Hydro Tasmania
The power of natural thinking

18 February 2016

Brian Green MP
Leader of the Opposition
Parliament House
Hobart TAS 7000

Dear Mr Green,

Right to Information Request 3 December 2015

I refer to your request pursuant to the Right to Information Act 2009 (RTI Act) received on 3 December 2015 by Hydro Tasmania. Thank you for your extension to the timeframe stipulated in the RTI Act.

I am authorised to make decisions on behalf of Hydro Tasmania in respect of applications for information under the RTI Act.

1. Your Request

Your request was for:

1. A copy of all information including modelling and advice related to Tasmania's energy security.
2. A copy of all information, including advice to government about the role of the Tamar Valley Power Station in Hydro Tasmania's energy generation portfolio.
3. A copy of all information relating to the possible sale of the Tamar Valley Power Station.

(Collectively "the Request")

2. Determination and Reasons for Determination of Request

I have undertaken a search of the information held by Hydro Tasmania and its subsidiaries to locate any records that may be relevant to the Request and have determined as follows:-

2.1 Information relevant to the Request Part 1

The information I have determined which can be released to you that is responsive to Part 1 is marked A to E and listed under Part 1 of Annexure A.

2.2 Information relevant to the Request Part 2

The information I have determined which can be released to you that is responsive to Part 2 is attached to this determination and is Marked F and G and listed under Part 2 of Annexure A.

4 Elizabeth Street Hobart TAS 7000 Australia • GPO Box 355 Hobart TAS 7001 Australia
t 1300 360 441 f +61 3 6230 5363 e contactus@hydro.com.au w www.hydro.com.au
Hydro-Electric Corporation ABN 48 072 377 158

2.3 Information relevant to the Request Part 3

I note that your request is for *'A copy of all information relating to the possible sale of the Tamar Valley Power Station.'* Hydro Tasmania has no information relating to the possible sale of the Tamar Valley Power Station as there is no intention to sell the power station.

We have presumed that the information you desire in fact relates to the possible sale of the combined cycle gas turbine (CCGT) which forms part of the Tamar Valley Power Station assets. The information provided therefore relates only to the possible sale of the CCGT.

The information I have determined which can be released to you that is responsive to Part 3 is attached to this determination and is marked H to J and listed under Part 3 of Annexure A.

3. Information provided

A number of the documents attached contain modelling and forecasts based on assumptions and scenarios used to inform decision makers at a particular period in time. Modelling results shown are as at a particular time, based on the assumptions known or contemplated at that time. The information underpinning modelling assumptions can change from one day to the next as can the results. The modelling graphs and tables provided are not necessarily the information, or the only information upon which certain decisions have been based.

4. Information withheld

I have made the decision to not release certain information:

- The names of officers and contact details have been redacted as that is not information relevant to the request and officer details are also protected by the Privacy Act. Hydro Tasmania has received verbal advice from the Ombudsman's Office that names and details of officers of Hydro Tasmania are not "information" under the RTI Act.
- Information which is exempt under section 27 of the RTI Act has been withheld;
- Information which is exempt under Section 35 of the RTI Act has been withheld;
- Information which is exempt under Section 38 of the RTI Act has been withheld;

As required under Section 33 of the RTI Act, I considered the Public Interest Test assessment criteria under the Schedule to the RTI Act in regards to the information ultimately withheld pursuant to sections 35 or 38 and have determined that it was not in the public interest as a whole to disclose the withheld information.

The reasons for the determination are:

- that the release of the information would not contribute to the debate on the matter;
- the information would not inform the request about the reasons for a decision;
- that the disclosure may have a substantial adverse effect on the management by Hydro Tasmania of its staff;
- that the disclosure may have adverse effects upon the industrial relations of Hydro Tasmania;
- the disclosure would prejudice the ability of Hydro Tasmania to obtain similar contract enquiries in the future;

- the disclosure would not provide the contextual information to aid in the understanding of Hydro Tasmania's decisions;
- disclosure would harm the business and financial interests of Hydro Tasmania;
- the information is related to the business affairs of Hydro Tasmania and if released would cause harm to the competitive position of the corporation.

5. Review of Rights

You are entitled under Section 43 of the RTI Act to apply for a review of the decision made under Parts 2 or 4 of the determination.

Any request for such a review should be made in writing within twenty (20) working days of receiving this letter and addressed to:

Mr S Davy
Chief Executive Officer
Hydro Tasmania
4 Elizabeth Street
HOBART TAS 7000

Should you have any questions on the information provided please contact the undersigned.

This request is now considered closed.

Yours sincerely

Alan W. Evans
Right to Information Officer & Corporation Secretary
Hydro Tasmania
t 03 6230 5300
e alan.evans@hydro.com.au
f03 6231 4217

Annexure A

PART 1

A. Hydro-Electric Corporation Leadership Group Paper dated 18 December 2015 attaching Internal Memo dated 11 December 2015 – Subject: *Storage Position Working Group* – Update of 7 pages. **Released - YES partially** – as information contained in the document is personal information about an individual subject to the *Privacy Act 1988*, is exempt information under sections 35 or 38 of the RTI Act, or is not responsive to your request.

B. PowerPoint slide pack entitled *Tasmanian Energy Security – 2014* of 17 pages. **Released - YES partially** - as information contained in the document is exempt information under section 27 of the RTI Act, is exempt information under sections 35 or 38 of the RTI Act, or is not responsive to your request.

C. Internal memo to Hydro Tasmania Leadership Group with subject *Gas/Thermal Generation Activity* dated 7 January 2016 of 3 pages. **Released - YES partially** - as information contained in the document is personal information about an individual subject to the *Privacy Act 1988*, is exempt information under sections 35 or 38 of the RTI Act, or is not responsive to your request.

D. Draft *System Status Overview* as at 11 January 2016 of 5 pages prepared for briefing Hydro Tasmania Board and the Water Storage Advisory Committee. **Released - YES partially -** as information contained in the document is personal information about an individual subject to the *Privacy Act 1988*, is exempt information under sections 35 or 38 of the RTI Act or is not responsive to your request.

E. *Extract of Wholesale Energy Services Performance Report* December 2016 of 3 pages. **Released - YES partially** - as information contained in the document is personal information about an individual subject to the Privacy Act 1988, is exempt information under section 38 of the RTI Act or is not responsive to your request.

PART 2

Note – a number of items in Part 3 are also relevant to this part of your request.

F. PowerPoint slide-pack entitled *Optimisation of TVPS*, created for presentation to Energy Minister and Minister's advisor dated 8 October 2014 of 22 pages. **Released – YES Partially** - as information contained in the document is personal information about an individual subject to the *Privacy Act 1988*, is exempt information under section 27 or the RTI Act, is exempt information under section 38 of the RTI Act or is not responsive to your request.

G. PowerPoint slide pack entitled *Hydro Tasmania's Gas Strategy in Tasmania* of 29 pages. **Released – YES Partially** - as information contained in the document is personal information about an individual subject to the *Privacy Act 1988*, is exempt information under section 27 of the RTI Act, is exempt information under sections 35 or 38 of the RTI Act, or is not responsive to your request.

PART 3

Note – a number of items in Part 2 are also relevant to this part of your request.

H. Letter to Treasurer and Minister for Energy dated 13 January 2015 re *Ministerial Approval for the Closure and Divestment of the Tamar Valley Power Station Combined Cycle Gas Turbine* of 3 pages. **Released – YES Partially** - as information contained in the document is personal information about an individual subject to the *Privacy Act 1988*, is exempt information under section 27 of the RTI Act, is exempt information under sections 35 or 38 of the RTI Act, or is not responsive to your request.

I. Conditional Letter from Minister for Energy to Hydro Tasmania re *Sale of the Tamar Valley Power Station Combined Cycle Gas Turbine* dated 11 August 2015 of 2 pages. **Released – YES in full.**

J. Background Document – *CCGT business case for closure* of 10 pages. **Released – YES Partially –** as information contained in the document is exempt information under section 27 of the RTI Act, is exempt information under sections35 or 38 of the RTI Act, or is not responsive to your request.

Hydro-Electric Corporation Leadership Group Paper

Leadership Group Meeting – Update 18 December 2015

Strictly Confidential

Agenda Item:

Subject: **WORKING GROUP – STORAGE POSTION UPDATE**

Sponsor: [redacted]

Category: For Information

Draft Resolution:

Leadership Group note the:

- Planning and investigation undertaken by the Working Group

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Internal memo

Private and confidential

To:	Leadership Group
From:	[redacted] **Ext no:**
cc:	
Date:	11 December 2015 [redacted]
Subject:	**STORAGE POSTION WORKING GROUP - UPDATE**
Status:	**For Information**

1. Energy Portfolio

1.1 Current Status

December yield, as at 16th December, was 110 GWh with forecast end of month 223 GWh (December budget 344 GWh). System storage is at 25.4% (last week 25.9%).

Current Shortfall Index (SFI1) is not meaningful given the decision to generate ccgt.

Gordon has increased slightly 17.1% (last week 16.9%) while Great Lake continues to decline 18.4% (last week 19.0%).

The decision to generate from ccgt has resulted in a decrease in our water values. A market price of $[redacted]/MWh will now trigger generation to move off constrained import levels. A heatwave through South Australia during the week (through Victoria in the latter half of the week) is resulting in some spot price volatility and higher Hydro Tasmania generation levels, capturing some of the commercial value of the ccgt decision.

There Tasmania spot price is expected to decline slightly once the heat wave has passed through, reflecting the decrease in water values.

The table below shows the current Victorian contract position at 10% Probability of Exceedance, and the current targeted position.

[1] Shortfall Index indicates in "days" Hydro Tasmania's ability to meet Tasmanian demand based on extreme set of circumstances. These circumstances include Basslink interconnector unavailable, conservative wind, very low yield and plant availability reflective of current conditions.

Quarters	Current Position	Target Position
2015 Quarter 4	365 MW	365 MW
2016 Quarter 1	340 MW	350 MW

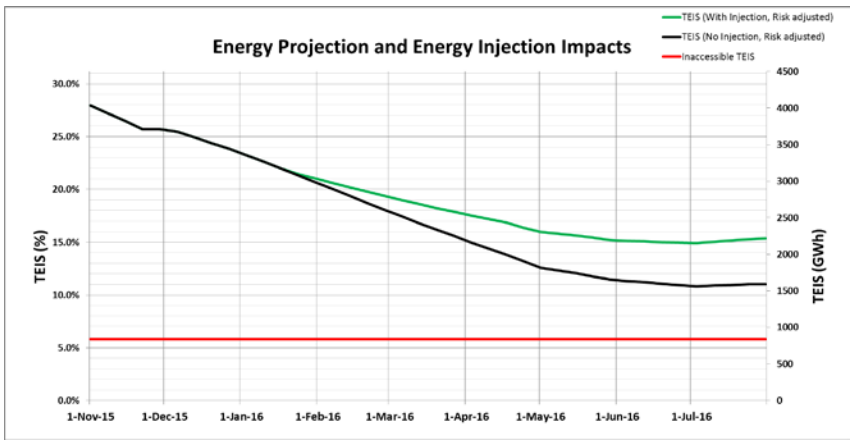
1.2 Energy Injection Chart:

The following chart displays energy projections for a continued dry scenario (less than 1% probability of the below inflow assumptions – based upon historic data)

Long Term Ave inflow assumptions:

25% Dec to Apr

50% May to Jul



Lever assumptions:	Date	Benefit
1 CCGT (3 months running)	18 Jan	475 GWh
2 TN increase Tas Pwr Sys Voltage (0.5% eff gain)	21 Dec	15 GWh
3 Burbury below NMOL (save for Winter peaks)	25 Apr	105 GWh

Note: 475 GWh from ccgt in dry scenario is higher than the expected in normal inflow scenario where increased generation from hydro system.

1.3 Energy Options:

Options (order of preference)	*Energy Benefit*	*cash flow reduction this FY*	*Cost $/MWh*	*Potential Risks*	*Decision to commence preparation:*	*Have ready to Implement by:*
Postpone Tarraleah hill top valve outage	**130 GWh**	[redacted]	-	• Plant risks can be avoided as the delay is minimal.	Approved	Completed
[redacted]	**0 GWh**		[redacted]	• Non commercial at current indications	ongoing	
Increasing system voltages to reduce system losses	**15 GWh**	[redacted]		• TasNetworks asset risks	16 November 2015	Late January 2016
Limiting time error corrections to increase Basslink metered flow	**0 GWh**	[redacted]		• 3 different approaches trialled without success	16 November 2015	
[redacted]	[redacted] **GWh**	[redacted]		• [redacted] • [redacted] • [redacted]	[redacted]	[redacted]
Generate energy from the combined cycle gas turbine	**475 GWh**	[redacted]	[redacted]		23 November 2015	18 January 2016
[redacted]	**105 GWh**	[redacted]		• Plant risks • Manager Portfolio Strategy approval required	23November 2015	25 April 2016

2. Asset Contingencies - Current Status

CCGT

- The return to service of the CCGT continues. [redacted].

[redacted]

- [redacted].
- [redacted].

3. Stakeholder and Environment - Current Status

[redacted]

- A decision was made late last week not to proceed with the [redacted] Drawdown based on the EIA outcomes [redacted]

[redacted]
[redacted].

Great Lake / Arthur's / Woods

- Approval was given [redacted] to enter Medium Risk zones at Great Lake and Woods Lake ([redacted]).
- [redacted].
- [redacted]
- [redacted]

Stakeholder engagement

- The stakeholder engagement and communication plan is being finalised between SRM and S&MD this week.
- A CEO letter for stakeholders has been prepared [redacted]. It is intended as a resource for stakeholder managers in the business to assist their stakeholder communication.
- [redacted].

4. [redacted]

- [redacted].
- [redacted].
- [redacted].

5. Shareholder and Government - Current Status

- [redacted].

6. Communications – Current Status

Our consideration of running CCGT was the main issue for the week.

Media:

- Coverage and comment first around our consideration of restarting the CCGT and then the subsequent decision announced on 16 December to run from January. [redacted].

Political:

- Weekly storages position summary for Government Media Office provided through Minister's office

Digital/Social media:

- Increased traffic as a result of the CCGT media coverage

Internal/external messaging:

- December CEO update refers to business response
- Key messages finalised and will be part of a pack of information provided to stakeholder managers prior to Christmas
- CEO letter to key stakeholder being drafted; to be distributed prior to Christmas

Communications actions:

- External website – update key information; develop FAQs, provide link to BOM forecasts
- Media release - update prior to holidays for recreational users in particular, with a focus on reinforcing safety and access messages; opportunity to repeat key messages around our response. Will require shareholder ok.
- Public notices – as required. Option for wider information or targeted as required
- Social media channels – pushing out specific information
- Mercury Talking Point opinion piece – hold over until early new year

During holiday period:

- Monitor all media platforms, including social media and contactus@hydro.com.au to ensure prompt management of emerging issues, complaints etc

7. Financial

- [redacted].
- The current year is difficult - there is no doubt the lack of rain is having an impact on our financial outlook for this year. It is difficult to forecast inflows for the balance of the year, and hence difficult to be clear about the financial impact, but it is likely to be substantial.
- When considering the range of options available to us to manage storages prudently in the face of low inflows, we are using the most cost-effective methods of ensuring security of energy supply.
- [redacted].
- [redacted]

