

**ENERGY IN TASMANIA  
ANNUAL SECURITY REVIEW  
2021-22 WATER YEAR**



**NOVEMBER 2022**

**MONITOR AND ASSESSOR FOR ENERGY SECURITY**

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## EXECUTIVE SUMMARY

The role of Monitor and Assessor for Energy Security (the Monitor and Assessor) was established under the *Energy Co-ordination and Planning Act 1995* (the Act) to report on energy security in Tasmania and, when necessary, commence the process for managing risks to energy security. Section 8A of 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 energy security for 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 reviews the period from 1 November 2021 to 31 October 2022 and makes an assessment of energy security in Tasmania for the following 12 month period.

The Act establishes two profiles for 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 mainland Tasmania could withstand a six-month outage of the Basslink interconnector, coinciding with very low inflows to energy in storage. If storage levels fall 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 the level of energy in storage falling below the HRL under normal operating conditions.

Energy in storage levels were above the PSL for almost all of the 2021-22 water year, falling marginally below the PSL for short periods in August and October 2022. Inflows into Hydro Tasmania's storages during the water year were the lowest since the 2014-15 water year. However, strong inflows during October 2022 contributed to energy in storage at the end of the water year being at 6 365 GWh, 3.3 percentage points above the PSL for November and 11.6 percentage points above the HRL for the month. The volume of energy in storage at the conclusion of the 2021-22 water year was 44.1 per cent of the maximum usable energy in storage, the lowest level in the past five years.

On 12 November 2021, the Basslink group announced that it had been placed in voluntary administration and on 10 February 2022, Hydro Tasmania announced that it had terminated the Basslink Services Agreement between it and Basslink Pty Ltd. As a result, Hydro Tasmania's ability to issue bidding instructions to Basslink Pty Ltd ceased from 10 February 2022. However, Basslink remained operational and energy continued to flow across Bass Strait during the period of voluntary administration.

The sale of Basslink Pty Ltd to APA Group Ltd was completed on 20 October 2022. Hydro Tasmania and Basslink Pty Ltd have entered into a new Network Services Agreement, which commenced on 21 October 2022 and will remain in place until Basslink is regulated by the Australian Energy Regulator (AER) or until 30 June 2025, whichever occurs first. The Monitor and Assessor notes that Basslink has returned to normal operation under its new ownership.

In addition, the completion of the Granville Harbour and Cattle Hill wind farm projects during 2020-21 has significantly increased electricity generation capacity in the State.

Taking these factors into account, Tasmania's available electricity supply is expected to be sufficient to meet demand over the coming 12 months. With the current level of energy in storage and Tasmania's on-island electricity generation capacity, Tasmania's energy security rating is assessed as high over 2022-23, including 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 2022-23. The Monitor and Assessor does not expect that Tasmania will face energy security issues related to the level of storage in the 2022-23 water year.

Gas generation makes a minor contribution to total generation in Tasmania. Consequently, any future potential supply shocks, such as those that affected the Australian eastern gas market during 2021-22, are unlikely to have a significant impact on Tasmania's electricity generation capacity or energy security in 2022-23.

During the 2021-22 water year, the Monitor and Assessor released monthly dashboards reporting energy in storage levels against the relevant PSL and HRL on the Tasmanian Economic Regulator's website.

The Monitor and Assessor increased monitoring activities during the period June to October 2022, as energy in storage approached and fell marginally below the PSL for brief periods in August and October 2022. However, Hydro Tasmania was not required to prepare any recovery plans during 2021-22.

## KEY STATISTICS

Table 1: Key statistics for the water year (1 November 2021 to 31 October 2022) in GWh<sup>1</sup>

	2020-21	2021-22
Energy in storage (as at end of water year)	7 580	6 365
Total inflow to Hydro Tasmania's storages	10 037	7 675
Tasmanian consumption <sup>2</sup>	10 825	11 092
Hydro generation	8 910	8 884
Wind generation	1 927	1 619
Gas generation	31	97
Distributed generation <sup>3</sup>	224	249
Basslink imports	1 404	1 310
Basslink exports	1 398	819
Basslink net imports/(exports)	5	491

<sup>1</sup> Sources: 2020-21 and 2021-22 energy in storage and inflow data were sourced from Hydro Tasmania. Electricity consumption and generation data were sourced from NEMreview and OpenNEM.

<sup>2</sup> Tasmanian consumption refers to the level of electricity generation from hydro, wind and gas generation, as well as Basslink net imports. It includes transmission and distribution network losses, but excludes distributed generation.

<sup>3</sup> Distributed generation includes solar generation that is fed into the network but not generation that is consumed at the source.

