ENERGY IN TASMANIA
ANNUAL SECURITY REVIEW 2019–20

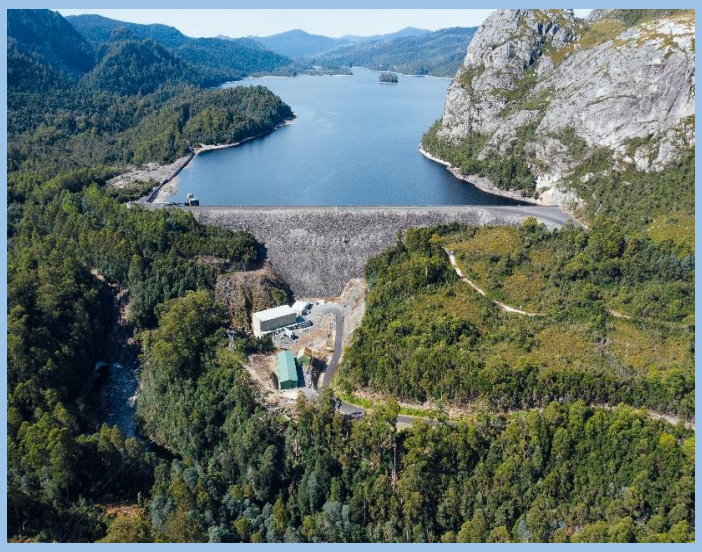

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

The role of Energy Security Monitor and Assessor (the Monitor and Assessor) was established under the *Energy Co-ordination and Planning Act 1995* to report on energy security in Tasmania and, when necessary, commence the process for risks to energy security to be managed. The Act provides that the Tasmanian Economic Regulator is the Monitor and Assessor.

The Monitor and Assessor is required to carry out an annual energy security review and prepare a report which sets out the Monitor and Assessor's findings from its review of the most recent 12 month period, together with an assessment of the forthcoming 12 month period. As in earlier reports, this report covers the period from 1 November to 31 October of the following year, defined as the water year. This report therefore reviews the period from 1 November 2019 to 31 October 2020 and makes an assessment of energy security in Tasmania for the following 12 month period.

The Act establishes two profiles total energy in storage for Hydro Tasmania's system of dams across the year. The lower level profile, defined as the High Reliability Level (HRL), is set such that Tasmanian could withstand a six-month Basslink outage, coinciding with very low inflows to energy in storage. If the actual water level is below the HRL, there would be concerns about Tasmania's energy security over the medium term. The higher level profile, the Prudent Storage Level (PSL), allows for an additional reserve above the HRL such that there is a low likelihood of energy in storage entering the HRL under normal operating conditions.

When water storage levels are above the PSL, Hydro Tasmania has the freedom to manage its energy security risks as part of its commercial operations. If water levels are below the PSL, there is increased monitoring by the Monitor and Assessor and Hydro Tasmania may be required to prepare a recovery plan with the objective of increasing water storage levels. Once a plan is approved by the Energy Security Coordinator, Hydro Tasmania must implement the plan, which may require Hydro Tasmania to manage energy security risks within its commercial operations.

Over the 2019-20 water year, the water in storage level did not fall below the PSL for any month. At the start of the following water year (November 2020), energy in storage was 6 411 GWh, approximately 4 percentage points above the PSL for than month and over 14 percentage points above the HRL for that month. The storage level for that month was 44.4 per cent of the maximum usable energy in storage.

Two large-scale wind farms in Tasmania, the Granville Harbour Wind Farm and the Cattle Wind Farm, commenced operating during the 2019-20 water year and, by increasing electricity in the State, are having a positive impact on Tasmania's energy security. Details regarding these new wind farms can be found at section 4.1.4 - Energy Supply Capability.

While the COVID-19 pandemic affected electricity consumption during the 2019-20 water year, including increasing residential electricity usage and decreasing some commercial usage, there was no material impact on electricity supply and no overall impact on energy security.

During the 2019-20 water year, the Monitor and Assessor released monthly dashboards on the Tasmanian Economic Regulator's website which reported energy in storage levels against the relevant PSL and HRL. The Monitor and Assessor did not require Hydro Tasmania to prepare any recovery plans during 2019-20.

Tasmania's available energy supply is expected to be sufficient to meet demand over the coming 12 months. Based on current inflow assumptions for Tasmanian hydro storages, on-island hydro generation, together with wind generation, is projected to meet Tasmania's demand over the year

ahead in the event of a temporary loss of generation from the Tamar Valley Power Station (TVPS) or a Basslink outage.

The Monitor and Assessor considers that there is a very low likelihood that energy in storage will fall below the HRL in 2020-21. Energy in storage may fall below the PSL in 2020-21, though it is expected that if this does occur, it is likely to be for short periods only.

The Monitor and Assessor is currently conducting a review of the existing PSL and HRL profiles due to the commencement of the two new large scale wind farms. As required under the Act, the Monitor and Assessor will report on the outcome of its review to the Minister for Energy during 2020-21, which may include recommending different PSL and HRL profiles to the Minister.

The Monitor and Assessor has not identified any energy security issues in the natural gas market in Tasmania.

KEY STATISTICS

Key statistics for the water year (1 November to 31 October) in GWh[1]

	2019-20	2018-19
Energy in storage (as at end of water year)	6 411	6 609
Total inflow to Hydro Tasmania's storages	9 238	8 873
Tasmanian consumption[2]	10 672	10 582
Hydro generation	9 809	8 859
Wind generation	1 419	1 140
Gas generation	100	481
Distributed generation	197	177
Basslink imports	1 101	1 095
Basslink exports	1372	980
Basslink net exports/(imports)	271	(115)

[1] Sources: 2018-19 & 2019-20 energy in storage and inflow data were sourced from Hydro Tasmania. 2019-20 demand and generation data were sourced from NEMSight and AEMO. 2019-20 electricity demand and generation data were sourced from NEMReview.

[2] These values refer to the level of electricity generation required to meet annual consumption and therefore include transmission and distribution network losses.

1 INTRODUCTION

Electricity generation in mainland Tasmania is dominated by hydro generation, which has inherent hydrological risks to energy security due to rainfall variability in hydro catchments and the management of energy in storage.

During 2015-16, Tasmania experienced two concurrent, low probability events that impacted on energy security with the Basslink Interconnector out of service and record low rainfall during spring. These events resulted in Hydro Tasmania's water storages falling to historically low levels. Among other things, the Tasmanian Government established the Tasmanian Energy Security Taskforce to advise the Government on how it can better prepare for, and mitigate against, the risk of future energy security events.

