²⁰ Tasmanian Energy Security Taskforce (2016) *Tasmanian Energy Security Taskforce Consultation Paper*, August, p. 10.

²¹ Tasmanian Gas Pipeline (2016) *Submission to the Public Accounts Committee Energy Inquiry*, p. 3.

²² Tas Gas (2016) 'Tas Gas Submission to Tasmanian Energy Security Taskforce Consultation Paper', 15 September, p. 9.

²³ Goanna Energy Consulting (2016) *The Tasmanian Gas Market*, op. cit., p. 37.

²⁴ OTTER (2016) *Energy in Tasmania – Performance Report 2014-15*, op. cit., p. 147.

*utilisation of the network may also have future price implications for customers in terms of asset owners' costs being recovering [sic] from a relatively small customer base.'*²⁵ The Tasmanian Energy Security Taskforce Consultation Paper similarly notes that:

*Tasmania has a particular issue with respect to its gas market. While gas demand is high in the rest of the East Coast gas market, meaning that demand for pipeline access is also high, Tasmania's gas market remains small and as a result the TGP is significantly underutilised relative to its capacity. The Taskforce understands this is now a critical issue as major users of gas in Tasmania face uncertainty with respect to their gas transportation arrangements and pricing beyond current contracts, which most are understood to cease in late 2017.*²⁶

4.20 In addition to the pipeline, the Bacon Tasmanian Government facilitated the development of the Tasmanian Gas Distribution Network which takes the gas to businesses and households.²⁷

4.21 In 2003, the Government entered into two Development Agreements with Powerco Ltd (through Powerco Tasmania Pty Ltd) for the construction and operation of gas distribution networks. In 2009, Powerco Tasmania changed its name to Tas Gas Networks and Tas Gas Retail, which have been owned by Brookfield Infrastructure Partners since 2011.

4.22 Today the gas retailers are Tas Gas Retail and Aurora Energy.

4.23 The Office of the Tasmanian Economic Regulator (OTTER) states that Tas Gas Retail *'has around 65 per cent of the customer base with Aurora Energy the remaining 35 per cent.'*²⁸ OTTER further states that the gas network is under-utilised.²⁹

Tasmania Enters the National Electricity Market

4.24 The development of a regulated NEM had been discussed between southern and eastern state governments since the early 1990s.

²⁵ *ibid.*

²⁶ Tasmanian Energy Security Taskforce (2016) *Tasmanian Energy Security Taskforce Consultation Paper*, August, p. 10.

²⁷ ESIEP (2011) *op. cit.*, pp. 20-21.

²⁸ Office of the Tasmanian Economic Regulator (2016) *Energy in Tasmania – Performance Report 2014-15*, p. 145.

²⁹ *ibid.* p. 147.

- 4.25 The NEM started in 1998 and Tasmania joined in 2005, ahead of the completion of the Basslink cable that physically connected Tasmania to the NEM in 2006.
- 4.26 It comprises Queensland, New South Wales (including the ACT), Victoria, South Australia, and Tasmania which are physically joined by electricity interconnectors into a shared transmission grid.³⁰
- 4.27 The NEM is operated by the AEMO and governed by the National Electricity Laws and National Electricity Rules.
- 4.28 The Australian Energy Market Commission (AEMC) and the AER are respectively responsible for overseeing and regulating the NEM.³¹
- 4.29 The NEM is a wholesale electricity spot market where customers and generators buy and sell power. NEM participants need to manage the financial risks associated with the significant spot price volatility that occurs during trading periods. They achieve this by using financial contracts that lock in a firm price for electricity that will be produced or consumed at a given time in the future. These arrangements are generally in the form of derivatives, and include swaps or hedges, options and futures contracts.³²

Tasmanian – Victorian interconnector (Basslink)

- 4.30 The potential for an electricity interconnection between Tasmania and Victoria had been discussed for many years. In 1997, the Tasmanian Rundle Government announced its commitment to the Basslink cable.³³
- 4.31 In facilitating Basslink, the stated goals of the Government included:
- Improving the security of the electricity supply and reducing the exposure to drought conditions in Tasmania;
 - Providing Tasmania with access to electricity at prices determined competitively in the NEM; and
 - Providing a means by which electricity generated in Tasmania can be sold into the NEM and providing a new source of peak generating capacity in the NEM.
- 4.32 In 1998, the incoming Bacon Labor Government endorsed the development of an undersea interconnector and in 2000, the Tasmanian Government announced

³⁰ OTTER (2016) *Energy in Tasmania – Performance Report 2014-15*, op. cit., p. 97.

³¹ *ibid.*, p. 98.

³² Australian Energy Market Operator (2014) Fact Sheet: The National Electricity Market, p. 2.

³³ ESIEP (2011) op. cit., p. 10

the company National Grid (UK) to be the preferred proponent for building, operating and owning Basslink. National Grid created the wholly owned subsidiary Basslink Pty Ltd to run the project.³⁴

- 4.33 The Basslink cable was laid between 2003 and 2005 and commenced transmitting power in April 2006.
- 4.34 The cable connects the national network at Loy Yang in Gippsland Victoria to the Tasmanian network at George Town. Basslink thereby joins Tasmania to the NEM, and provides the State with the ability to export or import electricity.³⁵
- 4.35 OTTER states that Basslink '*is rated to export (from Tasmania to Victoria) 500 MW and import (from Victoria to Tasmania) 478 MW on a continuous basis and export up to 630 MW from Tasmania for limited periods*'.³⁶
- 4.36 The Basslink interconnector also contains a fibre-optic communications cable that commenced operation in 2009.
- 4.37 Basslink Telecoms Pty Ltd provides a range of wholesale broadband services between Tasmania and Victoria. It provides an alternative to Telstra's two cables and is used by internet service providers.³⁷
- 4.38 CitySpring Infrastructure Trust (Singapore) acquired Basslink from National Grid in 2007.
- 4.39 In May 2015, CitySpring Infrastructure Trust acquired Keppel Infrastructure Trust, and changed its name to Keppel Infrastructure Trust. Accordingly, Basslink is now owned by Keppel Infrastructure Trust.³⁸

Carbon Tax and Basslink Exports

- 4.40 The Gillard Federal Government's implementation of a carbon price from 1 July 2012 to 30 June 2014 enhanced the profitability of hydro power as a renewable resource.
- 4.41 OTTER states that from April 2012 to the end of August 2014 Tasmania was a net exporter of electricity via the Basslink cable to the mainland.³⁹
- 4.42 The AER states that in 2013-14, Tasmania '*recorded the highest ratio of exports of any region since the NEM commenced*'.⁴⁰

³⁴ *ibid.* pp. 22-24.

³⁵ OTTER (2016) *Energy in Tasmania – Performance Report 2014-15*, op. cit., pp. 54-55, 66-67.

³⁶ *ibid.* p. 68.

³⁷ Basslink (2016) 'Basslink Telecoms: History', Basslink website; Basslink (2016) 'Home', Basslink website.

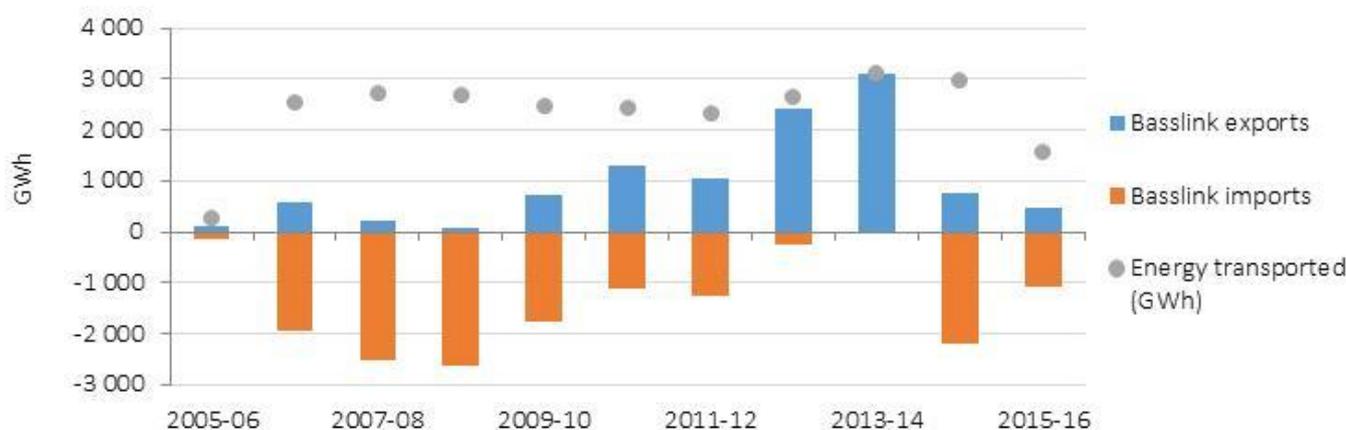
³⁸ Basslink (2016) 'Home', Basslink website.

³⁹ OTTER (2016) *Energy in Tasmania – Performance Report 2014-15*, op. cit., p. 69.

4.43 AER further states that following the removal of the carbon price, Tasmania became a net importer of coal-fired power from Victoria.⁴¹

4.44 OTTER provides the following graph of Basslink imports and exports:

Figure 1: Annual Basslink Flows 2005-06 to 2015-16⁴²



Source: Office of the Tasmanian Economic Regulator

Beginnings of the Tamar Valley Power Station

4.45 The Tasmanian Government's 2001 Natural Gas Pipeline Development Agreement with Duke Energy, and negotiations which followed, included the conversion of the oil-burning BBPS to natural gas.⁴³

4.46 The BBPS was built following a severe drought in 1967-68 in order to provide a supplementary form of power generation.⁴⁴

4.47 BBPS's Unit 1 (a 120 MW oil-fired generator commissioned in 1971) was converted by Duke Energy to run on gas in 2003. Unit 2 (a 120 MW oil-fired generator commissioned in 1974) was converted to gas by Hydro Tasmania in 2004. In 2006, three 35 MW gas turbines (Pratt & Whitney FT-8 open cycle units) were added. The Government intended the gas-fired BBPS to provide competition to Hydro Tasmania, and facilitate the State's entry into the NEM⁴⁵

4.48 In 2004, Alinta acquired the Australian assets of Duke Energy, including the Tasmanian Natural Gas Pipeline and interests in the BBPS. In 2006 Alinta proposed the construction of a new gas-fired power station (TVPS) on a site adjacent to the BBPS. In 2007, Hydro Tasmania sold the site of the BBPS and the

⁴⁰ Australian Energy Regulator (2015) *State of the Energy Market 2015*, p. 44.

⁴¹ *ibid.*

⁴² Office of the Tasmanian Economic Regulator (2016) *Energy in Tasmania Report 2015-16*, p. 70

⁴³ ESIEP (2011) *op. cit.*, p. 25

⁴⁴ *ibid.*, pp. 25, 28.

⁴⁵ *ibid.* p. 25

three 35 MW FT-8 OCGTs to Alinta. Alinta then upgraded the three turbines to 40 MW capacities and in August 2007 commenced construction. Soon after, the project was acquired by Babcock and Brown Power (B&BP) as part of the broader acquisition and distribution of Alinta's assets. Due to a range of factors, B&BP reached a point in the project where it argued it could no longer complete the project and elected to pursue a divestment strategy.⁴⁶

4.49 The Lennon Tasmanian Government announced that it would purchase the partially built TVPS and complete it, for reasons of energy security. The Government directed Aurora Energy to purchase the power station by acquiring Alinta Energy (Tamar Valley) Pty Ltd, which was renamed Aurora Energy (Tamar Valley) Pty Ltd (AETV). Accordingly, although it had been intended that the TVPS would be privately owned, it became government owned, and cost \$330 million to purchase and bring into operation.⁴⁷

4.50 The Australian Competition and Consumer Commission (ACCC) commenced a public review, in August 2008, of the proposed acquisition by Aurora Energy of the Tamar Valley Power Station Project. The ACCC initially considered that there were potential competition concerns that could arise since all the electricity generators in Tasmania would be owned by the Tasmanian Government through Aurora Energy and Hydro Tasmania.

4.51 On 29 October 2008, the ACCC decided that the acquisition was unlikely to result in a substantial lessening of competition in any of the relevant markets.⁴⁸

4.52 The TVPS was completed and commissioned in 2009. It consists of a CCGT (208 MW) which operates as a base load generator, with back up from a Rolls Royce (also known as 'Trent') OCGT (58 MW) and the three FT-8 OCGTs (40 MW each). The TVPS has a total generating capacity of 386 MW.

Ownership of Tamar Valley Power Station transferred from Aurora Energy to Hydro Tasmania

4.53 The Tasmanian Parliament established an independent expert panel to undertake a review of the State's electricity industry in 2010. The Energy Supply Industry Expert Panel (ESIEP) presented its finding that the Tasmanian

⁴⁶ *ibid.* pp. 25-27.

⁴⁷ *ibid.* pp. 26-27, 40; Tasmanian Government (2016) Submission to the Public Accounts Committee Energy Inquiry, p. 22.

⁴⁸ ACCC Public Register - Mergers Register- Aurora Energy- Acquisition of Tamar Valley Power Station Project

electricity industry was still not sufficiently competitive in March 2012.⁴⁹ It also found that the TVPS had proven to be a financial burden on Aurora Energy, and that the TVPS needed to be placed on a commercially-viable footing.⁵⁰

4.54 The ESIEP recommended a package of structural reforms to increase competition, which included the sale of the TVPS and Aurora Energy's retail business.⁵¹ The ESIEP also recommended the creation of three independent government-owned trading entities, each with rights to trade amounts of Hydro Tasmania's energy.⁵² The ESIEP recommended that an alternative to the sale of the TVPS would be *'its transfer into Hydro Tasmania, where its capacity can be allocated across the three new trading entities.'*⁵³

4.55 A summary of the package of structural reforms is reproduced below⁵⁴:

- *The Panel's pro-competitive structural reform package comprised four measures:*
 - *Wholesale market structural reform – The separation of Hydro Tasmania's physical generation operations from its financial trading functions and the transfer of these trading functions to three specialised, independent state-owned trading entities (referred to as 'GenTraders');*
 - *Proactive market reform – The declaration of full retail contestability (FRC), accompanied by the sale of Aurora Energy's retail electricity business in three similar-sized parcels to bring new retailers to Tasmania;*
 - *Network amalgamation – Combining Aurora Energy's distribution business and Transend Networks into a single, State-owned network business; and*
 - *The Sale of the Tamar Valley Power Station.*

4.56 The then Minister for Energy, Mr Bryan Green MP, announced the Government's formal policy response to the ESIEP's recommendations on 15 May 2012. Mr Green stated:

⁴⁹ Electricity Supply Industry Expert Panel (2012) *An Independent Review of the Tasmanian Electricity Supply Industry: Final Report*, Vol. 1.

⁵⁰ *ibid.* p. xix.

⁵¹ *ibid.* p. ix.

⁵² This involved the separation of Hydro Tasmania's physical generator operations from its financial trading functions. *ibid.* pp. xxi, 102.

⁵³ *ibid.* pp. xxi.

⁵⁴ ESIEP (2012) *An Independent Review of the Tasmanian Electricity Supply Industry: Final Report*, Vol. 1, p. vii.

*In most respects, the government supports the findings of the expert panel. What we have done, however, is develop a package of reforms for the energy sector that will enable us to address the key issues identified by the panel and achieve better outcomes for the Tasmanian community at a lower level of risk, cost and complexity.*⁵⁵

4.57 In regard to the TVPS, Mr Green stated that:

*As part of our consideration of the panel's work and other potential reform options, the government has determined that the Tamar Valley Power Station, together with its associated assets and gas supply contracts, holds the most value under Hydro Tasmania's ownership. The government intends to test its conclusion and will do so by seeking independent commercial analysis on valuations by the end of this year. Should that advice show that the state will achieve greater value from the sale of the power station and related assets without compromising energy security, the government will explore this further. Nevertheless, the government will ensure that the power station is either transferred to Hydro Tasmania or sold to a third party if the sale price would realise a greater benefit to Tasmania before 30 June 2013.*⁵⁶

4.58 The Giddings Government produced a position paper in March 2013 that provided further details on the reforms it intended to implement.⁵⁷ It stated that the reform package included the following key features:

- *The introduction of full retail competition from 1 January 2014, facilitated by the sale of Aurora Energy's customers to private sector retailers;*
- *Independent regulation of Hydro Tasmania's wholesale market activities by the Tasmanian Economic Regulator; and*
- *The integration of Aurora Energy's distribution network and Transend Network's transmission network to form a single combined network business.*

4.59 The reform package also included a number of supporting features:

- *Hydro Tasmania will retain its mainland retail business, Momentum Energy, subject to relevant approvals and ongoing shareholder oversight;*

⁵⁵ B. Green (2012) 'Energy for the Future: Ministerial Statement', House of Assembly Hansard, Parliament of Tasmania, 15 May, pp. 29-96.

⁵⁶ *ibid.*

⁵⁷ Tasmanian Government (2013) *Tasmanian Energy Reform: Market and Regulatory Framework – Position Paper*, Department of Treasury and Finance.

- *Aurora Energy's retail services functions will be merged with Momentum's functions once the transition of retail customers to the private sector retailers is complete; and*
- *An assessment of the Tamar Valley Power Station will be obtained and unless a sale value of the assets, or parts of the assets, exceeds the value under state ownership, those assets will be transferred to Hydro Tasmania.⁵⁸*

4.60 On 1 June 2013, ownership of the TVPS, and its debts, was transferred from Aurora Energy to Hydro Tasmania. The Hodgman Tasmanian Government submission to the PAC Energy Inquiry stated that:⁵⁹

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;*

⁵⁸ *ibid.* p. 8.

⁵⁹ Tasmanian Government submission, op. cit. p. 23

- *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.*

Summary of structural reforms as result of Energy Supply Industry Expert Panel review

4.61 The Hodgman Government's Energy Strategy Issues Paper, published in August 2014, provided the following summary of structural reforms subsequent to the review of the ESIEP⁶⁰:

- *The merger of Tasmania's transmission and distribution networks under one business, TasNetworks, which commenced operating on 1 July 2014. [Transend Transmission and Aurora Energy Distribution Networks were merged to form TasNetworks, leaving Aurora as a retail business only]. This merger is designed to reduce costs and support reduced prices;*
- *The commencement of full retail contestability on 1 July 2014, which is designed to allow retailers to compete for all Tasmanian electricity customers, (including residential and small business customers who before this date were not open to competition);*
- *The transfer of the Aurora Energy Tamar Valley (AETV) power station to Hydro Tasmania on 1 July 2013; and*
- *Requiring Hydro Tasmania to offer some safety net contracts on a weekly basis at a regulated price. This was introduced on 1 January 2014 in response to concerns expressed by potential new entrant retailers regarding Hydro's dominant market position in the generation sector in Tasmania.*
- *The main change that has not been implemented is the sale of Aurora's customer list. For various reasons, the sale process under the previous Government was discontinued in October 2013. The new Government remains committed to a sale of Aurora's retail customers at an appropriate time in the future.*

⁶⁰ Tasmanian Government (2014) *Energy Strategy Issues Paper*, op. cit., p. 4.

Intended Sale of the CCGT Announced and Withdrawn

4.62 The Minister for Energy, Mr Matthew Groom MP, issued a media release on 12 August 2015 which stated that: *'The Government has today given approval for Hydro Tasmania to decommission and sell the CCGT. This will allow Hydro to rid itself of a redundant liability and reduce its debt.'*⁶¹

4.63 Hydro Tasmania also issued a media release on 12 August 2015, which announced that it planned to sell the CCGT because it was not cost-effective to operate and was not needed to provide energy security:⁶²

- *Due to changes in the market since the power station was designed and commissioned, it is not cost-effective to use the CCGT for baseload energy generation.*
- *Since the decision was made to purchase and build the plant in 2008, market conditions have changed significantly. Hydro Tasmania has undertaken extensive modelling and confirmed that the CCGT is not required for energy security.*
- *The Tasmanian Government has approved the decommissioning and sale of the CCGT. Four other (open cycle) gas turbines at the power station will continue to be operated to provide peak supply. The sale will allow Hydro Tasmania to reduce its debt levels.*
- *The business has advised workers at the power station of the changes and their implications. Employees are being appropriately supported and relevant unions have been advised. We are working to maximise redeployment opportunities within Hydro Tasmania to minimise job losses.*

4.64 However, record low rainfalls in the Spring of 2015 led to Hydro Tasmania determining in November 2015 to recommission the CCGT, and it returned to service on 20 January 2016. The Hodgman Government submission to the PAC Energy Inquiry states that *'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.'*⁶³

⁶¹ M. Groom, Minister for Energy (2015) 'Tamar Valley Power Station', Media Release, 12 August.

⁶² Hydro Tasmania (2015) 'Changes to the Operation of Tamar Valley Power Station', Media Release, Hydro Tasmania website, 12 August.

⁶³ Tasmanian Government submission, op. cit. p. 23

Low Rainfall, Basslink Fault and Government Response

- 4.65 A combination of low rainfall and a fault in the Basslink cable resulted in what was broadly referred to as an ‘energy crisis’ in Tasmania.
- 4.66 Hydro Tasmania explained that *‘The combination of a strong El Nino and a positive Indian Ocean Dipole (IOD) event in Spring 2015 led to extremely low rainfall in Hydro Tasmania’s catchments since September 2015.’*⁶⁴
- 4.67 At 14 December 2015, prior to the failure of Basslink, Hydro dam storage was at 25.7 per cent capacity.⁶⁵
- 4.68 On 16 December 2015 Hydro Tasmania issued a media release advising its intention to restart the CCGT at TVPS in the New Year:⁶⁶
- *Tasmania has experienced its driest September to November period on record. This has coincided with a positive Indian Ocean Dipole (IOD) event, which is an indicator of low inflows into our storages. The IOD has returned to a more neutral value and we have received better inflows in recent weeks.*
 - *Hydro storages currently stand at 25.7 per cent. Use of the combined cycle gas turbine (CCGT) at the Tamar Valley Power Station is one of a number of options the business has been considering to manage the commercial impact of below average inflows to hydro storages since September.*
- 4.69 On 20 December 2015, the Basslink Cable stopped working. Basslink Pty Ltd issued a media release stating that the outage had been caused by a fault on the subsea cable.
- 4.70 The CCGT was returned to service in January 2016. With all the gas turbines in use, it was expected that the TVPS would supply 386 MW.⁶⁷
- 4.71 On 29 March 2016, Basslink Pty Ltd announced that it had identified the fault and removed it from the cable. It said that it was now preparing to replace the damaged section of cable and projected a return-to-service date in mid-June 2016.⁶⁸

⁶⁴ Hydro Tasmania (2016) ‘Frequently Asked Questions – What is Causing the Dry?’, Hydro Tasmania website.

⁶⁵ Energy in Storage, Hydro Tasmania website

⁶⁶ Hydro Tasmania (2016) ‘Hydro Tasmania to restart CCGT’, Media Release, Hydro Tasmania website, 16 December

⁶⁷ Hydro Tasmania (2016) *Energy Supply Plan Update* (current 22 February 2016) p. 6

⁶⁸ Hydro Tasmania (2016) *Energy Supply Plan Update* pp. 2-3

- 4.72 Hydro dam storages reached record low levels, 13.6 per cent capacity as of 11 April 2016.⁶⁹
- 4.73 Hydro Tasmania installed temporary diesel generation, which it projected would supply 220 MW by mid-May 2016.⁷⁰
- 4.74 Tasmania's large industrial users of electricity were also asked to reduce their electricity consumption, and agreed voluntarily to do so under commercial arrangements.⁷¹
- 4.75 Inflows increased in early May 2016 and continued well above the long-term average for May and June. Basslink returned to service on 13 June 2016, after an outage of 5 months and 23 days. Inflows were so significant that the total energy in storage at 1 July 2016 was 29.1 per cent.⁷²

Wind Farms

- 4.76 The development of Tasmania's wind resources began in the late 1990s. This was the same time period in which the State Government introduced policies to increase competition and electricity supply sources (in order to facilitate Tasmania's entry into the NEM).⁷³
- 4.77 In 1998, Hydro Tasmania's first wind farm – located at Huxley Hill on King Island – began operating. This small wind farm, initially consisting of three turbines producing 0.75 MW was the second commercial wind farm in Australia. In 2003, two more turbines were added which increased capacity to 2.45 MW.⁷⁴

Woolnorth Wind Farms and Beginning of Musselroe Wind Farm

- 4.78 In early 2000, Hydro Tasmania began developing a much larger wind farm at two sites on the Woolnorth property in the north-west corner of the State. The development was undertaken by Hydro Tasmania's subsidiary company: Roaring 40s Renewable Energy Pty Ltd.⁷⁵

⁶⁹ Hydro Tasmania (2016) *'Frequently Asked Questions – How Low Can Storages Go?'*, Hydro Tasmania website

⁷⁰*ibid.*, p. 10.

⁷¹*ibid.*, p. 9.

⁷² Hydro Tasmania Annual Report 2016, p. 30

⁷³ ESIEP (2011) *The Evolution of Tasmania's Energy Sector: Discussion Paper*, April, Tasmanian Government, p. 29.

⁷⁴ Hydro Tasmania (2014) *The Power of Nature*, September, p. 25.

⁷⁵ ESIEP (2011) *op. cit.*, p. 29.

- 4.79 The Woolnorth project was developed in stages across the two sites of Bluff Point (commissioned 2002-2004) and Studland Bay (commissioned 2007)⁷⁶. There are 37 turbines at Bluff Point with a combined capacity of 65 MW and 25 larger turbines at Studland Bay with a combined capacity of 75 MW (140 MW total capacity).⁷⁷
- 4.80 While the Woolnorth wind farms were under construction, Roaring 40s began progressing the development of the Musselroe wind farm at Cape Portland in the north-east corner of the State.⁷⁸

Joint Venture Arrangements

- 4.81 In 2005, Hydro Tasmania had realised part of its equity in Roaring 40s through a 50-50 joint venture arrangement with China Light and Power. As a joint venture company, Roaring 40s expanded its wind development projects to Asia. In 2009, Roaring 40s sold its Asian projects to China Light and Power and refocussed on Australia (primarily on the development of the Waterloo wind farm in South Australia and Tasmania's Musselroe site).⁷⁹ Also in 2009, Hydro Tasmania acquired 100 per cent ownership of the energy retail business Momentum Energy Pty Ltd, which sells power in Victoria, New South Wales, South Australia, Queensland, the ACT, and the Bass Strait Islands.⁸⁰
- 4.82 In 2011, the Roaring 40s joint venture ended and its assets were divided between Hydro Tasmania and China Light and Power. The full ownership of the Woolnorth wind farms and the Musselroe development site, were returned to Hydro Tasmania.⁸¹
- 4.83 In 2012, Hydro Tasmania sold 75 per cent of the Woolnorth wind farms to the Chinese company Shenhua Clean Energy Holding Pty Ltd. Hydro Tasmania

⁷⁶ESIEP (2011) op. cit., p. 29; Hydro Tasmania (2016) *Energy: Our Power Stations: Wind Power*, Hydro Tasmania website.