Tasmanian Energy Security - 2014

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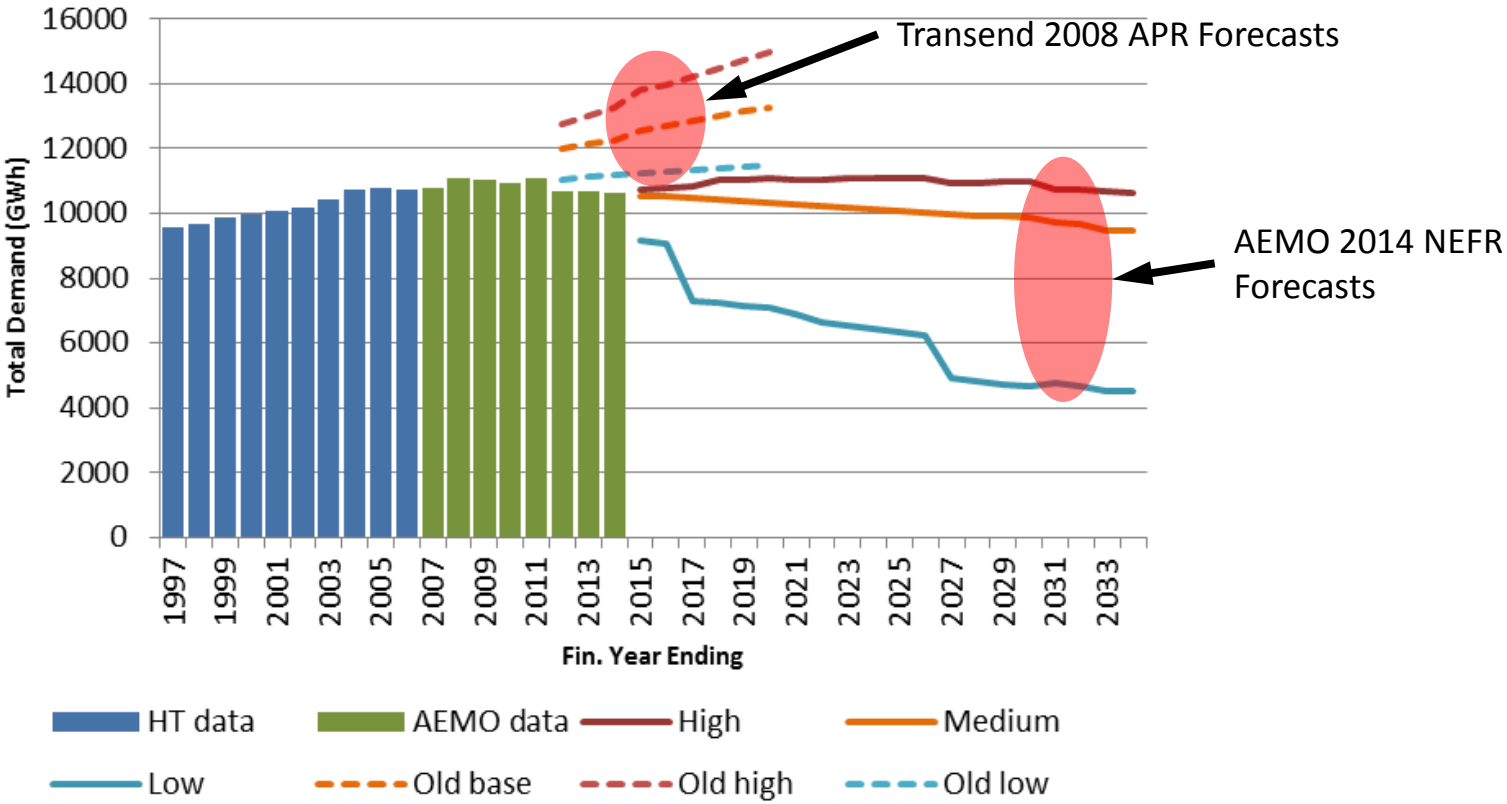
Tasmanian Demand / Supply Outlook
Key issues for System Security

- **Demand outlook**
  - significant reduction in long-term demand projections
- **Energy Supply**
  - Musselroe operational
  - Hydro Tasmania yield – [redacted] GWh expected
  - Basslink – proven capability
- **HT Prudent Water Management - 25% preferred min level**
- **Hydro Tasmania control of TVPS Operation**
- [redacted]
- [redacted]

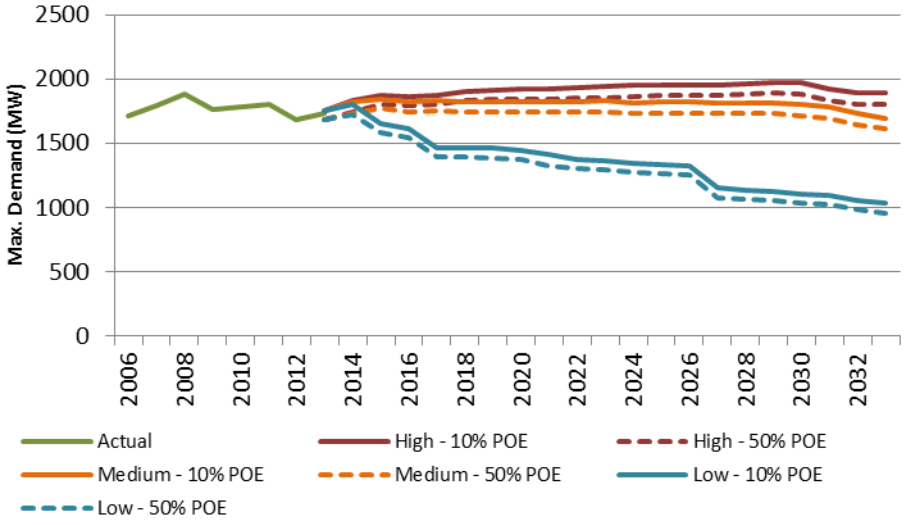
Total (Energy) Demand

Historical demand and Forecasts

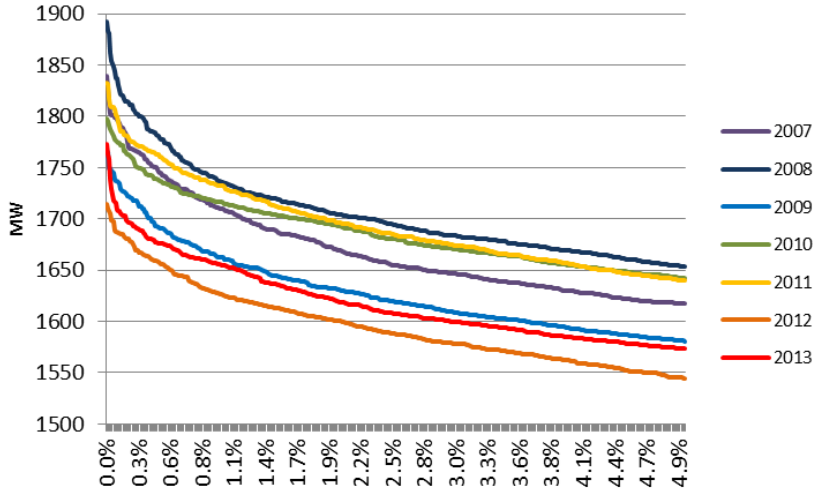


Maximum Demand

Maximum (30-min) demand – historical and AEMO 2014 forecasts



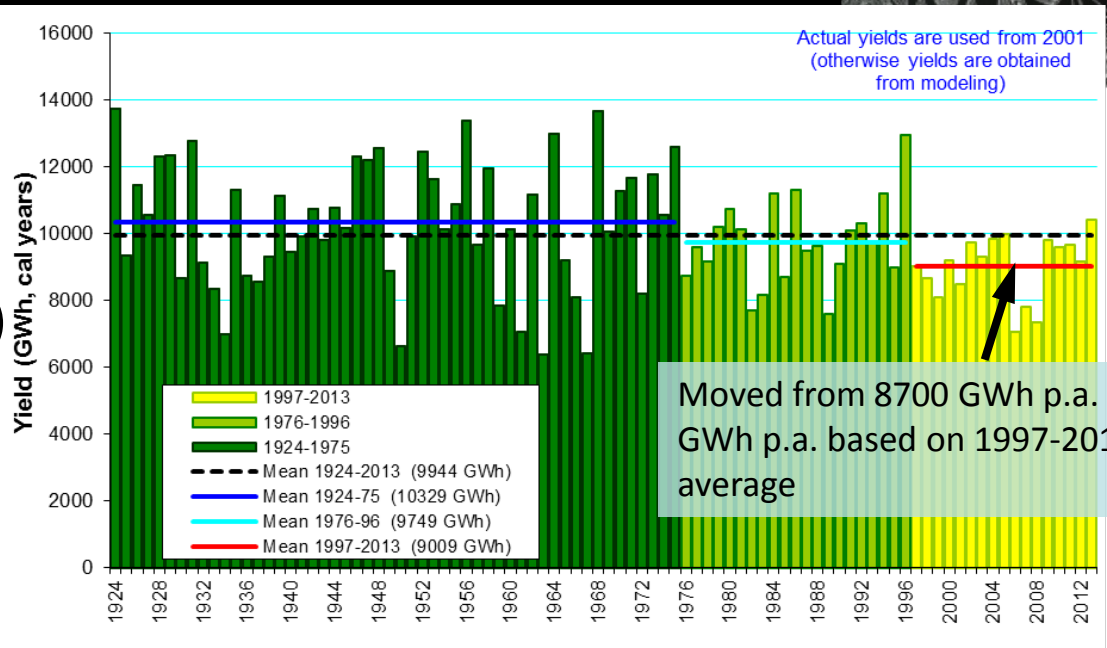
Top 5% of historical 30-min demand



Supply – Water and Wind

Historical inflows

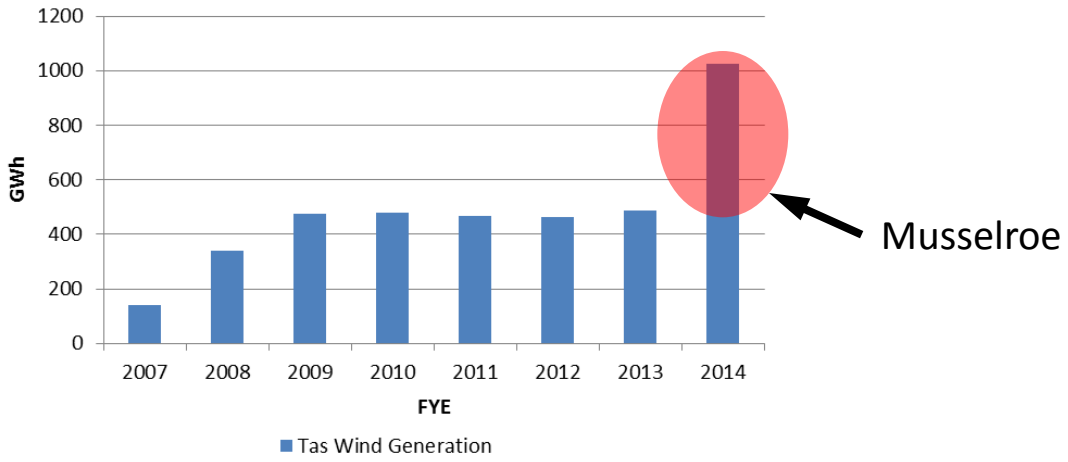
(GWh p.a. from 1924-2013)



Moved from 8700 GWh p.a. to 9000 GWh p.a. based on 1997-2013 average

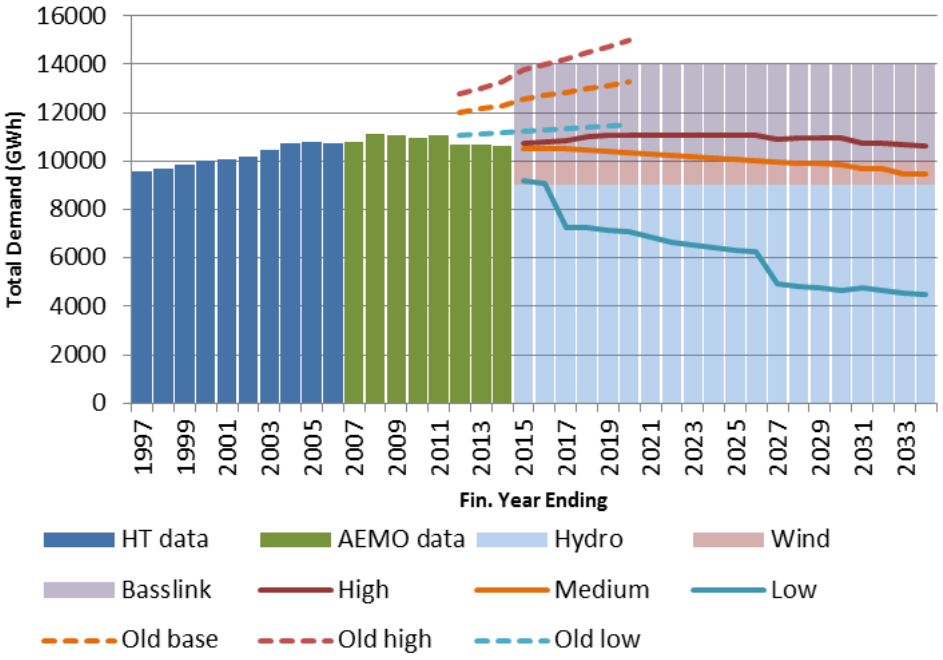
Wind Generation

(GWh p.a. from 2007-2014)

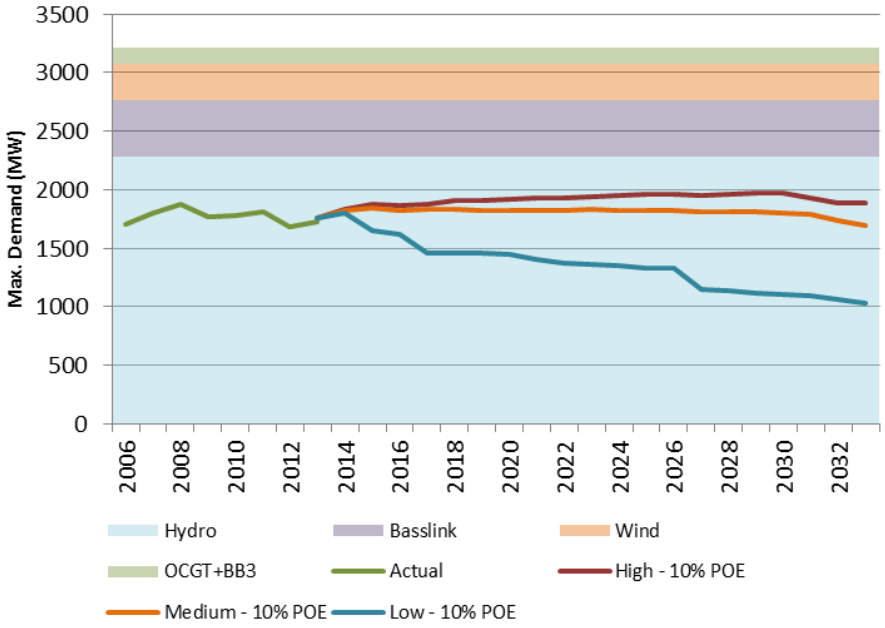


Supply vs. Demand

Energy demand vs. energy supply



Max demand vs. available capacity



[redacted]

- [redacted]
- [redacted]

[redacted]

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

* [redacted]

- [redacted]
  - [redacted]

[redacted]

- [redacted]
- [redacted].

[redacted]:

- [redacted]
  - [redacted]
  - [redacted]

[redacted]

- [redacted]
  - [redacted]
    - [redacted]
    - [redacted]

- [redacted]
  - [redacted]
  - [redacted]

Summary – Tasmanian Energy Security

No generation shortfalls observed in *any* modelled scenario

- **Full range of inflows**
- **No CCGT**
- **Includes a 2 month Basslink outage**
- [redacted]
- [redacted]

Additional Material

[redacted]

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

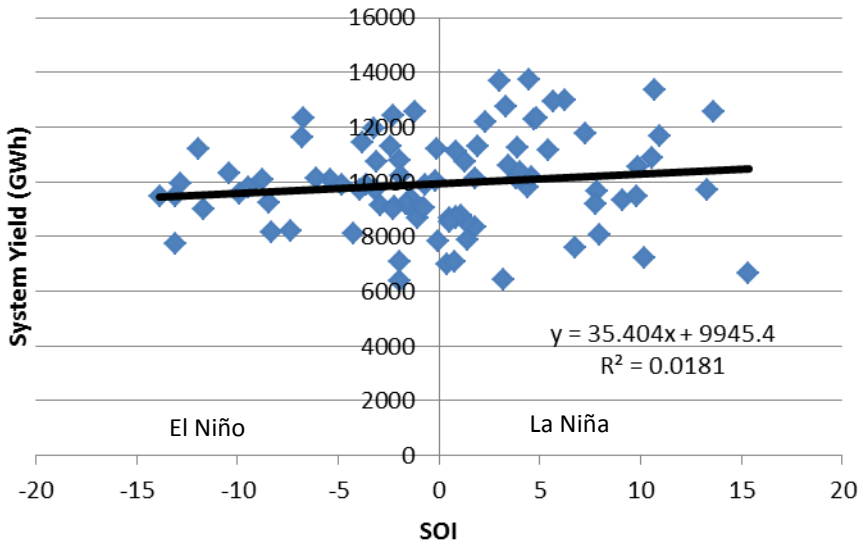
* [redacted]

- [redacted]
  - [redacted]

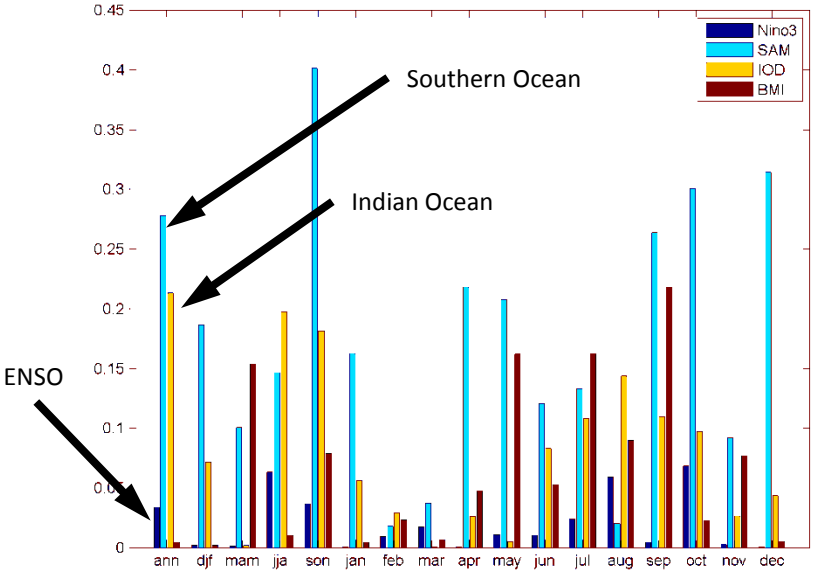
ENSO (EL Niño) and System Yield

- ENSO has only a small influence on system yield.
- Modest impact on Mersey-Forth and Great Lake
- Indian Ocean and Southern Ocean have more influence.