The Taskforce's Final Report was released in 2017.[3] The Report contained a range of recommendations including a clearly defined framework for assessing and managing Tasmania's energy security (the Framework). A key element of the Framework is the monthly public reporting of energy in storage levels in Tasmania against the Prudent Storage Level (PSL) and the High Reliability Level (HRL), details of which are set out in section 3.1.1.

The Tasmanian Economic Regulator was formally assigned the role of Energy Security Monitor and Assessor under section 8A of the *Energy Co-ordination and Planning Act 1995*.

The Monitor and Assessor's functions under the Act, are as follows:

- to monitor and provide reports in relation to energy in storage and other sources of energy;
- to evaluate, on a monthly basis, whether there is sufficient energy in storage and associated generation capacity to meet forecast electricity demand in the Tasmanian region of the National Electricity Market (NEM);
- to require Hydro Tasmania to provide recovery plans;
- to provide the Energy Security Coordinator with a copy of any recovery plan and the Assessor's advice on the quality of the plan;
- to notify the Energy Security Coordinator when energy in storage levels are likely to drop below the HRL;
- to monitor and evaluate the PSL and HRL and advise the Minister for Energy whether changes in the levels are required; and
- such other functions as may be prescribed.

The Monitor and Assessor therefore provides an additional layer of public reporting on energy security matters. If the energy security risks are elevated, the Monitor and Assessor determines when Hydro Tasmania is required to prepare recovery plans. This public reporting includes monthly reports and this annual report. The annual report contains a review of the most recent water year and an assessment of the forthcoming water year, together with a summary of the Monitor and Assessor's performance during the year.

[3] https://www.stategrowth.tas.gov.au/energy_and_resources/tasmanian_energy_security_taskforce/final_report

The Monitor and Assessor is also required to review any significant changes to the Tasmanian energy supply and demand balance and provide advice to the Minister for Energy to ensure that the framework for energy security remains appropriate.

The Act refers to energy security in the Tasmanian region of the NEM, which excludes the Bass Strait Islands. In most instances, such as in the assessment of energy in storage, references to Tasmania in this report are therefore to mainland Tasmania. Electricity supply on the Bass Strait Islands is the responsibility of Hydro Tasmania.

2 MONITOR AND ASSESSOR'S PERFORMANCE DURING 2019-20

As required under section 8C(2) of the Act, the Monitor and Assessor is to report on the performance of its functions and the exercise of its powers for the preceding 12 months. Below are the Monitor and Assessor's functions as set out under the Act, together with a report on the performance against each function for the preceding 12 months.

(a) to monitor and provide reports in relation to energy in storage and other sources of energy;

The Monitor and Assessor published monthly reports on Tasmanian's energy security on the Regulator's website in the first week of each month. These monthly reports set out Tasmania's energy in storage levels against the PSL and HRL together with the electricity generation mix for each month.

(b) to evaluate, on a monthly basis, whether there is sufficient energy in storage and associated generation capacity to meet forecast electricity demand in the Tasmanian region of the NEM;

The energy security monthly reports evaluated whether there was sufficient energy in storage and associated generation capacity to meet forecast electricity demand in the Tasmanian region of the NEM and whether any additional activity by the Monitor and Assessor was required, such as increased monitoring or whether a recovery plan was required.

(c) to require Hydro Tasmania to provide recovery plans and provide the Energy Security Co-ordinator with a copy of any recovery plan and the Monitor and Assessor's advice on the quality of the plan;

Under the Act, the Monitor and Assessor may require Hydro Tasmania to prepare a recovery plan if the level of energy in storage is below the PSL and the Regulator is of the opinion that it is reasonably possible that it will fall below the HRL. The Regulator must require Hydro Tasmania to prepare a recovery plan if the Regulator is of the opinion that it is probable that the level of energy in storage will fall below the HRL.

During 2019-20, the Monitor and Assessor held discussions with senior Hydro Tasmania officers to discuss the information that the Monitor and Assessor required to be included in a recovery plan. However, as energy in storage did not fall below the PSL in that year, the Monitor and Assessor did not require Hydro Tasmania to provide a recovery plan.

(d) to notify the Energy Security Co-ordinator when energy in storage levels are likely to drop below the HRL;

There was no time during 2019-20 when the Monitor and Assessor considered that energy in storage levels were likely to drop below the HRL and therefore no notification was issued to the Energy Security Co-ordinator.

(e) to monitor and evaluate the PSL and HRL and advise the Minister whether changes in the levels are required;

The Monitor and Assessor is currently reviewing the PSL and HRL profiles due to the commencement of two new large scale wind farms - the Granville Harbour and Cattle Hill wind farms - during the 2019-20 water year. The review is expected to be completed during the 2020-21 water year.

(f) such other functions as may be prescribed.

No other functions have been prescribed.