⁷⁷Hydro Tasmania (2014) *The Power of Nature*, op. cit., p. 25

⁷⁸ESIEP (2011) op. cit., p. 29. The ESIEP stated that: *'In 2008, the Tasmanian Government facilitated an equity transfer from Transend Networks to Hydro Tasmania, of which \$50 million was allocated to facilitate construction of the Musselroe project.'*

⁷⁹ESIEP (2011) op. cit., pp. 29-30; Dr David Crean, Chair Hydro Tasmania (2009) Legislative Council Hansard, Government Business Scrutiny Committee A – Hydro Tasmania, Parliament of Tasmania, 1 December (just after 2pm).

⁸⁰Momentum Energy (2016) *About Momentum Energy*, Momentum Energy website; Momentum Energy (2016) *Hydro Tasmania Group*, Momentum Energy website.

⁸¹Hydro Tasmania (2011) *Wind Farm Assets Return to Hydro Tasmania*, Media Release, 1 July; Hydro Tasmania (2011) Hydro Tasmania Annual Report 2011, p. 41; Tasmanian Audit Office (2015) *Report of the Auditor-General No. 5 of 2015-16, Auditor-General's Report on the Financial Statements of State Entities, Vol. 2, Government Businesses 2014-15*, p. 50. The disaggregation also gave Hydro Tasmania the Sidonia Hills (Vic) and Mt Fyans (Vic) wind farm development sites, and an additional 200 MW of pre-feasibility stage wind development sites. See: Hydro Tasmania (2012) Hydro Tasmania Annual Report 2012, Hydro Tasmania website, p. 30.

retained the remaining 25 per cent share, and the Woolnorth Wind Farm Holding Pty Ltd joint venture was formed.⁸² In 2013, Hydro Tasmania divested 75 per cent of the Musselroe wind farm development to the same joint venture.⁸³

Completion of Musselroe Wind Farm

4.84 The Musselroe wind farm at Cape Portland was commissioned in 2013 and officially opened in January 2014. It has 56 turbines and 168 MW capacity, which makes it Tasmania's largest wind farm. Construction had begun in 2011.⁸⁴ At the official opening of the Musselroe Wind Farm, the then Chairman of Hydro Tasmania, Dr David Crean, stated that '*The Musselroe project has only been made possible because of the national renewable energy target*'.⁸⁵

Renewable Energy Certificates

4.85 The Woolnorth and Musselroe wind farms benefit financially from the Renewable Energy Certificate (REC) market established under the Renewable Energy Target (RET). The RET is a Commonwealth Government scheme designed to encourage more electricity generation from renewable sources. The scheme works by allowing large-scale renewable energy power stations, and the owners of small-scale systems, to create certificates for every megawatt hour of power they generate. The certificates are then bought by wholesale purchasers of electricity – mainly electricity retailers – in order to meet their renewable energy obligations under the RET. This creates a market which provides financial incentives to produce renewable power.⁸⁶

4.86 The certificates produced by large-scale renewable energy power stations, such as the Woolnorth and Musselroe wind farms, are called Large-Scale Generation Certificates (LGCs).⁸⁷

4.87 A graph from OTTER – showing the number of RECs generated in Tasmania (between 2001 and 2015) from each renewable energy source – is provided below in Figure 2.

⁸²Hydro Tasmania (2012) '*Woolnorth Wind Farm Partnership Finalised*', Media Release, 28 February; Hydro Tasmania (2012) Hydro Tasmania Annual Report 2012, pp. 16, 30-32; Tasmanian Audit Office (2015) op. cit., p. 50.

⁸³ Tasmanian Audit Office (2015) op. cit., p. 50.

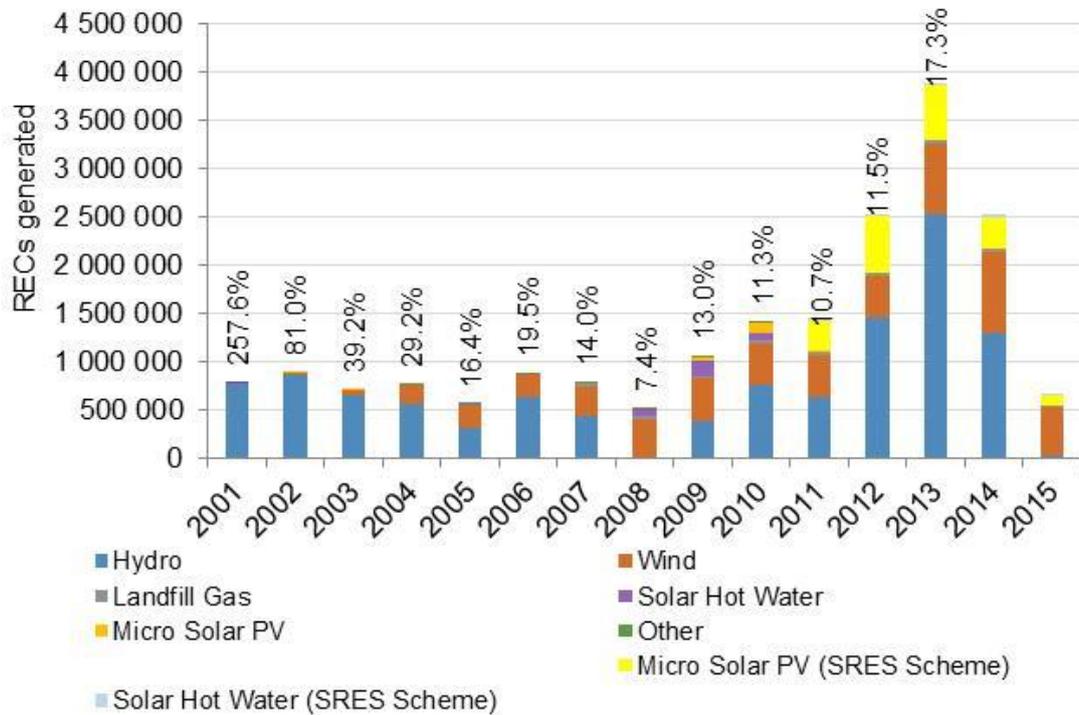
⁸⁴ Hydro Tasmania (2014) '*Official Opening of Musselroe Wind Farm*', Media Release, 15 January.

⁸⁵ *ibid.*

⁸⁶ Australian Government Clean Energy Regulator (2016) '*About the Renewable Energy Target*', Clean Energy Regulator website; Clean Energy Regulator (2015) '*How the Scheme Works*', CER website.

⁸⁷ Clean Energy Regulator (2015) '*Large Scale Generation Certificates*', CER website

Figure 2: RECs generated in Tasmania and percentage contribution to national RECs



Source: OTTER (2016) Energy in Tasmania – Performance Report 2014-15, pp. 36-37

4.88 The two Woolnorth wind farms and the Musselroe wind farm provide Tasmania with a combined 308 MW of installed capacity. Hydro Tasmania’s submission to the PAC Energy Inquiry states that Hydro Tasmania ‘has entered into offtake agreements for Woolnorth (Studland Bay and Bluff Point) and Musselroe wind farms’.⁸⁸ OTTER states that the combined output of the three wind farms in 2014-15 was 898 GWh, which is approximately 9.9 per cent of electricity generated in Tasmania in 2014-15.⁸⁹ (Refer Figure 4)

4.89 As stated above, the three wind farms are managed and operated by the Woolnorth Wind Farm joint venture company (75 per cent owned by Shenhua Clean Energy Holding and 25 per cent owned by Hydro Tasmania). The Tasmanian Auditor-General stated in November 2015 that:⁹⁰

Hydro Tasmania held a 25% equity accounted investment in the consolidated Woolnorth Wind Farm group. The value of Hydro Tasmania’s investment at 30 June 2015 was \$64.348m, with dividends of \$2.156m paid to Hydro

⁸⁸ Hydro Tasmania (2016) *Submission to PAC Energy Inquiry*, 16 May, p. 8

⁸⁹ Office of the Tasmanian Economic Regulator (2016) *Energy in Tasmania – Performance Report 2014-15*, p. 46.

⁹⁰ Tasmanian Audit Office (2015) *op. cit.*, p. 53

Tasmania during the financial year and \$1.179m recognised in profit or loss, being Hydro Tasmania's share of profits for the year... The Woolnorth Wind Farm group reported a profit after tax of \$4.417m for 2014-15.

Proposed Tasmanian Wind Farms

- 4.90 There are a number of proposed wind farm development sites in Tasmania. They include Cattle Hill, Granville Harbour, Robbins Island and Low Head. Hydro Tasmania considered building a large wind farm on King Island – the TasWind project – but decided not to proceed. Each of the prospective wind farms and the discontinued TasWind project are discussed briefly below.
- 4.91 In 2009, N.P. Power Pty Ltd proposed the development of the Cattle Hill wind farm on the eastern shore of Lake Echo in the Central Highlands (near Waddamana power station). The Cattle Hill wind farm proposal is for up to 100 turbines.
- 4.92 In 2010, the Hammond Family and Eureka Funds Management proposed the 220 turbine 'White Rock' wind farm to be located on Robbins Island off the north-west coast of Tasmania. This proposal has been referenced in the media in 2016 in the context of the feasibility study into a second interconnector between Tasmania and Victoria.
- 4.93 In 2012, Low Head Wind Farm Pty Ltd proposed a 9-12 turbine wind farm development east of Low Head, in northern Tasmania.
- 4.94 In 2012, Hydro Tasmania announced the TasWind project: a 200 turbine (600 MW) wind farm on King Island and cable to carry the power generated to Victoria. Hydro Tasmania conducted community consultation and began a feasibility study. However, in October 2014, Hydro Tasmania announced that it would not proceed any further with the project because it was not economically viable.
- 4.95 In 2012-2013, Westcoast Wind Pty Ltd proposed a wind farm of up to 33 turbines (99 MW) at Granville Harbour on the West Coast. It has been reported in the media and discussed in Parliament in 2016, that the Granville Harbour wind farm has Local, State, and Commonwealth Government approval but requires a power purchasing agreement with Hydro Tasmania and Aurora Energy to make the project viable.

4.96 During the 20 June 2016 public hearing of the Energy Inquiry, Ms Rebecca Kardos, CEO, Aurora Energy stated⁹¹ :

'We are having discussions with a number of wind proponents in terms of potential off-take arrangements or Renewable Energy Certificates, but they are all commercial-in-confidence discussions.'

King Island Renewable Energy Integration Project

4.97 Hydro Tasmania's five Huxley Hill wind turbines form part of King Island's power station. The power station also includes diesel generators and solar installations. Hydro Tasmania's King Island Renewable Energy Integration Project (KIREIP), which commenced in 2013, involved the installation of new enabling technologies, such as flywheels and energy storage batteries. The project has resulted in greater exploitation of the existing renewable energy sources on the island, and reduced the amount of diesel utilised.

4.98 Hydro Tasmania states that following successful results on King Island, it now has hybrid off-grid energy solutions projects underway on Flinders Island, Rottneest Island in Western Australia, and in Cooper Pedy in South Australia.

Flinders Island Hybrid Energy Hub

4.99 There are three privately owned wind turbines of 25 kW, 60 kW and 300 kW on Flinders Island. The majority of electricity on Flinders Island comes from four diesel generators, and there is also some privately owned solar generating capacity.

4.100 In March 2015, Hydro Tasmania announced the Flinders Island 'Hybrid Energy Hub' project, which aims to increase renewable energy use on the island through the implementation of the enabling technology used in the KIREIP. OTTER states that the project includes the construction of an additional single 900 kW wind turbine.

Other Privately Owned Wind Turbines

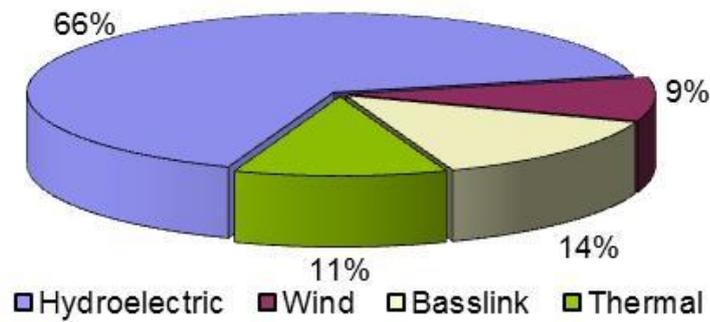
4.101 The Cape Barren Island Aboriginal Association Inc. own and operate a power station on Cape Barren Island, which includes two 20 kW wind turbines. Nichols Poultry has a 225 kW wind turbine at Sassafras which was installed in 2008 and Hill Farm Preserves at Sisters Creek has a 225 kW wind turbine which was installed in 2012.

⁹¹ Hansard Transcript, 20 June 2016, Ms Rebecca Kardos, p. 96.

4.102 OTTER's Energy in Tasmania Performance Report 2014-15 provides data on wind generation by the three large-scale Tasmanian wind farms. This report was published in January 2016 and is, at the time this Report was prepared, the most recent OTTER Energy in Tasmania Performance Report. The following graphs of data are extracted from that report.

4.103 Figure 3 below shows the share of installed capacity for each electricity generation source in Tasmania.

Figure 3: Installed capacity of each generation source in Tasmania



Source: OTTER (2016) Energy in Tasmania – Performance Report 2014-15, p. 40.

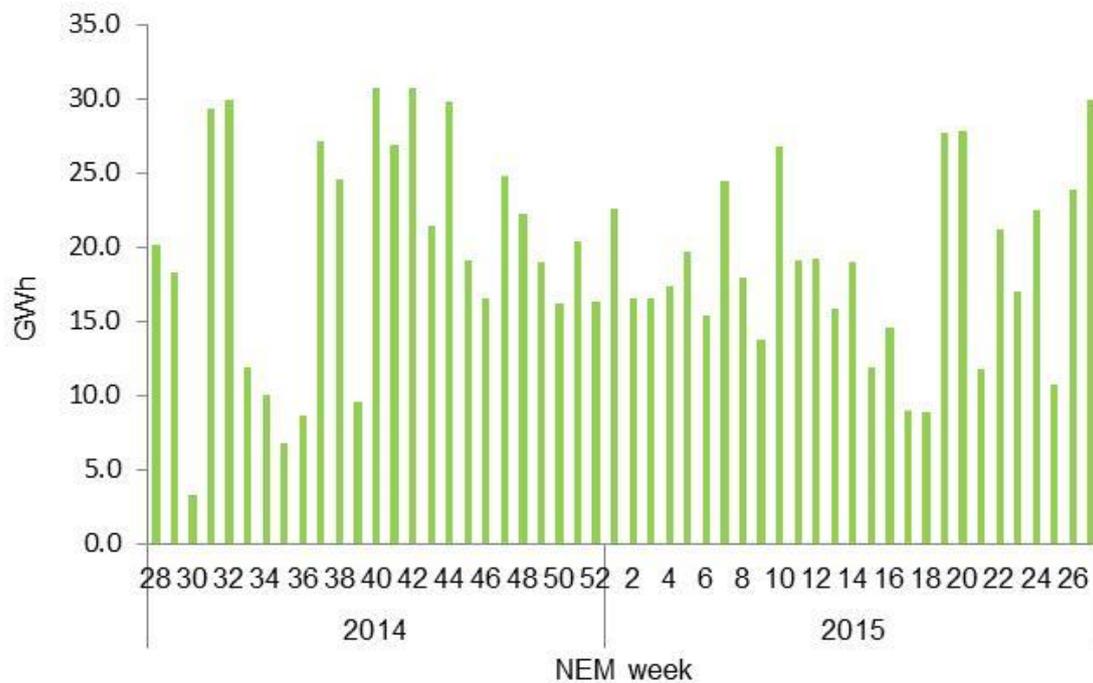
4.104 Figure 4 shows the annual amount of wind generation for the period 2011-12 to 2015-16

Energy Supplied (GWh)	2011-12	2012-13	2013-14	2014-15	2015-16
Bluff Point	216.0	225.4	251.2	221.1	229.6
Musselroe ⁹²	-	88.3	482.3	432.7	514.7
Studland Bay	239.7	237.6	262.1	243.9	242.4

Source: OTTER (2016) Energy in Tasmania Report 2015-16, p. 22.

4.105 Figure 5 shows the weekly combined generation from the Woolnorth Bluff Point, Woolnorth Studland Bay and Musselroe wind farms during 2014-15

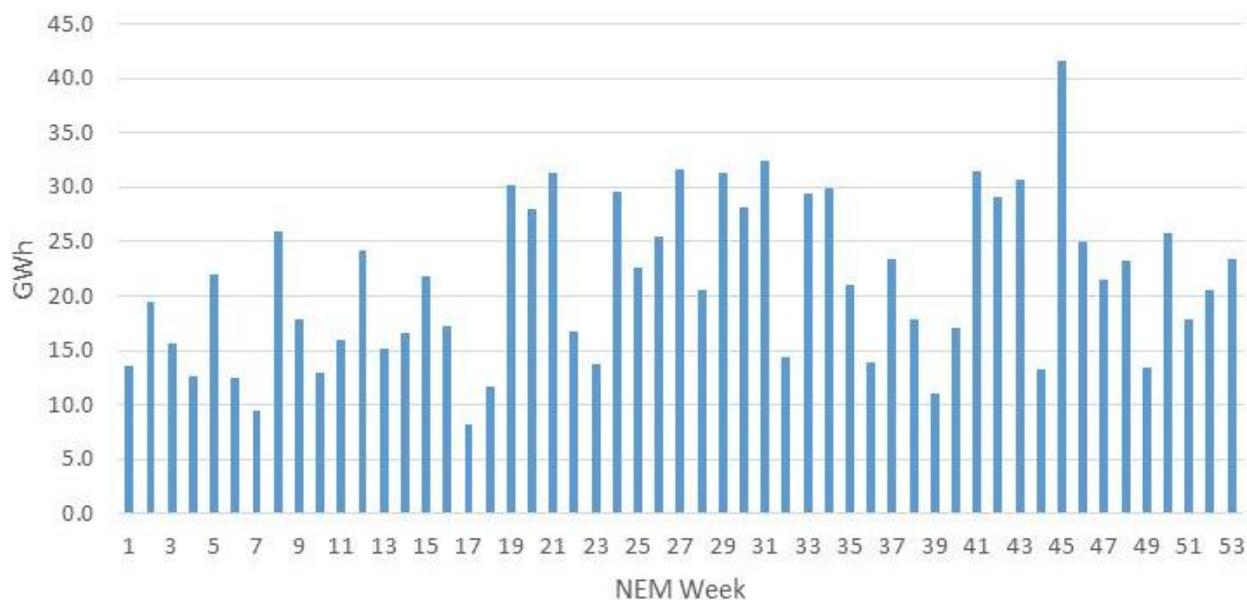
Figure 5: Large-Scale Wind Generation 2014-15.'



Source: OTTER (2016) Energy in Tasmania – Performance Report 2014-15, p. 46

⁹² Musselroe Wind Farm was commissioned on 2 May 2013.

4.106 Figure 6 shows Tasmanian wind generation over the 2016 calendar year



Source: Information provided on request by the Office of the Tasmanian Economic Regulator

Solar Panels

4.107 From 2009, there has been an increase in the number of Tasmanian households installing solar photovoltaic panels on rooftops.

4.108 This increase in solar panels has been supported by decreasing technology costs and FiT schemes.⁹³ A FiT is a pricing mechanism whereby an electricity utility pays a customer for the excess electricity they produce with their solar panels and feed-in to the grid.⁹⁴

4.109 Until 30 August 2013, the FiT offered by Aurora Energy on a voluntary basis gave customers a 'one-for-one' (1:1) FiT at the regulated light-and-power tariff or general supply tariff for their net exported electricity.

4.110 Consistent with COAG reforms, the Giddings Government directed Aurora Energy to close its FiT scheme to new applicants from 30 August 2013 and to grandfather arrangements until 1 January 2019. Customers applying to install eligible micro distributed generation systems on or after 31 August 2013 would be entitled to a FiT rate of 8 c/kWh from 31 August 2013 until 31 December

⁹³Office of the Tasmanian Economic Regulator (2016) 'Feed-in Tariffs', OTTER website. pp. 46-47.

⁹⁴ *ibid.*

2013. The Regulator would determine the Standard FiT Rate to apply from 1 January 2014 for all new installations occurring on or after 31 August 2013.⁹⁵

4.111 The FiT rate is now set annually by OTTER.⁹⁶

4.112 The rate of installation of solar hot water systems was relatively steady from 2012 to 2014, but fell in 2015.⁹⁷

⁹⁵ B. Green (2013) '*Second Reading Speech: Electricity Supply Industry Amendment (Feed-in Tariffs and Other Matters) Bill 2013*', p. 4.

⁹⁶ OTTER (2016) *Energy in Tasmania – Performance Report 2014-15*, op. cit., p. 47.

⁹⁷ Clean Energy Council *Clean Energy Australia Report 2015* p. 49

TASMANIAN ENERGY ENTITIES, MARKETS AND REGULATION

Tasmanian Energy Entities and the Electricity Supply Chain

- 4.113 Electricity travels through a sequence of events to get from where it is generated (e.g. hydro dam, wind turbine, or gas-fired power station) to the customer (homes and businesses).
- 4.114 The sequence of events or 'electricity supply chain' consists of 'generation, transmission, distribution, and retail'. The electricity supply chain is illustrated in Figure 7.

Electricity supply chain - generation

- 4.115 Hydro Tasmania is the major electricity generator in Tasmania.⁹⁸
- 4.116 Hydro Tasmania owns and operates 30 hydro-electric power stations.⁹⁹
- 4.117 Hydro Tasmania also owns and operates the gas-fired TVPS, and partly owns and operates the Woolnorth wind farms and the Musselroe wind farm.¹⁰⁰
- 4.118 Hydro Tasmania is also responsible for electricity generation (and distribution and retailing) on King and Flinders Islands.¹⁰¹
- 4.119 There are also other smaller electricity generators in Tasmania including embedded generators such as rooftop solar panels.¹⁰²
- 4.120 Hydro Tasmania operates under the following key governance documents:
- *Government Business Enterprises Act 1995 (Tas)*
 - *Hydro-Electric Corporation Act 1995 (Tas)*
 - Ministerial Charter
 - Treasurer's Instructions
 - Guidelines for Tasmanian Government Businesses.¹⁰³

⁹⁸ Office of the Tasmanian Economic Regulator (2016) *Energy in Tasmania – Performance Report 2014-15*, pp. 13, 41.

⁹⁹ *ibid.*, p. 41.

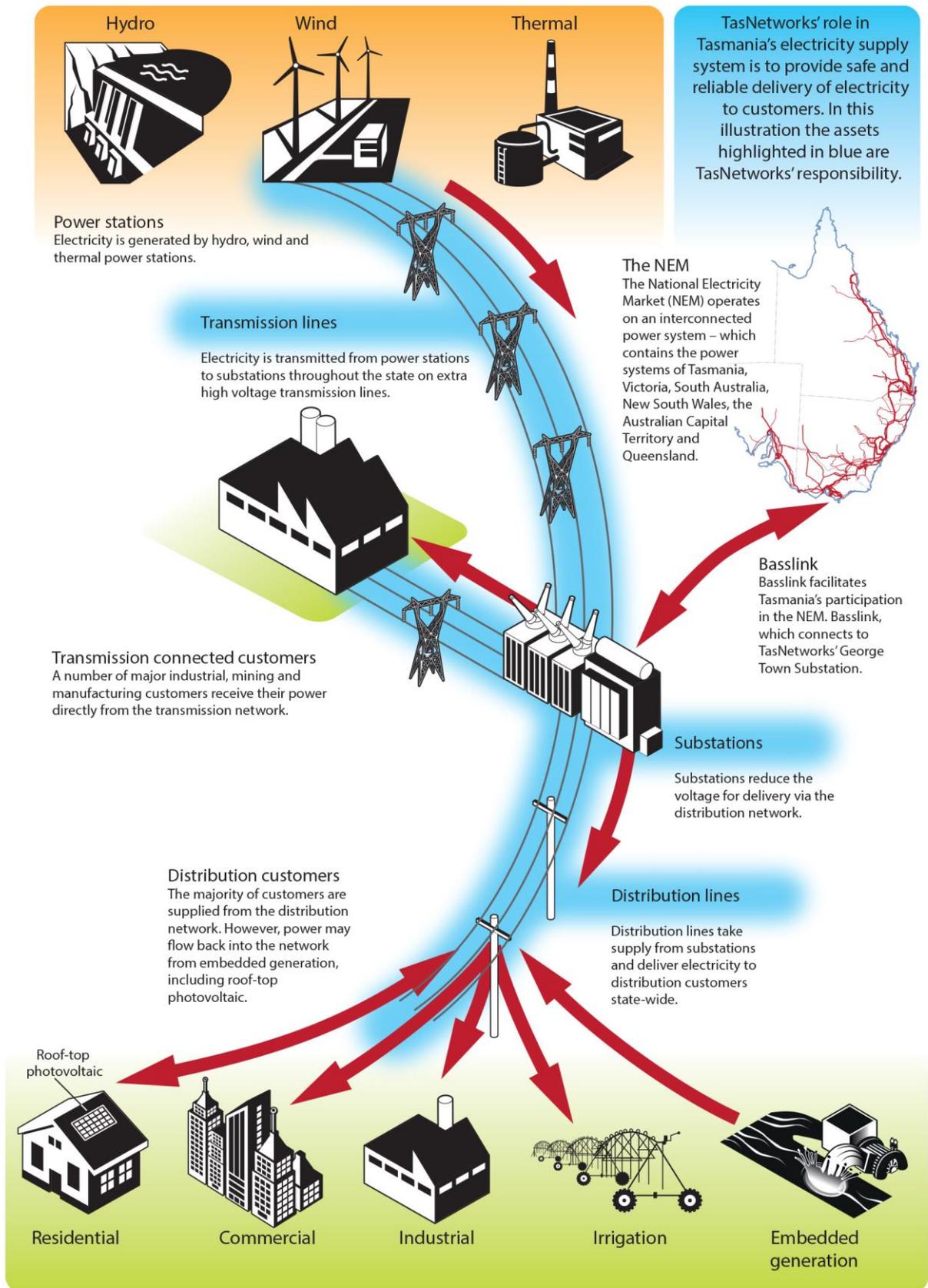
¹⁰⁰ *ibid.*, p. 13.

¹⁰¹ *ibid.*, p. 115

¹⁰² For list of smaller entities holding generation licences in Tasmania see: *ibid.*, p. 39. For embedded generators and solar panels see *ibid.*, pp. 46-49.

¹⁰³ Department of Treasury and Finance (2016) '*Tasmanian Government Businesses: Hydro Tasmania*', DTF website.

Figure 7: The Electricity Supply Chain



Source: TasNetworks 2015 Annual Report, p. 5.