Annual system yield vs. SOI – 1924-2013.

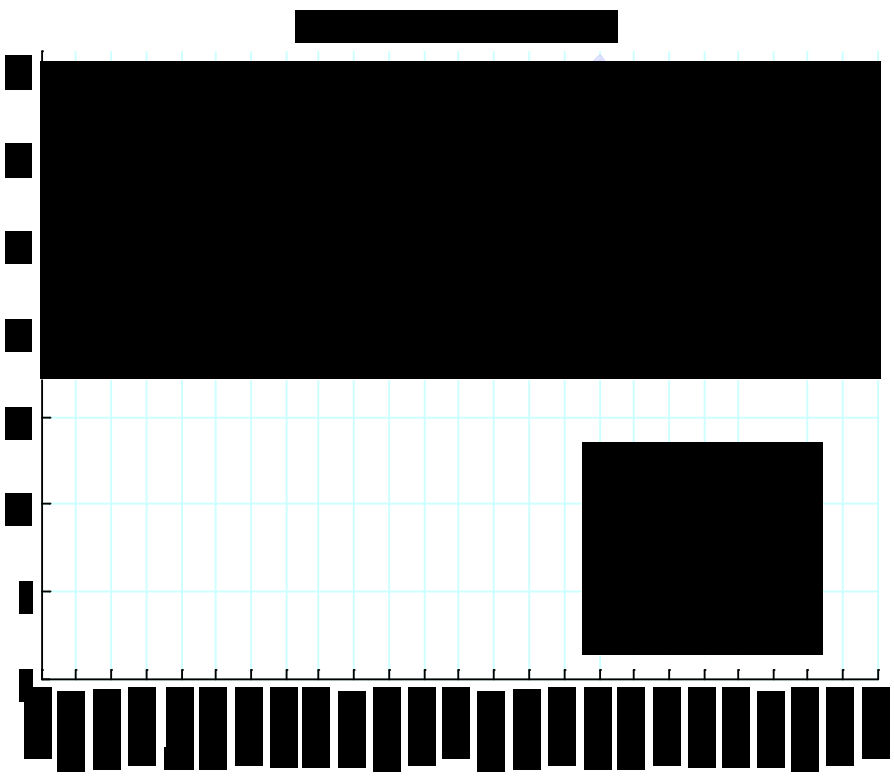


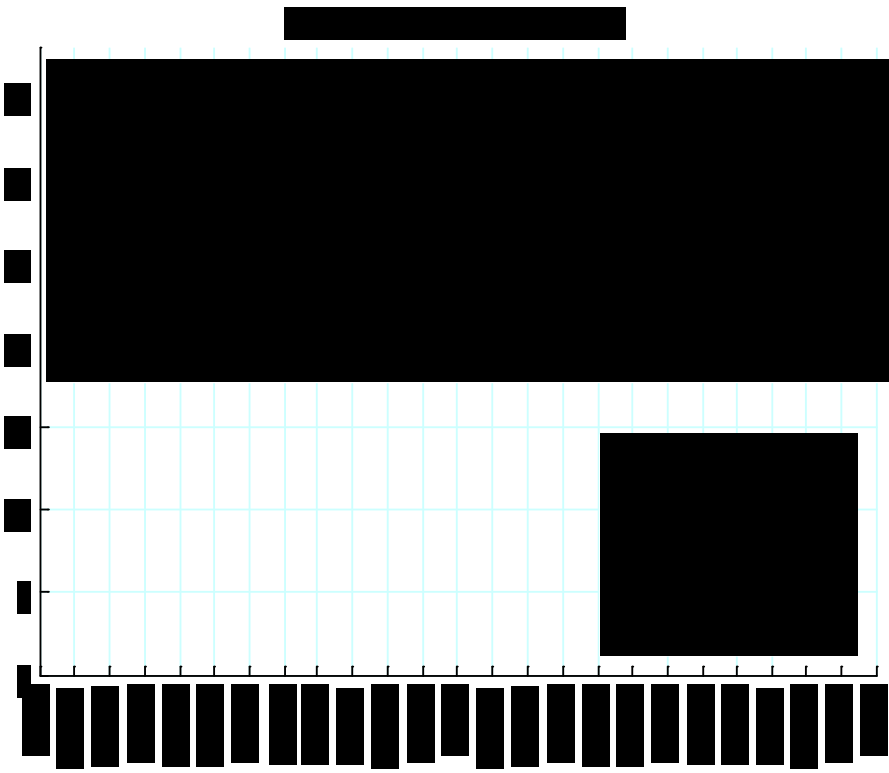
Correlations between climate indices and system yield



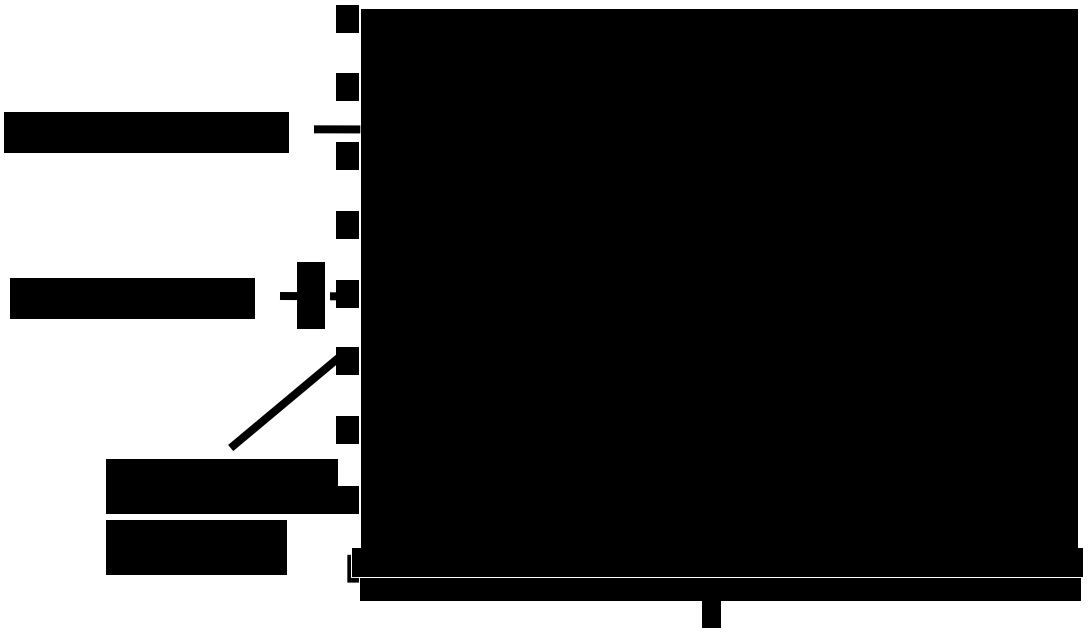
[redacted]

[redacted]





[redacted]



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Internal memo

Private and confidential

To:	Leadership Group		
From:	[redacted]	**Ext no:**	5928
cc:			
Date:	7 January 2016	Pages:	(includes cover sheet)
Subject:	Gas/Thermal Generation Activity		
Status:	**For information and comment**		

The purpose of this memo is to provide the LG with a progress update on the TVPS CCGT return to service (RTS) and information on the additional thermal generation activity being progressed as a result of the ongoing reduced hydrological yield and Basslink failure.

TVPS CCGT

The team at TVPS continue to make solid progress with the CCGT RTS programme and the schedule continues to indicate that the 20th January 2016 remains the earliest date achievable.

[redacted]

- [redacted]
- [redacted]
- [redacted]

Every effort is being made to ensure that progress on these areas do not slip and effect the critical path.

To enable running either beyond early June 2016 or during the following summer to rebuild storages a Combustion Inspection outage is required (in the main to replace the life-expired hot gas path components). [redacted] has made a decision to perform this CI outage when it falls due – after 3,417 Equivalent Operating Hours (EOHs). Certainty around this activity is required to ensure the OEM, resources and contractor support is

available and to undertake the extensive planning necessary to perform this activity. The CI outage is expected to take 10-13 days at a cost of [redacted].

[redacted]

[redacted]

Rolls Royce Trent Unit

The Rolls Royce Trent unit is currently in Abu Dhabi where strip down of the unit has commenced to enable a design defect (with the high pressure disk) to be repaired under warranty. This defect limited the remaining operating life to ~2000 hours.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted], a target timeline for the Trent is as follows:

- Post repair - dispatch the Trent from Abu Dhabi to return to TVPS - 7 March 2016;
- Clear Customs and transport to TVPS – 21 March 2016; and
- Complete commissioning and return to service activities – 28 March 2016

The return to service of the Trent including air freight from Abu Dhabi is estimated to cost [redacted]

Pratt and Whitney FT8s

The FT8s are currently operating 12 hours per day, however given engine failures the output is currently reduced from 120MW to 75MW. With the current workforce and the CCGT RTS activities there was no option to increase this without adversely impacting the CCGT schedule. [redacted] have been secured temporarily to facilitate increased FT8 running up until the CCGT is returned to service.

If ongoing extended longer-term operation is required, and / or returning the units back to full output – noting this is likely to be the most cost-effective, quickest and least logistically challenging option for additional generation in Tasmania - there are two options being progressed:

1. Lease units to replace the failed units on site at a cost of [redacted] per day which would provide an additional 21GWhs at a cost of [redacted] per month (ex-gas and operational costs). HT would also be liable for any wear and tear or damage to the leased units during this period; and
2. Refurbish the existing TVPS failed FT8 units at an estimated cost of [redacted]

The time frame for the above options varies based on the supplier's workload and equipment availability, at the time of the last enquiry (several months ago) the lead time was circa six weeks and this is currently being re-confirmed.

Note the rental and repair options will be further considered once the Basslink outage timeline is better understood and the CCGT has been successfully RTS.

Other thermal contingencies

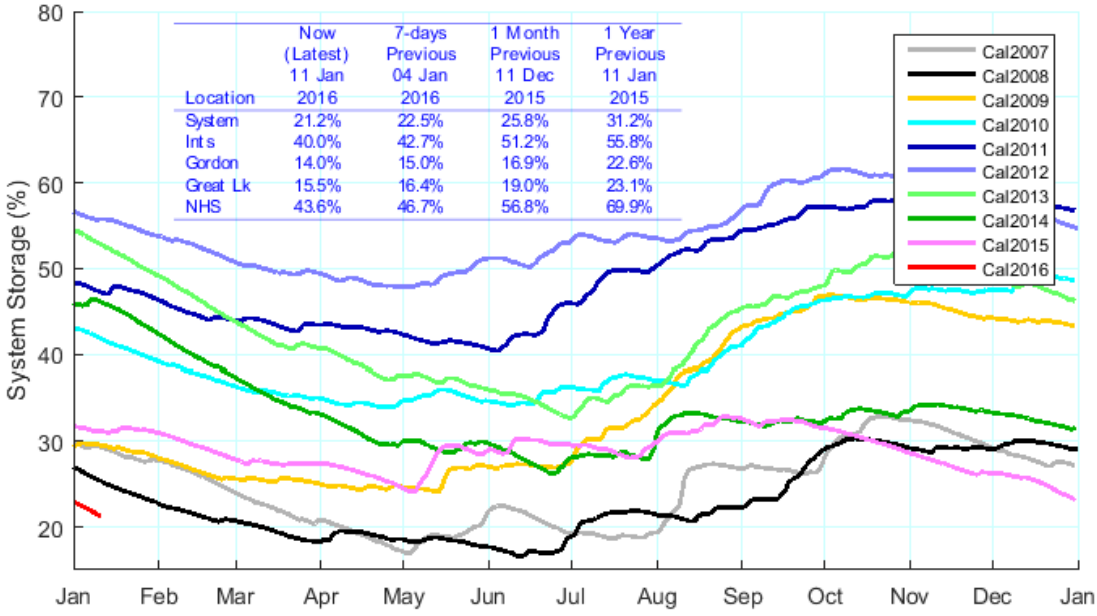
[redacted] has been appointed to investigate other additional temporary energy options should they be required in the long term. Noting above that returning the FT8s to full output is likely to be the most cost effective, least difficult and quickest method of inserting an additional 45MW of generation in Tasmania.

System Status Overview as at 11 January 2016

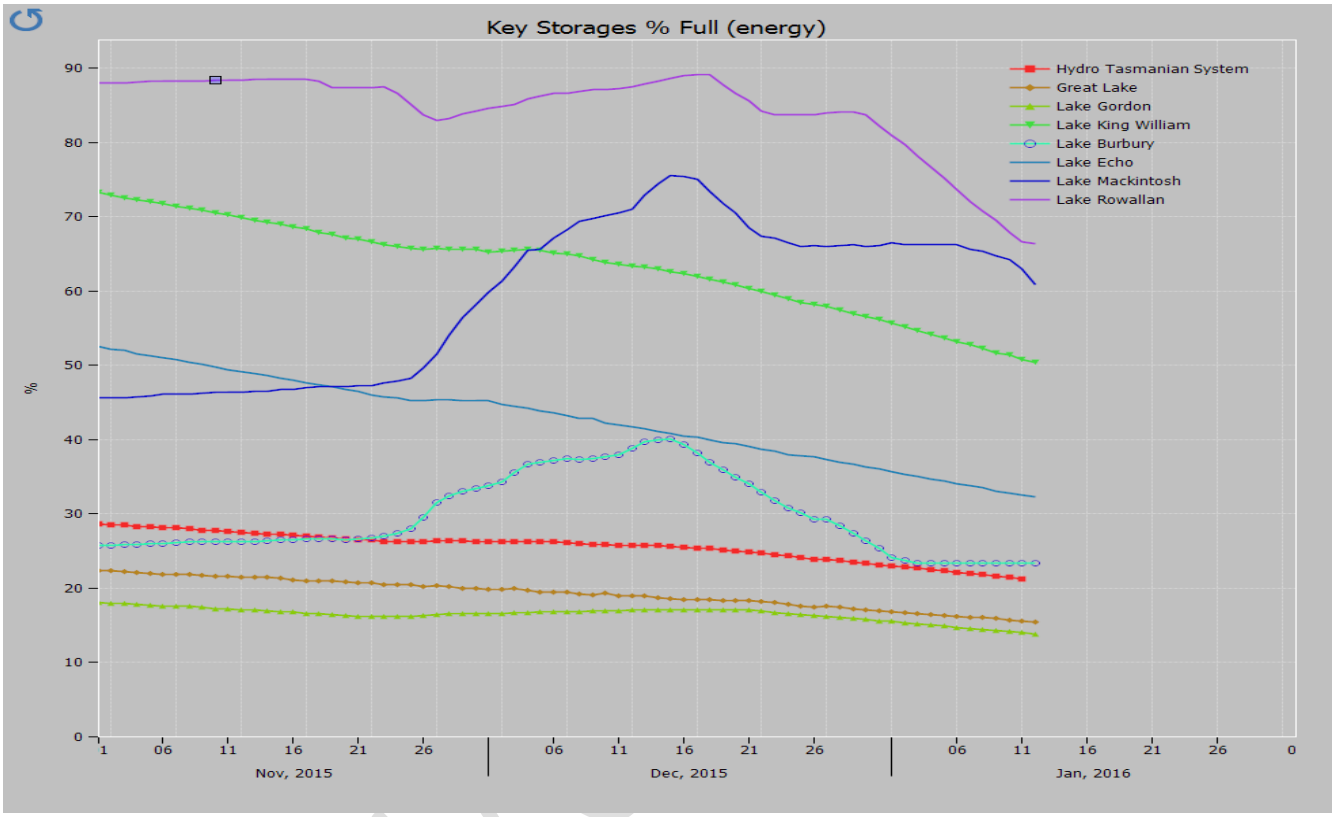
Storages and Inflow

- The current total system storage position is 21.2%, 1.3% lower than last week
- The Northern Headwater storages are at 43.6%, 3.1% lower than last week, and below their preferred operating levels
- There was negligible rainfall last week, with inflows well below average
- There is 10-20mm of rainfall forecast for the week ahead but this is not expected to deliver much inflow due to the catchments being dry
- The January yield is currently -16 GWh due to low inflows and high evaporative losses
- [redacted]

Graph 1: System Storage Level



Graph 2: Individual and System Storage Level



Supply/Demand

- For the week ended 10 January 2016:
  - Gas generation was 3.5 GWh
  - Wind generation was 17.1 GWh
  - Tasmanian demand was 188.8 GWh
- Energy in storage 4/1/2016 = 3247 GWh (22.5%)
- Plus: Yield for week = -16 GWh
- Less: Hydro Production for week = 168 GWh
- Equals: Energy in storage 11/1/2016 = 3063 GWh (21.2%)

Outages

Hydro

- Current outages
  - Tungatinah 4 scheduled return 4/07/16 (multi machine station no impact on energy)
- Future outages
  - Tarraleah station scheduled outage 15-18 February 2016 (High priority: 0 MWh impact)
  - Paloona scheduled outage 2-4 February 2016 (Warranty inspection: 0MWh impact)
  - Wilmot 4 yearly outage 8 February – 7 March 2016 (spill risk negligible)
  - Gordon station environmental outage scheduled for 2-3 April 2016 (0 MWh impact)
  - John Butters scheduled outage 1 February - 14 March2016, aligned with planned operation of the CCGT (0MWh impact)

- Rescheduled outages
  - Gordon station outage 9-10 January 2016 moved to 30-31 January 2016. Aligned with CCGT operation and gives time to prove the reliability.
  - Mackintosh outage 4-22 January 2016 moved to 4-22 April 2016 to align with CCGT operation and post Basslink return to service.