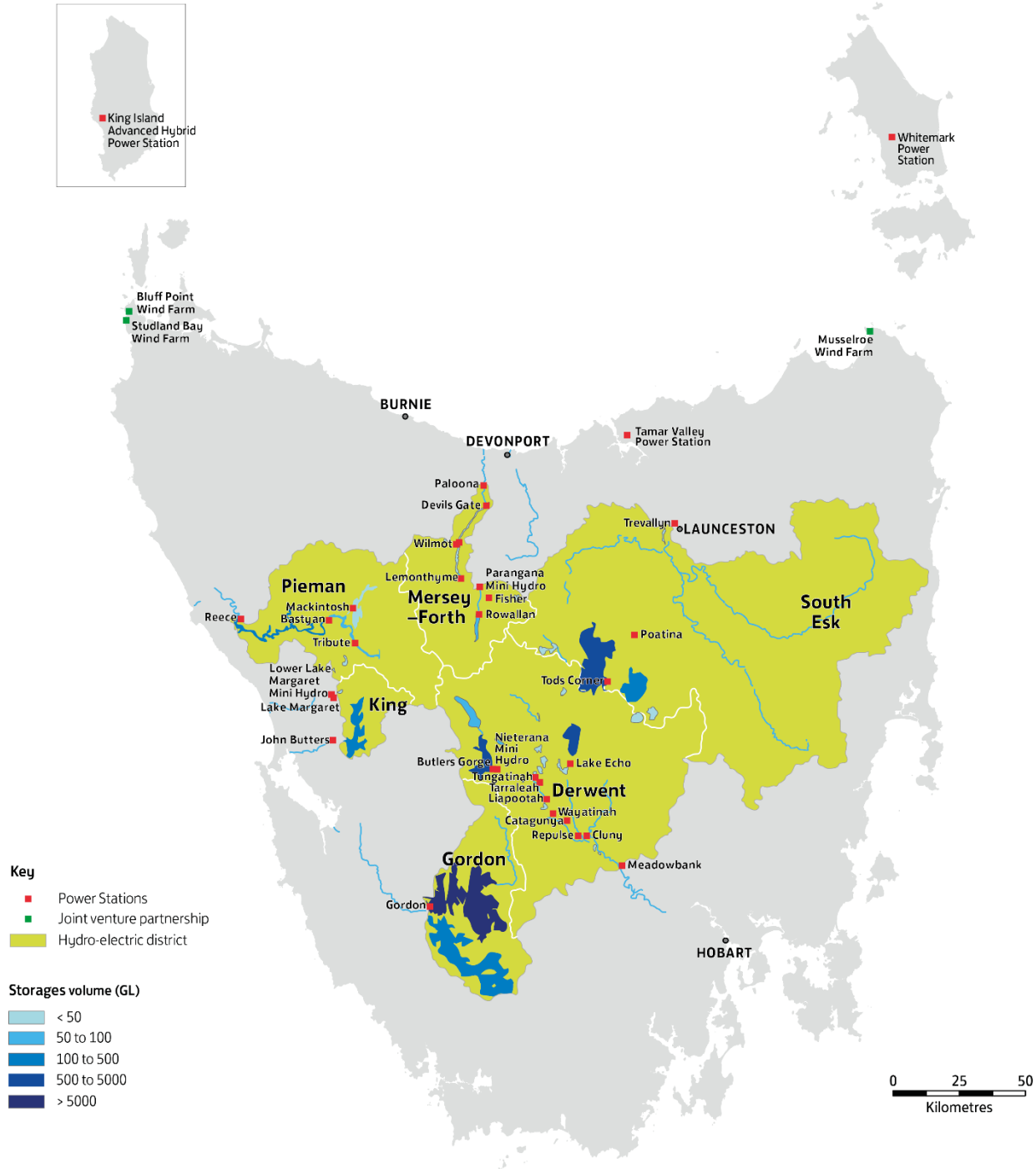
The Monitor and Assessor was not required to exercise any powers under the Act other than those necessary to perform the functions as set out above.

3 WATER YEAR 2019–20

3.1 Energy in Storage

Hydro Tasmania's hydro generation power stations are in six separate catchment areas. Most energy in storage is in *yingina*/Great Lake and Lake Gordon/Lake Pedder. Hydro Tasmania's power stations are supported by several seasonal water storages and some run-of-river systems which use seasonal flows.

Figure 1: Hydro Tasmania's catchment areas and power stations



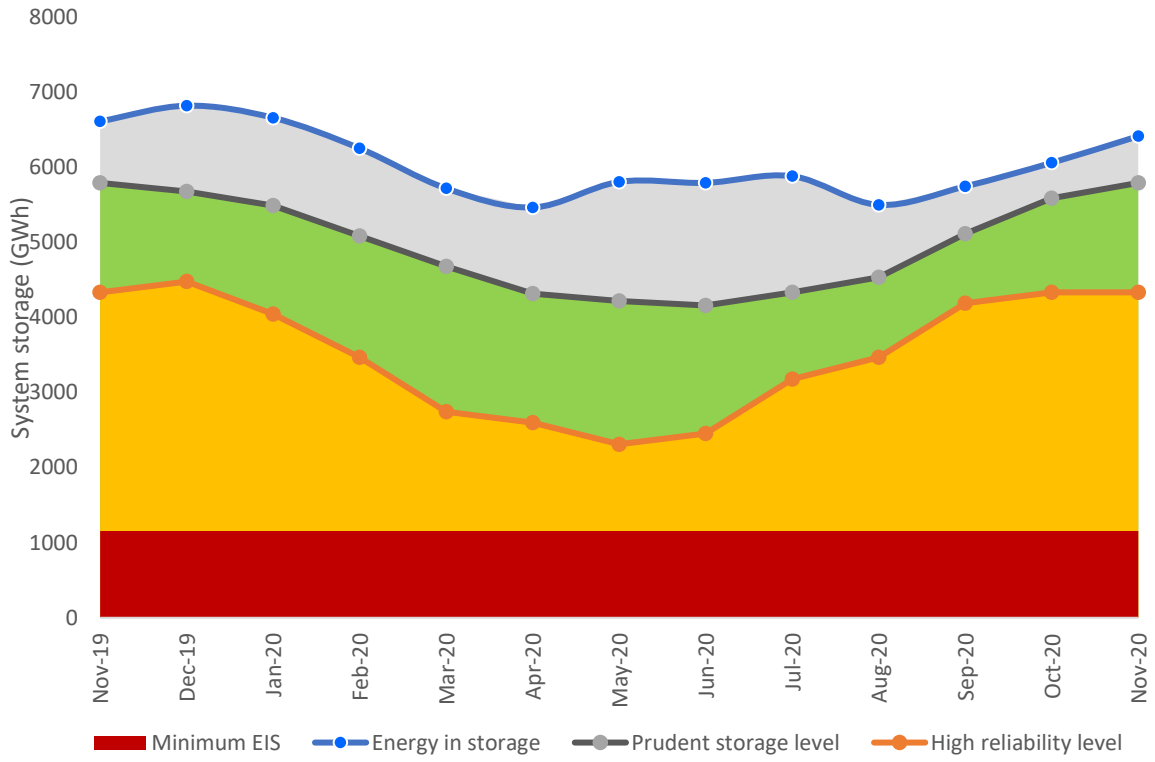
3.1.1 Storage level profiles

The HRL is a set of monthly storage levels, set from the beginning of each month, above which Tasmania's electricity supply would be sufficient to meet expected demand with a six-month Basslink outage and with very low inflows to energy in storage while avoiding extreme environmental risk to *yingina*/Great Lake.

The PSL incorporates additional storage above the HRL such that there is a low likelihood of energy in storage entering the HRL under normal operating conditions. The HRL and PSL profiles are set by the Minister for Energy by Order.

Figure 2 depicts the total energy in storage in Tasmania at the beginning of each month compared to the HRL and PSL set for that month, as well as the minimum energy in storage (EIS), for the 2019-20 water year. The minimum EIS, also known as the Great Lake Extreme Environmental Risk Zone, is the minimum level at which extreme risks to aquatic biota and their environment can be avoided.