4.121 Hydro Tasmania's principal purpose is to efficiently generate, trade and sell electricity in the NEM. The entities principal objectives are to perform its function and exercise its powers to:

- Be a successful business by operating in accordance with sound commercial practice and as efficiently as possible; and
- Achieve a sustainable rate of return that maximises value for the State of Tasmania in accordance with the Corporate Plan and having regard to the economic and social objectives of the state.¹⁰⁴

4.122 Hydro Tasmania produces an annual report.¹⁰⁵ Information regarding Hydro Tasmania's corporate governance arrangements is also provided on the Hydro Tasmania website.¹⁰⁶

Electricity supply chain - transmission and distribution

4.123 As shown in Figure 7, transmission lines carry electricity for long distances at high voltage from the generation plant to the distribution system. When the electricity arrives at the place it is needed, a substation transformer changes the high voltage electricity to low voltage for distribution. Distribution lines (the poles and wires) then carry low voltage electricity to homes and businesses.¹⁰⁷

4.124 Major industrial customers can connect directly to the transmission network.¹⁰⁸

4.125 In Tasmania, the State-owned Company TasNetworks (Tasmanian Networks Pty Ltd) owns and operates both the transmission and distribution systems.¹⁰⁹

4.126 TasNetworks operates under the following key governance documents:

- *Corporations Act 2001 (Cth)*
- *Electricity Companies Act 1997 (Tas)*
- Constitution of Tasmanian Networks
- Members Statement of Expectations

¹⁰⁴ Hydro Tasmania Annual Report 2016, p.7

¹⁰⁵ Hydro Tasmania (2015) *Annual Report 2015*, Hydro Tasmania website. See pp. 9-12 for Statement of Corporate Intent.

¹⁰⁶ Hydro Tasmania (2016) *'Governance Framework'*, Hydro Tasmania website.

¹⁰⁷ Australian Energy Market Operator (2010) *An Introduction to Australia's National Electricity Market*, p. 3.

¹⁰⁸ Department of Treasury and Finance (2016) *'Tasmanian Government Businesses: Tasmanian Networks Pty Ltd'*, DTF website.

¹⁰⁹ On 1 July 2014, Transend Transmission and Aurora Energy Distribution Networks were merged to form TasNetworks. For more information on Tasmanian transmission and distribution see: OTTER (2016) *Energy in Tasmania – Performance Report 2014-15*, pp. 13, 57-95.

- Treasurer’s Instructions
 - Guidelines for Tasmanian Government Businesses.¹¹⁰
- 4.127 TasNetworks primary purpose ‘*is to undertake the transmission and distribution of electricity and to perform any other activity, other than the generation of electricity related to or associated with the transmission and distribution of electricity*’¹¹¹
- 4.128 TasNetworks produces an annual report, annual planning report, and a corporate plan.¹¹² TasNetworks also provides information about its corporate governance on its website.¹¹³
- 4.129 The privately owned and operated Basslink interconnector is also a transmission service.
- 4.130 Basslink transmits high voltage electricity between the Tasmanian power system and the Victorian power system in either direction. Basslink Pty Ltd is classified as a transmission network service provider (TNSP) in the NEM.¹¹⁴

Electricity supply chain - retail

- 4.131 The State-owned Company Aurora Energy Pty Ltd is the main electricity retailer in Tasmania.
- 4.132 ERM Power Retail Pty Ltd and Progressive Green Pty Ltd are also authorised electricity retailers in Tasmania but they only sell to business customers.
- 4.133 Aurora Energy is, at present, the only retailer selling electricity to Tasmanian residential customers.¹¹⁵ Hydro Tasmania sells retail electricity (and gas) in mainland states through its subsidiary, Momentum Energy.¹¹⁶
- 4.134 Aurora Energy operates under the following key governance documents:
- *Corporations Act 2001 (Cth)*
 - *Electricity Companies Act 1997 (Tas)*

¹¹⁰ Department of Treasury and Finance (2016) ‘*Tasmanian Government Businesses: Tasmanian Networks Pty Ltd*’, DTF website.

¹¹¹ Tasmanian Networks Pty Ltd (2014) ‘*Members Statement of Expectations*’, TasNetworks website

¹¹² Tasmanian Networks Pty Ltd (2015) *Annual Report 2014-15*; Tasmanian Networks Pty Ltd (2015) *Annual Planning Report 2015*; Tasmanian Networks Pty Ltd (2015) *TasNetworks Corporate Plan 2015-16 to 2019-20*.

¹¹³ Tasmanian Networks Pty Ltd (2016) ‘*Corporate Governance*’, TasNetworks website.

¹¹⁴ OTTER (2016) *Energy in Tasmania – Performance Report 2014-15*, pp. 13, 57.

¹¹⁵ *ibid.* pp. 13-14, 108.

¹¹⁶ Department of Treasury and Finance (2016) ‘*Tasmanian Government Businesses: Hydro Tasmania*’, DTF website.

- Constitution of Aurora Energy
- Members Statement of Expectations
- Treasurer’s Instructions
- Guidelines for Tasmanian Government Businesses.¹¹⁷

4.135 Aurora Energy’s primary purpose ‘*is the retailing of electricity on mainland Tasmania*’. The entity’s principal objectives are to operate its activities in accordance with sound commercial practice and to maximise its sustainable return to shareholders.¹¹⁸

4.136 Aurora Energy produces an annual report, and provides details about its corporate governance on its website.¹¹⁹

The National Electricity Market

4.137 The NEM is a wholesale spot market where electricity is bought and sold.¹²⁰

4.138 It comprises Queensland, New South Wales (including the ACT), Victoria, South Australia, and Tasmania. The states are physically joined by electricity interconnectors into a very large transmission network.¹²¹

4.139 The Basslink interconnector joins Tasmania to the NEM and provides the State with the ability to import and export electricity.¹²²

4.140 Registered participants in the NEM include market generators, TNSPs, distribution network service providers, and market customers.¹²³

4.141 Energy retailers are the main customers in the market. The retailers purchase the electricity and then sell it to homes and businesses (the retail market).¹²⁴

4.142 AEMO runs the NEM. The NEM works as a ‘pool’ or spot market where supply and demand are matched in real-time through a centrally-coordinated dispatch process.

4.143 Exchange between electricity producers and electricity consumers is facilitated through a pool where the output from all generators is aggregated and

¹¹⁷ Department of Treasury and Finance (2016) ‘*Tasmanian Government Businesses: Aurora Energy*’, DTF website.

¹¹⁸ Aurora Energy (2015) *Members Statement of Expectations*, Aurora Energy website

¹¹⁹ Aurora Energy (2015) *Annual Report 2014-15*, Aurora Energy website; Aurora Energy (2016) ‘*About Aurora Energy: Governance*’, Aurora Energy website.

¹²⁰ Australian Energy Market Operator (2014) *Fact Sheet: The National Electricity Market*, p. 2.

¹²¹ OTTER (2016) *Energy in Tasmania – Performance Report 2014-15*, p. 97.

¹²²*ibid.* pp. 54-55, 66-70. For information on activity in the Tasmanian region of the NEM see pp. 97-105.

¹²³AEMO (2014) *Fact Sheet: The National Electricity Market*, p. 1.

¹²⁴Australian Energy Regulator (2015) *State of the Energy Market 2015*, p. 24

scheduled to meet demand. The electricity pool is not a physical location; rather it is a set of procedures that AEMO manages according to the provisions of National Electricity Law (NEL) and Statutory Rules and in conjunction with market participants and regulatory agencies

- 4.144 Sophisticated information technology systems underpin the operation of the NEM. The systems balance supply with demand, maintain reserve requirements, select which components of the power system operate at any one time, determine the spot price, and thereby facilitate the financial settlement of the physical market.¹²⁵
- 4.145 All electricity traded in the NEM is bought and sold at the regional spot price (each state is a price region). AEMO states that as electricity cannot be stored, it must be produced immediately when required. This means that there can be large movements in the spot price from one half-hour trading interval to the next. AEMO further states that short spikes in price are less significant to most market customers than longer-term average prices.¹²⁶
- 4.146 AEMO states that in addition to the NEM wholesale spot market, there are two other markets that underpin the electricity supply system; the electricity financial (or derivative contracts) market and the electricity retail market.¹²⁷

The Electricity Financial (Derivative Contracts) Market

- 4.147 The fluctuating spot prices for electricity can create risk for entities that trade in the NEM. AEMO explains that when the price is low, generators may not be fully compensated for the power they supply. Conversely, market customers will not want to buy power that is priced too high.
- 4.148 Accordingly, to reduce risk, generators and market customers enter into various financial contracts that lock in a firm price for electricity that will be produced or consumed at a given time in the future. They are known as derivatives, and include swaps or hedges, options and futures contracts.¹²⁸

¹²⁵ AEMO (2010) *An Introduction to Australia's National Electricity Market*, p. 4.

¹²⁶ Australian Energy Market Operator (2013) '*AEMO eLearning Module 9: Notes*', p. 4.

¹²⁷ Australian Energy Market Operator (2013) '*AEMO eLearning Module 1: Notes*', p. 6.

¹²⁸ AEMO (2013) '*AEMO eLearning Module 9: Notes*', p. 1

4.149 AEMO calls this the ‘electricity financial market’ and the AER (who regulates the NEM) uses the term ‘electricity contract markets’.¹²⁹ OTTER refers to it as the ‘derivatives market’.¹³⁰

The Retail Market

4.150 The retail market involves electricity retailers selling the wholesale energy they buy in the NEM to residential and business customers.¹³¹

4.151 OTTER explains that retailers ‘*provide a range of services to electricity customers including arranging for supply, billing customers, collecting revenue and bundling other product options to suit customers’ needs.*’¹³²

4.152 Full retail contestability or competition, which means that customers can choose which electricity retailer to enter a contract with, applies in all the NEM regions.¹³³

4.153 Retail contestability has been progressively introduced in Tasmania since Basslink connected the State to the NEM in 2006 starting with the largest electricity customers.¹³⁴

4.154 Tasmania introduced full retail contestability (FRC) on 1 July 2014, when contestability was extended to electricity customers using less than 50 MWh per year, households and small businesses.¹³⁵

4.155 Aurora Energy remains the only electricity retailer for customers that use less than 50 MWh per year, as no other energy retailers have entered that market to compete with Aurora at the present time.

4.156 The AER explains that State governments are phasing out energy retail price regulation as effective competition develops. The retail price of electricity continues to be regulated in Tasmania by OTTER because the State’s retail electricity market is not deemed sufficiently competitive.¹³⁶

¹²⁹ For further information on financial/contract market activity see: AER (2015) *State of the Energy Market 2015*, pp. 53-56.

¹³⁰ OTTER (2016) *Energy in Tasmania – Performance Report 2014-15*, p. 104.

¹³¹ AEMO (2013) ‘*AEMO eLearning Module 1: Notes*’, p. 6.

¹³² OTTER (2016) *Energy in Tasmania – Performance Report 2014-15*, p. 108.

¹³³ AER (2015) *State of the Energy Market 2015*, p. 127.

¹³⁴ ESIEP (2011) *Tasmania’s Energy Sector – An Overview*, Discussion Paper, pp. 51-55.

¹³⁵ AER (2015) *State of the Energy Market 2015*, p. 127.

¹³⁶ *ibid.* p. 131.

Regulatory and Other Government Bodies

4.157 This section provides a brief overview of some of the key regulatory and other government bodies that oversee the Tasmanian electricity industry and market, at both the national and state level.

4.158 It is drawn primarily from OTTER's Energy in Tasmania – Performance Report 2014-15.¹³⁷

Council of Australian Governments Energy Council

4.159 The COAG Energy Council, formerly the Standing Council for Energy and Resources, is responsible for developing policies related to electricity and gas markets.

4.160 The Energy Council has oversight of the institutions that govern the NEM: the AEMC, AEMO and the AER.¹³⁸

Australian Energy Market Commission

4.161 The AEMC is responsible for market development and providing advice to relevant organisations in relation to the NEM.

4.162 The AEMC also makes rules under the NELs, the National Gas Law (NGL) and the National Energy Retail Law (NERL).

4.163 These Rules cover areas such as participation in the wholesale spot market for electricity and similar markets for gas, economic regulation of network services and energy-specific consumer protections.¹³⁹

Australian Energy Regulator

4.164 The AER exercises powers under a national energy legislative framework which, for electricity, includes the NEL, the National Energy Customer Framework (NECF) and associated rules and sector specific regulatory functions.

4.165 AER is responsible for the regulation of the electricity wholesale market and economic regulation of electricity and gas transmission and distribution networks.

¹³⁷OTTER (2016) *Energy in Tasmania – Performance Report 2014-15*, pp. 19-32. Note: the text that describes each of the regulatory and other government bodies is quoted directly from the more lengthy descriptions provided in the OTTER report.

¹³⁸COAG Energy Council (2016) *'Australian Energy Markets: Governance'*, COAG Energy Council website.

¹³⁹ OTTER (2016) *Energy in Tasmania – Performance Report 2014-15*, p. 19.

4.166 As such, the AER is responsible for the economic regulation of TasNetworks' distribution and transmission services.

4.167 The AER's determination specifies the revenues, prices and levels of service in respect of those services.¹⁴⁰

Australian Energy Market Operator

4.168 The AEMO was created in 2009 by COAG to manage the NEM and gas markets.

4.169 AEMO is an independent, member-based organisation with membership split of 60/40 between government and industry. In relation to electricity, AEMO is responsible for:

- power system operation and market operation;
- national transmission planning;
- monitoring transmission services; and
- facilitating energy market development.

4.170 AEMO's functions are set out in the NEL while the NERL prescribes all procedures and processes for market operations, power system security, network connection and access, pricing for network services in the NEM and national transmission planning.¹⁴¹

Office of the Tasmanian Economic Regulator

4.171 OTTER supports the Economic Regulator in undertaking its statutory functions under the *Economic Regulator Act 2009*, the *Electricity Supply Industry Act 1995 (ESI Act)*, the *Gas Act 2000*, the *Gas Pipelines Act 2000* and the *Water and Sewerage Industry Act 2008*.

4.172 The Economic Regulator administers the ESI Act, the Tasmanian Electricity Code and other related regulatory instruments.

4.173 The Economic Regulator has a number of key responsibilities in the Regulation of the electricity supply industry, which include¹⁴²:

- *administering the licensing system for electricity supply industry (ESI) entities and monitoring and enforcing their compliance with licence conditions (noting that the requirement for licences in the retail sector on mainland Tasmania is*

¹⁴⁰ *ibid.* p. 20.

¹⁴¹ *ibid.* p. 21.

¹⁴² OTTER Operating Plan 2016-17, pp 3-4

performed by the Australian Energy Regulator under the provisions of the National Energy Customer Framework);

- *issuing and maintaining the Tasmanian Electricity Code;*
- *monitoring the wholesale market for electricity and monitoring the performance of the electricity supply industry in Tasmania;*
- *monitoring and regulating technical standards in the electricity supply industry;*
- *conducting investigations into the pricing policies of entities that supply declared electrical services;*
- *regulation of standing offer retail electricity prices to be offered by Aurora Energy, which will apply as a regulated contract option for customers after the planned introduction of full retail competition from 1 July 2014;*
- *regulation of electricity feed-in tariff prices for eligible small scale renewable generation systems (mostly solar photo voltaic systems);*
- *promoting efficiency and competition in the electricity supply industry including monitoring and reporting on the development of competition; and*
- *administering the arrangements for the regulation of certain financial contracts offered by Hydro Tasmania to electricity retailers operating in Tasmania¹⁴³.*

4.174 In undertaking these functions, the Economic Regulator's objectives include¹⁴⁴:

- *the promotion of efficiency and competition in the electricity supply industry;*
- *the establishment and maintenance of an efficient system of electricity generation, transmission, distribution and supply;*
- *the establishment and enforcement of proper standards of safety, security, reliability and quality in the electricity supply industry; and*

¹⁴³ To facilitate the introduction of FRC on mainland Tasmania from 1 July 2014 and to provide certainty for retailers entering the Tasmanian electricity market, OTTER became responsible, from 1 January 2014, for regulating certain financial contracts offered by Hydro Tasmania. The framework includes a legislated instrument (known as the Wholesale Contract Regulatory Instrument) which specifies the terms and conditions for the financial derivative contracts and how prices for the contracts are derived. Under the framework, Hydro Tasmania is required to offer four regulated derivative contracts to authorised retailers operating in Tasmania. The aim of providing regulated derivative contracts is to reduce the risk faced by retailers entering the Tasmanian market to a level comparable to the risk facing retailers in other regions of the NEM and consequently increasing the likelihood of retailers entering the Tasmanian market.

¹⁴⁴ OTTER Operating Plan 2016-17, op. cit. p. 4

- *the protection of the interests of electricity consumers.*

Department of Treasury and Finance (Treasury)

- 4.175 Treasury has been responsible for managing the implementation of major energy initiatives and policies such as Tasmania's entry to the NEM and the transition to retail competition.¹⁴⁵
- 4.176 The administration of the ESI Act is shared between Treasury and the Energy Policy Branch, a unit within the Department of State Growth.
- 4.177 Treasury is responsible for administering Part 2 (Administration) and Divisions 3 (Special provisions relating to HEC), 4 (Retailing of electricity to certain customers), 4A (Wholesale electricity pricing and contracts), 5 (Restrictions on re-supply), 5A (Feed-in tariffs), 6 (Disputes) and 10 (Miscellaneous) of Part 3 and the making of regulations under section 122 of the ESI Act, to the extent that those regulations relate to contestable customers, price regulation and contracts.¹⁴⁶
- 4.178 Treasury is also responsible for providing advice on electricity market arrangements in the State, particularly in relation to regulatory issues and facilitating competition in the electricity supply industry.¹⁴⁷

Department of State Growth, Energy Policy Branch

- 4.179 The Energy Policy Branch supports the Director of Energy Planning whose functions include: assisting the Minister for Energy in planning and co-ordinating the provision of energy in the State; monitoring factors affecting the supply and demand for energy in Tasmania; developing commercial applications of renewable energy; and producing and publishing information and reports on energy related matters.¹⁴⁸
- 4.180 The Department of State Growth is responsible for administering all provisions of the ESI Act not administered by Treasury and the Department of Justice.¹⁴⁹
- 4.181 The Energy Policy Branch also represents Tasmania's views and interests on energy matters to national policy and regulatory bodies and provides input into the development of the national regulatory framework that applies to

¹⁴⁵ *ibid.* p. 31.

¹⁴⁶ *ibid.*

¹⁴⁷ *ibid.*

¹⁴⁸ *ibid.* pp. 31-32.

¹⁴⁹ *ibid.* p. 32.

Tasmania's energy industry. The Energy Policy Branch is also responsible for developing and administering the Government's Energy Strategy.¹⁵⁰

Tasmanian Energy Ombudsman

4.182 The Energy Ombudsman investigates complaints relating to the supply of electricity and natural gas and is funded through a levy imposed on the relevant energy supply industry licensees.¹⁵¹

Tasmanian Energy Security Taskforce

4.183 The Hodgman Government established the Tasmanian Energy Security Taskforce following the events of 2015-16, '*which saw Tasmania experience one of the most significant energy security challenges in its history*'.¹⁵²

4.184 The Tasmanian Energy Security Taskforce was tasked with identifying ways to help future proof Tasmania from the types of energy security challenges experienced in early 2016 and is to undertake an independent energy security risk assessment for Tasmania having regard to:¹⁵³

- *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.*

¹⁵⁰ *ibid.*

¹⁵¹ *ibid.*

¹⁵² Energy Security Taskforce Newsletter – Edition 1 September 2016, State Growth website

¹⁵³ Energy Security Taskforce, Department of State Growth website

5. EVIDENCE

TERM OF REFERENCE 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

HYDRO TASMANIA

5.1 The key points made by Hydro Tasmania in its submission were¹⁵⁴:

- *Hydro Tasmania is in a sound financial position. Its net debt balance of \$826 million as at 31 March 2016 is less than the balance at the end of each of the previous five financial years.*
- *It has enough liquidity and debt facilities in place to fund the implementation of the Energy Supply Plan without needing to extend its existing borrowing arrangements.*
- *While the reduction in generation to rebuild storage will, in isolation, have a downwards influence on the valuation of the assets, the business has a strong net asset position.*
- *The final 2016 financial results will depend on water inflows, when Basslink is returned to service and how long the contingencies outlined in the Energy Supply Plan remain in place.*

5.2 The Government submission made the following comments regarding the financial performance of Hydro Tasmania¹⁵⁵:

- *Hydro Tasmania operates in the NEM although the majority of its revenue is derived from selling energy into the Tasmanian market;*
- *The physical connection to the NEM through the Basslink interconnector enables Hydro Tasmania to generate 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 predominately influenced by the Victorian contract market prices.*

¹⁵⁴ Hydro Tasmania (16 May 2016) submission, op. cit. p. 5 and 25

¹⁵⁵ Tasmanian Government submission, op. cit. p. 5

- *In essence the revenue sources for Hydro Tasmania align to the Victorian wholesale market price and 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.*
- *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.*

5.3 Hydro Tasmania Financial Snapshot 2015-16¹⁵⁶

	2015-16		2014-15		2013-14		2012-13	
	\$'000	Ind	\$'000	Ind	\$'000	Ind	\$'000	Ind
Financial Performance								
Revenue from sale of products and services	1 335 863	▼	1 467 161	▼	1 978 012	▲	1 541 617	▲
Reconciliation from underlying result to net profit/(loss)								
Underlying profit/(loss) before tax	(65 435)	▼	62 352	●	241 113	▲	230 261	▼
Revaluation and impairment expense	58 697	▲	232 066	▼	(220 492)	▲	(484 315)	▼
Movements in fair value	(285 565)	▲	(102 927)	▲	162 110	▼	(1 923)	▼
Net profit/(loss) before tax	(292 303)	▼	191 491	●	182 731	▲	(255 977)	▼
Total comprehensive income/(loss)	(3 648)	▼	169 191	▲	147 900	▲	(382 247)	●
Financial Position¹								
Generation assets	4 299 948	▲	3 887 006	▲	3 675 520	▼	3 899 403	▼
Net financial liabilities ²	(788 341)	▼	(473 781)	▼	(399 367)	▲	(560 936)	▼
Borrowings	(910 100)	▼	(855 015)	●	(864 002)	●	(905 795)	▼
Net assets	2 095 707	●	2 054 355	▲	1 815 715	●	1 789 155	▼
Equity contribution	70 000	▼	205 000	▲	(7 033)	▼	0	●
Tasmanian government returns/contributions								
Government guarantee fee	8 483		8 719		11 222		8 595	
Income tax paid	5 000		80 069		104 208		52 769	
Dividends paid	25 000		118 576		116 058		50 686	
Key financial ratios								
Current ratio	0.8	▼	0.9	▲	0.6	▼	0.7	▲
Return on assets	(0.1%)	▼	2.6%	▼	6.3%	▲	5.4%	▲
Return on equity	(9.9%)	▼	7.1%	▼	8.0%	▲	(10.0%)	▼
Weighted average cost of debt	5.3%	▼	6.7%	▼	7.4%	▲	6.9%	●
Interest coverage ratio (EBIT)	(0.1)	▼	1.9	▼	4.0	▼	4.4	▲
Debt to equity	43.4%	●	41.6%	▲	47.6%	▲	50.6%	▼
Indicators –								
▲ improvement from prior year ▼ deterioration from prior year ● no material change from prior year								

1. Assets are positive, liabilities are negative

2. Includes Basslink, energy and treasury financial assets and liabilities

¹⁵⁶ Tasmanian Audit Office (2017) Report of the Auditor-General No.7 of 2016-17 Auditor-General's Report on the Financial Statements of State entities Volume 2 Government Businesses 2015-16, p.43

5.4 The Auditor-General provided the following summary of key results and developments in his report:¹⁵⁷

- *Hydro generated \$1.34bn in sales revenue during 2015-16, a reduction of \$131.30m, or 8.9%, from the prior year. This was primarily a result of the low water storage levels and the fault with the Basslink interconnector that rendered it inoperable for almost half of the financial year.*
- *Hydro incurred an Underlying loss, being the result before fair value movements, impairment and tax, of \$65.44m for 2015-16 (2014-15, profit \$62.35m). The significant decline in the underlying result was attributed to the reduction in sales revenue and additional costs incurred during 2015-16 relating to the cost of supplementary electricity generation using gas and diesel to mitigate the risk of an electricity supply shortfall arising from low water storage levels and the extended Basslink outage.*
- *In 2015-16 Hydro incurred a net loss after tax of \$205.02m (2014-15, profit \$136.67m). The significant decline in the result after income tax arose from the underlying loss result referred to above, net fair value losses of \$285.56m (2014-15, loss \$102.93m) incurred on Basslink financial assets and liabilities and energy price and treasury derivatives, and a net gain relating to impairment loss reversals of \$58.70m (2014-15, profit \$232.07m) arising from the revaluation of generation assets.*
- *In 2015-16, Hydro revalued its generation assets which resulted in a revaluation surplus of \$414.83m. Of this amount \$58.70m was recognised in the loss after tax result and \$356.13m was recognised in other comprehensive income and the asset revaluation reserve.*
- *The \$58.70m revaluation gain recognised in the loss after tax result primarily comprised a \$96.52m gain representing the reversal of a prior period impairment write-down in the value of hydro generation assets less a \$40.82m impairment write-down in AETV generation assets.*
- *Net cash inflows generated by operating activities totalled \$17.30m for 2015-16 (2014-15, net cash inflow \$25.48m). These levels of operating cash inflows provided insufficient funds to internally fund Hydro's capital expenditure program. Consequently, Hydro was reliant on funds from borrowings or equity injections to fund the capital expenditure program.*

¹⁵⁷ *ibid*, pp. 37-38

- *Payments for property, plant and equipment increased to \$109.08m in 2015-16 compared to \$100.70m in 2014-15, reversing a trend in declining capital expenditure that occurred over successive financial years from 2011-12.*
- *Hydro increased its borrowings by \$55.30m during 2015-16 with borrowings totalling \$910.10m at 30 June 2016, with \$60.72m due for repayment within 12 months. Hydro's borrowing limit was \$1.05bn at 30 June 2016. Borrowings included a finance lease liability of \$5.10m.*
- *In January 2016, in accordance with a directive from the Treasurer, \$70.00m of borrowings was transferred from Hydro to TasNetworks. The reduction in debt was treated as an equity contribution from the State. In 2014-15, a similar transaction totalling \$205.00m took place.*
- *There were no dividends declared relating to the 2015-16 financial year as a consequence of the loss incurred for the year. During the 2015-16 financial year, \$25.00m of dividends were paid relating to the 2014-15 year.*
- *Agreements and instruments in place relating to Hydro's use of the Basslink interconnector gave rise to various financial assets and liabilities recognised at fair value in the balance sheet. The Basslink net financial liability increased from \$460.92m at 30 June 2015 to \$551.58m at 30 June 2016 as a result of the re-estimation of the fair value of contract rights and obligations over the remaining contractual period.*
- *The defined benefit superannuation liability increased by 20.4% to \$374.73m due to changes in financial assumptions, with the largest impact relating to a decrease in the discount rate from 4.8% to 3.6%. An actuarial loss of \$66.84m relating to the increased liability was recognised in other comprehensive income.*