Thermal

- Mitsubishi CCGT scheduled return to 20/01/16
- Trent OCGT (58MW) scheduled return 3/06/16 (evaluating early return to service 1st week April 2016)

Basslink

- Scheduled to return on 19/2/16

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Projections

[redacted]

GRAPH DELETED

Key Assumptions:

Gas generation

[redacted]

Basslink

Available 19 Feb 2016 onwards

Tasmanian Demand

Reduced by 30 MW ave for the period 11 Jan 2016 – 30 Jun 2016 [redacted]

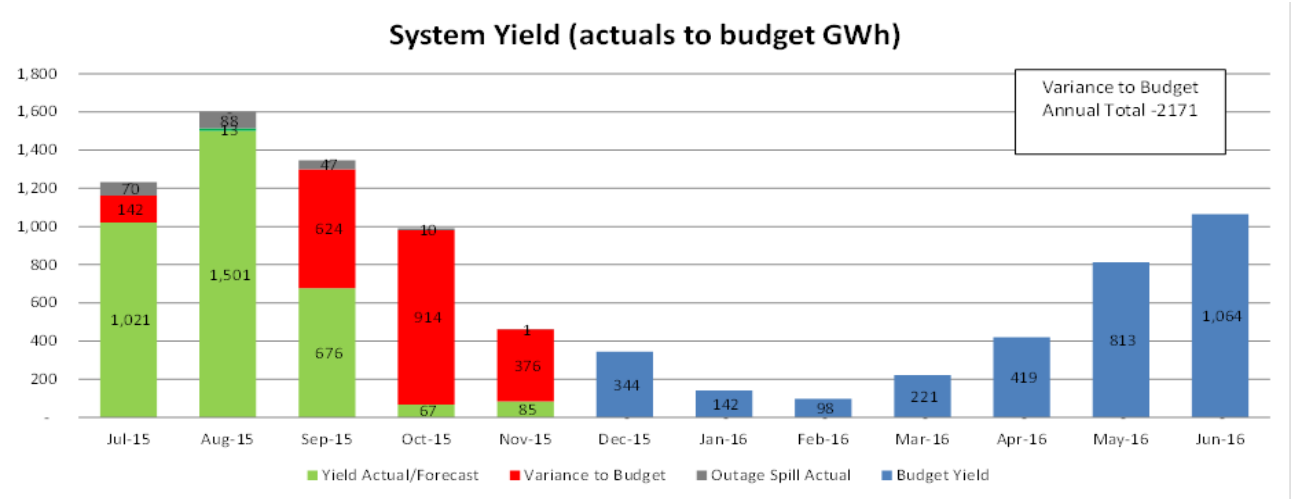
6.2 Wholesale Gas Portfolio

GRAPH DELETED

[redacted]

- [redacted]
  - [redacted]
  - [redacted]
- [redacted]
- [redacted].
- [redacted]
- [redacted]

7. ENERGY CAPABILITY AND HYDROLOGICAL RISK



Graph 6: Budget and actual yields for 2015/2016 year

- Table 1 shows a November yield of 85 GWh, below the previous lowest of 99 GWh in 2007.
- The September to November period and the financial 2015/16 year-to-date are also record low yields, and the end of financial year forecast is now 6450 GWh. This down from the end of month

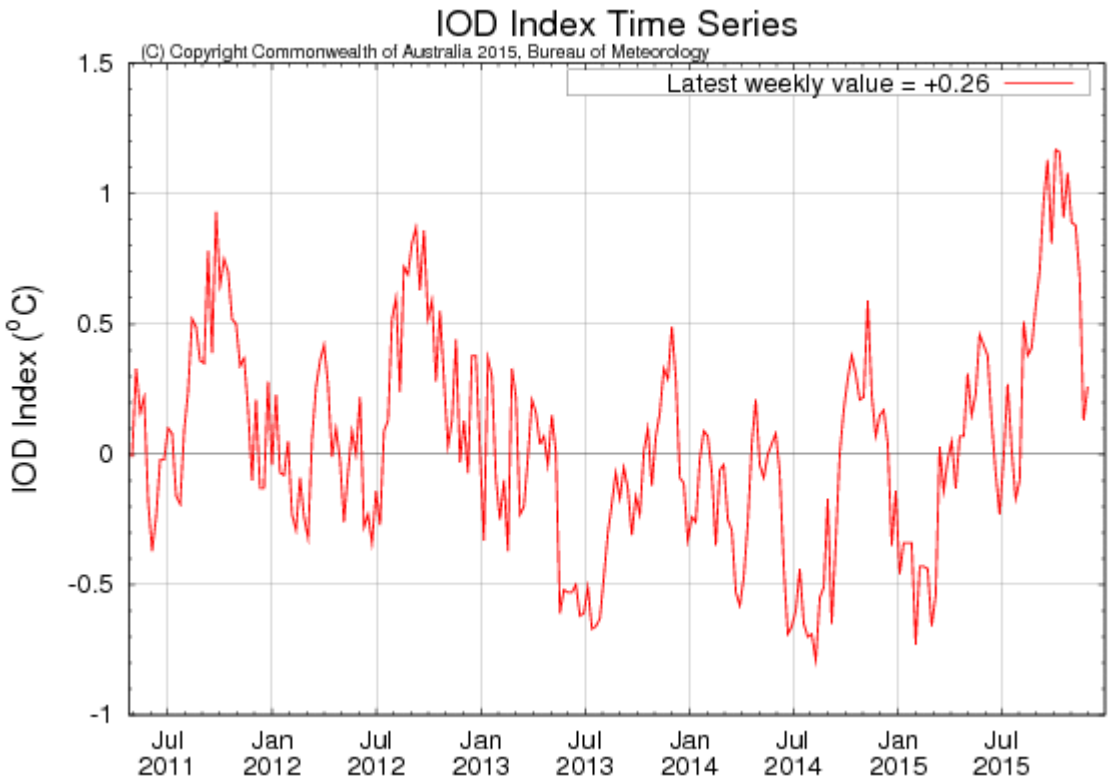
[redacted]

forecast of 6505 GWh.

- The following table shows the recent history of calendar year inflows:

2003	9299
2004	9828
2005	9986
2006	7051
2007	7793
2008	7348
2009	9808
2010	9610
2011	9677
2012	9177
2013	10420
2014	7754
2015	7376 (forecast)

- The current climatic conditions (El Nino combined with similar phenomenon in the Indian Ocean known as the Indian Ocean Dipole) are associated with low inflows.
- The Indian Ocean Dipole, shown below in Graph 7, has started to decay which could mean a return to normal inflows. However, other drivers are more important over the summer period and the current outlook is neutral.



Graph 7: Bureau of Meteorology Indian Ocean Dipole 2011 – now

WHOLESALE ENERGY SERVICES

9·¢w!/¢Cwha REPORT PREPARED IN DECEMBER FOR NOVEMBER REPORTING PERIOD

- The Storage Management Guideline "Shortfall Index"[5] remains well above 60 days and has increased since last month due to a fall in Tasmanian demand (seasonal) and increased availability of generation plant.

[redacted]

- [redacted]
- [redacted].
- [redacted].
- A range of contingency options continue to be evaluated including;
  - Combined Cycle Gas Turbine operation from mid-January 2016
  - [redacted]
- [redacted].

[redacted]

Hydro Tasmania

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Optimisation of TVPS

8 October 2014

Key themes

- This presentation outlines that:
  - The CCGT is uneconomical to run
  - The Impact of TVPS on Hydro Tasmania's bottom line can be improved by [redacted] per annum
  - The CCGT plant is not required for energy security
  - [redacted]

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Background

- On 1 June 2013, AETV and all associated assets were transferred from Aurora Energy to Hydro Tasmania. Through this transfer, Hydro Tasmania acquired a sizeable contracted gas position, with the majority used to supply the **Tamar Valley Power Station (TVPS)**.

- The assets which were transferred included the following TVPS assets:
  - **Mitsubishi CCGT 208 MW**
  - New OCGT 58 MW peaking operation
  - 3 Old OCGT 120MW (3 x 40MW)

- In accordance with Shareholding Ministers' Direction under Section 8 of the *Electricity Reform Act 2012*, Inclusion of Aurora Energy (Tamar Valley) Pty Ltd and associated assets in the Hydro-Electric Corporation business portfolio, Hydro Tasmania was directed to:

  "not divest any of the assets without the prior approval of the shareholding Ministers."

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Impact of TVPS

[redacted], TVPS is forecast to make a negative net contribution of $[redacted] million over the five year period.

Net contribution	FY2015	FY2016	FY2017	FY2018	FY2019
TVPS (base case)	-$[redacted]m	-$[redacted]m	-$[redacted]m	-$[redacted]m	-$[redacted]m

Notes:

- Includes the current optimisation regime (9 month lay-up)
- Does not include the total impact of the AETV transfer [redacted]
- No debt against TVPS and no depreciation
- Assumes that TVPS assets cease to operate (when existing gas supply and transportation contracts expire 31 Dec 2017)
- [redacted]

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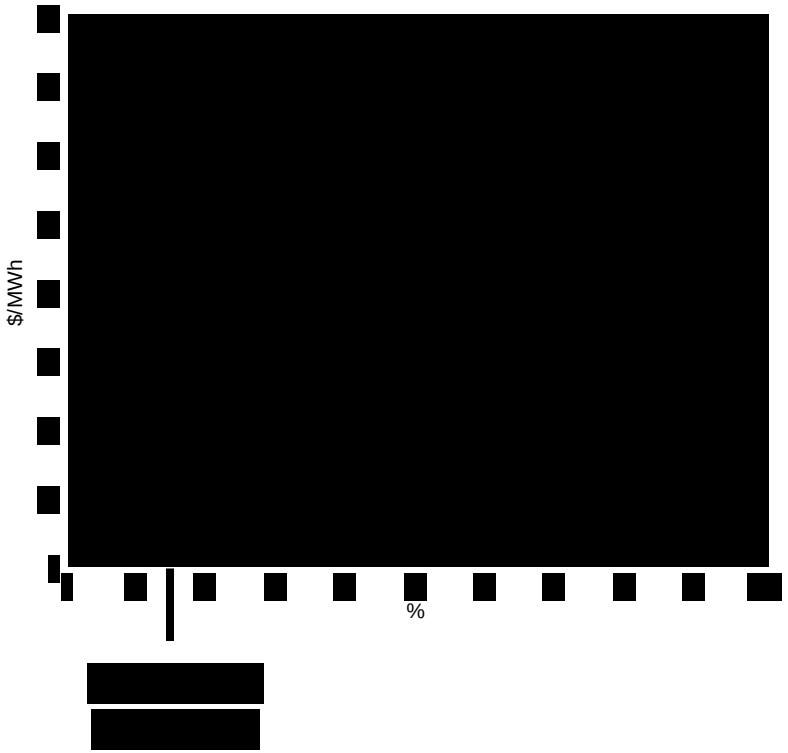
The CCGT is uneconomic

- Variable cost of generating electricity via the CCGT plant is $ MWh compared to wholesale electricity price of $ MWh (~$ /month)
- Any increase in gas prices will increase the rate of loss when operating
- CCGT has avoidable annual fixed costs of $ (labour, maintenance, insurance, etc.)
- Finance expenses reduced (interest and depreciation), based on $ sale price, by $



The cost of running the CCGT .

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Effect on the bottom line

Underlying profit	FY2015	FY2016	FY2017	FY2018	FY2019
Base Case*	$				
Sale of CCGT asset in 2016					

Operating cash flow	FY2015	FY2016	FY2017	FY2018	FY2019
Base Case*					
Sale of CCGT asset in 2016					

Net Debt	FY2015	FY2016	FY2017	FY2018	FY2019
Base Case*					
Sale of CCGT asset in 2016					

*Base case assumes debt relief

Bringing forward closure and sale of the CCGT will result an in average increase in underlying profit before tax of approximately $ per annum compared to the optimised (minimum) operation of TVPS in the base case

Sensitivity: Assumed sale price of $ is yet to be tested in the market

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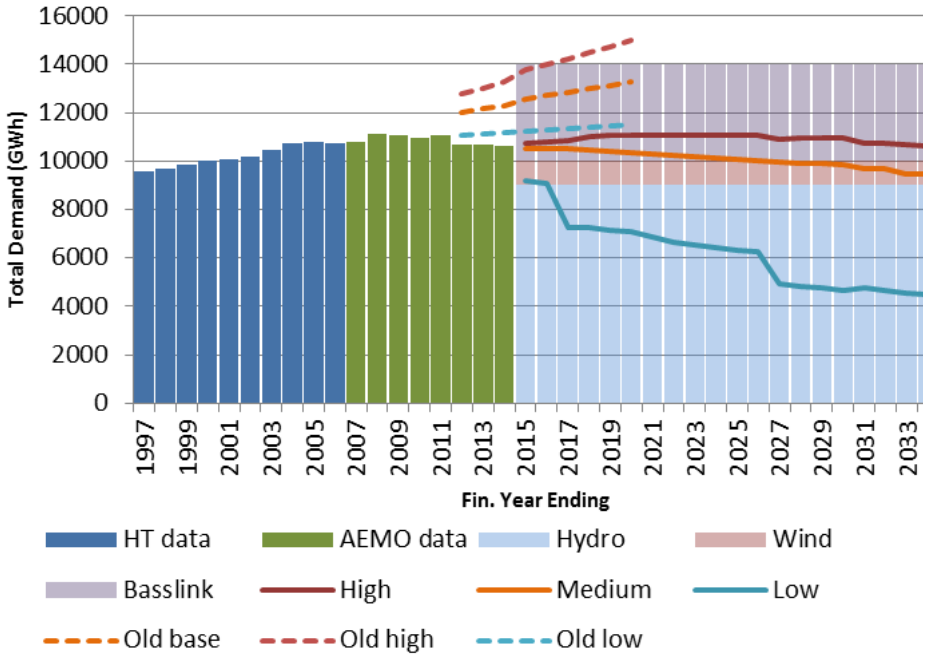
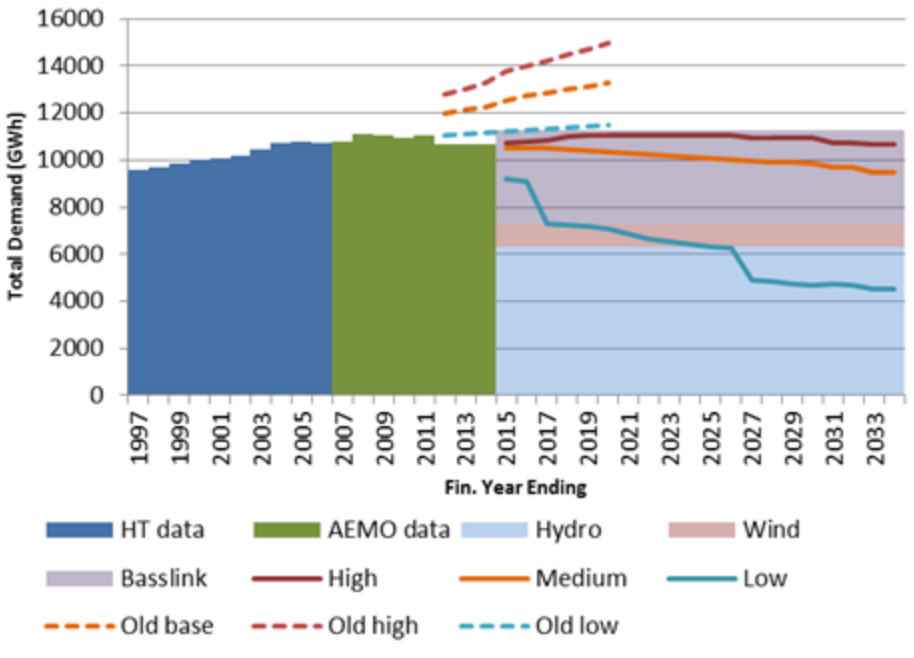
The CCGT is not required for energy security

Energy supply/demand
(average inflows)



Energy supply/demand
(low inflows 6300GWh)



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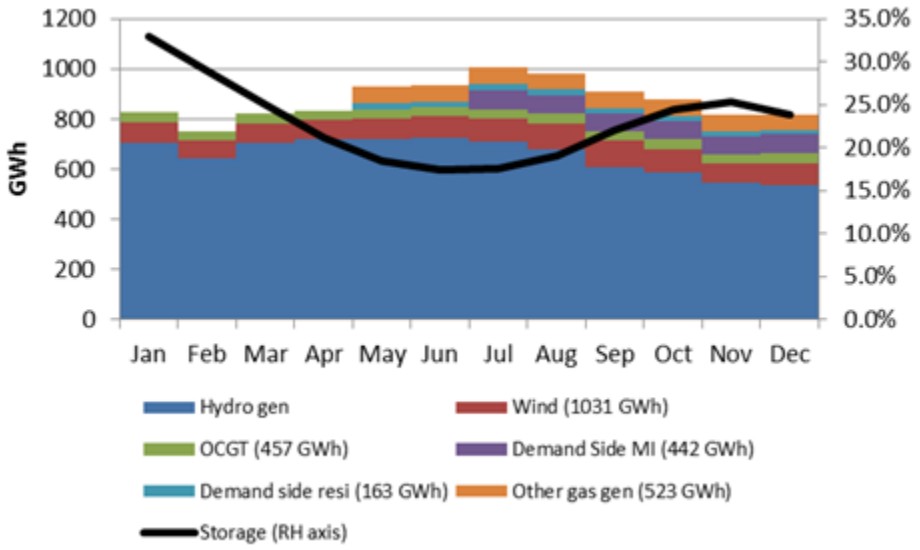
The CCGT is not required for energy security because under all forecast demand scenarios Tasmanian load can be met by a combination of existing hydro, wind and Basslink imports.