# I INTRODUCTION

Electricity generation in mainland Tasmania is dominated by hydro generation, which results in risks to energy security due to rainfall variability in hydro catchments and in the requirement for Hydro Tasmania to maintain appropriate levels 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. Amongst other measures, the Tasmanian Government established the Tasmanian Energy Security Taskforce (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.<sup>4</sup> That 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 PSL and the HRL, details of which are set out in section 3.1.1.

The Tasmanian Economic Regulator was formally assigned the role of Monitor and Assessor under section 8A of the Act.

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 Co-ordinator with a copy of any recovery plan and the Monitor and Assessor's advice on the quality of that plan;
- to notify the Energy Security Co-ordinator when energy in storage levels are likely to drop below the HRL;
- to monitor and evaluate the PSL and HRL and advise the Minister 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 dashboards 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.

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<sup>4</sup> [https://www.stategrowth.tas.gov.au/energy\\_and\\_resources/tasmanian\\_energy\\_security\\_taskforce/final\\_report](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 and Renewables (the Minister) 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 THE MONITOR AND ASSESSOR'S PERFORMANCE DURING 2021-22

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. The Monitor and Assessor's functions, as set out under the Act, are detailed below, 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 (dashboards) on Tasmania's energy security on the Regulator's website in the week following the first Monday of each month. These dashboards set out Tasmania's energy in storage levels at the start of each month against relevant PSL and HRLs, 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 monthly energy security dashboards evaluated whether there was sufficient combined energy in storage and generation capacity from other sources to meet forecast electricity demand in the Tasmanian region of the NEM. The dashboards also considered whether any additional activity by the Monitor and Assessor was required, such as increased monitoring or directing Hydro Tasmania to prepare a recovery plan.

During 2021-22, energy in storage fell marginally below the PSL for short periods in August and October 2022. These events were minor, however, as energy in storage quickly returned to levels above the PSL. In response, the Monitor and Assessor conducted increased monitoring of energy in storage levels during the period from June to October 2022.

**(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 Monitor and Assessor 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 Monitor and Assessor is of the opinion that it is probable that the level of energy in storage will fall below the HRL.

During 2021-22, 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;**

During 2021-22, the Monitor and Assessor did not consider 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;**

Revised PSL and HRL profiles were approved by the Minister and implemented from September 2021. There were no changes to the energy supply industry in Tasmania during the 2021-22 water year that warranted a review of the PSL and HRL profiles.

**(f) such other functions as may be prescribed.**

No other functions have been prescribed.

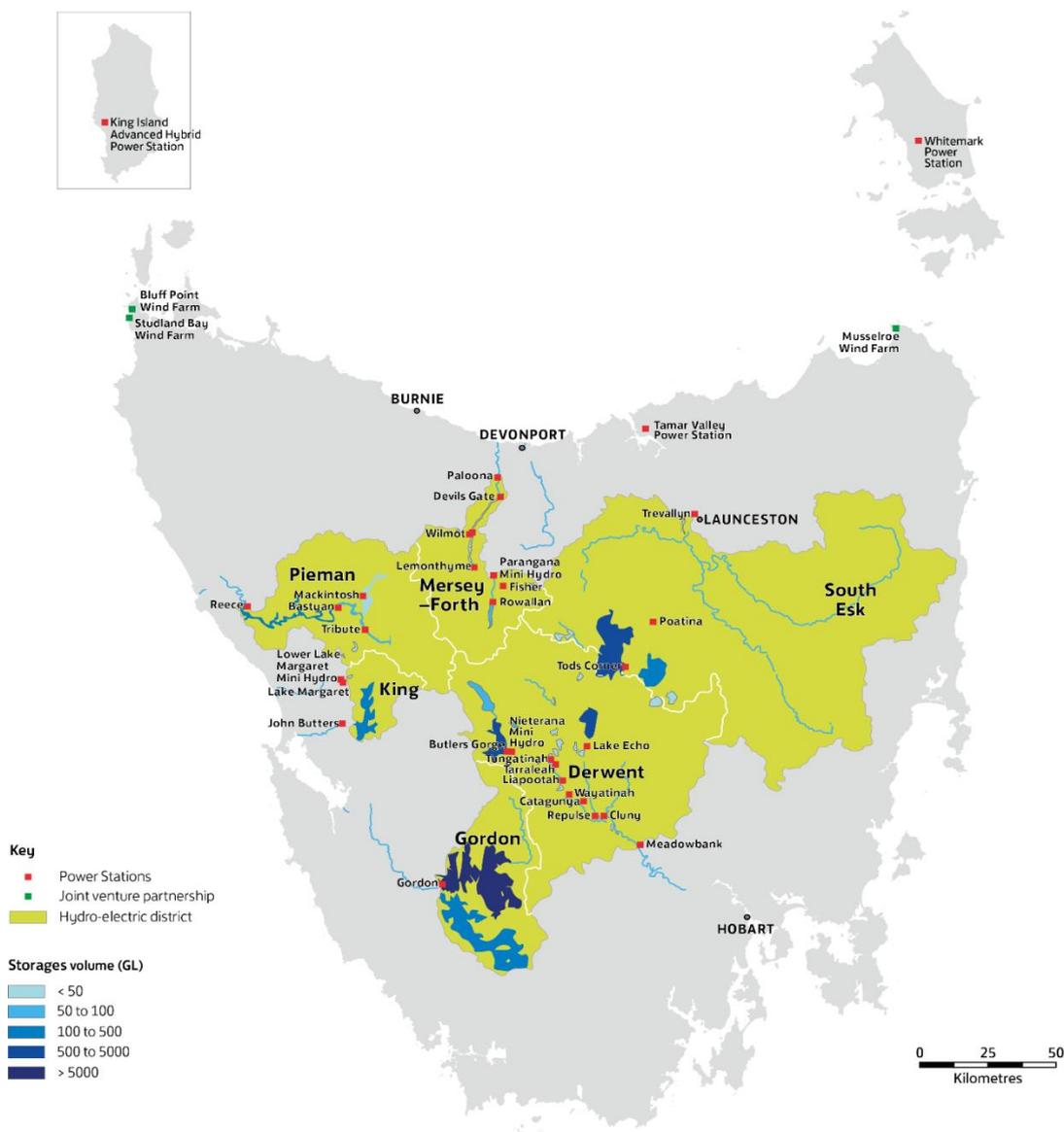
The Monitor and Assessor was not required to exercise any powers under the Act other than those necessary to perform the functions as set out above.