5.5 Hydro Tasmania's result against key performance measures 2015-16¹⁵⁸

Key performance indicators (KPIs)	2015-16 targets	Performance
Financial indicators		
Results before fair value movements and revaluations	\$31 million	-\$65 million
Capital expenditure	Satisfactory external validation of the 10-Year Asset Management Plan	The 2015 10-Year Asset Management Plan was reviewed by an external hydropower consultant in April 2015
	Capital expenditure to be at or below \$113.6 million	\$109.1 million
Return on equity ^a	0.68%	-9.78%
Cost savings target	Non-customer-facing OPEX less than \$148 million	Non-customer-facing OPEX was \$198 million. Excluding temporary generation and TVPS additional costs incurred during the energy supply challenge, non-customer-facing OPEX would have been \$140 million
Retail profit before tax	Profit before tax >= budget of \$35.3 million	\$36.2 million
Non-financial indicators		
Lost-time injury	0	4 ^c
Employee engagement score	Achieve employee satisfaction and motivation levels above historical average (50th percentile) of externally benchmarked culture and engagement measure	The 2016 culture and engagement survey was conducted in June 2016. Both employee satisfaction (40th percentile) and motivation (35th percentile) were below the national average
Hydro generation availability	Availability target of 80% achieved	89% ^d
Regulatory compliance obligations	Zero breaches resulting in enforced regulatory undertakings or penalties	0 ^e
Returns to government (cash)		
Ordinary dividend ^b	\$25 million	\$25 million
Total other returns to government	\$17 million	\$17.5 million
Total returns to government	\$42 million	\$42.5 million
<p>^a This calculation reflects net profit after tax divided by total equity</p> <p>^b Represents the dividend paid in the period, relating to performance in the previous period</p> <p>^c Further discussion of safety performance is presented on page 43-5</p> <p>^d The target for hydro generation availability was exceeded for the past financial year. Please see Table 10 which provides availability performance over previous years</p> <p>^e While there were zero breaches in the past year, please see page 24 and 27 for comment on the infringement notices paid</p>		<p>Performance against shareholders' targets</p> <p>Each year Hydro Tasmania works with our shareholders to agree on a Statement of Corporate Intent (www.hydro.com.au/about-us/publications), which documents performance indicators and targets. This table summarises performance against the 2015-16 targets.</p> <p>Note that the employee engagement target has changed from the measure originally included in the 2015-16 Statement of Corporate Intent. Prior to 2015, the Hydro Tasmania group conducted annual employee engagement surveys. As Hydro Tasmania's strategy evolves in a complex and competitive market, we are taking a new and broader approach to seeking employee feedback. Our culture and engagement survey provides a profile of our current organisational culture to measure against our aspirations. This is the first year that we have run this survey format, and it will form a baseline upon which to improve. Ways to develop our culture and increase our performance will be identified and implemented in coming years.</p>
<p>This Statement of Corporate Intent has been agreed between:</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>G.V. Every-Burns Chairman Hydro Tasmania on behalf of the Board</p> </div> <div style="text-align: center;">  <p>Hon Peter Gutwein MP Treasurer</p> </div> <div style="text-align: center;">  <p>Hon Matthew Groom MP Minister for Energy</p> </div> </div>		

¹⁵⁸ Hydro Tasmania Annual Report 2016, p.10

- 5.6 The cost of Hydro Tasmania's response to the Basslink outage is reflected in the performance of the business against financial indicator performance measures agreed for 2015-16. The loss of \$65 million before fair value movements and revaluations against the target of \$31 million was approximately \$100 million below budget and Hydro Tasmania attributes the result to *'record low inflows in spring and the extended Basslink outage'*¹⁵⁹.
- 5.7 The cost savings target of achieving non-customer facing operating expenditure (OPEX) less than \$148 million result was not met in 2015-16. The cost of temporary generation and TVPS additional costs incurred during the energy supply challenge were factors in escalating costs beyond budgeted non-customer facing OPEX. The attributable cost is \$58 million.
- 5.8 Hydro Tasmania's final submission to the Inquiry provided the following summary¹⁶⁰:

- *At the time of writing, inflows to date and market conditions give the business reason to believe that budget is achievable. Hydro Tasmania has budgeted for a small profit in 2016/17, with an EBIT of approximately \$66 million. A return to profits in the \$50-\$80 million range from 2017/18 onwards is forecast.*
- *Net debt is budgeted to be \$772 million by June 2017, a reduction of ~\$55 million from June 2016. This figure is forecast to reduce over the following financial years and this reduction, in conjunction with increased profitability, is forecast to deliver an enduring investment grade credit rating within Hydro Tasmania's corporate plan period.*

Equity injections

- *Hydro Tasmania received \$275 million in equity injections from the State during 2014/15 and 2015/16.*
- *The initial injection of \$205 million, in 2014/15, represented relief from debt that was transferred from Aurora Energy along with the Tamar Valley Power Station (TVPS) on an interim basis. This had no discernible impact on Hydro Tasmania's end of financial year net debt levels as it was offset by tax and dividend payments associated with the 2012/13 financial year (approximately \$80 million and \$120 million respectively). This injection represented a final step in the 2013 reforms of the Tasmanian electricity industry structure.*

¹⁵⁹ *ibid*, p. 12

¹⁶⁰ Hydro Tasmania (2017) *Submission to the PAC Energy Inquiry*, 25 January.

- *The further injection of \$70 million in 2015/16 was intended, along with a further injection of \$50 million due in January 2017, to achieve a financially sustainable debt position. As it happened, the equity injection of 2015/16 absorbed the impacts of the events of 2015/16 on debt levels, enabling Hydro Tasmania to come through those events without a substantial deterioration in its long-term position.*
- *The absorption of the 2015/16 equity injection by the events of the year has set back achievement of fully sustainable debt levels. This is, however, only a temporary setback and current financial plans and forecasts see this result being achieved in the current forecast period.*

Asset Management Plan and capital investment

- *In order to achieve true financial sustainability, Hydro Tasmania has to maintain the long-term capability of the Tasmanian hydro-electric system. This is achieved through our Asset Management Plan, which has been provided to the Committee. As previously stated, we are confident that the current and planned levels of capital investment are appropriate for maintaining long-term capability.*
- *From a financial analysis perspective, it is worth noting that Hydro Tasmania's forecast capital investment is at similar levels to its forecast asset depreciation. Consequently, Hydro Tasmania's forecast cash flows are expected to cover planned capital investment.*

TASNETWORKS

5.9 The key points made in the TasNetworks submission were¹⁶¹:

- *TasNetworks current financial position is relatively robust.*
- *At present over 90 percent of revenue is subject to economic regulation by the AER.*
- *Financial forecast shows that:*
 - *Net profits (and resultant returns to our owners) decline over the planning period due to lower forecast returns from our regulated services, higher interest costs to service increasing debt, and rising depreciation resulting from our investment in short life assets. Our profitability outlook also reflects an underlying plateauing in demand for traditional network services in Tasmania.*
 - *Debt levels are forecast to peak at over \$1.9 billion during the planning period.*

5.10 The Government submission made the following comments regarding the financial performance of TasNetworks¹⁶².

- *TasNetworks receives a regulated return on the assets it owns and manages.*
- *The return is set typically every 5 years for the distribution and transmission assets.*
- *The returns are set by the 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 process ensures a reasonable return on assets and provides a revenue stream aligned to the returns required.*

¹⁶¹ TasNetworks (2016) *Submission to the PAC Energy Inquiry*, 16 May, p. 3

¹⁶² Tasmanian Government submission, op. cit. pp. 6-7

- *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.*

5.11 TasNetworks Financial Snapshot 2015-16¹⁶³

	2015-16 \$'000	Ind	2014-15 \$'000
Financial Performance			
<i>Revenue</i>			
Regulated distribution services	336 769	●	328 200
Regulated transmission services	191 511	●	192 780
<i>Expenditure</i>			
Operating expenses	(172 501)	●	(168 750)
Reconciliation from underlying result to net result before tax			
Underlying result before tax	162 248	●	161 396
Net loss recognised on debt restructure	(23 262)	▼	0
Impairment of assets	(6 652)	▼	0
Capital Contributions from Forestry	8 190	▲	0
Net result Before Tax	140 524	▼	161 396
Comprehensive Result	97 063	▼	167 944
Financial Position¹			
Property, plant and equipment	2 993 161	●	2 992 647
Borrowings	(1 749 302)	▼	(1 643 718)
Superannuation liability	(188 370)	▼	(144 508)
Net assets	920 083	▼	1 006 220
Tasmanian government returns/contributions			
Dividends paid	(63 200)		(61 000)
Income tax paid	(55 612)		(79 089)
Government guarantee fee	(11 862)		(11 954)
Return of capital	(50 000)		(20 000)
Debt assumed from Hydro	(70 000)		(205 000)
Key financial ratios			
Operating margin	1.9	▲	1.8
Return on assets	7.9%	▼	8.1%
Return on equity	10.2%	▼	10.9%
Current ratio	0.6	▲	0.5
Cost of debt	6.5%	▼	6.0%
Interest coverage ratio (EBIT)	2.3	▼	2.8
Debt to equity	190.1%	▼	163.4%
Indictors -			
▲ improvement from prior year ▼ deterioration from prior year ● no material change from prior year			

1. Assets are positive, liabilities are negative

¹⁶³ Tasmanian Audit Office (2017), op. cit. p.81

5.12 The Auditor-General provided the following summary of key results and developments in his report:¹⁶⁴

- *In 2015-16 TasNetworks reported a net profit for the year of \$98.38m which was \$14.55m lower than the previous year's result of \$112.93m.*
- *TasNetworks reported an Underlying result before tax of \$162.25m which was consistent with the previous year's result of \$161.40m.*
- *Revenue of \$528.28m from regulated distribution and transmission services for 2015-16 was 1.4% higher than the previous year, mainly driven by increased electricity consumption. Regulated revenue represented 88.4% (2014-15, 89.3%) of total revenue. As a regulated network business operating under a revenue cap, over-recovered revenue is reflected in lower average network charges in future years.*
- *Total operating expenses for 2015-16 were \$172.50m, 2.2% higher than the previous year. Total operating costs were affected by fire, flood and other severe weather events that occurred during the year.*
- *In August 2015 TasNetworks refinanced \$518.30m of debt to take advantage of low interest rates. The cost of refinancing, \$23.26m, will be offset by lower interest in future years. The debt restructure resulted in a reduction in interest payments of \$12.00m in 2015-16.*
- *The value of network assets was escalated in 2015-16 in accordance with the Regulatory Asset Base (RAB) valuation methodology, which was determined by the AER and based on the consumer price index movement for the year. This escalation resulted in a net revaluation increment of \$23.22m.*
- *TasNetworks most significant land and buildings were valued by an independent valuer in February 2016. The valuation of land and buildings resulted in net revaluation increments of \$2.27m and \$9.28m respectively. In addition, an amount of \$0.89m, relating to buildings was also recognised as an impairment expense.*
- *During the year, TasNetworks commenced a project to transform business systems and processes. It aimed to replace dissimilar and disjointed information technology systems, remove duplication, simplify operations,*

¹⁶⁴*ibid*, pp. 75-76

improve data quality and reporting and streamline business processes. The project was budgeted to cost \$58.18m, with \$20.17m spent so far.

- *Payments for property, plant and equipment in 2015-16 totalled \$131.26m(2014-15, \$137.46m) compared to depreciation expense of \$158.30m (2014-15 \$148.96m). This represented an asset investment ratio of 82.9% (2014-15 92.3%), which was less than our benchmark of 100%.*
- *At 30 June 2016 TasNetworks had a negative working capital of \$101.99m. The deficiency in working capital was due to current borrowings of \$155.00m with short term maturities.*
- *These debt maturities will be refinanced in line with TasNetworks' treasury policy and using the Tascorp Master Loan Facility. The undrawn amount of this facility was \$150.70m at 30 June 2016.*
- *TasNetworks had borrowings of \$1.75bn at 30 June 2016 compared to \$1.64bn at 30 June 2015. TasNetworks' treasury policy was to benchmark the debt portfolio to the AER's benchmark used in determining the revenue allowance, which was to have 1/10th of the portfolio repriced each year.*
- *The defined benefit superannuation liability increased by 30.3% to \$188.37m due to changes in financial assumptions, with the largest impact relating to a decrease in the discount rate from 4.8% to 3.6%.*
- *TasNetworks returned \$130.67m to the Tasmanian Government in the form of:*
 - *dividends paid on its 2014-15 performance, \$63.20m*
 - *income tax equivalents, \$55.61m*
 - *government guarantee fees, \$11.86m.*
- *TasNetworks returned equity totalling \$120.00m to the Tasmanian Government, which was then used to inject additional equity to:*
 - *TasRail, \$20.00m, with 2015-16 being the last year of this arrangement*
 - *Forestry Tasmania, \$30.00m*
 - *Hydro, debt transfer of \$70.00m*

5.13 TasNetworks' result against key performance measures 2015-16¹⁶⁵

	Target	Actual	
Dividends (\$M)	58.8	63.2	✓
Return of equity (\$M)	50.0	120.0	✓
Total returns to Shareholders (\$M)	108.8	183.2	
Guarantee fees (\$M)	11.8	11.8	✓
Income tax equivalent payments (\$M)	59.3	55.6	✗
Total returns to Government (\$M)	71.1	67.4	

	Target	Actual	
Operating profit after tax (\$M)	> 79.6	98.4	✓
Return on assets (%)	> 6.2	8.1	✓
Return on equity (%)	> 8.2	10.2	✓
Gearing (%)	< 66.2	63.4	✓
Pre-tax interest cover (times)	> 2.2	2.4	✓
Operating expenditure (\$M)	< 138.9	145.8	✗
Capital expenditure (\$M)	< 175.4	156.8	✓

5.14 TasNetworks achieved all but two of the key performance measures targets set for 2015-16.

5.15 The measures which were not met were:

- Income tax equivalent payments – the payment of \$55.6 million was \$3.7 million below the target of \$59.3 million. This difference was due to receiving an income tax equivalent refund during the year following lodgement of the 2014-15 return.
- Operating expenditure of \$145.8 million was \$6.9 million greater than the target of \$138.9 million or less. The difference is attributed to a number of abnormal costs incurred during the year and higher than budgeted expenses to manage severe weather events, including the floods during June.

¹⁶⁵ TasNetworks Annual Report 2016, pp.25-26

AURORA ENERGY

5.16 The key point made in the Aurora Energy submission was¹⁶⁶:

- *Since 1 July 2014 Aurora Energy has operated in a fully competitive market for all retail energy services in Tasmania.*

5.17 The Government submission made the following comments regarding the financial performance of Aurora Energy¹⁶⁷.

- *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 AER 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 Regulator¹⁶⁸ 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 (i.e. comprising the cost to serve allowance and retail margin) are the areas where the TER has some discretion in setting the prices.*

¹⁶⁶ Aurora Energy (2016) *Submission to PAC Energy Inquiry*, 18 May, pp. 1-2

¹⁶⁷ Tasmanian Government submission, op. cit. pp. 8-9

¹⁶⁸ The Clean Energy Regulator is the Australian Government body responsible for administering legislation that will reduce carbon emissions and increase the use of clean energy. The Clean Energy Regulator was established on 2 April 2012 as an independent statutory authority by the *Clean Energy Regulator Act 2011* and operates as part of the *Environment portfolio*

- *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 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 TER. 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 Energy.*
- *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.*

5.18 Aurora Financial Snapshot 2015-16¹⁶⁹

	2015-16 \$'000	Ind	2014-15 \$'000
Financial performance			
<i>Revenue</i>			
Sales revenue	821 314	▼	903 817
CSO contributions	38 445	▲	37 215
<i>Expenditure</i>			
Energy & network purchases	736 578	▲	817 958
Reconciliation from underlying result			
Underlying profit before tax	43 006	●	43 847
Electricity derivative fair value movements (unrealised)	120	▲	1 137
Net profit before tax	43 126	●	44 984
Financial position¹			
Cash on hand	62 175	▲	37 345
Working capital	93 519	▲	57 502
Net assets	108 685	▲	83 326
Tasmanian government returns/contributions			
Dividends paid	27 600		0
Income tax equivalent paid	14 481		32 932
Dividend payout ratio	91.4%		87.7%
Dividend to equity ratio	28.7%		8.5%
Capital return (transfer to TasNetworks) ²	0		523 378
Key financial ratios			
Operating margin	1.1	▲	1.0
Operating surplus ratio	3.5	▲	3.2
Current ratio	1.5	▲	1.3
Liquidity ratio	0.9	▲	0.7
Net financial liabilities ratio	(1.2%)	▼	(4.2%)
Return on equity	31.4%	▲	9.7%
Indictors –			
▲ improvement from prior year ▼ deterioration from prior year ● no material change from prior year			
1. Assets are positive, liabilities are negative			
2. Represents transfer of the assets and liabilities related to the distribution and telecommunication businesses to TasNetworks on 1 July 2014			

¹⁶⁹ Tasmanian Audit Office (2017), op. cit. p.27

5.19 The Auditor-General provided the following summary of key results and developments in his report:¹⁷⁰

- *In 2015-16, Aurora achieved an Underlying profit before tax of \$43.01m, which was 1.9% down from the prior year.*
- *An \$82.50m decrease in Sales revenue was matched by a similar decrease in Energy and network purchases of \$74.36m.*
- *These decreases were due to reduced energy consumption by customers, offset by unrealised movements in derivative fair values of \$7.02m.*
- *Cash on hand increased by \$24.83m to \$62.18m. The increase was attributed to net cash provided from operating activities of \$35.95m, the maturity of a \$20.00m term deposit, less the payment of a dividend of \$27.60m.*
- *Aurora's working capital was \$93.52m at 30 June 2016, an increase of \$36.02m. This was principally due to an increase in derivative contracts and market traded receivables included in current financial assets of \$54.81m and renewable energy certificates, recorded as part of inventories of \$11.24m. These increases were partly offset by increased trade payables of \$28.47m.*
- *Dividends and tax equivalents totalling \$42.08m were paid to the Government during 2015-16.*
- *A dividend of \$27.00m was recommended subsequent to 30 June 2016 by the Board to the shareholders in relation to 2015-16 earnings.*
- *Community Service Obligations (CSO) contribution received by Aurora, as a reimbursement for concession discounts of \$38.45m, was consistent with the prior year.*

¹⁷⁰ *Ibid*, p. 23

5.20 Aurora Energy's result against key performance measures 2015-16¹⁷¹

STRATEGIC THEME	KEY PERFORMANCE INDICATOR	PERFORMANCE MEASURE	15-16 TARGET	15-16 OUTCOME	OUTCOME
Provide consistent, proactive, strong customer service linked to customer value	Customer Satisfaction	Customer satisfaction and loyalty score	+15	+29	●
	Grade of Service	Percentage of calls answered within 30 seconds	>70%	74%	●
	Complaint Frequency Rate	Number of complaints per 100 residential customers (on a rolling quality basis)	0.4-0.9	0.75	●
	Customer Retention	Total share of customers	>98%	98%	●
Application of efficient systems, processes and practices	Profit	Annual profit after tax target	\$20.6M	\$30.2	●
	Operating Costs	Annual underlying cost reductions against base year 2014-15 ¹	0% ²	7%	●
	Compliance	Maximum Non Compliance events related to NECF	<4	2	●
	Regulated Cost-to-Serve per Customer	Regulated Cost-to-Serve per Customer	Within Allowance	Within Allowance	●
	Program of Work Performance ³	% on target	95%	99%	●
	Returns to Government	Annual Returns to Government (\$M per year – Accruals)	36.4	40.5	●
Delivered by committed, capable, valued and passionate people who care about what they do and the important role they play in the community	Rolling 12-month Medical Treated Injury Frequency Rate (MTIFR)	Number of medical treated injuries per 1,000,000 hours worked	0	0	●
	Unscheduled Leave	Unplanned leave – average days per headcount per annum	<7	7.22	●

1. Reductions to ongoing operating expenditure – excludes one-off expenditure such as projects and strategic initiatives that may be incurred in any given year.
2. Strategic initiatives will be identified in 2015-16 to reduce costs over the remaining Corporate Plan period.
3. Refers to completion of targeted annual projects/initiatives.

5.21 Aurora Energy met or exceeded all of the key performance measures set for the 2015-16 year.

¹⁷¹ Aurora Energy Annual Report 2016, p. 13

Findings:*2015-16 Financial Performance*

1. Hydro Tasmania's revenue from sale of products and services was \$1.34 billion (\$1.47 billion: 2014-15). Total expenditure was \$1.66 billion (\$1.308 billion: 2014-15).
2. TasNetworks revenue from regulated distribution services was \$336.8 million (\$328.2 million: 2014-15) and from regulated transmission services was \$191.5 million (\$192.8 million: 2014-15). Operating expenditure was \$172.5 million (\$168.8 million: 2014-15).
3. Aurora Energy's Sales revenue was \$821.3 million (\$903.8 million: 2014-15). Energy and network expenditure was \$736.6 million (\$817.9 million: 2014-15).

2015-16 Reconciliation from underlying result to net profit/(loss)

4. Hydro Tasmania had an underlying loss before tax of \$65.4 million (underlying profit of \$63.4 million: 2014-15). This was impacted by revaluation and impairment expense of \$58.7 million (\$232.1 million: 2014-15) and movements in fair value of \$285.6 million (\$102.9 million: 2014-15). The net loss before tax after the impact of these adjustments was \$292.3 million (Net profit before tax of \$191.5 million: 2014-15). The Total Comprehensive Income was a loss of \$3.658 million.
5. TasNetworks had an underlying result before tax of \$162.2 million (\$161.4 million: 2014-15). This was impacted by net loss recognised on debt restructure \$23.3 million (NA: 2014-15), impairment of assets \$6.7 million (NA: 2014-15) and capital contributions from Forestry \$8.2 million (NA: 2014-15). The net result before tax after the impact of these adjustments was \$140.5 million (Net profit before tax of \$161.4 million: 2014-15).
6. Aurora Energy had an underlying profit before tax of \$43.0 million (\$43.8 million: 2014-15). This was impacted by unrealised electricity derivative fair value movements of \$120,000 (\$1.1 million: 2014-15). The net profit before tax after the impact of this adjustment was \$43.1 million (\$44.9 million: 2014-15).

2015-16 Financial position

7. Hydro Tasmania's Generation assets were valued \$4.29 billion (\$3.89 billion: 2014-15). Net financial liabilities increased to \$788.3 million (\$473.8 million: 2014-15) and borrowings increased to \$910.1 million (\$855.0 million: 2014-15). An equity contribution of \$70.0 million was transferred from TasNetworks (\$205.0 million: 2014-15).
8. TasNetworks borrowings increased to \$1.749 billion (\$1.644 billion: 2014-15) and net assets were \$920.1 million (\$1.01 billion: 2014-15).
9. Aurora Energy had cash on hand of \$62.2 million (\$37.3 million: 2014-15), working capital of \$93.5 million (\$57.5 million: 2014-15) and net assets of \$108.7 million (\$83.3 million: 2014-15).

Tasmanian Government returns

10. Hydro Tasmania's returns to Government were \$8.5 million government guarantee fee (\$8.7 million: 2014-15), \$5.0 million income tax equivalent paid (\$80.1 million: 2014-15), and \$25.0 million dividends paid (\$118.6 million: 2014-15).
11. TasNetworks returns to Government were \$63.2 million dividends paid (\$61.0 million: 2014-15), \$55.6 million income tax equivalent paid (\$79.1 million: 2014-15), \$11.9 million government guarantee fee (\$11.9 million: 2014-15), return of capital contribution of \$50.0 million (\$20.0 million: 2014-15) and \$70.0 million debt assumed from Hydro Tasmania (\$205.0 million: 2014-15).
12. Aurora Energy's returns to Government were \$27.6 million dividends paid (Nil: 2014-15) and \$14.5 million income tax equivalent paid (\$32.9 million: 2014-15).

TERM OF REFERENCE 2:

Factors currently impacting on the financial performance of the energy entities

CURRENT FACTORS

5.22 A number of factors have been identified during the course of the Energy Inquiry as impacting on the financial performance of the energy entities. They include:

- Basslink outage;
- Water storage;
- Debt;
- Low interest rates;
- Funding the solar FiT;
- Changing customer behaviour; and
- Government policy decisions (Refer to term of reference 4).

Basslink Outage

5.23 On 20 December 2015, Basslink experienced an outage which continued for a period of almost six months.

5.24 Hydro Tasmania provided the following commentary in its submission to the Inquiry:¹⁷²

Factors impacting on the financial performance of Hydro Tasmania are dominated by the low inflow sequence that occurred from September 2015 to April 2016 and the Basslink outage from 20 December 2015 to 13 June 2016. Hydro Tasmania's financial performance is also impacted by changing market prices for electricity and LGCs and cost control initiatives, but the effect of these, in the 2015/16 and 2016/17 financial years, is small in comparison.

A forensic dissection of the financial impact of low inflows and the Basslink outage is a difficult exercise in causation and allocation, if a precise answer is sought. Hydro Tasmania can, however, provide a clear general account of the impact of these matters. Hydro Tasmania estimates that the combined impact of low inflows and the Basslink outage is between \$140 million and \$180 million. This takes into account that Basslink has been back in service since 13 June, it also assumes a return to normal inflows going forward.

These financial impacts arise from foregone generation and LGC production and electricity sales, increased cost of generation for electricity sold and a

¹⁷² Hydro Tasmania (2016) *Submission to PAC Energy Inquiry*, 17 June, pp 1-2

range of miscellaneous costs. The adverse effect of these impacts is partially offset by reduced Basslink costs and receipts on weather hedges or insurance products received to date. These impacts are expected to occur over the 2015/16 and 2016/17 financial years, with the majority to occur in 2015/16.

Hydro Tasmania has low variable costs and so a low marginal cost of production from hydro generation. Hydro Tasmania is also highly contracted for Tasmanian electricity consumption. When Hydro Tasmania receives low inflows, Hydro Tasmania foregoes hydro generation, which is replaced by generation from other sources. Over 2015/16, the alternative sources have been Basslink imports (from September to December 2015) and Hydro Tasmania's own CCGT, OCGT and diesel generation. Some of Hydro Tasmania's foregone generation has taken the form of agreed load reduction or buy back arrangements with customers. All of these alternatives result in loss of revenue or increased cost of production for Hydro Tasmania.

Hydro Tasmania's foregone and replacement generation for 2015/16 is approximately 2,025 GWh, comprising 900 GWh of Basslink imports, 745 GWh of gas generation, 325 GWh of load reduction and 55 GWh of diesel generation.

The cost of additional generation is readily identifiable. Hydro Tasmania expects to incur approximately \$47 million in costs associated with gas fired generation as a result of low inflows and the Basslink outage. Hydro Tasmania also expects to incur approximately \$64 million¹⁷³ in costs associated with diesel generation as a result of the same events.

Reduced hydro generation also results in reduced LGC production by Hydro Tasmania, and Hydro Tasmania estimates that low inflows will result in a net reduction in the value of LGCs produced of approximately \$15 million.