Figure 2: Energy in storage during the 2019-20 water year



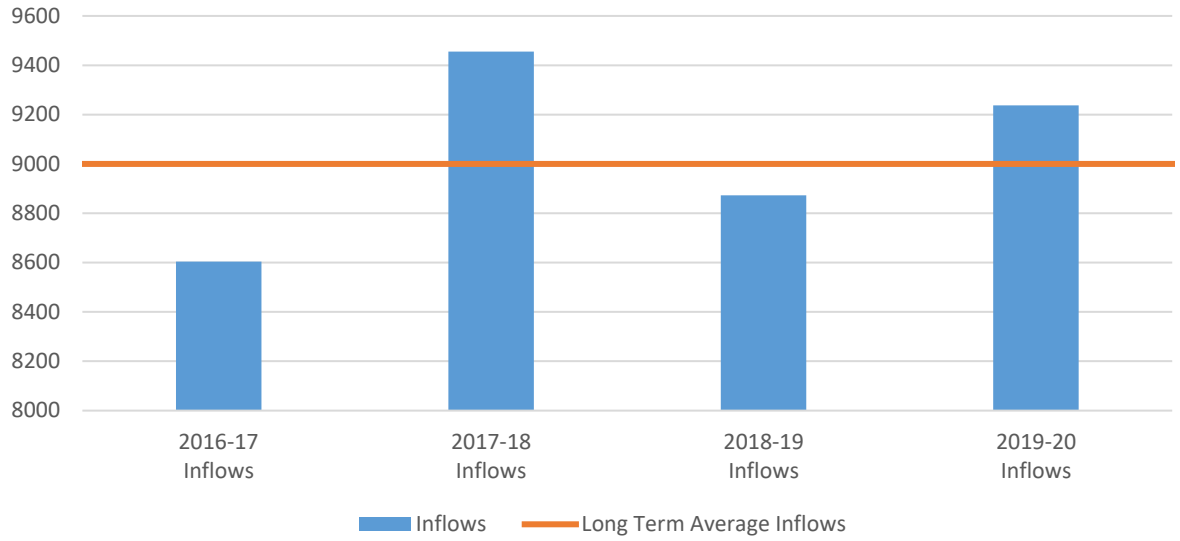
As shown in Figure 2, monthly levels of energy in storage remained above the PSL over the 2019-20 water year.

The 2019-20 water year ended on 31 October 2020. As at 2 November 2020, energy in storage was 6 411 GWh, representing 44.4 per cent of total usable energy in storage. This was approximately 4 percentage points above the PSL and approximately 14 percentage points above the HRL for than month.

3.1.2 Inflows into Hydro Tasmania storages

Total inflow, or yield, for the 2019-20 water year was 9 238 GWh, which was 4.1 per cent higher than the 2018-19 level, and 2.6 per cent above the long term (23 year) average (Figure 3). There were very high inflows during November 2019 and April 2020, but unusually low inflows in July and August 2020.

Figure 3: Total inflows into Hydro Tasmania's storages (GWh)



3.1.3 Electricity Consumption

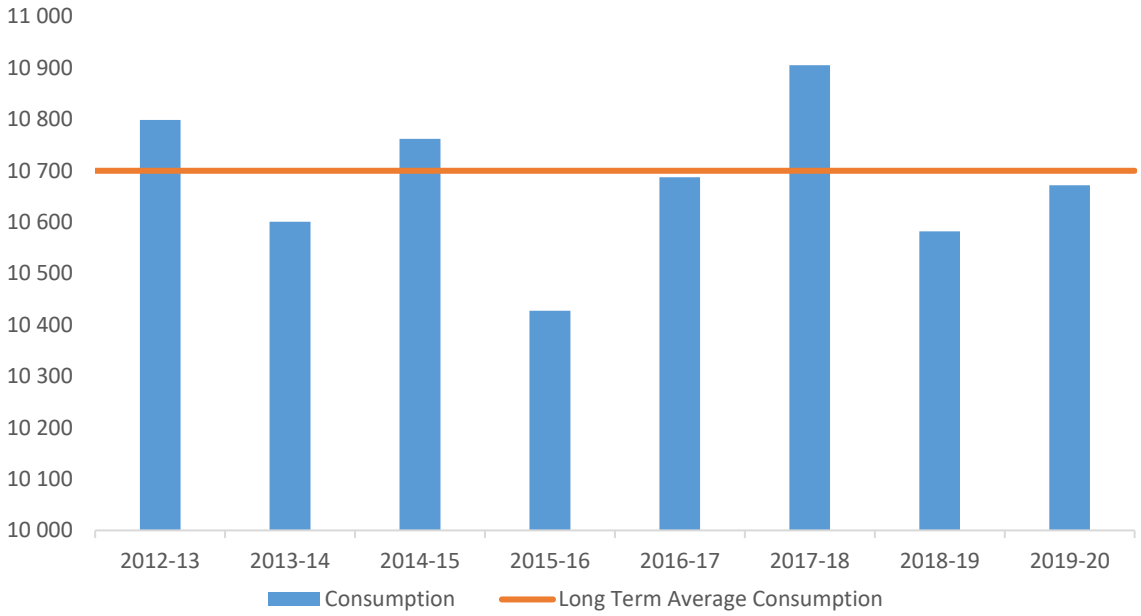
Tasmania's electricity consumption is dominated by large industrial customers involved in industries such as metal smelting, mining and paper production. According to the Energy Security Taskforce, four large major industrial customers account for 54 per cent of the State's electricity load. Residential and business customers connected to the distribution network account for 19 per cent and 23 per cent of Tasmania's load respectively.[4]

Tasmania's electricity consumption for the 2019-20 water year was 10 672 GWh, representing a 0.85 per cent increase on the 2018-19 water year (10 582 GWh). These consumption estimates include transmission and distribution network losses, which are around five per cent of generated electricity in Tasmania, and therefore represent the volume of generation needed for consumption.

Year-to-year variations in consumption are due to several factors, including the weather in Tasmania and changes in the load for larger commercial and industrial customers. Tasmanian annual consumption over the previous eight years has been relatively stable at around 10 700 GWh, with no discernible upward or downward long term trend (Figure 4).

[4] Tasmanian Energy Security Taskforce Final Report, 2017, page 83.

Figure 4: Tasmanian annual electricity consumption (GWh) from the 2012-13 water year



3.1.4 Basslink

Basslink is a high voltage direct current electricity interconnector that connects the Tasmanian power system to the Victorian power system via transmission assets and transfer stations. Basslink allows the export of Tasmanian generated electricity into the NEM and the import of mainland generated power into Tasmania. There were no unplanned outages over the 2019-20 water year.

3.1.5 Electricity generation mix

Table 1 below shows the generation mix in Tasmania for the 2019-20 and 2018-19 and water years.