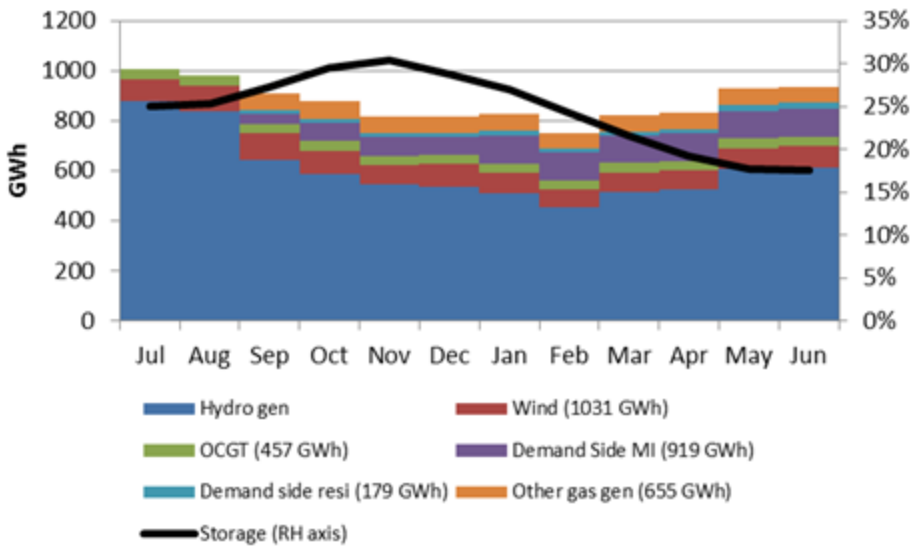
Energy Security – Extreme Scenario (1 in 1000)

12 month Basslink outage and coincident drought (6300GWh)

Energy supply/demand
(12mth BL outage – 1 January)



Energy supply/demand
(12mth BL outage – 1 July)



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Tasmanian demand can be met even in the most extreme scenarios using a combination of existing and temporary gas fired generation,

[redacted]

- [redacted]
  - [redacted]
  - [redacted]
- [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
- [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
  - [redacted]

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[redacted]

Risk Assessment

Identified Risk	Risk Likelihood (H, M, L)	Impact of Risk (H, M, L)	Strategy to Manage Risk
Storages going below specified risk levels			Prudent water management and strategic use of Basslink import, OCGTs and load inter-ruption.
			.
"Take or Pay" Gas			Momentum C&I customers and wholesale channels to market. Run CCGT 3 Months 2015 (extreme case)
Sale of CCGT at $			Become active in the market as soon as possible

Conclusions [redacted]

- **The CCGT is uneconomic and significantly impacts Hydro Tasmania's bottom line and returns to Government**
- **The CCGT plant is not required for security of supply**
- [redacted]
- ***Hydro Tasmania will now seek the endorsement of the Shareholder Ministers to divest the CCGT Plant***
- ***The divestment process will begin in November 2014***
- ***Subject to negotiations with*** [redacted] ***, the target completion date for the divestment process is 31 Dec 2015***

[redacted]

Appendix

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[redacted]

[redacted]

- [redacted]
- [redacted]

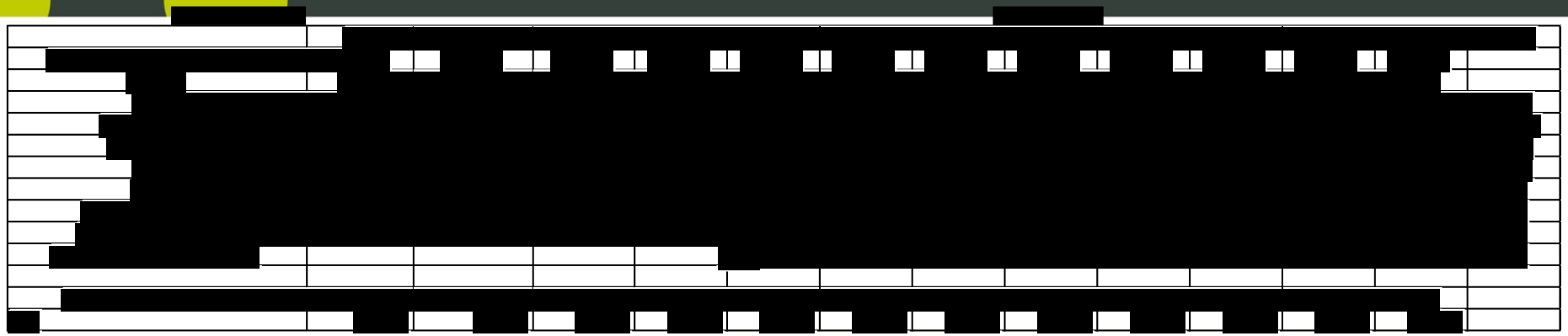
[redacted]

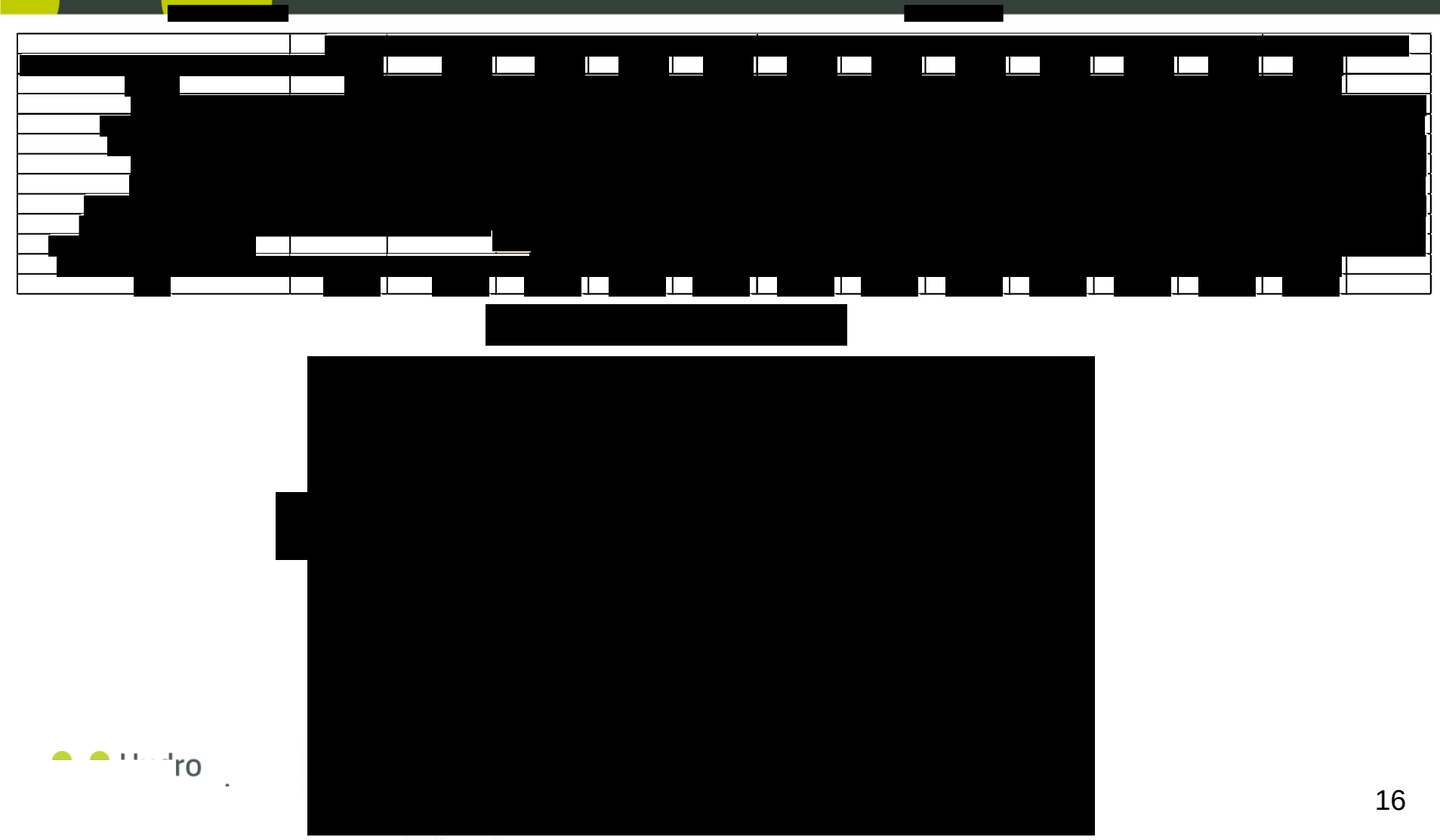
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[redacted]

[redacted]

o [redacted]





[redacted]

[redacted]	[redacted]
[redacted]	[redacted]
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[redacted]	[redacted]
[redacted]	[redacted]

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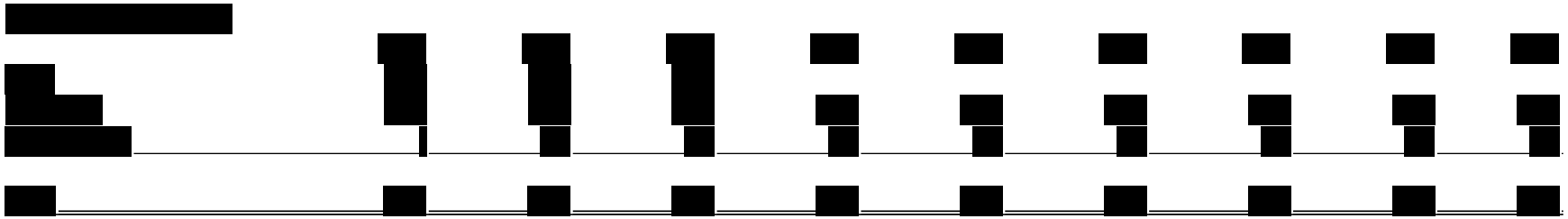
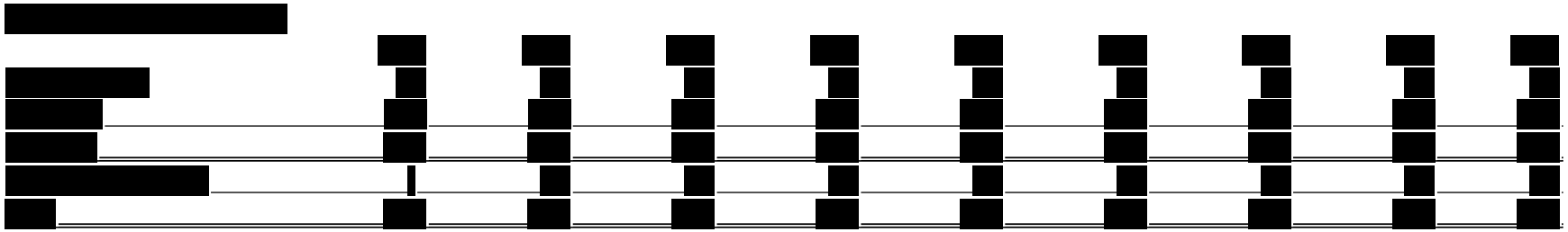
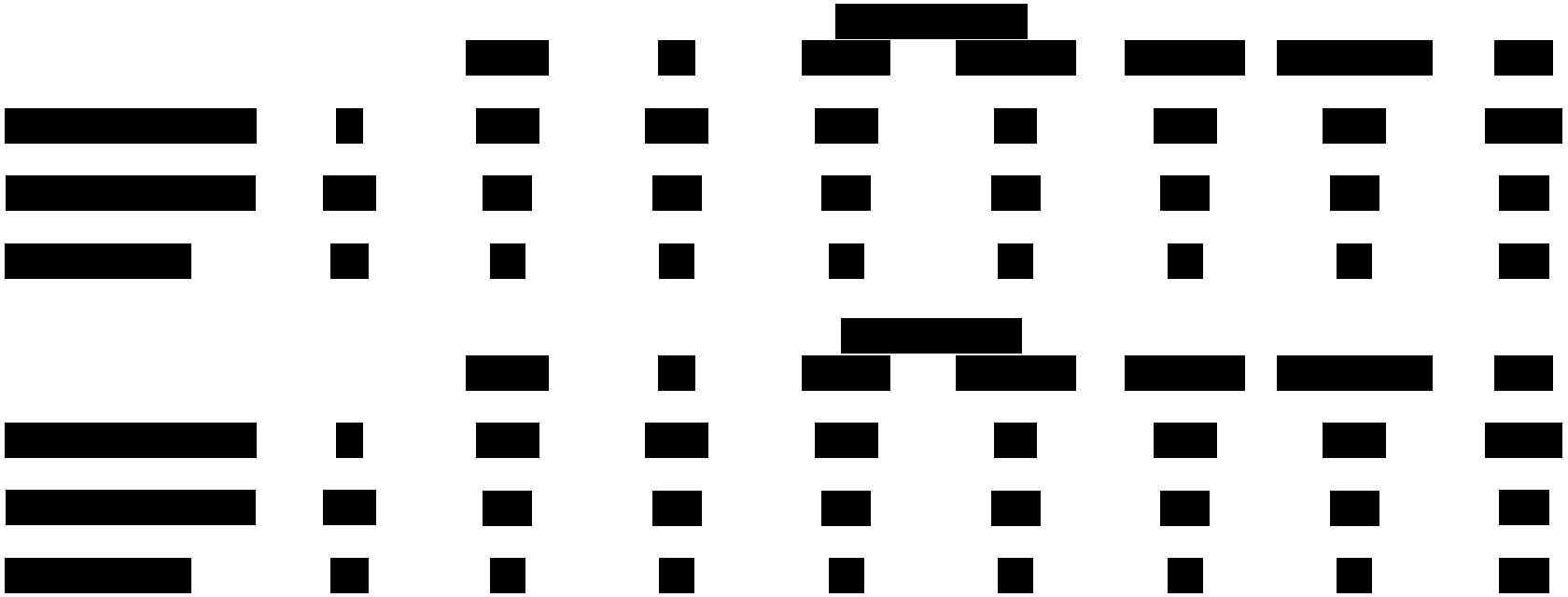
[redacted]







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Hydro Tasmania's Gas Strategy in Tasmania

Background

- On 1 June 2013, AETV and all associated assets were transferred from Aurora Energy to Hydro Tasmania. Through this transfer, Hydro Tasmania acquired a sizeable contracted gas position, with the majority used to supply the **Tamar Valley Power Station (TVPS)**.