5.25 During the Energy Inquiry hearing of 20 June 2016 Mr Grant Every-Burns, Chair, Hydro Tasmania stated:¹⁷⁴

I will outline the unprecedented challenges Hydro has faced in recent months, but let me say up front that the impact on Hydro will be substantial. This year's profit will be eliminated and a loss of \$90 million is expected. In the year ahead

¹⁷³ The Government submission (p.17) states that: "The initial leasing and set up cost of the approximately 220 MW of diesel generation was approximately \$50.5 million.. 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."

¹⁷⁴ Mr Every-Burns, Hydro Tasmania (2016) Hansard Transcript, 20 June, pp 37-38

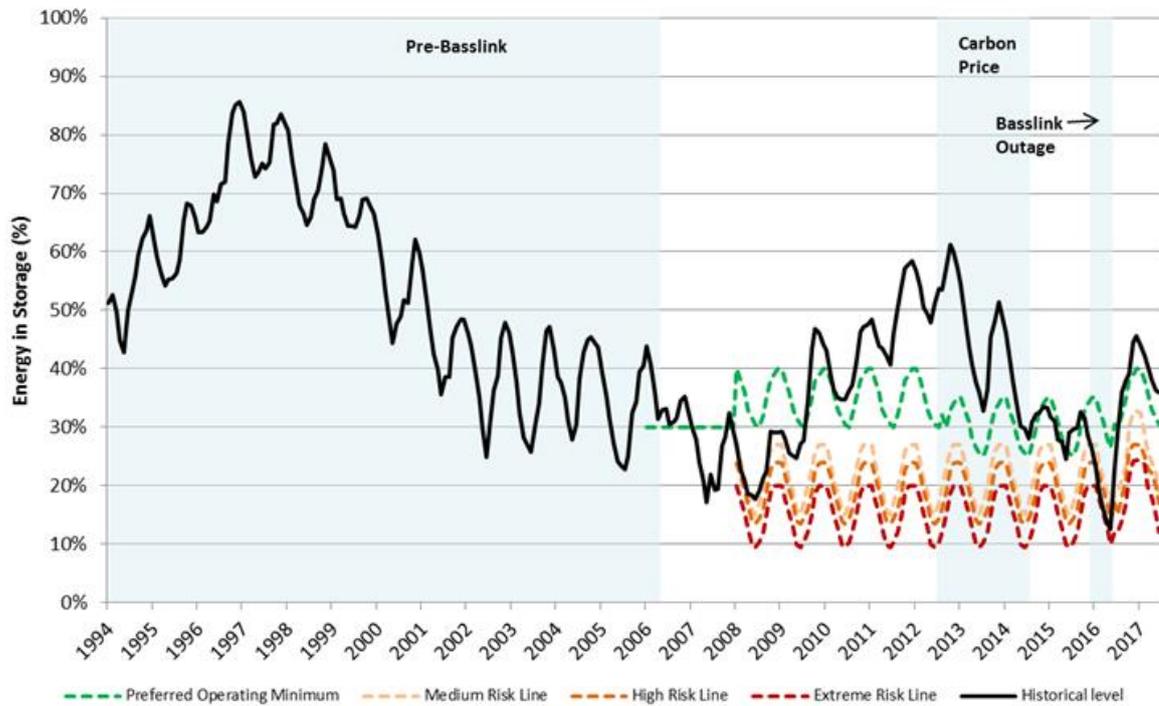
Hydro intends to build storages again and target a break-even or positive financial result for 2016-17. The business has the capacity to do this.

The period that commenced in September 2015 and lasted until April 2016 was very dry by any reckoning, containing a number of sequences, each representing the driest in 100 years. Within this same record dry period the Basslink undersea cable failed, cutting off power connection to the mainland. Power flow into the state was running at 40 per cent in the prior months to make up for low inflows and that was operating, as intended, in these circumstances. The consequences of this failure were magnified by a repair time amounting to 176 days against our prior expectation of 60 days.

I contend that these facts are at the heart of the energy supply situation that has gripped the state for eight months. The facts are that the storages were more than 29 per cent at 30 June 2015; spring inflows last year were half the lowest experienced by Hydro in 100 years of records; Basslink failed unexpectedly on 20 December 2015, with storages already dropping; and the Tamar Valley Power Station was mobilised so that by mid-January 2016 some 300 megawatts of gas-fired generation was in service and supplementing 30 per cent of the State's power needs.

5.26 Figure 8 illustrates Hydro Tasmania’s water management practice in the period prior to the 2015-16 energy security event.

Figure 8: Water storages and Hydro Tasmania Preferred Minimum Operating Level



Source: Hydro Tasmania data

Note: Historical data begins in 1994, which represents the year where the current hydro-electric capacity was reached with the commissioning of Tribute Power Station. Risk lines shown in the figure were introduced with the commissioning of Basslink in 2005.

5.27 Hydro Tasmania built up reserves in storage prior to the introduction of the Carbon Price, then drew down on storages reaching a level of 27.7 per cent when the carbon price ceased on 30 June 2014.

5.28 Figure 8 illustrates storage levels relative to the Preferred Minimum Operating Level adopted by Hydro Tasmania as part of its Prudent Water Management policy.

5.29 Prior to September 2012, the Preferred Minimum Operating Level was set at 30 per cent. The level was adjusted in 2012 to 25 per cent based on Hydro Tasmania’s assessment that the combination of Basslink, TVPS, additional wind generation and revised demand forecasts would enable prudent water management at the lower level.

5.30 Hydro Tasmania operated close to the revised Preferred Minimum Operating Level from approximately July 2014. At 1 July 2015 water storages were at 29.7 per cent, marginally below the earlier Preferred Minimum Operating Level, due

to heavy rains in May 2015. They tracked close to the revised Preferred Minimum Operating Level until the Basslink outage in December 2015.

5.31 The Government's submission to the Inquiry provided the following overview of the Basslink outage event¹⁷⁵:

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

¹⁷⁵ Tasmanian Government submission, op. cit. p. 11

Supply Plan continues to be adjusted to ensure that these ongoing issues are managed appropriately.

5.32 Hydro Tasmania and the Government developed the Energy Supply Plan in response to the record low rainfalls and the prolonged Basslink outage.

5.33 The Government submission provided the following detail of the elements of the Plan:¹⁷⁶

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 58 MW 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 FT-8 (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*

¹⁷⁶ *ibid*, pp 15-17

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
Total	222 MW	201 MW	

Source: Government Submission

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 2016 through May 2016 and at times over 140 MW when all load reductions aligned.*
- *TEMCO load reduction commenced in mid-January 2016 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 2016.*
- *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.*

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.*

5.34 In its submission to the Inquiry Aurora Energy stated¹⁷⁷:

With regard to the recent energy supply event, Aurora Energy has been assisting its customers and industry in responding to the event through a range of actions. These include the management of energy purchasing risks, providing information for customers including energy saving tips and advice, participating in a number of inter-Government business committees formed to address the energy supply event and working directly with our large business customers to help manage their contracts.

5.35 Energy purchasing risk was further explored during the hearings¹⁷⁸:

CHAIR - You talked about managing the impact of the issues and problems. In your submission to us you have said that monitoring of the energy risk has been a critical focus during the energy supply event. What did that entail? Listening to what was happening or what process did you enter into?

Ms KARDOS - We commenced weekly and bi-weekly meetings initially. We have board approved limits in terms of our exposure to the market at any given time. What was our wholesale exposure, what were the earnings at risk during that period, what were our hedging strategies, what were the potential flow-through impacts onto customers - managing the wholesale risk. In energy retailing your exposure to the market is one of your most critical risks. The spot market can go from anywhere from minus-1000 through to plus 13 500. Fortunately those events occur very infrequently. You can lose a lot (sic) money very quickly with your exposure and that exposure is not on average. It is in a five- minute interval. In those super peak periods at one stage during the energy supply event we were seeing prices of \$550. If that is in a super peak period where we have a lot of load exposed to the market it can cost you a lot very quickly. We put a range of mechanisms in place to ensure we are working within our board approved limits and were managing that wholesale exposure

¹⁷⁷ Aurora Energy submission, op. cit. p. 1

¹⁷⁸Ms Kardos, Aurora Energy (2016) Hansard transcript, 20 June, p. 93

prudently to minimise the flow-through impact. As a result, there was no detrimental impact on our financials.

- 5.36 The impact on Aurora Energy customers out of contract was also explored at the hearings:¹⁷⁹

Ms KARDOS - The customers who were affected were a very small number of large commercial and industrial customers. These are customers who consume greater than 150 megawatts, roughly more than \$40 000 a year spent on their energy costs. That is the affected group. There were some customers who were Aurora Energy customers. I cannot talk for other retailers. There were a small number of Aurora Energy customers who came out of contract during the first quarter of this calendar year.... For that small number of customers, they did see a portion of their price increase directly attributable to the energy supply event. Usually retailers set their wholesale position before a quarter. Buying energy in a quarter is usually very expensive.

Ms FORREST - At the spot price? Is that how they buy it?

Ms KARDOS - No, you can get in-quarter contracts, but they are usually very expensive, so you tend not to and you take the exposure to the spot market. For those customers, we did see a price increase. That price increase on average was approximately \$5000.

- 5.37 Minister Groom outlined the Government response at a subsequent hearing:¹⁸⁰

Ms COURTNEY - For all the actions the Government took, were power prices impacted for residential customers? Were residential customers paying more because of this?

Mr GROOM - No. That was a very strong focus of ours. Part of our objective was to keep power prices as low as possible. It has been confirmed by the Economic Regulator that regulated power prices - that is, power prices for the vast bulk of Tasmanians - were not impacted in any way by the energy supply event. Some people have made comments to the contrary, but that was the fact.

A small number of larger customers had exposures, in various ways. Some were exposed to the spot price and others fell out of contract. The Government

¹⁷⁹ *ibid*, pp 87-88

¹⁸⁰ Mr Groom, Minister for Energy (2016) Hansard transcript, 30 August, pp 46-47

has sought to work with affected customers and to address those circumstances. That was a very small number.

The regulated customer base, the vast bulk of Tasmanians, felt no impact as a consequence of the event. Power prices for regulated customers today are still lower than when we came into government, by about 2.4 per cent.

CHAIR - We have heard about the farming fraternity. A lot of those people fell out of contract and are renegotiating their positions - in many instances their energy costs went up profoundly...

Mr GROOM - Through the Government and through the energy business we have sought to work with impacted customers to address those concerns, which includes a number of farmers and other customers. It is important -

Ms FORREST - What do you mean by 'work through it'? You are being very vague about what you have done.

Mr GROOM - To identify the extent to which there may be an averaging out of the price, for the period that they otherwise had an exposure. The Government has sought to work with the energy businesses to deliver that outcome. I can send you an update on that.

CHAIR - Did you discuss the renewal of those contracts with Aurora, and energy suppliers? Did you discuss the increase in those contracts with those farmers, and with the energy instrumentality?

Mr GROOM - The Government engaged to try to understand the ways we could help alleviate impact for those affected customers. That did happen. I can send an update for the committee in relation to it. I am not saying this to dismiss it, because for the affected customers it had an impact, but we are talking about a very small number of customers relative to the total customer base in Tasmania.

- 5.38 Further to the hearing the Minister provided the following response to a question on notice which asked for an update on what had been done to alleviate the financial impact on those customers who were exposed and affected during the emergency crisis:¹⁸¹

¹⁸¹ Mr Groom, Minister for Energy (2016) Letter of response to Question on Notice, Public Accounts Committee website

Contestable customers with contract expiring in Q1 2016 who chose not to contract ahead of that quarter, left themselves in a position of having to contract 'in quarter' for Q1 of 2016. Where retailers did not have any residual contract capacity for Q1, the market-based price obtainable was based on the unregulated contract prices for Q1 which reflected the prevailing spot price.

The Government is currently working with Aurora Energy, ERM and Hydro Tasmania to design and implement a financial compensation package for customers who have been impacted in this way.

The compensation mechanism will have the effect of adjusting retail prices faced by contestable customers by substituting the market-based wholesale price for Q1 2016 with a price that reflected the regulated price for Q1 2016 (i.e. as if Basslink had still been available)

5.39 Basslink returned to service on 13 June 2016, following an outage of 176 days.

5.40 Hydro Tasmania provided the following update in a supplementary submission provided to the Committee in January 2017¹⁸²:

Hydro Tasmania experienced an extremely challenging 2015/16 financial year enduring, sequentially, the two unprecedented circumstances of a failure of the Spring rains and a 176 day outage of the Basslink interconnector. Hydro Tasmania secured electricity supply for Tasmania through this period.

Hydro Tasmania incurred a substantial one-off financial impact from these events, partially due to the loss of revenue that inevitably follows reduced inflows, but also reflecting the additional costs associated with alternative sources of electricity production and securing additional production capability against further contingencies.

Hydro Tasmania has done this without suffering long term financial damage. Hydro Tasmania has maintained a financial position as close as possible to an investment grade credit rating, while meeting the challenges of the events and supporting shareholder objectives.

Hydro Tasmania has carefully reviewed all the learnings of the 2015/16 challenges, and has prudently reset key business assumptions and parameters with the benefit of those learnings. In particular, we have raised target levels for energy in storage as an immediate interim response. Hydro Tasmania has

¹⁸² Hydro Tasmania submission 25 January 2017, op. cit. p. 1

been working closely with the Tasmanian Government's Energy Security Taskforce to develop long term responses that will deal, as efficiently as possible, with new assessments of inflow variability and risk that have come out of the 2015/16 challenges.

Hydro Tasmania has already rebounded from the challenging circumstances of 2015/16. Inflow volatility has continued throughout 2016 with high inflows since May 2016. These inflows have supported Hydro Tasmania in rebuilding storages, restoring profitability and establishing a path to ensure long term financial sustainability. The measures of Hydro Tasmania's improved position are:

- Energy in storage was above 45% at the start of summer, a level that was 19% above the same time in 2015 and 5% above Hydro Tasmania's revised storage targets.*
- Hydro Tasmania has budgeted an immediate return to profit in the 2016/17 financial year and is currently ahead of budget for the year to date. Projections for 2017/18 and the following financial years are for a return to the levels of profitability forecast before the 2015/16 challenges.*

Water storage

5.41 Hydro Tasmania provided the following commentary in its supplementary submission to the Inquiry:¹⁸³

In managing its storages Hydro Tasmania must constantly balance the risks arising from: uncertain inflows against the risk of spilling excess water without power generation; the current and potential future value of generation; and the risk of asset outages (including assets not owned or operated by Hydro Tasmania, such as Basslink and the NEM transmission networks) against the cost of alternative generation or supply sources.

Hydro Tasmania's storage optimisation is achieved by integrating water modelling outputs within its total generation portfolio of hydro and gas generation. This is in turn optimised based upon forecasts of Tasmanian demand, wind generation and wholesale electricity market price with imports or exports across Basslink. This process also considers contingencies such as plant and Basslink outages.

¹⁸³ Hydro Tasmania submission 17 June 2016, op. cit. p. 10

In general, as water storages fall, the energy value of stored water increases, which flows through into higher bid prices into the NEM. This in turn triggers decisions on non-hydro generation - Basslink imports and gas generation - to preserve hydro storages.

Through the interaction of these factors and optimisation, Hydro Tasmania meets its GBE obligation to maximise the value of the business for Tasmania.

Debt

5.42 Hydro Tasmania and TasNetworks had combined debt totalling \$2.7 billion at 30 June 2016.¹⁸⁴

5.43 The Auditor-General regards TasNetworks debt-to-equity ratio of 190.1 percent as high. In general, a high debt-to-equity ratio indicates that the entity may not be able to generate enough cash to satisfy its debt obligations.¹⁸⁵

5.44 TasNetworks provided the following commentary regarding the entity's debt:

Mr BACON - Given the amount of debt that TasNetworks has taken on from Hydro Tasmania is there capacity for TasNetworks to take on further debt from Hydro Tasmania at the moment given the pressure that Hydro is under financially?

Mr BALCOMBE - We run our capital structure in line with the way the Australian Energy Regulator established our capital structure. So the Australian Energy Regulator, when it sets your revenue, assumes you have a certain level of gearing - so 40 per cent equity, 60 per cent debt. Our level of gearing is currently around 62 per cent and we are headed towards 64 per cent. So we are reasonably comfortable with that. One thing I do know is that other regulated businesses, particularly the privately owned ones on the mainland, run with much higher levels of gearing. The reason is that debt is much cheaper than equity. However, that is not our intention. Our intention is to continue to operate around that 60 per cent level of gearing. In the end, the question of the level of gearing is one for our board. Should the shareholder choose to transfer debt in our business, then that is a consideration for them as well.

Mr BACON - You would say, Chair, that you are comfortable with the level of debt at the moment?

¹⁸⁴ Tasmanian Audit Office (2017) op. cit. p.21

¹⁸⁵ *ibid*

Dr NORTON - Yes. We have an additional \$50 million that is going to be transferred in January 2017. There were three tranches of debt that were transferred from Hydro to TasNetworks and we have one of those to go.

Mr BACON - Where will it be in terms of percentages once you get to that point, after that \$50 million?

Mr BURRIDGE - The gearing percentage?

Mr BACON - Yes.

Mr BURRIDGE - It is about 62.7 per cent.

Mrs RYLAH - In your financials, you are indicating for 2016-17 it is 65.3 per cent, if that is helpful.

Mr BURRIDGE - I will just confirm the number. In the corporate plan?

Dr NORTON - We have done a bit better than the corporate plan, so that is why it is a bit lower.

Mr BURRIDGE - On the corporate plan for 2015-16, it is 66.2 per cent. It is lower than that because we had a lower starting debt level as our [CAPEX] had been delayed, so we had not borrowed as much.

Dr NORTON - The answer to the question is that we are comfortable where we are. Can we take on additional debt? We could. From the board's perspective, the concern is that we need enough headroom to deal with a negative contingency. We talked about loss of a major industrial customer if that happened and we chose or were unable to pass all of that reduced revenue onto other customers, which could well be the case. If we had some other failure of assets, which impacted on us, we would have to take more debt, so we need some headroom of debt. We are relatively comfortable at the sort of level that we are at the moment.

Low interest rates

5.45 In TasNetworks' submission the current environment of low interest rates was nominated as a factor currently impacting on the entity's financial performance:

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An environment of low interest rates reduces the regulated return on assets and is reflected in reduced customer charges. Our forecasts incorporate

¹⁸⁶ TasNetworks submission, op. cit. p. 3

assumptions about future returns and they remain relatively low in historical terms.

5.46 This issue was explored during hearings:¹⁸⁷

Mrs RYLAH - ...I sense there is an arbitrage between the rate that the regulator uses for interest rates in your calculations of your network pricing and what you are charged by Tascorp. Can you give me an understanding of that, please?

Mr BURRIDGE - That would have some truth to it, because it is the debt rate set by the regulators, the 10-year bond rate, plus the corporate margin and we are borrowing at pretty good rates from Tascorp.

Mrs RYLAH - Difference?

Mr BURRIDGE - I would have to go and check, but off the top of my head, I think for the moment we are getting about 8 per cent on the distribution debt and we are borrowing at about 5 per cent.

Ms CLARK - There is a countervailing offset that the national regulatory regime assumes that you have private owners and that they get benefits from imputation credits, which have benefits. It is actually also based on an independent benchmarked owner. You can win or lose on different aspects of that.

Funding the solar Feed in Tariff (FiT)

5.47 The responsibility for funding the solar FiT, which currently amounts to \$12 million, has transferred to TasNetworks and is a factor impacting on the entity's financial performance.¹⁸⁸

5.48 This issue was explored during hearings:¹⁸⁹

Mrs RYLAH - I would like to turn to the future in terms of solar feed-in tariffs. I understand the Office of the Economic Regulator sets that price. So it is not directly the executive government that does that. I presume you feed in the information the Economic Regulator is provided with to determine that? Is that correct? Your cost of transmissions?

Ms CLARK - For feed-in tariff the critical thing we provide each year is the distribution loss factors which are taken into account, but beyond that it is

¹⁸⁷ Mr Burridge, Ms Clark, TasNetworks (2016) Hansard transcript, 20 June, pp. 29-30

¹⁸⁸ TasNetworks submission, op. cit. p. 3

¹⁸⁹ Ms Clark, Dr Norton, TasNetworks (2016) Hansard transcript, 20 June, op. cit. p. 34

really about energy markets....the feed-in tariffs are a function of what energy values are because it is about remuneration for the energy.

Mrs RYLAH - So if it is an energy value, how does that value the cost of your distribution network and your transmission network? How does that work?

Ms CLARK - It is one of the challenges customers do not necessarily appreciate. The feed-in tariff is a lot less than the cost of delivered energy because the cost of delivered energy does include the cost of providing the network. The feed in tariff is just saying, 'What is your electricity itself worth?' The network still has to be paid for, even if you are exporting it.

Mrs RYLAH - Would you suggest then it should be a work- in- progress to evaluate an appropriate feed-in tariff, seeing we are moving to more people who are likely to take on solar PV to ensure we get an equitable spread of the cost of our transmission and distribution networks for those people receiving it and those people feeding in?

Dr NORTON - This is essentially the heart of the tariff reform - instead of charging distribution charges on an energy basis, charging on a demand basis. That is the change we are going through over a long period of time but an adjustment in the balance.

Changing customer behaviour

5.49 The final factor nominated in its submission by TasNetworks as impacting on the entity's financial performance was trend of customers to consume less electricity than in previous years.¹⁹⁰

5.50 The trend of customers to lower consumption combines with the move to renewables such as solar among consumers and there is also the potential impact of storage, as discussed:¹⁹¹

Mr BALCOMBE - One of the things we need to consider as a business is how we position ourselves as a network operator, particularly in the distribution side of our business into the future. If we do nothing, there will be a big impact on our business. This is an issue facing energy networks right across the country. The Energy Network Association, of which TasNetworks is a member, is doing a lot

¹⁹⁰ TasNetworks submission, op. cit. p. 3

¹⁹¹ Mr Balcombe, TasNetworks (2016) Hansard transcript, 20 June, op. cit. pp 11-12

of work about understanding energy works for the future. There is a large project going on with the CSIRO at the moment in regard to that.

One of the things that is very clear about people who have solar and most likely people who have batteries into the future is that they will still want to use the network. It is more a two-way flow. Instead of always drawing energy into your household, if you are a house with solar you will want to use the grid to export excess energy. When you have extra energy and when your battery is full, you will still want to earn those revenues. It is more of a two-way flow. We have to come up with ways to deal with that. It will also be through what sort of tariffs we have and how we can incentivise people to use the network at the right time. At the moment we have a set of tariffs that are all consumption-based. We are very different from the mainland states where they have a summer peak and their solar is responding. Effectively what happens is that the sun shines in Adelaide and that reduces demand. It makes it very hard to predict how much maximum demand is. On a cold winter's morning like Tasmania ... It's good for business. The solar is not responding on a day like today, so we are still seeing the same peak demand that we have seen for many years. We have to understand how batteries are going to fit into that. We also have to understand things like electric vehicles as they come onto the network.

FUTURE FACTORS

Hydro Tasmania

- 5.51 *Tasmanian Energy Security* - The response of Government to the recommendations of the Taskforce report has the potential to impact on Hydro Tasmania's financial performance as the entity works to implement measures to increase security of the Tasmanian electricity system.
- 5.52 More conservative assumptions, such as lower and more variable inflows and extended Basslink repair times, may require some of, or a combination of the following measures, each of which come at a higher cost:
- Maintaining higher storage levels. Financial impacts are short-term in reducing energy sales and long term in the carrying costs of higher levels of energy inventory
 - Retaining and maintaining TVPS CCGT in a state of readiness to meet hydro inflow shortfalls or Basslink outages

- Maintaining contracts for gas transportation or options for gas transportation, noting that current contracts expire in December 2017.
- Maintaining contracts for gas supply or options for gas supply, noting that current contracts expire in December 2017.

5.53 Gas Transportation Agreements - The current gas transport agreements expire in December 2017. The TVPS gas transport agreements are a fundamental part of the current arrangements and there are concerns that future Hydro Tasmania arrangements will impact on prices charged to other customers, with the potential that the combination of gas prices, gas transport prices and other factors that may impact, such as load factors¹⁹² and retail margin uplift, may adversely impact other Tasmanian customers with flow-on effects to the Tasmanian economy.

5.54 Hydro Tasmania's position on renewal of contractual arrangements with TGP was explained by Mr Davy during an Inquiry hearing¹⁹³:

Ms FORREST - In terms of a long-term strategy of energy mix and energy-generation mix, the gas contract runs out in 2017... What is the plan for gas for generators into the future?

Mr DAVY - That is certainly something that we have under active consideration and we are preparing a lot of analysis on it at the moment for consideration by the Energy Security Taskforce. We are putting our own thinking together for that process. We need to be very mindful that we don't lock Tasmania into long-term arrangements that then become a cost to the state. We are being careful that we enter into arrangements that retain flexibility for the future. In the short term, we want to retain flexibility so that whatever decisions the state may make after getting the advice of the Energy Security Taskforce, that we have not already closed off options.

At the moment what we intend to do with the Tasmanian Gas Pipeline and gas supplies - because the gas pipeline can't be the only thing that provides transportation from Victoria to Tasmania - is to enter into arrangements that

¹⁹² A key parameter that can affect the price paid by large industrial customers is their load factor (or sometimes known as "gas swing"). Load factor is, in effect, a measure of the peakiness of a customer's gas supply and this can directly affect the prices paid on an average dollar per gigajoule (\$/GJ) basis. It is an important concept for determining the average price of transmission pipeline haulage and distribution network haulage as well.

¹⁹³ Mr Davy, Hydro Tasmania (2016) Hansard Transcript 4 August, op. cit. p. 51

deal with the next few years, give them some revenue certainty, and give us some flexibility so that we are not locked into very, very long-term arrangements.

The energy supply dynamic in Australia is changing dramatically at the moment. The combination of more renewables in the mix; potentially, the change of how much thermal generation will be in Australia; the price of gas due to the export of gas from Queensland have all changed the costs of various supply options in Australia quite dramatically. It is very hard to say what would be the right arrangement, say, for 10 years' time. We do not want to lock ourselves into very long-term arrangements while that situation is so vague.

- 5.55 The Gas Transportation Agreement will be further discussed under term of reference 5.
- 5.56 *NEM prices* – Hydro Tasmania is exposed to Victorian electricity market prices through the regulation of prices for Tasmanian small customers which is administered by the TER under Regulations. These prices are expected to be higher in the short to medium term than they have been in recent years. This is due to recent power station closures and higher prices for gas used to fuel power generation.
- 5.57 *REC (LGC) prices* - Hydro Tasmania's underlying financial performance is exposed to REC prices through its own REC production, to the extent that it is not contracted. Movements in market prices relative to its contracted prices impact on its reported financial position.
- 5.58 Hydro Tasmania has offtake agreements with Woolnorth Wind Farm Holdings, the joint venture of Hydro Tasmania and Shenhua Clean Energy Holdings which owns the Woolnorth and Musselroe wind farms. Hydro Tasmania's reported financial performance is subject to movements in market prices relative to its contracted prices. The revenue of the Woolnorth Wind Farm Joint Venture, in which Hydro Tasmania holds a 25 percent interest, was \$88.942 million in 2015-16.¹⁹⁴
- 5.59 *Momentum Energy* – Hydro Tasmania is further exposed to market circumstances in other States through its ownership of Momentum Energy,

¹⁹⁴ 2016 Hydro Tasmania Annual Report, p. 102

which retails electricity to business and residential customers in Victoria (including gas from February 2015), New South Wales, South Australia, the ACT, Queensland and the Bass Strait Islands. In 2015-16 Momentum contributed \$25.26 million to Hydro Tasmania profit.