Table 1: Tasmanian generation mix (GWh)

Generation source	2019-20	% of total	2018-19	% of total
Hydro	9 809	85.1%	8 859	83.1%
Wind	1 419	12.3%	1 140	10.7%
Gas	100	0.9%	481	4.5%
Distributed generation[5]	197	1.7%	177	1.7%

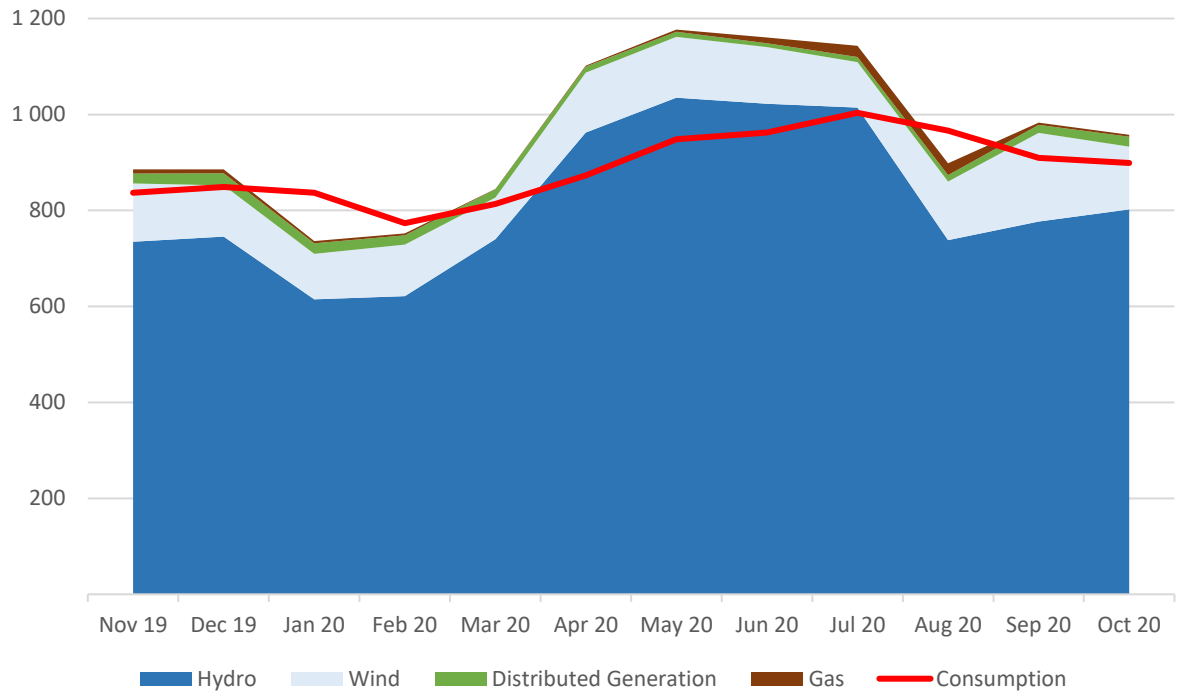
Output from distributed generation systems reduces the requirement for generation from other sources. The table shows that distributed generation makes a small contribution to total generation in Tasmania, though for 2019-20 the contribution provided by distributed generation exceeded that provided by gas.

[5] Distributed generation includes solar, mini-hydro and small-scale wind.

Over the 2019-20 water year, hydro generation accounted for 85.1 per cent of total generation and wind provided 12.3 per cent. The share of generation from wind increased largely due to the commencement of operations from two major new wind farms during the 2019-20 water year.

Figure 5 shows the Tasmanian generation mix during 2019-20. Basslink was in net export mode (from Tasmania) in months when total generation was above the level needed for consumption in Tasmania (generation above the red line) and in net import mode in months when total generation was less than the level needed for consumption (generation below the red line). Net exports from Tasmania were 271 GWh for the 2019-20 water year, which compares to net imports of 115 GWh for the 2018-19 water year.

Figure 5 - Tasmanian generation mix and consumption (GWh) over the 2019-20 water year



3.2 Discussion

At the start of the 2019-20 water year, the total energy in storage was 45.8 per cent of the maximum storage level, which was 5.7 percentage points above the PSL. The 2020-21 water year therefore commenced with water in storage levels well above the PSL.

Over the year inflows were higher than in the previous year. These higher inflows, together with the additional supply from the new wind farms, gave Hydro Tasmania the opportunity to increase its exports across Basslink, while maintaining water in storage levels above the PSL over the 2019-20 water year.

The Monitor and Assessor did not increase monitoring activities over 2019-20 and did not require Hydro Tasmania to prepare a recovery plan. The Monitor and Assessor was not therefore required to exercise any powers under the Act during 2019-20 other than those necessary under its regular monitoring functions.

4 ENERGY SECURITY OUTLOOK

4.1 Forecast Energy in Storage

Given the energy in storage at the start of the 2020-21 water year, the Monitor and Assessor considers that there is a very low likelihood that energy in storage will fall below the HRL in 2020-21, assuming inflows to hydro storages are not significantly below long term average levels.

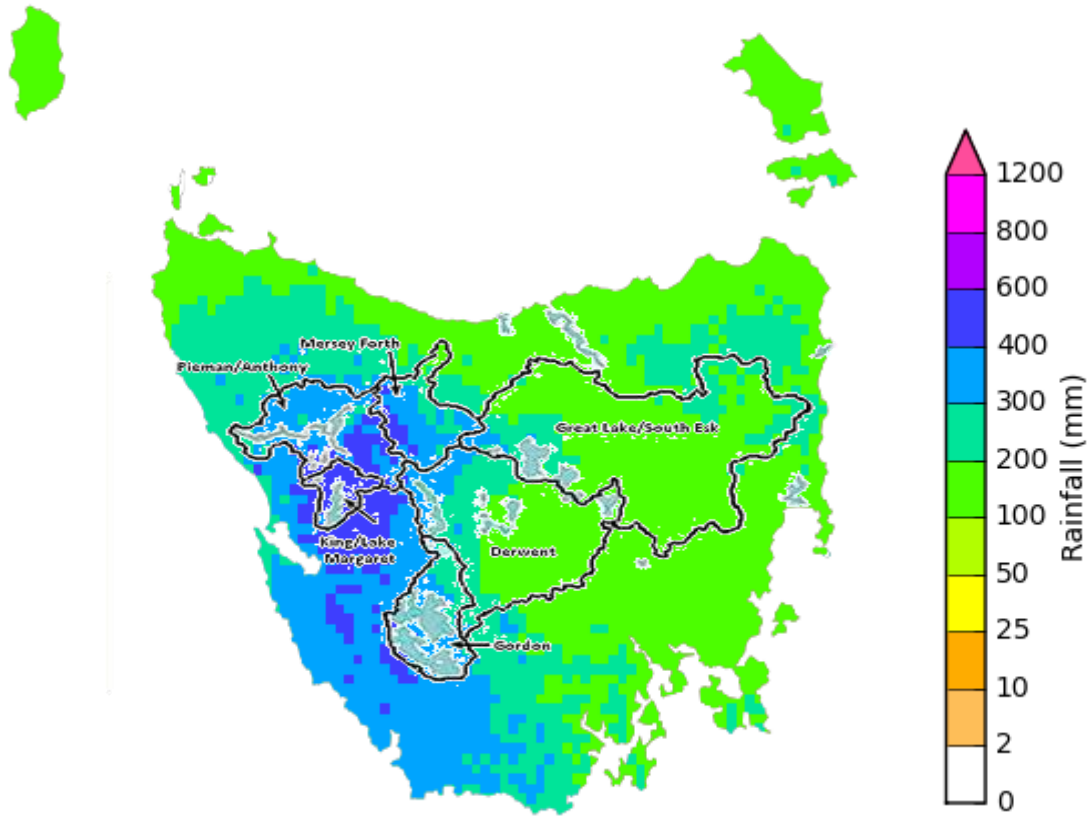
The Monitor and Assessor considers that energy in storage may fall below the PSL in 2020-21 as there may be periods of unusually low rainfall and therefore inflows. However, if this occurs, it is likely to be for short periods only.