## 3 WATER YEAR 2021-22

### 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 that use seasonal flows. Figure 1 below shows Hydro Tasmania’s catchment areas and major generators within the State, with the exception of Cattle Hill wind farm in central Tasmania, and Granville Harbour wind farm in western Tasmania.

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



### 3.1.1 Storage level profiles

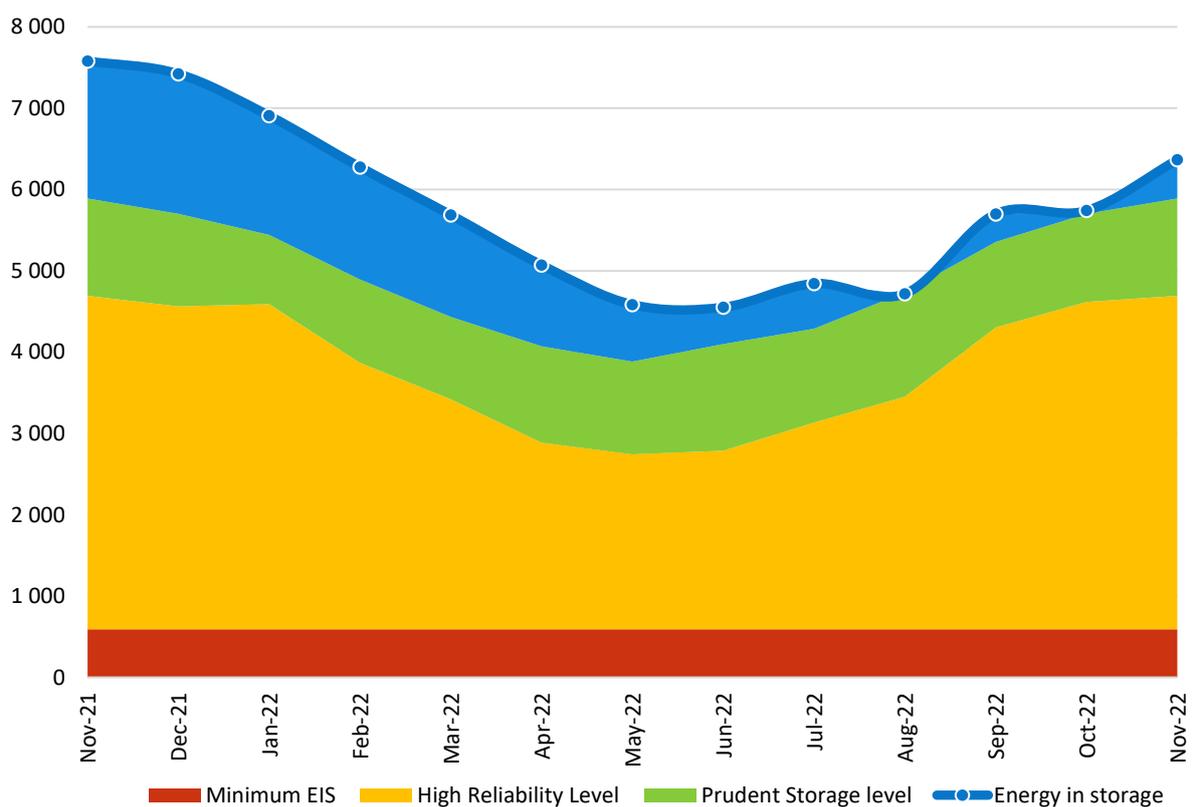
The HRL is a set of monthly storage levels above which Tasmania's electricity supply would be sufficient to meet expected demand in the event of a six-month Basslink outage concurrent with very low inflows to energy in storage, while avoiding extreme environmental risk to *yingina*/Great Lake.