- The assets which were transferred included the following TVPS assets:
  - New OCGT 60 MW peaking operation
  - 3 Old OCGT 120MW (3 x 40MW)
  - Mitsubishi CCGT 205 MW

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Key themes

- This presentation outlines:
  - Why the CCGT is uneconomical to run
  - Why the CCGT plant is not required for energy security
  - The negative net contribution from TVPS (base case)
  - The positive financial impact to Hydro Tasmania of the closure and sale of the TVPS CCGT plant
  - Hydro Tasmania's plan to improve this loss making asset
  - The TGP pipeline
  - How Hydro Tasmania has successfully worked with its Tasmanian gas customers
- [redacted]

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Why CCGT is uneconomic

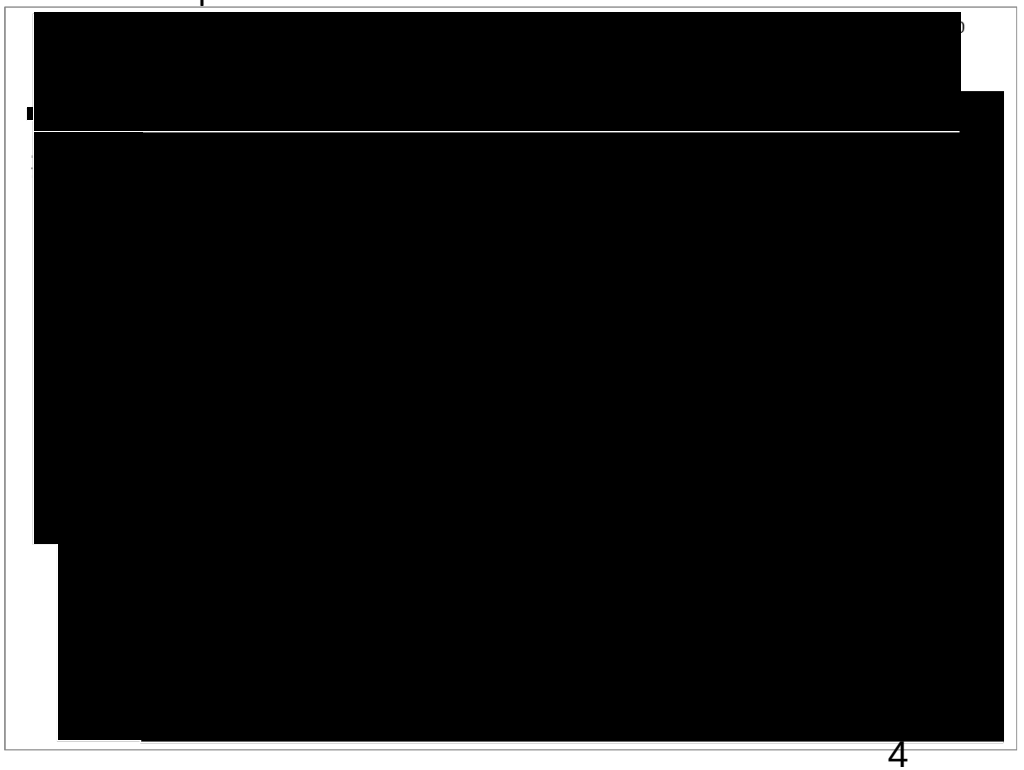
- This chart shows from 2014 electricity prices are expected to fall relative to the cost of gas, implying it is more economical to sell gas as a commodity, instead of using it ü2 produce and then sell as, electricity. CCGT is uneconomical.

- As a result, in order to meet Tasmanian demand, Basslink Imports are considered more economical compared to CCGT

- Victorian **electricity forward prices are declining** due to:
  - Carbon repeal
  - Falling NEM demand
  - Increasing NEM wind generation

- [redacted]

- CCGT will no longer have a **carbon advantage**:
  - CCGT has an Emissions Intensity 0.4
  - Average NEM Emissions Intensity of 0.9
  - This advantage will no longer be recognised once carbon is repealed


[redacted]

Why CCGT is uneconomic
Fixed Costs

Fixed Expenses ($m pa)	TVPS Configuration: CCGT and Peakers	TVPS Configuration: Peakers Only	Total avoidable fixed costs if mothballed (& sold)
Labour			
Maintenance			
Connection Agreements			
Gas Transportation (Firm) [1]			
Insurance			
Sub-total			
CCGT Interest Expense [2]			
CCGT Asset Depreciation [3]			
Total			

Total savings if sale **does not** occur

Total savings once sale occurs

1. Firm transportation agreement in place until Dec 2017 (Avoidable post Dec 2017)
2. Based on estimated sale value of $ and opportunity cost of interest
3. CCGT depreciation in Finance Asset Register 2013

Total savings of $ pa (on successful sale of the CCGT, with net proceeds of $).

- Avoidable fixed expenses of pa incurred when retaining the CCGT in an operational state.
- Further fixed cost savings of up to $ pa can be achieved if the CCGT is sold with net proceeds of $.

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Why the CCGT is uneconomic
Variable Costs (Cost of Production)

CCGT	Variable Costs ($/MWh at Full Load)
Gas Commodity	[redacted]
Variable O&M	[redacted]
Gas Transportation (Variable)	[redacted]
Total	[redacted]

Electricity contract rates	
Period	**VIC Flat ($/MWh)**
2015	32
2016	32
2017	34

- These tables show the variable cost of generating electricity via the CCGT plant is $[redacted] compared to purchasing electricity at $32-$34/MWh in the contract market.
  - CCGT variable cost of production is $[redacted] more expensive than Victorian forward electricity market price
- Going forward, every MWh generated is increasing losses.
- Any increases in gas prices sought by [redacted] will increase rate of losses (when operating).

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Why the CCGT is uneconomic
Cost of Production

This table compares the costs of retaining the unit and operating 3,6,11 months per annum with either decommissioning or sale.

CCGT average cost of production:

Average Cost of production ($/MWh at Full Load)		
Running Profile per year	**Keeping it operational relative to decommissioning**	**Keeping it operational relative to decommissioning and sale**
3 months	[redacted]	[redacted]
6 months	[redacted]	[redacted]
11 months	[redacted]	[redacted]

If sale of the CCGT was possible, the opportunity cost of retaining the unit and running 3 months per annum becomes [redacted].

Annual Loss (relative to $32/MWh Victorian Electricity Price):

Annual Loss ($m at Full Load)		
Running Profile per year	**Relative to Decommissioning**	**Relative to Decommissioning and Sale**
3 months	[redacted]	[redacted]
6 months	[redacted]	[redacted]
11 months	[redacted]	[redacted]

Note - In the event that sale of CCGT is unsuccessful, decommissioning CCGT still eliminates a significant proportion of fixed costs.

Why CCGT is uneconomic
Summary

- CCGT configuration is characterised by high fixed costs and low variable costs (relative to OCGT generation).
- Most cost effective when run as base load (year round operation).
  - Base load cost of production $[redacted]/MWh ($2014) well above current electricity contract market rates, for example Vic Flat Swap for 2015 currently $32/MWh.
- Further divergence between CCGT cost of production and electricity market expected, if predicted gas price rises eventuate.
- **Variable cost** of production $[redacted]/MWh exceeds post-carbon electricity contract market rates – every MWh generated will increase losses.
- CCGT Closure will reduce annual fixed costs by $[redacted]m pa.
- CCGT Sale is estimated to yield $[redacted]m (avoiding $[redacted]m pa in ongoing interest depreciation costs).

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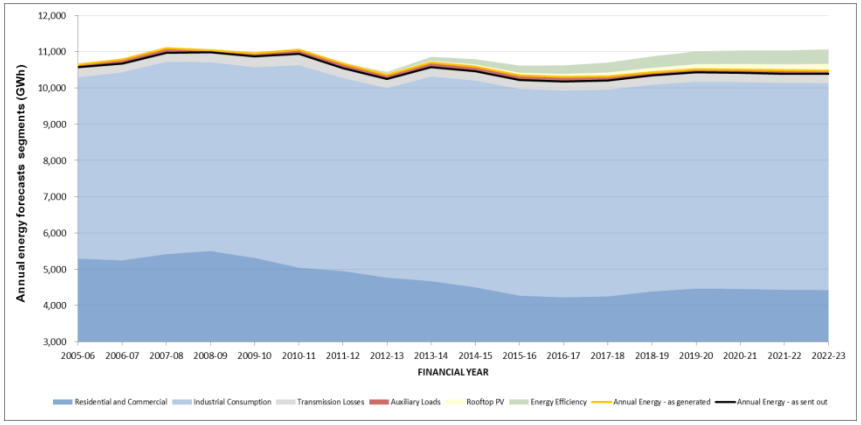
Why CCGT not required for energy security

- Hydro Tasmania analysis indicates:
  - No forecast risk of electricity shortfall as a result of CCGT closure, including Basslink outage scenarios of up to 2 months [redacted].
  - Minor increases in storage risks (Environmental or Operational) at long term storages (Great Lake and Gordon). Can be mitigated through increasing storage target levels for long term storages.
  - [redacted].

- AEMO forecasting Tasmanian electricity demand will continue to decline over the next 10 years (NEFR 2013).



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Impact of TVPS

- Under the base case [redacted], TVPS is forecast to make a negative net contribution of $[redacted] million over the five year period.
  - Includes the current optimisation regime
  - Assumes that TVPS assets cease to operate [redacted].
  - Includes non recoverable pipeline costs until Dec 2017.

Net contribution	FY2015	FY2016	FY2017	FY2018	FY2019
TVPS (base case)	-$[redacted]	-$[redacted]	-$[redacted]	-$[redacted]	-$[redacted]

Note:

- Does not include the total impact of the AETV transfer which has loss making contracts
- Does not include impact of wholesale price methodology
- Assumes no debt against TVPS and no depreciation

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Effect on the bottom line

- The sale of the TVPS CCGT will:
  - have no impact on wholesale contract prices in Tasmania in the foreseeable future.
  - improve Hydro Tasmania's financial outlook and sustainability (equates to an average increase in underlying profit before tax of approximately $[redacted] million per annum compared to the optimised operation of TVPS in the base case)
- The proceeds from the sale will be used to pay down debt as shown in the following table.

Underlying profit	**FY2015**	**FY2016**	**FY2017**	**FY2018**	**FY2019**
Base Case	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sale of CCGT asset in 2016	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Operating cash flow	**FY2015**	**FY2016**	**FY2017**	**FY2018**	**FY2019**
Base Case	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sale of CCGT asset in 2016	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Net Debt	**FY2015**	**FY2016**	**FY2017**	**FY2018**	**FY2019**
Base Case	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sale of CCGT asset in 2016	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Overall improvement in profit over five year period due to selling the gas wholesale at [redacted]%, reduced interest expense $[redacted], reduced depreciation $[redacted], fixed opex and maintenance saving of $[redacted] .

Optimisation of CCGT operations and gas sales (wholesale and retail capability)

- The optimisation of TVPS considers energy market prices, the capability and seasonality of the hydro plants, marginal operating costs of the plant (primarily carbon and gas) and various delivery risks.

- As a result, the following has occurred:
  - Reduced the level of uneconomic running on CCGT by putting unit into 5 month dry-lay up (Jul-Dec 2013).
  - Sold resulting surplus gas through peak winter period to maximise returns ([redacted])
  - Established retail gas sales capability through Momentum
  - Extended existing wholesale gas and/or transportation sales with Tasmanian gas customers ([redacted])
  - [redacted].

- The optimised schedule has saved Hydro Tasmania in excess of $[redacted] from a portfolio perspective

Proposal

Under the CCGT shutdown scenario Hydro Tasmania proposes to:

- Eliminate uneconomic running on CCGT:
  - Mothball CCGT unit (with intention to sell)
  - CCGT electricity generation replaced with lower cost Basslink imports
  - Remove or renegotiate standing costs associated with maintaining CCGT ([redacted].)
  - Address Basslink delivery risks associated with CCGT shutdown (synchronous condensers upgrades), work with Transend to reduce network dependence on CCGT operation, pursue reductions to FCAS requirements and relaxation of frequency standards with AEMO)
- Sell resulting surplus gas through Momentum retail (Mass Market and Commercial and Industrial)
- [redacted]
- The OCGT assets will continue to be maintained and remain available if needed

Gas customers – what has been facilitated

Hydro Tasmania currently sells wholesale gas and/or transportation to five Tasmanian customers and supplies Momentum.

Since acquiring its position in Gas, Hydro Tasmania has worked with a number of its Tasmanian customers:

- [redacted] – provided them with the opportunity to source commodity and transportation from separate suppliers to best meet their risk profile
- [redacted] – provided incremental commodity and capacity to support increased production at [redacted] facility. Provided cost effective flexible gas supply to [redacted] site ([redacted])
- Supported [redacted] and [redacted] with extensions to gas supply arrangements
- [redacted] [redacted] to support new industry opportunity in [redacted]

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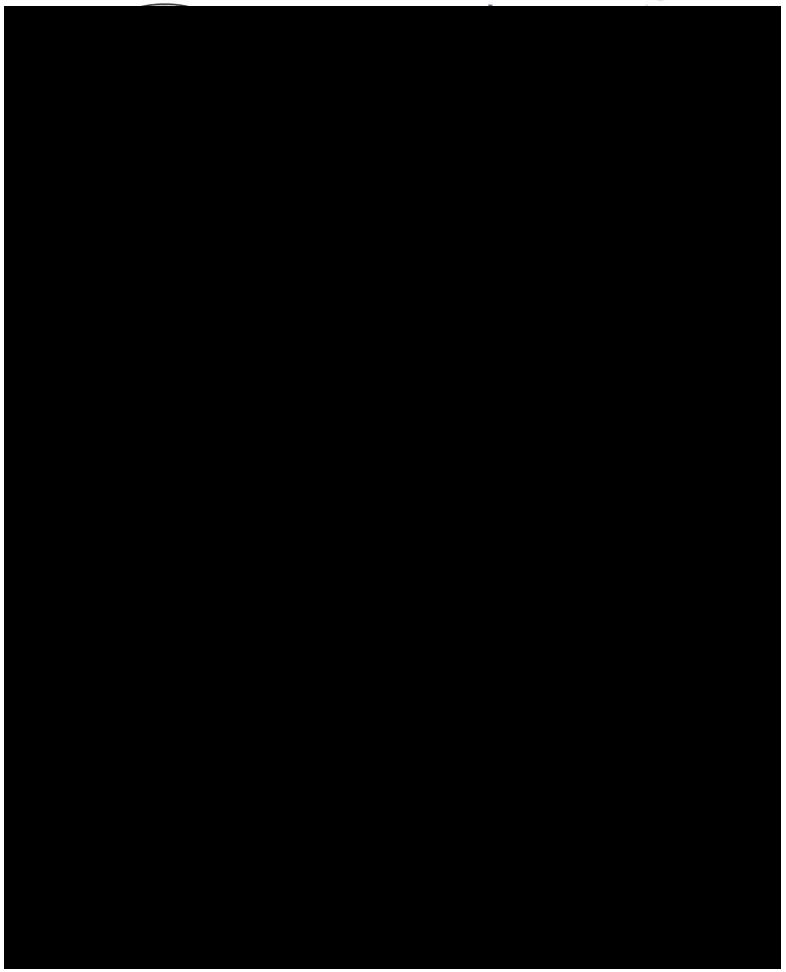
TGP – Background

[redacted]

- [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
- [redacted]



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TGP – what has been facilitated

- [redacted].
  - [redacted]
  - [redacted].
- [redacted]
- [redacted]
  - [redacted].
    - [redacted].
  - [redacted]

TGP

- [redacted]
  - [redacted]
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  - [redacted]

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[redacted]

Approval for Closure and Sale of the TVPS CCGT plant

- In accordance with Shareholding Ministers' Direction under Section 8 of the *Electricity Reform Act 2012*, Inclusion of Aurora Energy (Tamar Valley) Pty Ltd and associated assets in the Hydro-Electric Corporation business portfolio, Hydro Tasmania was directed to:

  "not divest any of the assets without the prior approval of the shareholding Ministers."