The following sections set out the basis for this assessment.

4.1.1 Forecast rainfall in Hydro Tasmania catchments

Figure 6 shows the expected/forecast median Tasmanian rainfall over the three-month period from December 2020 to February 2021, based on the Bureau of Meteorology's (BOM) observations from 1990 to 2012. Rainfall levels are consistently and significantly higher on the western side of Tasmania, which is where the catchment areas for Hydro Tasmania's larger dams are located.

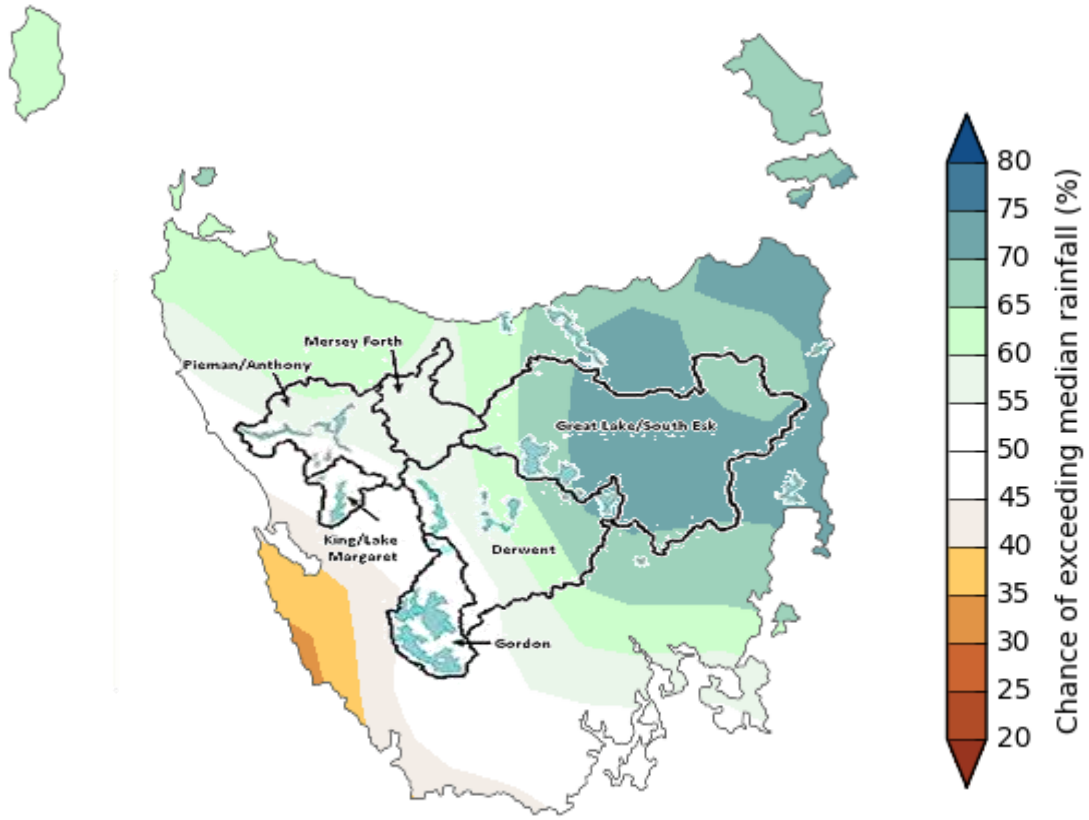
Figure 6 - Rainfall - Medians (1990-2012) for the December 2020 to February 2021 period



Source: Bureau of Meteorology

The BOM makes an assessment whether Tasmania's rainfall is likely to be above or below the median levels over the following three month period. The most recent assessment, for the period from December 2020 to February 2021, is that there is a greater than 50 per cent chance that rainfall is above the median level across the North East and North West of the State, but below or around a 50 per cent chance in the Southwest (Figure 7). As most of the catchment areas are located in the North East and North West of Tasmania, this suggests higher than average inflows into Hydro Tasmania's storages.

Figure 7: Rainfall in Tasmania - Chance of above median levels from December 2019 to February 2020



Source: Bureau of Meteorology

4.1.2 Forecast consumption

The most recent electricity consumption forecasts from the Australian Energy Market Operator, prepared for the Electricity Statement of Opportunities and released on 27 August 2020, are for consumption in Tasmania at around current levels in 2020-21 (10 801 GWh) and for a marginal decrease to 10 792 GWh in 2021-22. These forecasts include allowances for network losses. A pro rata adjustment of these forecasts to obtain an estimate for the 2020-21 water year produces a consumption estimate of 10 798 GWh.

4.1.3 Tamar Valley Power Station

The Tamar Valley Power Station (TVPS) at Bell Bay provides diversity and acts as a safeguard in Tasmania's energy mix. It contributes to Tasmania's energy security, though its utilization has been decreasing with the development of wind generation in the State.

Hydro Tasmania owns and operates the TVPS, which is the only large thermal generator in Tasmania and runs on gas supplied by the Tasmanian Gas Pipeline. The pipeline transports natural gas from the Longford Plant in Victoria to Bell Bay.

The TVPS consists of a combined cycle gas turbine (CCGT) generation plant with a 208 MW generating capacity and four open cycle gas turbine (OCGT) units with a combined generating capacity of 178 MW. Three of the OCGT units can also act as synchronous condensers[6] providing system control.