5.60 *Tasmanian electricity load* - five major customers operating in internationally competitive industries account for 54 per cent of Tasmanian electricity sales. The remainder is made up of commercial and residential sales. Tasmania's long term average on-island generation is about 90 per cent of on-island load. Reduction in Tasmanian load by economic downturn or by substitution (e.g. by solar PV) may adversely impact Hydro Tasmania sales, to the extent that reduction in sales is not offset by lower costs of imports or gas-fired generation.

5.61 *Basslink availability* - The extended outage of 2015-16 showed the vulnerability of Hydro Tasmania to Basslink availability. While the circumstances were extreme, with an extended outage coinciding with a record dry period, an extended Basslink outage exposes Hydro Tasmania to higher costs through:

- Reduced capacity for trade;
- Higher levels of TVPS gas fired generation;
- Supplementary generation such as diesel generation; and
- Costs of contracted reduction in load.

These costs may be offset to some extent by contractual arrangements under the Basslink Operating Agreement.

5.62 *Costs of contracted reduction in load* - The response of the Government and Hydro to the 2016 energy supply event included negotiated reduction in load by some major industrial customers. This action had commercial consequences.

5.63 The TMEC submission to the Inquiry stated:¹⁹⁵

TMEC represents the interests of a number of multi-national resource and downstream processing industries as well as a broad base of local and national enterprises who support the success of these operations. For many of the TMEC Major Industrials, the events in Tasmania always need to be viewed through a global lens. These major industrials are in highly competitive markets when it comes to selling products, and equally competitive environments when

¹⁹⁵ Tasmanian Minerals and Energy Council (2016) Submission to PAC Energy Inquiry, 12 May, p. 2

attracting the funds to sustain their operations, let alone attracting approval for growth capital.

It goes without saying – industries competing in the competitive international commodity markets are faced with highly damaging losses in credibility when they are forced to go to their hard won customer base and advise them that their energy supplier is unable to meet their ongoing energy needs and doesn't know when it will be able to resume normal supply. Lost sales and market share are very very hard to recover in the world's commodities marketplace for these local businesses.

- 5.64 The impact of recent events on business and investor confidence was discussed by Mr Ray Mostogl, President TMEC and General Manager Bell Bay Aluminium:¹⁹⁶

...it is reputation not only with our customers but also with the head office. Bell Bay Aluminium, for example, were not on the radar as being an at-risk asset from the point of view of electricity supply. There are other smelters around the world where due to their energy mix, they are fluctuating loads. They do appear from time to time. Bell Bay was not one of them, it now is.

- 5.65 This was further discussed by Mr Wayne Bould CEO, TMEC:¹⁹⁷

Each of these businesses was lured to Tasmania in its own way because of cheap and reliable energy and to not have reliable energy, exposes their risk. As Ray said, each year most of the decisions made about the future of these businesses aren't made in Tasmania, they are made in Zurich, Montreal or somewhere else. He and his team and Geoff and his team go to head office and put forward a case for some more capital to keep the business going based on their operating capacity and performance in this year and the likelihood they can exceed it in the next year. When you get a major blip like this, it impacts on their credibility internally as well as externally in the market with their customers

- 5.66 The Tasmanian Energy Security Taskforce has been commissioned to develop a definition of 'energy security' and it has proposed:

¹⁹⁶ Mr Mostogl, TMEC (2016) Hansard Transcript 4 August, p. 6

¹⁹⁷ Mr Bould, *ibid*, p. 7

Energy security is the adequate, reliable and competitive supply of low carbon emissions energy across short, medium and long-term timeframes that supports the efficient use of energy by Tasmanians for their economic and social activities.

5.67 In its Interim Report the Taskforce states:¹⁹⁸

The Taskforce also considers that the above elements implicitly capture risk appetite. Consistent feedback through submissions to the Taskforce's Consultation Paper suggests there is:

- *no appetite for unplanned and mandatory power rationing resulting from an energy shortage (as opposed to some acceptance of unavoidable, short term capacity outages);*
- *low appetite for new infrastructure if that comes at high cost;*
- *high appetite for better utilising existing energy sources and assets;*
- *reasonable appetite for better demand side opportunities for customers and 'planned' customer participation for emergency situations; and*
- *reasonable appetite for customer-led technology solutions including energy storage (either in the form of EVs or as stand-alone systems) and participation in sophisticated aggregation technologies.*

¹⁹⁸ Tasmanian Energy Security Taskforce (2016) Interim Report, p. 22

TasNetworks

- 5.68 *AER determination of prices* – the AER Final Decision of April 2017 set the maximum prices that TasNetworks may charge from 1 July 2017 to 30 June 2019.
- 5.69 AER has commenced the 2 year process to determine prices TasNetworks may charge customers for use of transmission and distribution networks from 1 July 2019.
- 5.70 TasNetworks has a program of further cost reductions and systems integration which are not fully realised.
- 5.71 In common with other network owners TasNetworks faces potential risks to its physical assets through natural events such as fire and flood, to the extent that these risks are not fully insured.
- 5.72 Short and medium term impacts of solar PV and storage appear to be modest, noting that solar PV currently accounts for 91 MW of installed capacity.¹⁹⁹ TasNetworks is taking steps to address long term impacts of distributed generation through an extended transition to different distribution tariff structures.

¹⁹⁹ Clean Energy Australia Report 2015 p. 26

Aurora Energy

- 5.73 *Potential impact of competition* - Risk and financial impact are relatively low. Aurora Energy is exposed to competition in supply for major customers, but currently faces little active competition for business customers and no active competition for residential customers.
- 5.74 *Regulatory risk* - The majority of Aurora Energy's revenue is based on the regulated retail price determined by the TER. The TER has discretion over the retail margin, which is about 12 per cent of the regulated retail price.
- 5.75 *Tasmanian economic circumstances* - Aurora Energy has an agreement with the State of Tasmania to provide community services (concession discounts) and for Aurora Energy to be reimbursed for the community services costs and administration costs. There is the potential for Tasmanian Government Budget pressure to impact on these concession discounts.

Findings:

13. The Gillard Labor Government carbon pricing scheme (carbon tax) was in operation from 1 July 2012 to 1 July 2014. In the lead up to the carbon tax Hydro Tasmania commenced building up water storages to maximise export capacity during the carbon tax period. 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.
14. In September 2012 the preferred minimum level was lowered by 5 per cent to 25 per cent at 1 July each year. The change was based on Hydro Tasmania's assessment that the combination of Basslink and thermal generation at Tamar Valley Power Station (TVPS), together with increased wind generation capacity and changed demand projections would result in the ability to operate storages at the lower levels.²⁰⁰ The reduction in preferred minimum operating level saw the storage buffer to the medium risk line reduced by approximately 700 GWh.
15. Hydro Tasmania electricity exports during the carbon tax period (1 July 2012 to 30 June 2014) were designed to maximise the opportunity of the higher prices.
16. From September 2015 Tasmania experienced the lowest spring rainfall recorded in 115 years of Bureau of Meteorology (BoM) observations. The deficit in inflows for September through November 2015, when compared to average, was nearly 14 per cent less in terms of storage (which equates to over 2 000 GWh).
17. As the dry conditions continued Hydro Tasmania began to utilise Basslink on 'full import' during October and November 2015.
18. Hydro Tasmania began steps in November 2015 to recommission the combined cycle gas turbine (CCGT) at the TVPS.
19. On 20 December 2015, Basslink experienced what was to be a significant outage. Prior to this outage, Basslink had experienced 65 outages in its nearly 10 years of operation, lasting from less than an hour and up to a maximum outage of just

²⁰⁰ Tasmanian Energy Security Taskforce (2016) op. cit. p 54

over 9 days, but the majority were less than a day.

20. The TVPS CCGT unit operated continuously from 20 January 2016 at its full capacity of 208 MW until late May 2016²⁰¹; the 58 MW Trent open cycle gas turbine (OCGT), had its return to service expedited with it coming on line at the beginning of April 2016²⁰²; Significant use was made of the three 40 MW FT8 (120 MW total capacity) OCGT; Gas fired generation was then reduced in early May in response to significant inflows into the Hydro catchments.
21. Gas generation amounted to 745 GWh, equivalent to 5.0 per cent of total energy in storage. Hydro Tasmania estimated the cost of gas generation as a result of low inflows and the Basslink outage to be approximately \$47 million.
22. Approximately 220 MW of diesel generation was installed and operated over a period of two months from 15 March 2016 and contributed 55 GWh. The estimated cost of approximately \$64 million includes the initial leasing and set up cost of approximately \$50.5 million.
23. Hydro Tasmania reached commercial agreements with Bell Bay Aluminium, TEMCO and Norske Skog for voluntary load reductions.
24. There was a cost to the Major Industrials' business and customer confidence as a consequence of voluntary load reductions during the energy supply event.
25. Hydro Tasmania commenced cloud seeding in April 2016, one month ahead of its usual schedule.
26. Storages rose strongly with significant rainfall commencing in May 2016.
27. Basslink was returned to service on 13 June 2016 - an outage of 176 days.

²⁰¹ A component of the Energy Supply Plan was returning the CCGT to service. The unit had been in dry lay-up since June 2014. To make the CCGT operational required a new temporary workforce. The CCGT was successfully returned to service on 20 January 2016 and operated until 19 May 2016 when it was no longer required as there was ample hydro and wind generation available to meet Tasmanian demand. It remains in standby mode and can be brought online within two weeks (2016 Hydro Tasmania Annual Report p. 32)

²⁰² In September 2014, Hydro Tasmania was advised by Rolls Royce that the OCGT, a Rolls Royce 'Trent' unit, contained a design fault that required off-site repair. The unit was shipped to Abu Dhabi for repair in September 2015, prior to the Basslink fault. The 'Trent' was expected to return in mid-2016. However, as storage levels deteriorated, and Basslink remained out of service, Hydro Tasmania expedited its return to service by 31 March 2016. The open cycle gas units provided significant support both in terms of energy output and the ancillary services required for the stability of the electricity system. Some major components are currently in the USA for repair, as they deteriorated through use (2016 Hydro Tasmania Annual Report p. 32)

28. Hydro Tasmania estimates that the combined impact of low inflows and the Basslink outage is at the lower end of a range between \$140 million and \$180 million.
29. The negative financial impacts arose from foregone generation and large -scale generation certificate (LGC) production and electricity sales, increased cost of generation for electricity sold and a range of miscellaneous costs. The adverse effect of these impacts is partially offset by reduced Basslink costs and receipts on weather hedges or insurance products. The impacts occurred over the 2015-16 and 2016-17 financial years, with the majority in 2015-16.
30. Fewer than 200 larger commercial and industrial customers incurred higher costs as a result of higher National Electricity Market (NEM) prices in Tasmania. The Government worked with retailers and Hydro Tasmania to compensate affected customers.
31. The compensation package was a payment to all who contracted with a retailer operating in Tasmania in the first quarter of 2016 who were required to pay a higher wholesale price than would otherwise have been the case.
32. The impacted customers were reimbursed for the difference between the contract price they entered into and the price they would have entered into in the week immediately preceding the Basslink outage. The total expenditure by Government was \$805,563.
33. Prices for the regulated customer base (residential customers and small business customers who consume less than 150 MWh of electricity per annum) were not affected.
34. Apart from the commercially agreed load reductions, no Tasmanian customer's supply was affected as a result of the exceptional circumstances.
35. Hydro Tasmania has raised target levels of storage as an interim response to the 2015-16 events. It has revised key assumptions in its energy security modelling to reflect updated rainfall and Basslink outage experience and is working with the Energy Security Taskforce to develop long term responses.
36. Hydro Tasmania has offtake agreements with Woolnorth Wind Farm Holdings, the joint venture of Hydro Tasmania and Shenhua Clean Energy Holdings which

owns the Woolnorth and Musselroe wind farms. Hydro Tasmania's reported financial performance is subject to movements in market prices relative to its contracted prices.

37. Hydro Tasmania is further exposed to market circumstances in other States through its ownership of Momentum Energy.
38. An extended Basslink outage exposes Hydro Tasmania to higher costs through: reduced capacity for trade; higher levels of gas fired generation; supplementary generation such as diesel generation; and costs of contracted reduction in load. These costs may be offset to some extent by contractual arrangements under the Basslink Operating Agreement.
39. The Auditor-General regards TasNetworks debt to equity ratio of 190.1 percent as high.
40. An environment of low interest rates reduces the regulated return on assets and is reflected in reduced customer charges.
41. The responsibility for funding the solar FiT has transferred to TasNetworks which negatively impacts on the entity's financial performance.
42. There is a trend for customers to reduce consumption from the network partly as a consequence of solar photovoltaic (PV). TasNetworks is taking steps to address long term impacts of distributed generation through an extended transition to different distribution tariff structures.
43. The Australian Energy Regulator (AER) has commenced the 2 year process to determine prices TasNetworks may charge customers for use of transmission and distribution networks from 1 July 2019.
44. The risk to Aurora Energy of a significant financial impact from competition is relatively low as it currently faces little active competition for business customers and no active competition for residential customers.
45. Aurora Energy faces some regulatory risk as the majority of its revenue is based on the regulated retail price determined by the Tasmanian Economic Regulator.

TERM OF REFERENCE 3:

Any strategies being implemented by the energy entities to address their current and future financial performance

HYDRO TASMANIA

- 5.76 Hydro Tasmania highlighted its focus on paying down of debt in the further submission provided to the Inquiry in January 2017:

Part of Hydro Tasmania's business strategy is paying down debt in order to be financially resilient to these kinds of events. Beyond this, no further strategies have been identified that should be adopted by Hydro Tasmania to improve its financial position.²⁰³

- 5.77 The significance of Hydro Tasmania's capital program was also highlighted:

In order to achieve true financial sustainability, Hydro Tasmania has to maintain the long-term capability of the Tasmanian hydro-electric system. This is achieved through our Asset Management Plan...we are confident that the current and planned levels of capital investment are appropriate for maintaining long-term capability.

From a financial analysis perspective, it is worth noting that Hydro Tasmania's forecast capital investment is at similar levels to its forecast asset depreciation. Consequently, Hydro Tasmania's forecast cash flows are expected to cover planned capital investment.²⁰⁴

- 5.78 The Hydro Tasmania 2016 Annual Report provided the following summary:

During 2015–16, Hydro Tasmania spent more than \$75 million on capital projects to sustain the safe operation, reliable performance and future capability of our ageing hydro generation portfolio. Our 10-Year Asset Management Plan prioritises risk and integrates maintenance, condition assessment and major works to maximise the value of our electricity generation portfolio. In 2015–16, we refurbished machines at Cethana Power Station and upgraded machines at Meadowbank Power Station. In 2016–17, we plan to refurbish machines at Tungatinah, Cluny, Wayatinah and Liapootah power stations. Planning and preparations for these works are well advanced²⁰⁵

²⁰³ Hydro Tasmania Submission 25 January 2017, op. cit. p.10

²⁰⁴ *ibid*, p. 6

²⁰⁵ 2016 Hydro Tasmania Annual Report, p. 32

TASNETWORKS

5.79 In its submission TasNetworks provided the following commentary:

The TasNetworks Corporate Plan 2016–17 has been developed to balance the needs of today with the challenges and opportunities of the future. TasNetworks is operating in an industry which is in transition, while continuing to serve the needs of our existing customer base which has an ongoing requirement for access to a safe and reliable electricity supply at a reasonable cost. Given this context the key aspects of our plan for 2016-17 include:

- *The ongoing need to run and transform our business to drive more efficient outcomes for our customers and owners*
- *Continuing initiatives to fully realise the benefits of operating as one network business.²⁰⁶*

5.80 The TasNetworks Corporate Plan summarises the entity's plans for the future:

With an eye to the future, we are starting a long-term transition to more cost-reflective network tariffs. The purpose of these changes is to provide customers with information and incentives to use the network more efficiently. This is a complex area, but one that has the potential to deliver savings for our customer base. Our changes will be introduced over a number of years to help customers with this transition. We are also developing a tariff trial with about 600 customers to support and inform these changes.

Our customers have told us they want more choice when they connect to our network. We are now offering choice to some customers (relating to who designs and constructs their underground residential subdivision connection) and will be investigating offering similar choices to more customers for other connection types.

To prepare our business for the changes that customers are driving we are developing trials and demonstrations of new technologies. These include battery storage integrated with solar generation, using electric vehicles in our fleet and trialling advanced meters and the communications systems required to support them. Our customers expect us to innovate and we are responding to

²⁰⁶ TasNetworks submission, op. cit. pp 3-4

this challenge. All this creates a vibrant business where our people are making customers central to all we do, and helping to create a better tomorrow.²⁰⁷

5.81 The future grid and tariff reform were initiatives discussed during hearings:

Mr BALCOMBE - We are doing several things. We have a project within our business about what the future grid is going to look like. We are also looking at issues such as tariff reform. We are doing a battery trial on Bruny Island. Bruny Island experiences a large increase in the summer peak and what we are looking to do is to run a trial. There are about 40 customers down there. We have some money out of ARENA, the Australian Renewable Energy Network Agency; so it is research and development funding. What we are looking to do with the customers at times is for TasNetworks to take control of that battery so that we can use some of those energies stored in the battery to shave off that summer peak.

Ms FORREST - Why aren't you getting into batteries yourselves?

Dr NORTON - We probably will, is the answer, at some point in time. The difficulty with batteries at the moment is that they are very expensive.

Ms FORREST - They are coming down quite quickly.

Dr NORTON - They are not actually coming down as quickly as they need to for widespread uptake. The projection is that they will come down a little bit similar to how photovoltaic costs came down. I don't think there is any doubt they will; but the real question is, how far and how fast? At this point they are still relatively expensive.

Ms CLARK - There is still a view - and battery installers today will generally say - that you can still stay connected to the grid because it is cheaper than a second battery. It is still your insurance policy and your export vehicle. We certainly see batteries as part of the future. In some cases customers will go off grid; but in many cases they will remain and use that grid.

Dr NORTON - The other difficulty for the customer who has photovoltaic batteries is how much you can physically store in the battery compared to your usage.

Ms FORREST - There is modelling that can be done around that and household use and everything.

²⁰⁷ TasNetworks Corporate Plan 2016-16, p. 8

Dr NORTON - We are not negative about battery technology. As I said, no doubt we will be using it ourselves in some ways and that is why we are doing the trial at Bruny. There is a way for prices to fall before we are likely to invest in it.

Mr BALCOMBE - We are also doing a trial with respect to tariffs and prices. At the moment, there has been a new rule announced by the Australian Energy Markets Commission where contestable metering will commence in December 2017. It will mean that any new or replacement meter will have to be an advanced one. An advanced meter is a one that is capable of being remotely read and remotely de-energised or re-energised.

Mrs RYLAH - Variable pricing?

Mr BALCOMBE - It will facilitate tariff reform.

Mrs RYLAH - Does that mean variable pricing as opposed to flat pricing?

Ms CLARK - That's a matter for the retailer. The rule just says the meter needs to be there and then it's up to retailers as to what products they use.

Mr BALCOMBE - One of the things we need to do is understand our tariff framework. We are running a trial in the Brighton area with about 600 customers where we will install an advanced meter. Then alongside that, with Aurora, we will do some work on tariffs to see how customers might respond to time-of-year or demand-based tariffs. These are all works we're doing within TasNetworks to understand some of those future positions and where we need to be as a network business.

...

Ms CLARK - A lot of our distribution prices, as for all around Australia, are based on cents per kilowatt-hour, which is consumption. So, it is how much energy you are using. In fact, it is often even how much energy you [are] using in net terms because if you are exporting you have netted off what you are importing. The issue is - and it is a problem all around Australia and in fact the world - that really what drives our costs is how much peak we have to build. What we are saying is that we are charging based on how many units of energy customers use. The units are, in some cases, falling. The same revenue per unit, so prices actually go up.

Mrs RYLAH - Is the regulator addressing that issue?

Ms CLARK - Yes. What has happened with this rule, which the metering rule, is that part of it says we have to get more cost-effective signals in network pricing. So TasNetworks' current reform program is a 15-year path to go from where we have largely consumption-based tariffs to a world where we have a greater proportion of our tariffs covered through fixed and time-of-year signals. That is some of the trialling we are doing to work with our customers.²⁰⁸

5.82 TasNetworks also provided detail of its Ajilis project:

Mr BURRIDGE - I will give you some context about the Ajilis project. It is a business transformation project. When TasNetworks started, it inherited two disparate IT systems - Aurora's finance system, HR systems, asset management systems, and likewise for Transend. Both of those systems were at end-of-life and both were heavily customised, which made them very difficult to continue. In fact, some of the systems are no longer supported.

That was the appropriate decision by both of those businesses because they knew the merger was coming and there was little point in investing in new systems for a new business where a merger is required. I have put on the record before that one of the things about a merger is that, whilst there is opportunity for many benefits, it creates many inefficiencies. One of the big challenges we have at the moment is that we are operating with three asset management systems. We had to turn two HR systems into one and we are still operating across two finance systems.

Ms FORREST - This is one of your efficiency measures, then.

Mr BURRIDGE - Exactly. One of the things we had to do was to go and evaluate how we were going to rebuild our business support systems - our IT systems. We did that; we chose to go down a path of an enterprise resource planning system. There are two choices; you can do what is called the enterprise resource planning system, which is ERP, or you can do what is called a 'best of breed', where you cherry-pick whatever you like out of finance, HR, and asset management.

Under the best of breed system, you have to get all of these systems to talk to [each] other; so you have to build bridges between them. Invariably what happens is that all of those software packages end up on a different upgrade

²⁰⁸ Mr Burridge, TasNetworks (2016) Hansard transcript 20 June, op. cit. pp 12-13, 14

path so you are continually rebuilding the bridges. We chose to go down the ERP - enterprise resource planning - path. We did that because one consistent process to get across all the modules that are offered, and one consistent upgrade path. Basically, what happens is that the ERP system is the centrepiece. Everything else we have in the business talks to that, such as our geographic information systems, our customer systems, and our vegetation management systems - all sorts of things like that will link into this ERP platform.

These are complex projects; they are very risky. We went to market, and I suppose on the way through as we realized that we were building the business case for this project. It was much more than an IT project, because it was going to transform the way that we do business in TasNetworks.

What is going to happen is that for everyone whose job touches IT or business systems, their job is going to be changed because they are going to have a different interface. We will be looking at things like mobility for our field workers where data can [be] updated live. There is a lot of training. There is a lot of change management. It is a very substantial project. It has its own project office. It is a \$58 million project. We have spent a lot of work and a lot of time ensuring that this project is right to start. It has got very distinct projects and milestones. It will deliver benefits down the track.

Ms FORREST - When do you expect it to be fully operational?

Mr BURRIDGE - The first phase for at least one is December this year, which is human resource management, finance management, procurement, and things like that. Then the second release is the following December, which is really asset management.

Ms FORREST - A question when do you expect to see the positive impact on opex [operating expenditure] reduction?

Mr BALCOMBE - We are anticipating we will have about \$5 million in benefits next year, and that will ramp up to about \$8 million by 2021.

Mrs RYLAH - What is the total capex [capital expenditure] expenditure?

Dr NORTON - \$58 million. I suppose there are a couple of aspects to this. There was no 'do nothing'; so we were faced with spending something.

Mr BALCOMBE - We had to spend something.

Ms FORREST - Will it be ongoing savings, or is it that these savings have been materialised?

Mr BALCOMBE - Our projections are indicating about \$70 million by 2025, but that is based on what we know now. We are very confident that we will be able to leverage that system the further we get to understanding and delivering additional savings.²⁰⁹

5.83 The restructure of the energy entities aims to achieve efficiencies and savings and this was discussed at the hearings:

Ms FORREST - Going to your financial sustainability, you have talked extensively in the submission about the requirement to save money. TasNetworks has been in operation as its own entity now for over a year, so what savings have been realised since the establishment of TasNetworks - as opposed to Transend and Aurora?

Mr BALCOMBE - The combined businesses had an operating base of about \$175 million. That was made up of people, maintenance and the myriad of expenses that those businesses would have had. We saved a little bit - over \$8 million as a direct result of the merger. That was mainly later because we took out a lot of duplicated roles, mainly management positions.

Dr NORTON - They were redundant positions.

Mr BALCOMBE - The cost of redundancy was met by both Aurora and Transend, so we did not inherit that. In our first year of operation, we found about another \$25 million in savings. Where did that come from? Obviously, we had a better handle on the business. We also had a pretty big imperative on the business itself because around October 2013 we identified that our revenues were going to be down, so we took some positive action to look for areas where we could save on expenditure. That came from myriad issues. I suppose the important thing was that we wanted to ensure that we maintained the safety of our people, the reliability of the network and the safety of the public. We ensured that any customer expenditure did not impact upon that. We had a lot of vacancies in the business. We were able not to fill a lot of them and we learnt a lot more about operating our business, so we have been able to save that money.

²⁰⁹ *ibid*, pp 20-21.

*Our objective is to hold our cost base to around \$140 million in real terms.
That will see good outcomes for our customers.*

AURORA ENERGY

- 5.84 The focus of Aurora Energy has been driving cost efficiencies consistent with a requirement to operate as an efficient entity providing excellent customer service in a cost effective manner²¹⁰.
- 5.85 The Chair of the Aurora Energy Board, Ms Caryle DeMarte stated during hearings:²¹¹

Ms DEMARTE - Following on from the tabling of Aurora Energy's 2015-2016 annual report on 22 October, I am pleased to discuss with you today our financial and operational performance for the 2015-16 financial year and the future outlook for the business. 2015-16 has been another positive year for Aurora Energy, continuing to demonstrate its capacity to be a profitable, customer-focused, stand-alone Tasmanian electricity retailer. Aurora Energy's strong financial performance continued through 2015-16 with a profit after tax of \$30.2 million, resulting in returns to government of \$40.5 million. We have remained focused on strengthening the business, finding cost efficiencies and improving customer service outcomes in order to continue to be competitive and prepared for new market entrants. Prudent investment in core systems in technology has reduced our operating costs and improved customer service outcomes. This included activities such as implementing a new telephony solution, upgrading our customer care and billing system and partnering with a new bill print provider. In 2015-16 Aurora Energy's operating costs amounted to \$36.2 million which was \$8.6 million below budget. This represents an underlying cost saving of 7 per cent. As a result Aurora Energy is well positioned to achieve its target of a 10 per cent reduction in underlying operating costs by 2018-19. Our submission to the Tasmanian Economic Regulator's 2016 standing offer price determination and tariff strategy process also reflected the cost reductions Aurora Energy has achieved over the past two years, demonstrating our efficient operations as the regulated offer retailer in Tasmania.