- Hydro Tasmania will seek the endorsement of the Shareholder Ministers to divest the CCGT Plant

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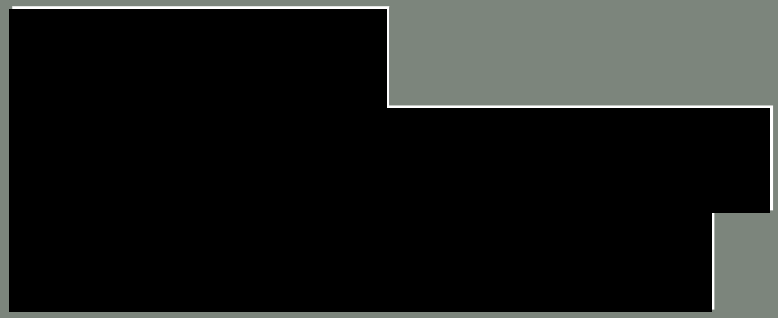

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- [redacted]

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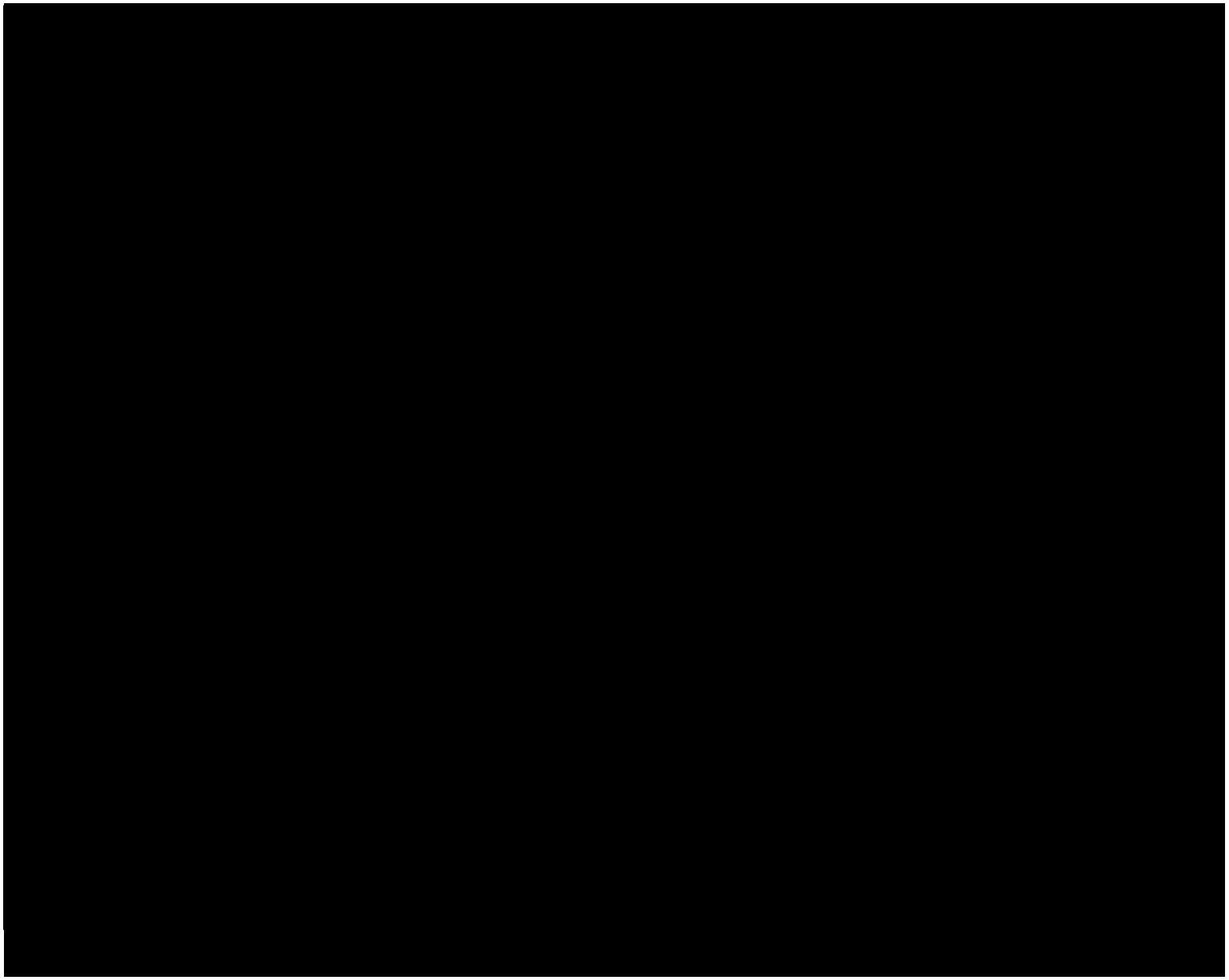

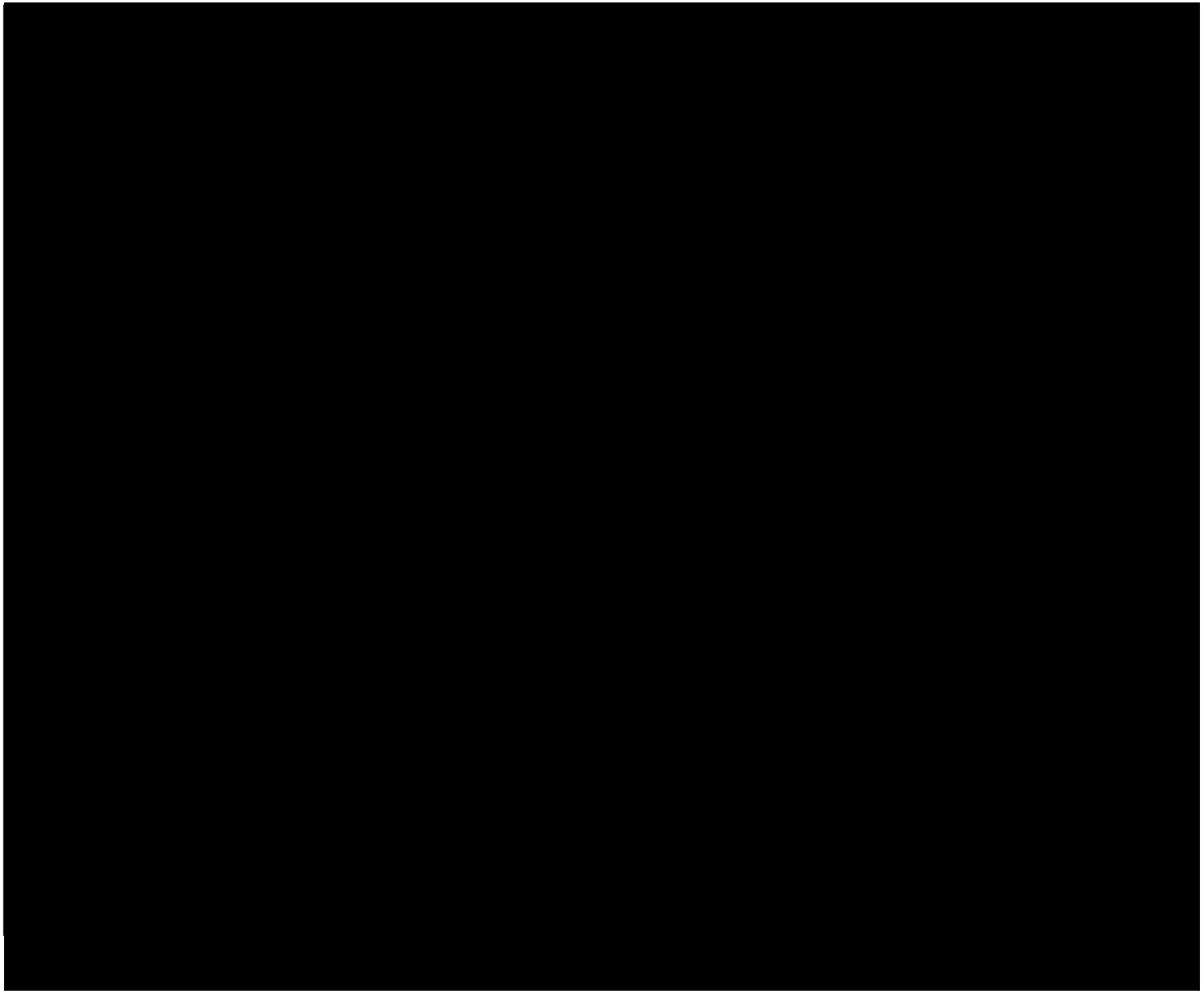

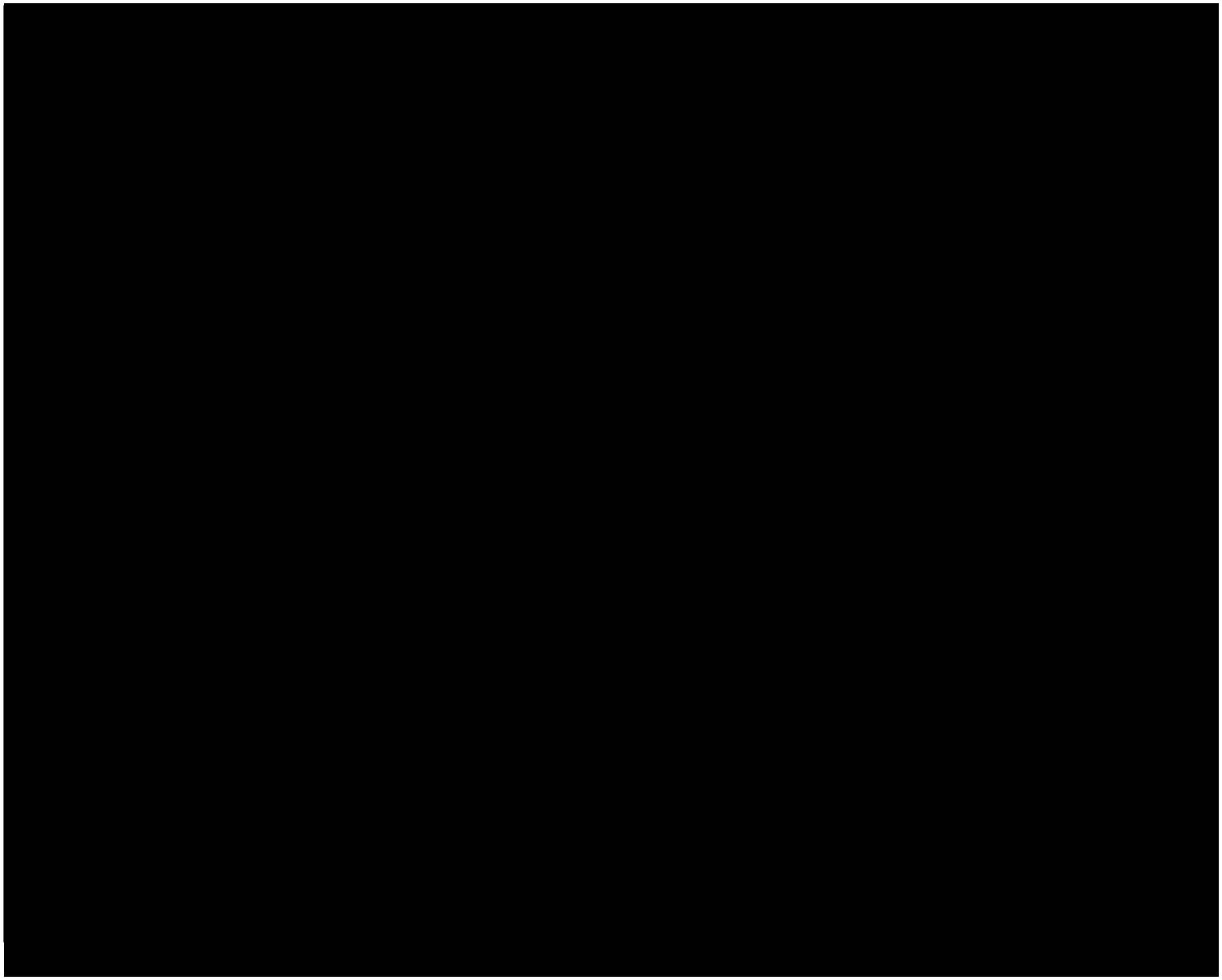

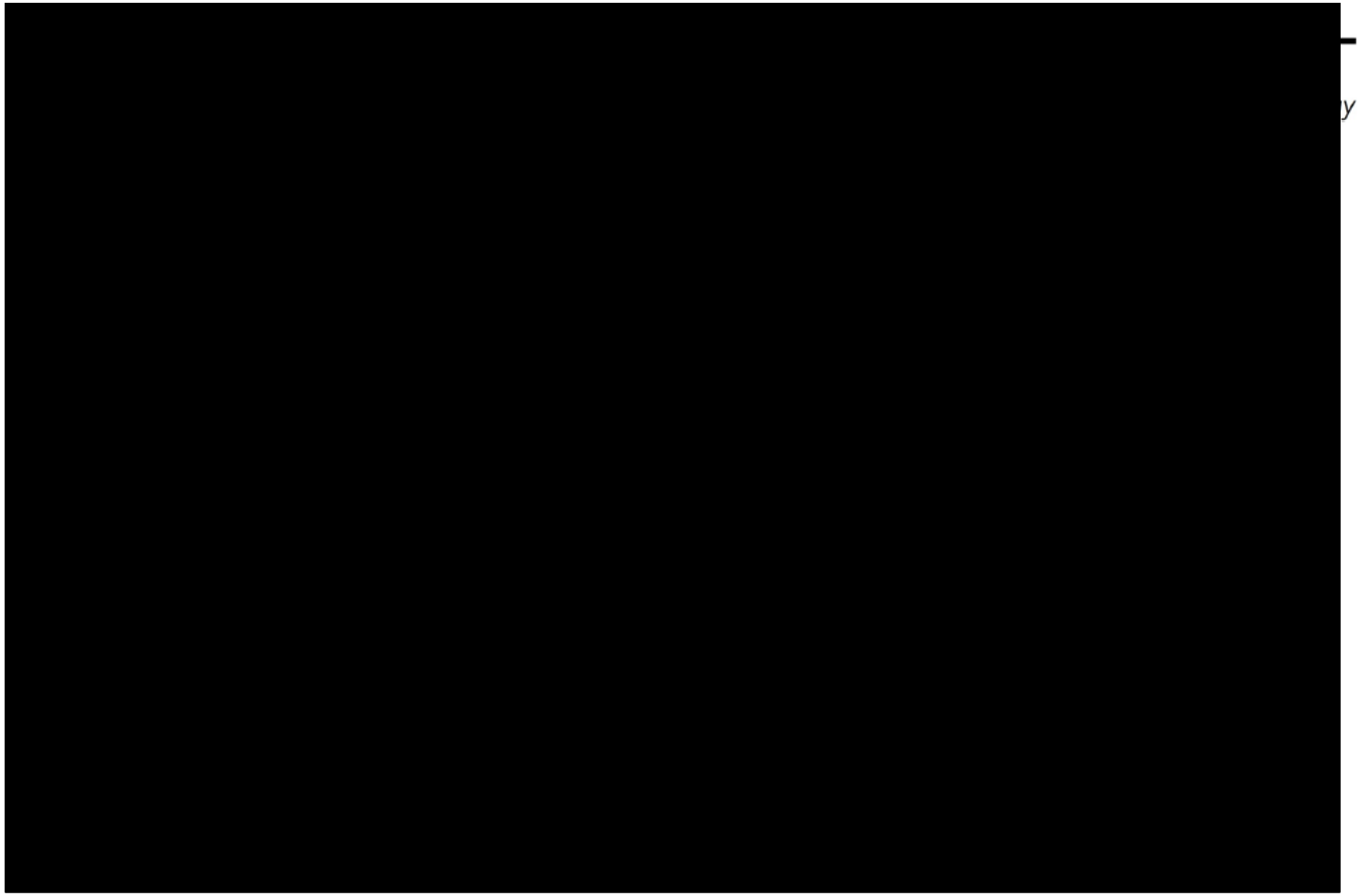

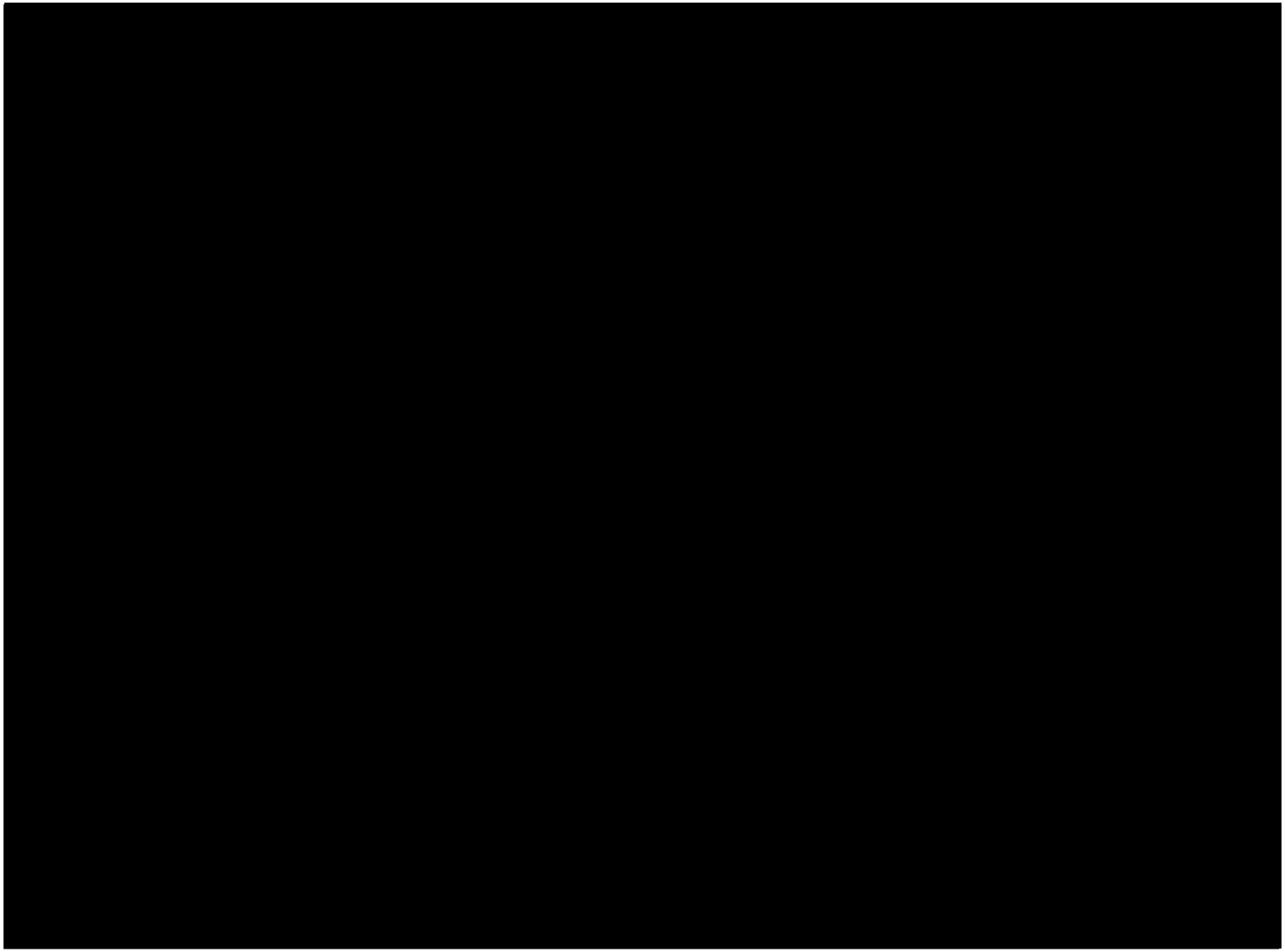

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Hydro Tasmania
The power of natural thinking

13 January 2015

Hon Peter Gutwein
Treasurer
Level 9, Executive Building
15 Murray Street
HOBART TAS 7000

Hon Matthew Groom
Minister for Energy
Level 10, Executive Building
15 Murray Street
HOBART TAS 7000

Dear Treasurer and Minister

MINISTERIAL APPROVAL FOR THE CLOSURE AND DIVESTMENT OF THE TAMAR VALLEY POWER STATION COMBINED CYCLE GAS TURBINE

We thank you for the opportunity to present on the economics and energy security considerations of Tamar Valley Power Station (TVPS) on 8 October 2014.