The CCGT is operated when, for Hydro Tasmania, it makes commercial sense to do so. When it is not in regular service Hydro Tasmania can return the CCGT to service at its discretion with less than three months' lead time. The OCGT units remain available at all times providing quick start generation capability.

As noted in section 3.1.5 above, output from the TVPS accounted for only 0.9 per cent of electricity generation in Tasmania during 2019-20. This represents a significant decline in output from the previous three years.

In the event of a long-term interruption to gas supply in Tasmania, or a change in the mode of operation of the TVPS, the HRL and PSL profiles may need to be amended to reflect the revised gas generation output.

4.1.4 Energy Supply Capability

This section compares the forecast available energy supply against the 12 month demand forecast for the 2019-20 water year. The assumptions underlying this approach are set out in Table 2.

Table 2: Energy supply capability assumptions for the 2020-21 water year

Parameter	Assumptions
Consumption[7]	10 798 GWh
Wind generation	1 940 GWh
Energy in storage above HRL at the start of 2020-21	2 080 GWh
Low inflow scenario	6 800 GWh
Basslink net imports under low inflow scenario	2 500 GWh
TVPS generation low inflow scenario	800 GWh
Average inflow scenario	9 000 GWh
Basslink net imports under average inflow scenario	1 000 GWH
TVPS generation average inflow scenario	600 GWh

[6] A synchronous condenser is a large machine with a spinning shaft, electromechanically coupled to the grid, that can boost system strength and assist with voltage control and inertia (https://energylive.aemo.com.au/Energy-Explained/Synchronous-condensers).

[7] This value refers to the level of electricity generation required to meet forecast annual consumption and therefore includes transmission and distribution network losses.

Average hydro inflows are assumed to be 9 000 GWh per annum, derived using Hydro Tasmania supplied data from 1997 to 2016.[8] The low inflow scenario, at 6 800 GWh, is the mean inflow minus two standard deviations. This implies there is around a 97.5 per cent probability that the inflow in 2020-21 will be above the low inflow level.

The wind generation assumption for 2020-21 has been adjusted to account for the two new large-scale wind farms that commenced operation in Tasmania during 2020 - the Granville Harbour Wind Farm and the Cattle Hill Wind Farm.

As reported to the Monitor and Assessor, the expected annual generation, at full operation, for Granville Harbour Wind Farm is 400 GWh and, for Cattle Wind Farm, the expected annual generation is 463 GWh. It has been assumed that both of these wind farms are operating at full capacity during the 2020-21 water year. Total wind generation is now assumed to be 1 940 GWh for the 2020-21 water year, an increase of almost 40 per cent over the actual wind generated in the 2019-20 water year.

Average annual Basslink imports between 2010-11 and 2014-15 were around 1 000 GWh and this level has been assumed for the 2020-21 water year. This is equivalent to 228 MW of average imports across Basslink for 50 per cent of the year. The low inflow scenario assumes 2 500 GWh of Basslink imports, equivalent to 380 MW of average imports for 75 per cent of the year. Basslink has a long term average import capacity of around 450 MW.

Generation from the TVPS is assumed to be 600 GWh under the average inflow scenario from the CCGT in the summer months and the OCGT units throughout the year. This assumed level is below the average level in recent years and reflects the additional wind generation available for the 2020-21 water year. Under the low inflow scenario, TVPS output is assumed to be 800 GWh.

Generation from distributed generation systems such as solar PV and other behind the meter energy sources are not included. This is because the estimates of demand used in this report do not include consumption from distributed generation systems as the purchase of this energy is not from AEMO and is therefore not reported as being made via the NEM. As the absolute level of generation in Tasmania from distributed generation systems is relatively small, at an estimated 1.7 per cent of total generation, annual changes in output from distributed generation systems are not expected to have a material effect on overall energy security.

At the start of the 2020-21 water year, energy in storage was around 2 080 GWh above the HRL. This represents additional energy supply capability that can be utilised without incurring an unacceptable energy security risk. It is assumed that other sources of energy, as set out above, would be utilised before energy in storage fell below the HRL level.

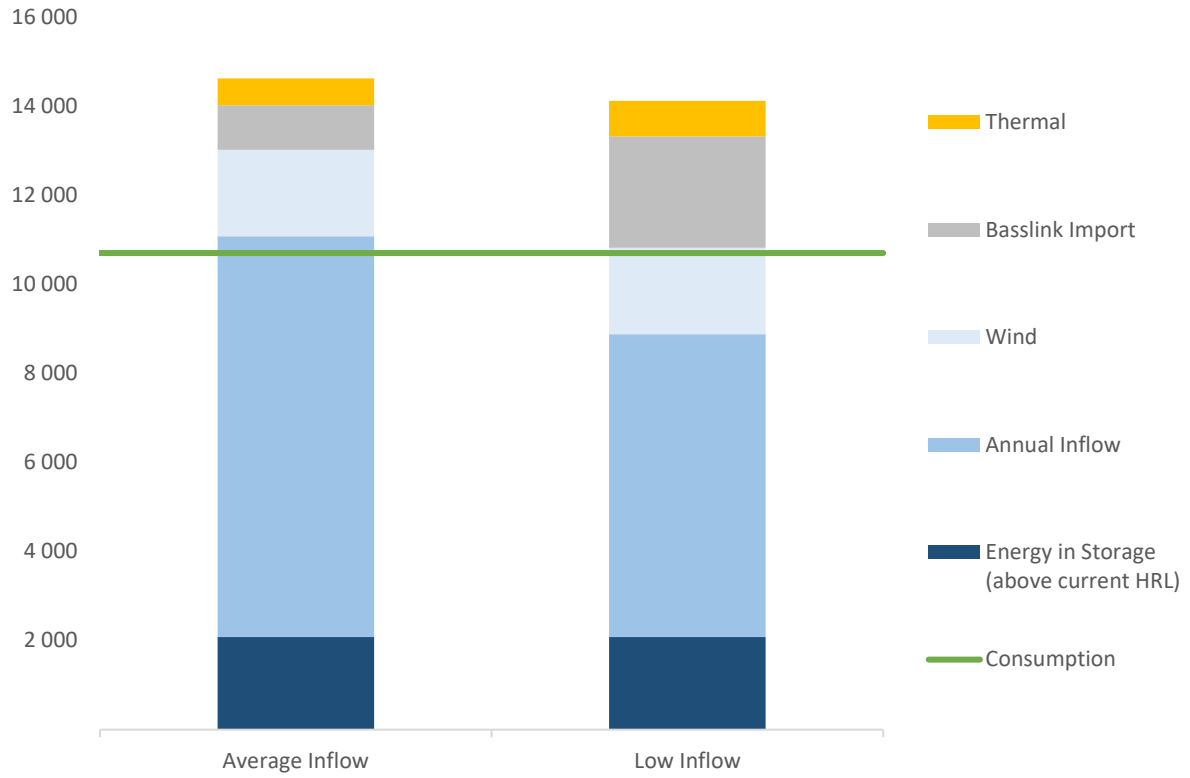
The results are presented in Figure 8 below. Under both the low inflow and the average inflow scenarios, energy supply capability in Tasmania in 2020-21 is expected to be significantly above forecast demand.