In summary, it has been another strong year for Aurora Energy, with the business able to navigate through a number of unique challenges while having

²¹⁰ Aurora Energy Annual Report 2016, op. cit. p. 9

²¹¹ Ms DeMarte, Aurora Energy (2016) Hansard Transcript, 18 November, p. 15

a positive impact on our Tasmanian customers. As evidenced by our strong financial position, Aurora Energy has been able to spend less whilst providing more services and support to our Tasmanian customers.

5.86 The entity is committed to continuing this process as discussed by Chief Executive Officer, Ms Rebecca Kardos²¹²:

Ms KARDOS - We made a target and have a strategic initiative around process excellence and finding those process opportunities. Carlyle mentioned in her opening statement one of the best opportunities we found was our telephony solution. It had been in place for a long, long time and was in need of replacement. We were able to reduce costs by replacing that so the net impact of that project was positive on our financial performance. We are systematically going through our business operations, understanding how we do things today and how we can change that going forward to find those savings. We originally targeted zero per cent in year one, 2015-16, because we thought it would take us a bit of time to understand the opportunity before we then implement it. Our target for this financial year was 4 per cent. We found 7 per cent in our first year. We do not know exactly where we are going to get the 10 per cent at this point in time but we have an initiative underway that is systematically going through our business to see how we can we do things more efficiently and get a better outcome for our customers for lower cost.

²¹² *Ibid*, p. 16

Findings:

46. Hydro Tasmania is paying down debt to improve its financial resilience to shocks such as occurred in 2015-16.
47. During 2015-16, Hydro Tasmania spent more than \$75 million on capital projects to sustain the safe operation, reliable performance and future capability of its ageing hydro generation portfolio.
48. TasNetworks has commenced a long term transition to tariffs that are more cost-reflective and more appropriate with changing consumer behaviour.
49. The new TasNetworks business has realised savings from the merger through removal of duplication (redundant positions) and not filling vacant positions, while maintaining safety of employees and the public and the reliability of the network.
50. The Ajilis project, with an estimated capital cost of \$58 million, is part of the ongoing merger activity to replace the disparate Aurora and Transend information technology systems.
51. Aurora Energy is positioned to achieve a reduction of 10 per cent in underlying operating cost by 2018-19.

TERM OF REFERENCE 4:

Past and current Government's energy security policies and management including risk management strategies and plans

5.87 Hydro Tasmania's submission did not address this term of reference, instead referring the Committee to the Government.²¹³

5.88 The Government submission stated:

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.

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

²¹³ Hydro Tasmania submission 16 May 2016, op. cit. p. 26

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.

5.89 In conjunction with the Energy Supply Plan the Government established the Tasmanian Energy Security Taskforce to advise Government on how it can better prepare for and mitigate against the risk of future energy security threats.

5.90 The Taskforce operated concurrently with this Committee's Inquiry and released an Interim Report in December 2016 which recommended five priority actions for the Government including:

- *Define energy security and responsibilities.*
- *Strengthen independent energy security monitoring and assessment.*

- *Establish a more rigorous and more widely understood framework for the management of water storages.*
- *Retain the TVPS as a backup power station for the present and provide clarity to the Tasmanian gas market.*
- *Support new on-island generation and customer innovation.*²¹⁴

5.91 The Taskforce summary of the priority actions and the recommendations to the Government that support those actions is included at Appendix 3 to this report.

5.92 Hydro Tasmania has been working with the Taskforce and provided the following summary, in light of 2015-16 events and the Taskforce's Interim Report, in its January 2017 submission to the Inquiry:²¹⁵

There has been extensive comment on steps taken by Hydro Tasmania in 2015 to explore the possible sale of the TVPS combined cycle unit. Importantly, Hydro Tasmania did not receive Ministerial approval to dispose of the combined cycle unit, and Hydro Tasmania's Board did not consider a specific proposal for its disposal.

Hydro Tasmania has carefully reviewed all the learnings of the 2015/16 challenges, and has prudently reset key business assumptions and parameters with the benefit of those learnings. The revised assumptions and parameters are consistent with the recommendations of the Interim Report by the Energy Security Taskforce, and the Taskforce has specifically welcomed revised interim storage target levels.

Assumptions regarding risk management are based on the best available assessment of the evidence at any given time. As has already been stated in evidence before the Committee, Hydro Tasmania's analysis prior to the events of 2015/16 included rainfall variability and Basslink outage assumptions that, while based on the best available information at the time, have been proven by the events to be insufficient.

Hydro Tasmania had a reasonable basis for these assumptions at that point in time. Inflow assumptions were based on a long observation history, and adjusted where necessary in light of actual experience over the last 10 years. The Basslink outage assumption was based on advice received at Basslink

²¹⁴ Tasmanian Energy Security Taskforce (2016) op. cit. pp 5-6

²¹⁵ Hydro Tasmania submission, 25 January 2017, op. cit. pp 6-8

commissioning. Hydro Tasmania had also examined the implications of Basslink outages extending beyond 60 days on a scenario basis.

As a result of the events of 2015/16, assumptions have been updated. Hydro Tasmania has evidence to modify key assumptions underpinning analysis of energy security, and has made a number of changes to address this:

- the potential for greater rainfall variability: the historical dataset used now includes the inflow sequence of Spring 2015. Embedding additional levels of conservatism, an artificial 'dry' set of inflows has also been added to models to reflect increased uncertainty. As a result of these changes, models can now produce a dry sequence well below the current historical record.*
- improved understanding of Basslink repairs: the Basslink outage assumptions have been changed, in line with the recent experience.*
- experience with low lake level operation: a revised Extreme Environmental Risk Zone, and operating limit, has been adopted for Great Lake.*

These changed assumptions have been adopted by the Energy Security Taskforce in its Interim Report (at recommendation 12).

Assumptions still depend on the best available evidence. Hydro Tasmania has been working with meteorological and climate change science authorities for a number of years to better understand the implications of climate change for Tasmanian hydrology, and this work is on-going.

Advice received by Hydro Tasmania as it has worked with the Taskforce, however, is that no reliable seasonal forecasts exist for Hydro Tasmania's catchments; Hydro Tasmania has, therefore, been unable to introduce specific seasonal forecasting into its planning assumptions. Hydro Tasmania's work with meteorological and climate change science authorities does suggest that there is evidence of increasing volatility in rainfall and Hydro Tasmania will remain alert for new evidence that can improve the assumptions it uses.

Changes have also been made to Hydro Tasmania's operations:

- Water management and storage targets have been reset, adopting a precautionary and conservative approach to storage management while the Energy Security Taskforce deliberations are underway. Two key operational targets have been set for the 2016/17 financial year: 40% at*

the beginning of summer and 30% at 30 June 2017. The December target has been exceeded.

- *Hydro Tasmania has made plans to run the TVPS Combined Cycle Gas Turbine (CCGT) for storage support. To date, sustained inflows, and spill or near spill at many of Hydro Tasmania's storages, have meant that running the CCGT would be counterproductive. The unit, however, is running at a minimum for maintenance during January this year.*

Hydro Tasmania continues to be very actively involved with the Energy Security Taskforce, which will be undertaking further work in this area.

5.93 An overview of the history of developments for the TVPS can be found in the background section of this Report.

5.94 Decisions made by the current and previous Governments were extensively examined during hearings of this Inquiry as the TVPS provided a critical energy alternative during the Basslink outage.

5.95 Mr Grant Every-Burns commented²¹⁶:

Basslink failed unexpectedly on 20 December 2015, with storages already dropping; and the Tamar Valley Power Station was mobilised so that by mid-January 2016 some 300 megawatts of gas-fired generation was in service and supplementing 30 per cent of the state's power needs.

5.96 The energy events of 2015-16 highlighted the importance of retaining the TVPS asset and the Committee sought to understand the rationale used for considering the sale of the CCGT.

5.97 The possibility that the sale was agreed to as a means to fund a return to government was introduced during the hearings²¹⁷:

Mr BACON - Was that \$75 million dividend contingent upon the sale of the combined-cycle unit of the Tamar Valley Power Station?

Mr EVERY-BURNS - For 2014 15?

Mr BACON - Was the dividend expected in 2017 18?

Mr EVERY-BURNS - You are taking me to detail I cannot put my mind to.

²¹⁶ Mr Every-Burns, Hydro Tasmania (2016) Hansard Transcript 20 June, op. cit. p 38

²¹⁷ *ibid.* p 40

CHAIR - I will interrupt at this stage. If you get into a position where you are unable to provide the information, it is acceptable in some situations to take that on notice and the committee will bring that to your attention and write to you to request that information.

Mr EVERY-BURNS - Someone else may have the detail.

Mr BACON - In the 2014 15 Budget there was an expectation from the Government that in 2017 18 there would be a \$75 million dividend from Hydro Tasmania. Then in the next budget I think around \$100 million was expected in dividends but it had been moved around in terms of the timing. The Treasurer said in budget Estimates that that was due to moving parts within Hydro Tasmania. What was the initial \$75 million dividend based on and what were those moving parts in the following year so that when the next state budget came out those dividends had moved around? When the Treasurer says 'moving parts within Hydro Tasmania', what is he referring to?

Mr EVERY-BURNS - I can answer that but I cannot answer the detail of your question about the money. The term 'moving parts' means that we are a market-facing business and every month, every six months and every year the world moves on and the market moves on. Electricity prices change, for example, so our forward estimates of what that is going [to] cost changes and our debt levels change and therefore the earnings and budgeted amounts will change. The strategies the company uses in terms of people, projects, plans and capital expenditure all change, and a business can tune those things and of course the results will change. Whatever we have answered previously I would refer to, but I do not have any particular detail on the \$75 million or \$100 million other than every time the Board has considered these issues we have done it on the basis of the best advice from management and what was achievable.

Mr BACON - If you look back now, that expectation was around \$100 million. Was that contingent on the sale of the combined-cycle unit?

Mr DAVY - I don't believe so.

Mr BACON - Those dividends could have been provided to the Government without selling the Tamar Valley Power Station?

Mr DAVY - Which ones are you talking about, the \$100 million total or the \$75 million?

Mr BACON - The \$75 million initially and then further down the line the \$100 million which was in the next state Budget in 2015- 16.

Mr DAVY - I think the estimates we provided to the Government included the normal operation of our business over a similar period.

Mr BACON - A letter from the Treasurer to the Minister for Energy in January 2015 talks about a letter that went to Hydro Tasmania on 27 August setting out the expectations around the \$75 million and Hydro Tasmania had presentations to the Government in terms of Momentum Energy, Entura and the optimisation of the TVPS in terms of the dividend and how that would be achieved. It looks like the Government has asked you for \$75 million in dividends and you have come back with three strategies that include Momentum, Entura and the optimisation of the TVPS. Would that be a fair representation?

Mr DAVY - Does that letter say \$75 million in returns or \$75 million in dividends?

Mr BACON - It says, 'Our letter indicated that a dividend return of \$75 million was expected for the 2017-18 financial year'.

Mr DAVY - I think we will take that on notice.

Mr EVERY-BURNS - What you're saying about Momentum, Entura and the power station seem correct to me. Return from the power station was figured in there somewhere because we went forward with a proposal. You are quoting back something that is factual.

Mr BACON - No, that's fine. I am just trying to establish -

Mr DAVY - We have also been asked to provide commentary on what the Government has said, and I don't think we can.

CHAIR - So you will take that on notice?

Mr EVERY-BURNS - Yes, in terms of the factual questions we can answer, but as to what the Government was doing, you should ask them

- 5.98 Hydro Tasmania received a question on notice to clarify whether there was a link between a forecast dividend and the sale of the CCGT and provided the following response:²¹⁸

Hydro Tasmania has a process of regular and ongoing consultation with the Government on our financial position; this includes providing financial information to assist in the formulation of the State budget each year. What the Government allows in its budget for revenue from Hydro Tasmania is ultimately a matter for Government, which, for example, may take a different view to Hydro Tasmania on assumptions within Hydro Tasmania's forecasts or Government policies in respect of dividends. This consultation occurred as usual prior to the 2014-15 State Budget.

No, there was no linkage between sale of the CCGT unit and dividends for the 2014/2015 State Budget. However, Hydro Tasmania is committed to maximising the value of the business by being as efficient and low cost as possible. By improving efficiencies Hydro Tasmania is able to improve returns to the state. With this in mind, throughout early 2014, Hydro Tasmania was continuing to explore options to optimise Tamar Valley Power Station in its portfolio, consistent with the mandate given to it by Government, on the transfer of AETV in June 2013, "to optimise [AETV's] operation with the broader generation portfolio".

- 5.99 The ongoing cost of maintaining the CCGT asset was raised as a motivating factor to sell it by Hydro Tasmania²¹⁹:

Ms FORREST - ... why wouldn't we maintain ownership of it [TVPS] if it can be used for financial security for Hydro Tasmania as opposed to energy security, which one could argue is still important for energy security?

Mr DAVY - ...The question is, 'Why did Hydro Tasmania recommend to the Government that the asset be sold?'

Ms FORREST - Yes, in terms of financial security as well as energy security.

Mr DAVY - I have just explained that because many of the costs were sunk, the marginal costs of operating the combined cycle in the environment we were going into - we were importing a lot of energy and therefore paying a higher

²¹⁸Hydro Tasmania (2016) Response to Question on Notice following hearing of 20 June, Public Accounts Committee website

²¹⁹Mr Davy, Hydro Tasmania (2016) Hansard Transcript 20 June, op. cit. pp 48-49

marginal cost - meant that on balance it was a better decision to run the combined-cycle unit rather than not run it. If we are looking to the future, we are not just taking into account the marginal costs of operating, we are taking all the costs of ownership into account. We put in our submission that some of our fixed operating costs were \$7.5 million per year, which refers to the insurance, staffing, operations and maintenance that are needed on the site. In addition, there is the cost of financing the plant and depreciation. There is also the cost of having the pipeline service there all the time. The total operating costs we would be committing to into the future if we continue to own the combined-cycle unit are in excess of \$20 million per year. That is not a number we put in our submission but, nonetheless, it is something I am putting on the record now.

Ms FORREST - They are holding costs you're talking about?

Mr DAVY - It is the combination of needing to have a pipeline arrangement to take gas to the combined-cycle unit, having to have it operationally fit for service - it takes a lot of money each year to have it in the stand-by mode - and there is also the cost of financing the asset. If we had sold the asset for a considerable amount of money, we would have been able to reduce our debt. That was another fixed cost we would be avoiding if we had sold the unit. The annual cost we would have been avoiding by not having the combined cycle, in our opinion, vastly outweighed any risk management advantage we might have received from continuing to own the asset, which is why we made the recommendation to the Government at the time that the sale be investigated.

Ms FORREST - So is the holding cost in excess of \$20 million to maintain the station in dry lay-up or in stand-by?

Mr DAVY - The operational cost is \$7.5 million and the difference between dry lay-up and stand-by in those annual costs would be very small. In stand-by we have a full operational staff and in dry lay-up we probably only have the staff required to maintain it in that state. The operational costs, the financing costs and the pipeline costs are the three that make up the total.

5.100 Hydro Tasmania provided a breakdown of the cost of maintaining the CCGT in response to a Question on Notice from the Committee as follows²²⁰:

The CCGT unit is currently maintained on standby, able to return to operation within 30 days, so the question seeks the current fixed costs of the CCGT unit. These are (on a per annum basis):

- *Gas transportation and metering* *\$15.1m*
 - *Maintenance costs* *\$3.5m*
(routine maintenance work required to maintain plant available and meet compliance obligations, includes materials, services, contractors, environmental monitoring, IT, rates and land taxes, licence fees and miscellaneous costs)
 - *Labour* *\$3.2m*
(based on maintaining current workforce to achieve 30 day return to service)
 - *Electricity and water infrastructure costs* *\$1.5m*
(optimised from current costs, which include costs associated with open cycle units)
 - *Insurance* *\$0.5m*
- Total cost (estimate only) \$23.8m*

5.101 Further clarity was sought from Hydro Tasmania about the timeframes the entity had nominated for the return to service of the CCGT. Hydro Tasmania's response was:²²¹

During the period of the energy supply challenge, recommissioning of the CCGT began in November 2015 and was brought online on 20 January 2016. In order to safely operate the CCGT a temporary workforce was required to be recruited and trained. The manufacturer also strongly recommended maintenance to the gas turbine air cooler (TCA Cooler) following the extended dry lay-up. These two activities were parallel on the critical path.

Under a scenario where no maintenance or additional staffing is required, an estimated return to service time is approximately two weeks. For planning

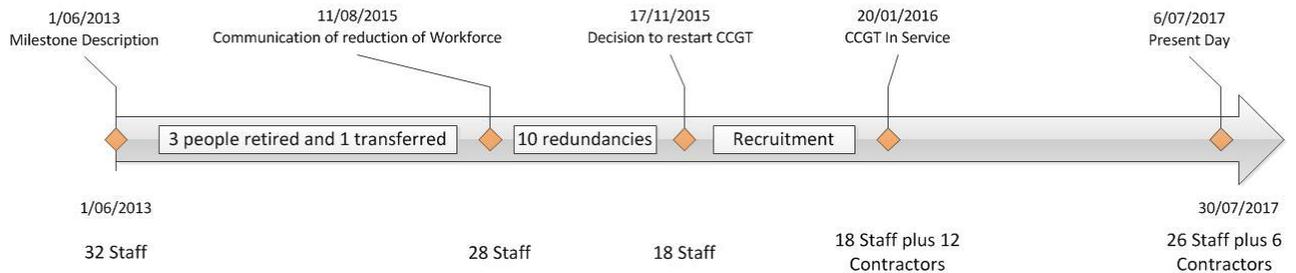
²²⁰ Hydro Tasmania (2016) Response to Question on Notice following hearing of 4 August, Public Accounts Committee website

²²¹ Hydro Tasmania (2017) Letter of 7 July.

purposes within Hydro Tasmania, a more conservative assumption of 30 days is used.

5.102 Movement in staff numbers at the TVPS since its transfer to Hydro Tasmania on 1 June 2013 is shown in figure 9.

Figure 9: Timeline of Staffing changes at Tamar Valley Power Station since transferred to Hydro Tasmania



Source: Hydro Tasmania

5.103 The need to engage and train staff following the decision to return the CCGT service on 18 November contributed to the additional time taken to bring the CCGT into service. This followed the decision in August 2015 to action ten redundancies on the premise the CCGT was to be decommissioned.

5.104 The Tasmanian Energy Security Taskforce has examined the history of development and operation and the role of the TVPS. Its Interim Report²²² finds that in the absence of reliable alternatives, gas generation remains important to Tasmania to mitigate against hydrological and Basslink failure risks. As such, the TVPS provides a 'back-up' energy generation source for Tasmania. Further, it is an important factor in helping to support the viability of Tasmania's gas market.

²²² Tasmanian Energy Security Taskforce (2016) op. cit. pp 90

Findings:

52. Prior to joining the NEM, Hydro Tasmania had formal responsibility to maintain electrical energy security in Tasmania.
53. When Tasmania joined the NEM, the responsibility for maintaining security was transferred to Australian Energy Market Operator (AEMO) (formerly NEMMCO) under national legislative arrangements.
54. In 2006 Hydro Tasmania was directed, through a revised Ministerial Charter, to ensure the prudent management of its water storages consistent with the long run energy capability of its system.
55. AEMO, the Director of the Office of Energy Planning, the Tasmanian Economic Regulator and TasNetworks each have various reporting responsibilities relevant to electrical energy security.
56. Both the previous Government and the current Government proposed to give Hydro Tasmania explicit responsibility for electrical energy security in Tasmania, recognising that Hydro Tasmania can achieve this through its control of its storages, the TVPS and Basslink.
57. The Government has ultimate responsibility for electrical energy security. Its Energy Supply Plan included establishing the Tasmanian Energy Security Taskforce to advise Government on how it can better prepare for and mitigate the risks of future energy security threats. The December 2016 Interim Report of the Taskforce recommended better definition of responsibilities and strengthened independent monitoring and assessment.
58. TVPS is currently integral to Tasmania's electrical energy security.
59. Following an Expert Panel review in 2012, the then Minister for Energy, Mr Bryan Green MP announced the Government would be seeking an independent commercial analysis on the valuations of the TVPS, its associated assets and the gas supply contracts. Should that advice show the State would achieve greater value from the sale of the TVPS and related assets without compromising energy security the Government would explore this further. It further committed to either transfer ownership of the TVPS to Hydro Tasmania

or to sell the power station, if the price was right, before June 2013.

60. TVPS was transferred from Aurora Energy to Hydro Tasmania on 1 June 2013. 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.
61. On 8 July 2013 Hydro Tasmania commenced the process of putting the CCGT into dry lay-up. This was 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.
62. In January 2015 Hydro Tasmania wrote to the Government seeking permission to sell the CCGT but retain the OCGTs.
63. On 12 August 2015 the Government advised Hydro Tasmania that it would conditionally allow Hydro Tasmania to seek expressions of interest for the sale of the CCGT. Those conditions included a requirement of an assurance of energy security from Hydro Tasmania and further advice to Hydro Tasmania that it would be given formal responsibility for electrical energy security.²²³
64. On 12 August 2015 Hydro Tasmania announced that it planned to sell the CCGT because it was not cost-effective and was not needed to provide energy security.²²⁴
65. Record low rainfalls from September 2015 led to a Hydro Tasmania decision to recommission the CCGT on 17 November 2015. This was immediately communicated to TVPS personnel who then took immediate steps towards returning the CCGT to service. It commenced generation on 20 January 2016.
66. In August 2015 Hydro Tasmania actioned ten redundancies on the premise the CCGT was to be decommissioned.

²²³ M. Groom, Minister for Energy (2015) *Tamar Valley Power Station*, Media Release, 12 August.

²²⁴ Hydro Tasmania (2015) *Changes to the Operation of Tamar Valley Power Station*, Media Release, Hydro Tasmania website, 12 August

67. The need to engage and train staff following the decision to return the CCGT to service on 17 November 2015 contributed to the additional time taken to bring the CCGT into service.
68. The manufacturer strongly recommended maintenance to the gas turbine air cooler (TCA Cooler) following the extended dry lay-up which contributed to time taken to return the CCGT to service.
69. The Interim Report of the Taskforce has recommended, as one of five Priority Recommendations, that the TVPS be retained 'as a backup power station for the present'.
70. A return to service of the CCGT under a scenario where no maintenance or additional staffing is required, is now approximately two weeks. For planning purposes within Hydro Tasmania a more conservative assumption of 30 days is used.

TERM OF REFERENCE 5:

Past and current Government's and Government owned energy entities energy mix policy decisions and challenges

5.105 An overview of the introduction of natural gas to the energy mix within Tasmania, the gas supply contract arrangements and the development of wind farms is provided in the background section of this Report.

5.106 The subject matter of this term of reference has been considered by the Tasmanian Energy Security Taskforce. The Taskforce has identified priority actions and associated recommendations in its Interim Report of December 2016. These are included at Appendix 3.

Second Interconnector (21C)

5.107 The Australian and Tasmanian governments jointly initiated a feasibility study of Tasmania's renewable energy resources and the role of a second interconnector for Tasmania. This study was initially being undertaken by the Hon. Warwick Smith AM LLB, and is now being led by Dr John Tamblyn.

5.108 A preliminary report was released in June 2016²²⁵. Its conclusion was that:

"..., if viable, a second interconnector would support long term energy security in Tasmania, assist in the integration of Tasmanian renewable energy into the NEM, support the operation of the NEM and could open the path way for more than 1,000 megawatts of new renewable energy development in Tasmania."

5.109 The report further noted that:

The feasibility of a second interconnector and any associated renewable energy development are closely linked. Investment in a second interconnector will likely be contingent upon extensive investment in supporting renewable energy development, which in turn will be dependent on the interconnector proceeding. These linkages will need to be closely explored, in particular to better understand likely sources of financing and the sensitivities of potential financiers.²²⁶

5.110 A second interconnector would require at least 8 years for development.

5.111 The preliminary report noted that:²²⁷

There would be an interaction between a second interconnector – whether regulated or unregulated – and the existing Basslink interconnector. A new interconnector could impact Basslink through increased transmission flows

²²⁵ Department of the Environment and Energy (2016) Feasibility of a Second Tasmanian Interconnector, June.

²²⁶ *ibid* p. 38

²²⁷ *ibid* p. 36

between Victoria and Tasmania, which could change the relative spot prices between these jurisdictions. If having a second interconnector were to affect the way Hydro Tasmania managed its water resources, this could also have a bearing on Basslink. Basslink will therefore need to be considered in any assessment of feasibility of a second interconnector. The role of Hydro Tasmania in respect of a second interconnector will also need to be considered, including whether it would be appropriate for Hydro Tasmania to continue to have trading rights with respect to Basslink if a second interconnector is built. While Basslink is currently unregulated, the possibility exists for it to convert to regulated status, as occurred with Murraylink and Directlink. This would change the way it is operated and its impact on a second interconnector.

5.112 When questioned about the potential impacts of a second interconnector on Hydro Tasmania, Mr Davy commented:²²⁸

Our current contractual arrangements with Basslink have around 15 years to run. It is possible there would be a small overlap between a new interconnector and our current financial arrangements. I believe the overall benefits to Tasmania, and for the increased participation in the national market, and bringing on the capacity to build more renewable energy in Tasmania for provision to the national market, would overcome any small detriment.

5.113 Mr Davy further commented that the matter of whether Basslink might seek regulated status is a matter for the owners of Basslink.

5.114 The Feasibility of a second Tasmanian interconnector (2IC) - Final Study²²⁹ was released in April 2017. It noted that:²³⁰

Assessment of the economic feasibility of a 2IC has proven to be a difficult and uncertain task.

The capital and operating costs involved in constructing and operating an undersea interconnector are substantial compared to the cost of overhead interconnectors. The total capital cost of a 2IC (including network augmentation costs) has been estimated at up to \$1.1 billion, with estimated ongoing operational and maintenance costs of \$16.7 million per annum. These cost estimates are preliminary and may change during the more detailed

²²⁸ Mr Davy, Hydro Tasmania (2016) Hansard transcript, 1 September, p. 31

²²⁹ Department of the Environment and Energy (2017) 'Feasibility of a Second Tasmanian interconnector, Commonwealth of Australia and Tasmanian Government—Final Study, 2017'

²³⁰ *ibid.*, p.vi

planning, construction and regulatory approval processes. Thus, while a 2IC would be capable of delivering material benefits to the NEM and Tasmania, those benefits would need to outweigh the substantial capital and operating costs of a 2IC by a significant margin in most modelled scenarios to establish a persuasive case in support of a 2IC investment.