In June 2013 the ownership of the Aurora Energy Tamar Valley (AETV) assets were transferred from Aurora Energy to Hydro Tasmania with a clear mandate for Hydro Tasmania to optimise the assets within its generation portfolio. The performance of the TVPS has been improved as much as possible within the constraints of the equipment design and the gas and electricity markets. Despite the optimisation within the Hydro Tasmania portfolio, TVPS is still forecast to make a significant negative net contribution over the next five years.

As part of the AETV asset transfer, Hydro Tasmania was directed to *"not divest any of the assets without the prior approval of the Shareholding Ministers"* (section 8 of the *Electricity Reform Act 2012*). Hydro Tasmania is seeking Ministerial approval for the closure and divestment of the TVPS combined cycle gas turbine (CCGT). The remaining open cycle gas turbines at Tamar Valley Power Station will be retained to provide portfolio flexibility to manage energy, capacity and delivery risk while it remains economic[1] to do so.

The combination of current and forecast gas prices, and reduced energy and capacity prices in the electricity market driven by falling demand and the carbon price repeal, have adversely affected the financial viability of CCGT generation. As a consequence the CCGT is

[1] If units fail and are deemed uneconomic to repair then they will remain out of service indefinitely. The older FT8 units are more prone to failure than the Rolls Royce Trent unit.

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no longer economically viable to operate as a source of energy supply for the Tasmanian market in any of the forecast scenarios considered in Hydro Tasmania's long term planning. Benefits in the order of $[redacted] over the next five years (representing operating savings from now until 31 December 2017[2] and finance and depreciation cost savings across the five year period) have been identified as a result of divesting the plant. Associated "take or pay" obligations under the existing gas supply contract can be managed by Hydro Tasmania through alternative wholesale and retail market channels. The conclusion of recent negotiations [redacted] has increased our ability to manage the risks and extract value from the gas supply contract. The smaller benefit attributed to divesting the plant compared with the [redacted] forecast is because the optimisation of the variable costs we have undertaken since that time has reduced the losses associated with running the plant. Our analysis shows variable costs from the CCGT have now been minimised and to make further savings we need to mothball and sell the CCGT to reduce fixed costs.

Extensive system modelling has demonstrated the CCGT is not required for energy security for all credible scenarios including where Basslink is unavailable for a period of two months (expected period to repair a cable fault). [redacted]

[redacted]

[redacted]

Upon receipt of Shareholder Minister approval for the closure and divestment of the CCGT, Hydro Tasmania proposes to mothball the plant immediately. Following this the divestment process for the saleable components of the CCGT (the gas turbine and generator) would commence. The entire divestment process is targeted to be completed by 31 December 2015. Hydro Tasmania has used a sale price of $[redacted], [redacted], for our analysis. This will be used to pay down debt creating interest savings that contribute about $[redacted] per annum. This value can only be truly tested by

[2] If Hydro Tasmania operates the CCGT beyond [redacted] on 31 December 2017, the annual loss will likely increase, [redacted]

going to the market and could be significantly less (possibly half); however, the case for closure is still strong with a lower sale value. The associated savings will begin to accumulate within a few months of commencing the mothballing and divestment process.

Should you require any further information in relation to this request please do not hesitate to contact [redacted] at [redacted]

Yours sincerely

G.V. Every-Burns
Chairman

Minister for State Growth
Minister for Energy
Minister for Environment, Parks and Heritage

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Tasmanian Government

Mr Grant Every-Burns
Chairman
Hydro Tasmania
4 Elizabeth Street
HOBART TAS 7000

CEO ✓
CFO
COO ✓
CORP SEC
HR COUNSEL
GEN COUNSEL ✓
12 AUG 2015

CHAIRMAN ✓
CIO
DIR WES ✓
DIR S&M ✓
MD ENT
MD MDM
11 AUG 2015

Dear Mr Every-Burns

SALE OF THE TAMAR VALLEY POWER STATION COMBINED CYCLE GAS TURBINE

Thank you for your letter of 13 January 2015 regarding Hydro Tasmania's request for Ministerial approval for the closure and divestment of the Tamar Valley Power Station (TVPS) Combined Cycle Gas Turbine (CCGT).

The Government has considered Hydro Tasmania's request and decided to approve Hydro Tasmania seeking expressions of interest for the sale of the TVPS CCGT, subject to the following conditions:

- The sale price of the CCGT is to be endorsed by the Minister for Energy and the Treasurer prior to Hydro Tasmania entering into any sale agreement;
- Hydro Tasmania will be formally provided with responsibility for energy security in Tasmania;
- Hydro Tasmania is to review its prudent Storage Management Guidelines and credible extreme event plans in the absence of the CCGT (and report the outcomes of this review to the Department of State Growth);
- Prior to the execution of any sale agreement, the Hydro Tasmania Board shall provide written confirmation to the Shareholder Ministers that the business can meet its energy security responsibility without the CCGT; and
- Any proceeds from the sale will be used to reduce Hydro Tasmania's debt.

It is recognised that while the Australian Energy Market Operator has responsibility to manage emergencies and system reliability, in an energy constrained system such as the Tasmanian system, Hydro Tasmania as the sole major generator is best placed to assume responsibility for energy security in Tasmania and to provide timely and appropriate responses and advice to energy security issues (noting that Hydro Tasmania's previous formal responsibility for energy security only ceased when it was no longer the sole major generator in Tasmania following the commissioning of the TVPS in 2009).

In this context, it is appropriate that Hydro Tasmania provide firm written assurances that energy security can be maintained in Tasmania on an ongoing basis without the TVPS CCGT.

Returning responsibility for energy security to Hydro Tasmania will initially be formally enacted through an amendment to Hydro Tasmania's Ministerial Charter. These amendments form part of a suite of broader amendments to update the current Ministerial Charter, which are being considered as part of the corporate planning process.

I also seek Hydro Tasmania's cooperation to coordinate any public announcements regarding this decision with our offices, and that commencement of the sale process be cognisant of the timing of communication by Government.

Yours sincerely

Matthew Groom MP
Minister for Energy

Background Document – CCGT business case for closure

1. Tamar Valley Power Station asset performance

On 1 June 2013, Aurora Energy Tamar Valley (AETV) and all associated assets were transferred from Aurora Energy to Hydro Tasmania.

The assets which were transferred included the following Tamar Valley Power Station assets:

- Mitsubishi Combined Cycle Gas Turbine[1] (CCGT) 208 MW
- Rolls Royce Trent Open Cycle Gas Turbine (OCGT) 58 MW
- 3 Pratt & Whitney FT8 Open Cycle Gas Turbines (OCGT) 3 x 40MW[2]
- Gas Sale and Purchase Agreement (GSPA) for the supply of up to 20PJ/annum [redacted]
- Gas Transportation Agreement (TVPS – GSA) for delivery of gas to the TVPS [redacted]

Under the base case [redacted] the Tamar Valley Power Station was forecast to make a significant negative net contribution over the five year period.

Proceeding with the closure and divestment of the CCGT will result in a total improvement in underlying profit before tax of approximately $[redacted] over the next five years.

2. Why the combined cycle gas turbine is uneconomic

2.1.Market Prices

A combination of market conditions, reduced energy and capacity value in the market driven by falling demand and the carbon price repeal, have adversely affected the financial viability of CCGT generation in the NEM. As a consequence the TVPS CCGT is no longer economically viable to operate as a source of energy supply for the Tasmanian Market[3].

[1] Combined cycle operation involves the capture of waste heat from the gas turbine to create steam that drives a second turbine increasing the output by approximately 50% for the same volume of gas consumed

[2] These units were originally purchased by Hydro Tasmania for energy supply mitigation prior to the commissioning of Basslink. The units were second-hand and are now approaching end of life.

[3] On 5 Feb 2014 Stanwell Corporation announced the withdrawal of Swanbank E Power Station (385 MW) from October 2014 due to "subdued market conditions and increasing gas prices".

In July 2014 GDF Suez announced it would only offer 230 MW of the 478 MW Pelican Point gas fired power station in South Australia in the market from 2015 due to falling electricity demand.

Market conditions will adversely impact the financial returns for CCGT generation over the foreseeable future due to:

- falling wholesale electricity prices (low demand / increased renewable generation)
- forecast increase in wholesale gas costs (driven by LNG exports)
- carbon price repeal (loss of CCGT carbon advantage relative to coal)

These impacts are highlighted in the following chart of historical and forecast electricity and gas prices:

GRAPH DELETED

Chart 1: Electricity price vs. cost of gas

There is no linkage between electricity and gas prices; the current and forecast prices of electricity and gas illustrate that it is more economic to sell gas as a commodity rather than producing electricity. It is more economic for Hydro Tasmania to import electricity over Basslink than to generate electricity using the CCGT.

2.2. CCGT Variable Costs

The CCGT is characterised by high fixed costs and lower variable costs (relative to OCGT). It is designed to operate as a base load plant with some ability to reduce output (125 MW minimum) during low price periods. It is increasingly more efficient when run consistently at high output.

The variable cost of generating electricity under the current gas contract via the CCGT is $[redacted]. This is considerably higher than purchasing electricity in the contract market, which currently trades at around $32-$34/MWh. Chart 2 illustrates that 85 per cent of electricity prices are below the short run marginal cost of the CCGT. Under these conditions, increasing the output of the CCGT increases the financial losses.

GRAPH DELETED

Chart 2: Short (SRMC) and long (LRMC) run marginal cost of CCGT versus electricity price

The cost of running the CCGT is well above current electricity contract market rates. The higher the output the higher the financial loses.

2.3. Current optimisation in Hydro Tasmania's portfolio

An operating plan to optimise TVPS was implemented immediately upon transfer. The optimisation of TVPS considers energy market prices, the capability and seasonality of the hydro plants, marginal operating costs of the plant (primarily carbon and gas) and various delivery risks. The optimised schedule (minimal running) has saved Hydro Tasmania in excess of $[redacted] from a portfolio perspective. As a result of implementing this plan, the following has occurred:

- reduced level of uneconomic running on CCGT by putting unit into dry-lay up (Jul-Dec 2013 and June 2014 – current)
- sold gas through peak winter period to other wholesale counterparties [redacted]

[4] The $[redacted] is higher than the on-going variable cost savings [redacted].

- established retail gas sales capability through Momentum [redacted]
- incremental wholesale gas sales with Tasmanian gas customers [redacted]

Optimisation to date has been focussed on reducing variable costs. Further optimisation is limited by the need to maintain the CCGT in an operational state, preventing reduction in fixed costs.

2.4. CCGT Fixed Costs

The fixed costs associated with the TVPS are contained in Table 1; there are a number of avoidable fixed costs if the CCGT unit is mothballed. Selling the unit results in additional benefits of savings insurance costs, interest savings from paying down debt with the sale proceeds and depreciation cost savings.

TVPS Configuration			**Total avoidable fixed costs if shutdown**
Fixed Expenses ($m pa)	**CCGT and Peakers**	**Peakers Only**	
Labour	[redacted]	[redacted]	[redacted]
Maintenance	[redacted]	[redacted]	[redacted]
Connection Agreements	[redacted]	[redacted]	[redacted]
Gas Transportation (Firm)[5]	[redacted]	[redacted]	[redacted]
Sub-total	[redacted]	[redacted]	[redacted] **(total savings if mothballed)**
Insurance	[redacted]	[redacted]	[redacted]
CCGT Interest Expense[6]	[redacted]	[redacted]	[redacted]
CCGT Asset Depreciation	[redacted]	[redacted]	[redacted]
Total	[redacted]	[redacted]	[redacted] **(total savings if divested)**

Table 2 Tamar Valley Power Station Fixed Cost Savings (CCGT/OCGT approximate allocation)

If the CCGT is mothballed, but not sold, there is a saving of $[redacted] in avoidable annual fixed operating costs. Selling the entire unit or its main components (gas turbine, steam turbine and generators) for [redacted] $[redacted] would reduce finance expenses, insurance and depreciation costs by $[redacted] pa. The $[redacted] sale value [redacted] (not yet tested in the market), making the total fixed cost savings of up to $[redacted] the best case scenario.

Fixed cost savings of $[redacted] plus avoided finance expenses up to $[redacted] are achievable through a mothball and sale of the CCGT unit. Savings can be realised almost immediately and fully achieved in 12 – 18 months

[5] [redacted].

[6] Based on estimated sale value of $[redacted] and an assumed cost of debt of [redacted]. Excludes impact of compounding in later years.

3. Energy Security

The previously anticipated requirement for CCGT generation for energy security in the Tasmanian System has been eliminated by the significant change in demand outlook since construction, increased import capability on Basslink, [redacted] and the commissioning of additional wind generation in Tasmania. As a result, Hydro Tasmania can meet its energy security obligations through its remaining supply options without the need for CCGT generation. [redacted].

Detailed system modelling has demonstrated that there are no supply shortfalls or unmanageable storage risks associated with the closure of the CCGT unit with Basslink outage scenarios of up to two months[7]. It also indicates immaterial increases in storage risks (environmental or operational) at long term storages (Great Lake and Gordon).

Hydro Tasmania has also undertaken preliminary research to determine availability and lead-time to mobilise temporary gas-fired generation (this has been one of the responses in Japan after Tsunami damaged its nuclear facilities). Units can be dispatched within 1-2 months if required. High level scenario analysis has determined that Basslink outages lasting a year coincident with drought conditions (>1 in 1000 probability) can be managed without experiencing any energy shortfall.

The CCGT is not required for energy security; Tasmanian demand can be met even in the most extreme scenarios [redacted].

[7] The Basslink two month outage scenario is considered the most onerous of the normal range of credible scenarios used for planning purposes. [redacted].

4. [redacted]

[redacted]

[redacted]

- [redacted]
- [redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]

[redacted].

[redacted]

[redacted].

5. [redacted]

[redacted]:

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted].

6. [redacted]

[redacted].

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

Table 4: [redacted]

[redacted].

7. Implementation

Upon receipt of Shareholder Minister approval for the closure and divestment of the CCGT, Hydro Tasmania will mothball the plant immediately (indefinite continuation of current dry lay-up). The OCGT assets will continue to be maintained and remain available if needed while it remains economic to do so.

The entire divestment process is targeted to be completed by 31 December 2015 based on the assumption approval is received by the end of 2014. All savings can be fully realised in 12 – 18 months and will commence to accumulate almost immediately.

A fully developed implementation plan has been prepared ready to be enacted upon receipt of required approvals.

8. Conclusion and Recommendation

The closure and divestment of the Tamar Valley Power Station Combined Cycle Generation Turbine will improve Hydro Tasmania's financial outlook and sustainability without impacting wholesale electricity prices in Tasmania. The savings are expected to be in the order of $[redacted] over the next five year planning period. Risk mitigation actions have been implemented to ensure all foreseeable exposures are appropriately managed.

The Hydro Tasmania Board recommends the Shareholding Ministers approve the closure and divestment of the Tamar Valley Power Station Combined Cycle Generation Turbine.