The likelihood that energy in storage would decline during 2020-21 such that it would fall below the HRL is assessed as very low. On this basis, the overall level of energy security risk is assessed as very low.

It is more likely that energy in storage will fall below the PSL, which is substantially above the HRL, for short periods during the 2020-21 water year depending on the monthly variability of inflows. This does not represent a serious risk to energy security provided there are sufficient options available to Hydro Tasmania to return energy in storage levels to above the PSL in the short to medium term.

[8] Tasmanian Energy Security Taskforce Final Report, 2017.

Figure 8: Energy supply capability in Tasmania 2020-21 water year (GWh)



4.2 Potential future developments

This section discusses potential future developments that may affect Tasmania's long-term energy security.

4.2.1 The proposed Marinus Link

The NEM is changing as new renewable energy generation infrastructure replaces ageing, coal-fired infrastructure. Marinus Link is a proposed 1 500 MW capacity undersea electricity connection that would provide a second link between Tasmania and Victoria. This represents around three times the capacity of Basslink. The Marinus Link would provide substantially increased opportunities for renewable energy from Tasmania to contribute to meeting energy demand in mainland Australia.[9]

The effect of a link such as the Marinus Link is that the Victorian and Tasmanian electricity markets would be much more closely integrated than they currently are. The total capacity of the two interconnectors is likely to exceed the maximum demand in Tasmania, which would allow all of Tasmania's demand to be satisfied from imported energy.

Tasmania's energy security would be very substantially changed if the Marinus Link were constructed. A second interconnector would, for example, significantly reduce the risk that Tasmania would not be able to import electricity from Victoria. The Marinus Link may also significantly increase on-island renewable electricity generation, as discussed below, which would reduce energy security risks in Tasmania.

[9] https://www.marinuslink.com.au/

The Monitor and Assessor will continue to monitor the project's development and its likely future impact on Tasmania's energy security.

4.2.2 New wind generation

There are additional large-scale wind projects proposed in addition to the Cattle Hill Wind Farm and the Granville Harbour Wind Farm. These include the Robbins Island wind farm with a generation capacity of up to 900 MW and Jim's Plains Renewable Energy Park with a generation capacity of up to 240 MW (up to 200 MW of wind generation and up to 40 MW of solar energy).[10]

These projects are likely to be focused on meeting demand for electricity in mainland Australia and are expected to be contingent on an additional interconnector from Tasmania to Victoria, as discussed above.

4.2.3 Battery of the Nation

Battery of the Nation is a suite of projects being developed by Hydro Tasmania to examine how Tasmania's hydroelectric power system can be redeployed and augmented with pumped hydro energy storage to meet the needs of the transitioning national power system.

Hydro Tasmania has stated that it has hundreds of megawatts of latent capacity and opportunities to optimise its existing asset base and build pumped hydro energy storage to increase its electricity exports to mainland Australia.[11] Hydro Tasmania has also stated that additional interconnection such as the Marinus Link would support the expansion of Tasmania's hydroelectric power system.[12]

The Monitor and Assessor will continue to monitor Hydro Tasmania's progress with its Battery of the Nation projects and their likely future impact on Tasmania's energy security.

4.3 PSL and HRL assessment

This section provides a review of the Tasmanian energy supply and demand balance to assess whether the HRL and PSL remain set at the appropriate level for the coming water year.

Table 3 shows the conditions, as recommended by the Energy Security Taskforce, for the Monitor and Assessor to commence a review of the profiles and a short comment on the status of each factor.

[10] https://robbinsislandwindfarm.com/about/

[11] https://www.hydro.com.au/clean-energy/battery-of-the-nation/

[12] Ibid.

Table 3: Review of the Tasmanian energy supply and demand balance

Supply and demand balance factors	Assessment
The connection of material new generation sources in the Tasmanian region of the NEM equivalent to two per cent (around 300 GWh) of total energy in storage or greater.	Two major wind farms commenced commercial operation in the 2019-20 water year which as triggered a review of the PSL/HRL profiles. The expected annual output of these farms is approximately 990 GWh.
The material reduction or increase (+/-500 GWh) of the current Tasmanian demand forecast (10 700 GWh average) as reported by AEMO.	AEMO's demand forecasts prepared for the 2020 Electricity Statement of Opportunities forecasts Tasmanian consumption at very close to recent levels.
A material permanent change in interconnector import capacity (+/-100 MW).	There has been no material change to Basslink's import capacity.
A long-term (six months or greater) unplanned outage of either of the Gordon or Poatina Power Stations in their respective entireties.	Gordon and Poatina Power Stations remain fully operational.

4.4 Natural gas

In its 2020 Gas Statement of Opportunities, AEMO forecasts demand and uses information from gas producers about reserves and forecast production to project the supply-demand balance and potential gaps under a range of plausible scenarios for eastern and south-eastern Australian gas markets to 2039.

AEMO considers that supply from existing and committed gas developments is forecast to provide adequate supply to meet gas demands nationally until 2023. AEMO has not identified any major risks to natural supply in south-east Australia over the short to medium term.

AEMO is forecasting a modest increase in the demand for natural gas in Tasmania. The projected increase is primarily driven by forecast new connections growth in households and commercial businesses. Large industrial consumption is also expected to increase in the short term, then remain relatively flat until the end of the forecasting horizon.

The potential impact of the COVID-19 pandemic has not been included in AEMO's latest forecasts. However, AEMO states that early industry analysis suggests that the impact of COVID-19 will reduce global Liquefied Natural Gas (LNG) demand for at least 2020. Depending on how much Queensland Coal Seam Gas (CSG) producers are able to turn down their wells, this may result in excess gas in the eastern and south-eastern Australian domestic market in 2021. [13]

The Monitor and Assessor does not expect that Tasmania will face energy security issues in the natural gas market in the short to medium term, given Tasmania's relatively small share of this total gas supply and, based on past performance, the high reliability of gas infrastructure used to supply gas to Tasmanian customers.

[13] AEMO, Gas Statement of Opportunities, March 2020.