The modelling identified two future NEM development scenarios in which a 2IC would produce market benefits sufficient to outweigh the capital and operating costs by a significant margin in net present value terms. They were where:

- an additional South Australian interconnector was built before a 2IC came into operation*
- there is a significant reduction in future Tasmanian electricity demand.*

A 2IC would also deliver reliability benefits to Victoria and Tasmania by providing reliability support to Victoria at times of peak demand and to Tasmania during periods of drought and low water storage levels. Tasmania would also benefit from increased ‘resilience’ to potential failures of Basslink by retaining connection to the NEM in that event, avoiding the need for voluntary and involuntary load shedding.

A 2IC would facilitate development of Tasmania’s rich wind resources. The modelling indicated that a 2IC would increase the financial viability of renewable generation in Tasmania and reduce the risk of it being constrained by transmission limitations. The modelling showed that without a 2IC in operation Tasmanian wind generation could increase by up to 730 MW by 2036 and with a 2IC an additional 365 MW could be developed over the same period. Much of this wind development is expected to occur in the late 2020s and 2030s.

5.115 The study concluded that:²³¹

While the modelling results suggest that under current anticipated market conditions a 2IC may not be economically feasible, it has not been possible to fully reflect the implications of prevailing market uncertainty in those projections. Also, other relevant market benefits, such as power system security and reliability benefits have not been fully captured by the modelling and may

²³¹*ibid*, p. ix

be given greater weight by electricity consumers and governments in current market conditions.

5.116 The study recommended:²³²

...that the Tasmanian Government develop a detailed business case for a second Tasmanian interconnector when ongoing monitoring establishes that one or more of the following preconditions has been met:

- 1. The Australian Energy Market Operator, in consultation with Hydro Tasmania and TasNetworks, concludes in a future National Transmission Network Development Plan that a second interconnector would produce significant positive net market benefits under most plausible scenarios.*
- 2. Additional interconnection is approved for construction between South Australia and the eastern states.*
- 3. A material reduction occurs in Tasmanian electricity demand.*

5.117 On 20 April 2017 Prime Minister Turnbull and Premier Hodgman announced that Australian Renewable Energy Agency (ARENA) will work with Hydro Tasmania on feasibility studies to assess several new Hydro energy pumped storage schemes that could deliver up to 2500 MW of capacity for the NEM as well as examining expansion of the Tarraleah and Gordon Power Stations. The ARENA supported work builds on the feasibility study of the second interconnector.²³³

Gas Transportation Agreement

5.118 The current take-or-pay Gas Transportation Agreement with TGP is held by Hydro Tasmania and expires in December 2017.

5.119 In its submission to the Inquiry TGP provided the following information²³⁴:

- TGP has worked diligently to review the fundamentals of its business to improve its commercial performance ahead of the current take-or-pay Gas Transportation Agreement expiring in December 2017.*

²³² *ibid*, p.x

²³³ M Turnbull, Prime Minister of Australia (2017) 'New Tasmanian Pumped Hydro' Media Release 20 April, Prime Minister's website

²³⁴ Tasmanian Gas Pipeline submission op. cit. pp 1-2

- *TGP has:*
 - *Made an investment of approximately \$18 million to connect TGP directly to the Victorian Declared Wholesale Gas Market. This will, for the first time, enable TGP to provide gas storage services and diversify TGP's revenue away from a sole reliance on Tasmanian industry;*
 - *Significantly reduced its cost base by implementing internal cost efficiencies including the renegotiation of major service provider contracts;*
 - *Undertaken feasibility studies to investigate the opportunity of bringing other services currently based in Victoria (e.g. control room and engineering support) to Tasmania, which would further enhance TGP's financial commitment to Tasmania; and*
 - *Commenced an early refinancing process to take advantage of the current low interest rates.*
- *Nevertheless, the future of our business, and a critical infrastructure asset that was facilitated by the State, is challenging if a new agreement cannot be reached.*

5.120 Mr Zoof, Member, TMEC stated at an Inquiry hearing:²³⁵

Mr ZOOEFF - ...we understand that there have been a number of negotiations between Palisade and Hydro. I think TMEC's position would be that we would want to see a long-term contract that actually then signals that there is a future for Tamar Valley, provides us certainty, provides us also with an economic transmission price, and also a backbone to grow gas, I guess, in the economy. That is our position. We understand the ACCC with the east coast gas inquiry have a number of recommendations around pipelines, but they are going to take time. I think we cannot wait for that.

I think we need to have a position here in the state. This is where we encourage the Government to encourage an outcome, because I think 2017 is not long - December 2017. You can talk to the TGP, I am assuming later on this morning about their views, but certainly our view is that we would like to see an outcome on this sooner rather than later.

²³⁵Mr Zoof, TMEC (2016) Hansard Transcript 4 August, op. cit. p.18

5.121 The TMEC, in a document tabled during hearings, states:²³⁶

TMEC holds a strong view that the Tamar Valley Power Station is a critical strategic asset for Tasmania, both in terms of backup security for hydro generated electricity as well as being a cornerstone in securing competitive transmission and supply costs for its own requirements and in partnership with industry in the longer term.

TMEC and all gas users are concerned that there is no certainty on gas transmission pricing beyond 2017.

5.122 The Tasmanian Energy Security Taskforce report makes the following observation²³⁷:

The arrangements that are currently in place for the supply and transportation agreements supporting the TVPS implicitly result in two key outcomes:

- they provide energy security for Tasmania by supplying the TVPS so that it can generate electricity when required; and*
- they help underpin the Tasmanian gas market and therefore act as an implicit subsidy to other gas users. This provides a form of energy security in that it supports gas as a competitive energy source, but also represents an economic development policy objective.*

Determining the allocation of the current agreement costs between these two outcomes is difficult.

The issue now facing Tasmania is what is in the State's best interests in the face of significant challenges for the gas market nationally, to which Tasmania is not immune.

The retention of the TVPS for the foreseeable future is based on having it available in standby mode to operate at relatively short notice. Under this scenario, the commodity and transportation services to run the TVPS will be required on as-needed basis (i.e. during periods of potential energy supply shortfall which may only occur rarely). In this context, it could be argued that the TVPS does not need long-term gas supply and transport agreements to support its operation.

²³⁶ TMEC (2016) *Briefing Note Gas Issues*, 28 June, p. 2, PAC website

²³⁷ Department of the Environment and Energy (2017) *op. cit.*, p. 99

Conversely, firm transportation contracts do have the effect of securing pipeline access and guaranteeing the availability of gas (subject to an agreement to source gas). This may be important given a tight east coast gas market where gas supply and pipelines (including for storage) could become fully (or near fully) contracted. In this regard, long-term contracts can be seen as enhancing energy security because they provide more certainty. The key issue is the cost and risk they 'lock in' relative to the potential benefits. Long-term arrangements come with high risks and forgo flexibility to pursue opportunities for more cost effective outcomes over the medium to long term. This risk is supported by analysis provided to the Taskforce which indicates a trend away from long-term contracting arrangements. National market conditions are not seen as conducive to the previous practice of long term contracting due to escalating gas commodity prices prompting a need for short term flexibility.

If the Tasmanian gas market had grown to use more of the full potential of the existing pipeline (with the TVPS being a much smaller customer), the most prudent approach would appear to be for Hydro Tasmania to only contract for the gas and pipeline access that it needs to support gas generation in the short term, as and when it is required. Under this scenario, the impact on gas customers from such action would be expected to be negligible.

However, this scenario is not the reality and the concern is what impact such action would have on other gas customers. The Taskforce recognises the importance placed on Hydro Tasmania by stakeholders who seek Hydro Tasmania to commit to long term commodity and transportation contracts not only for the TVPS but the broader Tasmanian gas market. These customers are clearly concerned about how TGP's revenue would be recovered over the much smaller customer base without a long-term, firm capacity contract for the TVPS. Customers are also concerned with timing, given they have no certainty regarding their gas supply arrangements a year out from contracts expiring.

Findings:

Hydro generation

71. The most recent hydro-electric development in the State, the Anthony Scheme, was commissioned in 1994.

Thermal generation

72. The 240 MW oil-fired thermal Bell Bay power station (BBPS) was commissioned in 1967-68 following a severe drought. It was converted to gas in 2003-04 and decommissioned when the TVPS was commissioned in 2008. The TVPS now consists of a 208 MW CCGT, a 58 MW and three 40 MW OCGTs.

73. The Tasmanian Natural Gas Pipeline was commissioned in 2002, supplying gas for electricity generation (initially by conversion of the BBPS) and for major industrial facilities.

74. Hydro Tasmania inherited the gas supply contract from Aurora when it became the owner of the TVPS in June 2013.

75. Hydro Tasmania and TGP undertook negotiations to renew the contract between November 2013 and February 2015 but did not reach an agreement.

76. The gas transportation agreement covering supply for generation and for the major customers is now managed by Hydro Tasmania. The agreement expires in December 2017.

77. Decisions on the usage of gas for TVPS impact on the terms and conditions of supply for other major customers.

78. The Taskforce Interim Report recommended that key features of the gas transport agreements Hydro Tasmania reaches with the pipeline owners, be communicated by end of March 2017 to assist other users to reach commercial agreements.

79. The deadline recommended by the Taskforce has passed and at the time of finalising this Report it appeared the parties Hydro Tasmania and TGP were likely to resort to arbitration.

80. The tightening of gas supply on the mainland due to Liquefied Natural Gas

export will be a challenge for Tasmanian customers seeking long term supply beyond 2017.

Basslink Interconnector

81. The Basslink cable connects the Tasmanian and Victorian electricity grids. It commenced transmitting power in April 2006 and operated reliably until December 2016.

Wind generation

82. Between 2000 and 2009 Hydro Tasmania developed 140 MW of wind farms in stages on the Woolnorth property in North West Tasmania.

83. A further 168 MW was added in 2013-14 from the Musselroe wind farm in North East Tasmania. The combined developments are now owned and operated by a joint venture of Hydro Tasmania (25 per cent) and Shenhua Clean Energy Holdings (75 per cent).

84. Tasmania has the potential for further wind farm development, including by parties other than Hydro Tasmania.

Solar/Photovoltaic (PV) generation

85. From 2009 there has been a significant increase in Tasmanian households installing solar PV, facilitated by State Government FiT schemes and Commonwealth renewable energy incentives.

86. Reducing costs of solar PV and of battery storage are likely to see further growth in distributed electricity production.

Diesel generation

87. In 2016 diesel generators were imported to support the State's energy generation capacity and contributed 55 GWh power during the Basslink outage. Diesel generators were turned off in May 2016 and decommissioning commenced in June 2016.

TERM OF REFERENCE 6:

Any other matters incidental thereto

5.123 As previously discussed in this Report the Government and Hydro Tasmania issued media releases regarding the potential sale of the CCGT on 12 August 2015.

5.124 A lack of consultation with TMEC witnesses prior to the announcement of the potential sale was raised during the course of the Inquiry:²³⁸

Ms FORREST - You were not consulted at all? I am not sure what the process is around that, whether it would be appropriate to consult your major customers or whether you would not normally in business. What is your view? I would like to explore that a little more with you.

Mr MOSTOGL - It is obviously a commercial decision of government to make those decisions but the consequences of the decision affects the sovereign risk of our organisations and our base energy. I accept that it is not necessarily our role to be involved in the decision but the consequences which affect the material risk of our businesses is something of significance. From that point of view there should have been some sort of indication, not necessarily asking for our approval, but I think it would have [been] courteous given that we are such a significant part of the energy network that it would have been appropriate to at least say that this is the decision or the direction we are taking.

5.125 The significance to the businesses of the potential decommissioning of the TVPS CCGT was due to its role as part of risk profile of the State; the change in strategy it represented for the businesses; and the impact on long-term decisions.

Risk profile of the State

Mr MOSTOGL - It was part of our risk profile for the state. It said this is what the energy reserves are; this is what we operate between in terms of dam levels; this is the backup in terms of the gas-fired power station; that is the decisions that we make to operate. When something changes materially and we learn that somewhat as a surprise, then that is an issue²³⁹.

²³⁸ Mr Mostogl, TMEC (2016) Hansard Transcript 4 August, op. cit. p.3

²³⁹ *ibid*, p. 11

Change in strategy it represented for the businesses

Mr ZOOEFF - ...to take the step from mothballing to active decommissioning is a big step. That is where the MIs were not consulted. It is not uncommon to mothball. Where it became problematic was the decommissioning. That was a material change; it is of strategic relevance as well. It was a major change to actually decommission a thermal station that actually does provide backup - an efficient backup as well compared to the open cycle. That was quite a significant change in the strategy²⁴⁰

Impact on long-term decisions

Mr ZOOEFF - ...The concern our business had was that the decision to close Tamar Valley was purely based on the cost of maintaining their transmission agreement and that was it. There were no other benefits taken into account in terms of long-term security, the role of gas in the economy and economic transmission pricing. Those decisions were not factored in to the decision to basically decommission and sell the power station.

Mr BACON - And in your view that should have definitely been part of the decision making.

Mr ZOOEFF - Absolutely, and that comes back to the consultation. For a major decision like that, with major industries like us whose combined demand is probably 650 megawatts, one would have expected them to come to we larger users because we are making long-term decisions on our assets that we should have been consulted about.²⁴¹

5.126 TMEC in a tabled document stated:²⁴²

The earlier decision by Hydro Tasmania and the State Government to decommission the Tamar Valley Power Station Combined Cycle Gas Turbine (CCGT) and sell it was a poor decision. TMEC members were not consulted on this divestment, and this raises concerns over the due diligence and risk assessment undertaken at the time.

²⁴⁰ *ibid*, p. 11 The Committee's understanding is that the reference to "thermal station" regards the CCGT as detailed at paragraph 5.126.

²⁴¹ *ibid*, p. 12. The Committee's understanding is that the reference to "power station" regards the CCGT as detailed at paragraph 5.126.

²⁴² TMEC (2016) *Briefing Note Gas Issues*, op. cit. p. 2

Findings:

88. Tasmanian Minerals and Energy Council (TMEC) members were not consulted about divestment of the TVPS CCGT prior to the announcement of the Government's decision regarding its proposed sale.

89. The proposed sale raised concerns of TMEC members regarding the due diligence and risk assessment undertaken prior to the Government's announcement to sell the CCGT.

3. APPENDICES

APPENDIX 1 – SUBMISSIONS RECEIVED AND DATES OF HEARINGS

Submissions received

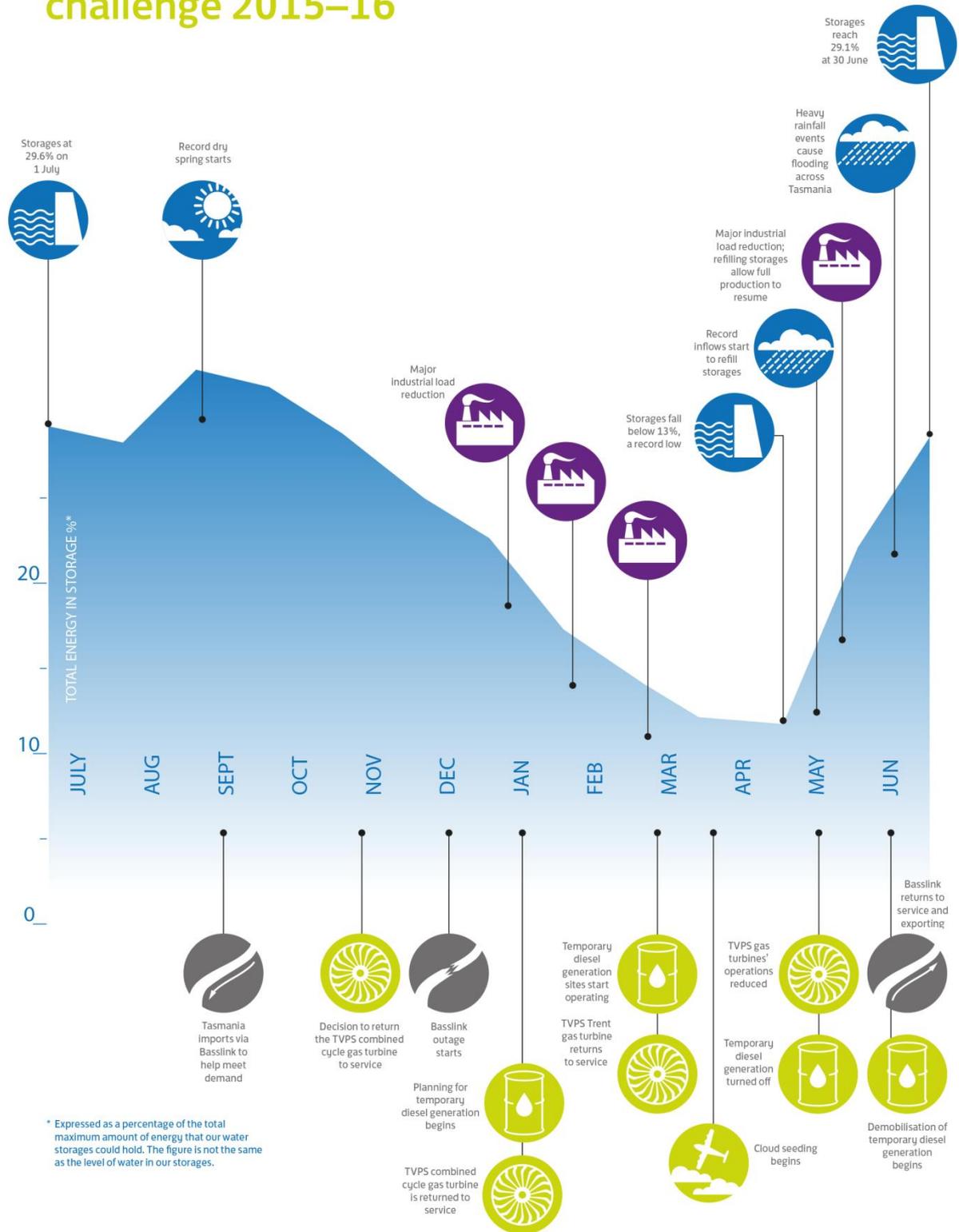
1. David Zani
2. Tasmanian Minerals and Energy Council
3. TasNetworks
4. Bill Fleming
5. Centre for Renewable Energy and Power Systems
6. Engineers Australia
7. Mervin Reed
8. Launceston Flood Authority
9. Hydro Tasmania
10. Tasmanian Renewable Energy Alliance
11. Tasmanian Greens
12. Mr Bryan Green MP, Labor Leader
13. Aurora Energy
14. Wells Economic Analysis
15. Government of Tasmania
16. Tasmanian Gas Pipeline

Hearings in Hobart

- Monday 20 June 2016
- Thursday 4 August 2016
- Friday 5 August 2016
- Monday 15 August 2016
- Tuesday 30 August 2016
- Thursday 1 September 2016
- Friday 18 November 2016
- Monday 21 November 2016
- Wednesday 24 May 2017 (*incamera*)

APPENDIX 2 - ENERGY SUPPLY CHALLENGE 2015-16

Tasmania's energy supply challenge 2015-16



Source: Hydro Tasmania Annual Report 2016, p. 3

APPENDIX 3 - TASMANIAN ENERGY SECURITY TASKFORCE INTERIM REPORT: PRIORITY ACTIONS AND RECOMMENDATIONS.

Priority Actions	Recommendations	Number in Report
1. Define energy security and responsibilities	<p>The following definition of energy security should be adopted for Tasmania: <i>Energy security is the adequate, reliable and competitive supply of low carbon emissions energy across short, medium and long-term timeframes that supports the efficient use of energy by Tasmanians for their economic and social activities.</i></p>	1
	<p>Responsibility for developing an energy security policy that clearly articulates Tasmania's approach to energy security should rest with the Department responsible for the energy portfolio.</p>	2
	<p>Responsibility for monitoring and assessing energy security should rest with an external body with pre-established market monitoring capabilities. A new Monitor and Assessor role should be established to provide independent oversight and transparent public reporting. The Tasmanian Economic Regulator (TER), the Australian Energy Market Operator (AEMO) and the Director of Energy Planning are identified as potential authorities to undertake the Monitor and Assessor role.</p>	3
	<p>An Energy Security Coordinator role should be established to coordinate responses across market participants to manage electricity supply risks when water storages are near or below an identified 'energy security reserve' level. TasNetworks (preferably the Responsible Officer) or AEMO are identified as potential options for the Energy Security Coordinator role.</p>	6
	<p>Where necessary, legislation should be enacted or amended to ensure relevant officers or bodies have the appropriate functions and powers to support the roles and responsibilities. More efficient organisation of policy and regulatory resources across Government should also be investigated, to improve role clarity and the critical mass of existing small resources spread across several agencies.</p>	7
	<p>A review of the Director of Energy Planning's role, the <i>Energy Planning and Coordination Act 1995</i> and the <i>Electricity Supply Industry Act 1995</i> (at least as it relates to energy security matters) should be undertaken to modernise and streamline arrangements with the other reform considerations.</p>	8
	<p>The Department of State Growth should limit itself to a policy role with respect to gas energy security, with the Monitor and Assessor role considering forward gas supply and demand risks as part of its broader consideration of energy security. The Director of Gas Safety should be responsible for engaging and coordinating responses with industry and gas customers on potential or actual emergency gas supply risks as they emerge.</p>	10
	<p>The Tasmanian Government should explore whether AEMO should have a role in the Tasmanian gas market, given the Tasmanian Gas Pipeline (TGP) is now connected to the Victorian Declared Wholesale Gas Market.</p>	11

Priority Actions	Recommendations	Number in Report
2. Strengthen independent energy security monitoring and assessment	Additional resources of sufficient size to maintain capability should be provided for the monitoring and assessing function. Funding for these resources could initially come via a Budget appropriation, though a regulatory charge on relevant market participants to ensure the function is sustainable would appear appropriate as a permanent funding source.	4
	The Monitor and Assessor role should utilise existing expertise where possible, such as within TasNetworks (particularly its modelling capacity).	5
	The Monitor and Assessor role should publish an annual assessment of Tasmania's energy security status and make available on a website a dynamic (at least monthly) forecast of energy supplies relative to forecast Tasmanian consumption, as well as an assessment of hydrological risk.	9
	Hydro Tasmania should undertake an annual review and forecasting process in October each year, near the end of the high inflow season between May and October. This should provide sufficient time to implement measures, if required, to maintain energy security over the dry period from November to April and beyond if dry conditions continue into May, as has historically occurred. The annual review should be independently verified by the Monitor and Assessor and the outcomes transparently made publicly available as part of the annual assessment.	18
3. Establish a more rigorous and widely understood framework for the management of water storages	A High Reliability Level (HRL) should be adopted as the threshold to which reserve water is held for energy security purposes, where the reserve is sufficient to withstand a six month Basslink outage coinciding with a very low inflow sequence, and avoid extreme environmental risk in Great Lake.	12
	A prudent storage level (PSL) should be set to create a 'storage buffer' from the HRL that is sufficiently conservative that the likelihood of storages falling below the HRL is very low.	13
	While the Taskforce will engage further with Hydro Tasmania before recommending in its Final Report the PSL and HRL profiles, the PSL should be no lower than the interim storage targets Hydro Tasmania has put in place (40 per cent by the end of spring and 30 per cent by the end of June 2016).	14
	Future changes to the HRL and PSL should only be considered when there are material changes to supply and/or demand, and require endorsement by the Monitor and Assessor.	15
	Energy stored in Great Lake below the Environmental Extreme Risk Zone (EERZ) should be clearly identified as constrained when communicating total energy in storage levels.	17

Priority Actions	Recommendations	Number in Report
	<p>A transparent scale of escalating actions should be implemented as energy in storage approaches lower levels with higher energy security risk. The following response levels should be implemented.</p> <ul style="list-style-type: none"> • 'Commercial operation' - if storage levels are above the PSL, Hydro Tasmania operates commercially and with only routine reporting obligations. • 'Increased monitoring' - if Hydro Tasmania's forecasts indicate plausible scenarios of falling below the PSL, or storages actually falling below the PSL, Hydro Tasmania would provide the Monitor and Assessor with a recovery plan that demonstrated how storages are intended to be returned above the PSL. • 'Increased response' - if Hydro Tasmania's scenarios indicate plausible scenarios of needing to access storages below the HRL, Hydro Tasmania would be required to provide a recovery plan that demonstrated how storages will be maintained to avoid entering the HRL or, if deemed unavoidable, how storages will be returned above the HRL once entered. • 'Energy security reserve' – if operating storages under the HRL, Hydro Tasmania would be required to work with the Energy Security Coordinator to ensure the recovery plan is being implemented and is working as intended. 	19
	Hydro Tasmania could be required to seek authorisation from the Energy Security Coordinator to access energy security reserve storage below the proposed HRL, and the authorisation would be subject to a clear plan to return storages above this level.	16
	Hydro Tasmania should be required, through an appropriately robust governance mechanism (legislation or through a ministerially directed mechanism), to comply with the proposed Energy Security Risk Response Framework.	21
	Contingency measures should be evaluated using a competitive process to determine the most effective supply and/or demand measures, with key criteria used to select preferred options. The criteria should include cost, reliability and environmental impact.	20
	More conservative assessments of hydro generation output and consideration of potential seasonal changes to average wind speeds should be included in energy security planning to account for the combination of climate change impact projections and historical rainfall variability. All historical low inflow sequences should be used to assess risks, not just those associated with more recent trends.	22
	Hydro Tasmania should specifically model lower inflows into Great Lake that are projected as a result of climate change, and advise the Monitor and Assessor of the implications for balancing storages across the hydro system and any increased dependence on one (particularly Lake Gordon) or more storages.	23
	Hydro Tasmania and TasNetworks should closely engage with the Bureau of Meteorology and other experts to fully understand the opportunities to use improved climate modelling and weather forecasting for underlying assumptions of historical and future rainfall, wind variability and extreme events.	24
	The TER should seek an independent appraisal of Basslink's asset management plans (including its Marine Disaster Recovery Plan) as soon as possible.	28
	Energy security planning should include planning for at least a six month Basslink outage.	29

Priority Actions	Recommendations	Number in Report
4. Retain the TVPS as a backup power station for the present and provide clarity to the Tasmanian gas market.	The TVPS, particularly the combined cycle gas turbine (CCGT), should be retained at least until there is a reliable alternative in place to mitigate against hydrological and Basslink failure risk.	25
	Commercial negotiations currently underway to resolve the gas commodity and transportation arrangements to support the TVPS should be allowed every opportunity to be realised with an agreement to be in place before the Taskforce's Final Report is completed.	26
	Agreed key features to be included in a new contract between Hydro Tasmania and the TGP's owner should be communicated to the Tasmanian gas market by the end of first quarter of 2017.	27
5. Support new on-island generation and customer innovation	The Tasmanian Government should ensure that new entrant renewable energy development is able to establish in Tasmania where such an outcome is consistent with that which would be expected to be seen in a competitive market.	30
	Direct negotiations with new renewable energy projects that are already progressed and have a sound business case should not be delayed because of the Taskforce's work.	31
	The Tasmanian Government should prudently facilitate, enable and ensure there are no unnecessary barriers to consumer-controlled energy management opportunities and choices, as a contribution to reducing Tasmania's energy deficit, optimising network outcomes and improving competitiveness for consumers.	32