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.

Following a review of the HRL and PSL profiles, the *Energy Co-ordination and Planning Order 2021*, published on 1 September 2021, established revised storage level profiles. The HRL and PSL levels for the 2021-22 water year reflect these revised profiles.

Figure 2 below depicts the total energy in storage in Tasmania at the beginning of each month compared to the HRL and PSL for that month, as well as the minimum energy in storage, for the 2021-22 water year. The minimum energy in storage, 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<sup>5</sup>.

Figure 2: Energy in storage during the 2021-22 water year



As shown in Figure 2, monthly levels of energy in storage remained above the PSL over the 2021-22 water year, except for brief periods in August and October 2022. As at 31 October 2022, energy in storage was 6 365 GWh, representing 44.1 per cent of total usable energy in storage. This was

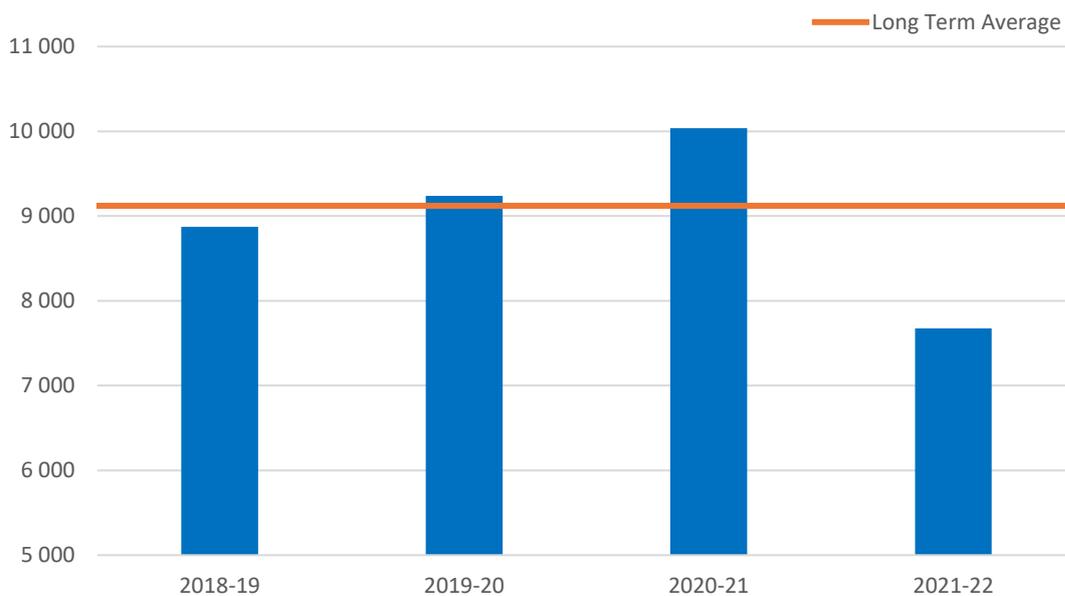
<sup>5</sup> The Great Lake Extreme Environmental Risk Zone is at 9.1 per cent of Great Lake's total capacity, which represents 4.1 per cent of total Hydro Tasmania storages as shown in Figure 2.

3.3 percentage points above the PSL and approximately 11.6 percentage points above the HRL for November. This was the lowest level of energy in storage at the end of the water year in the past five years.

### 3.1.2 Inflows into Hydro Tasmania storages

Total inflow, or yield, for the 2021-22 water year was 7 675 GWh, which was 23.5 per cent lower than the 2020-21 level and 15.8 per cent below the long-term (25 year) average (Figure 3).

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



### 3.1.3 Electricity consumption

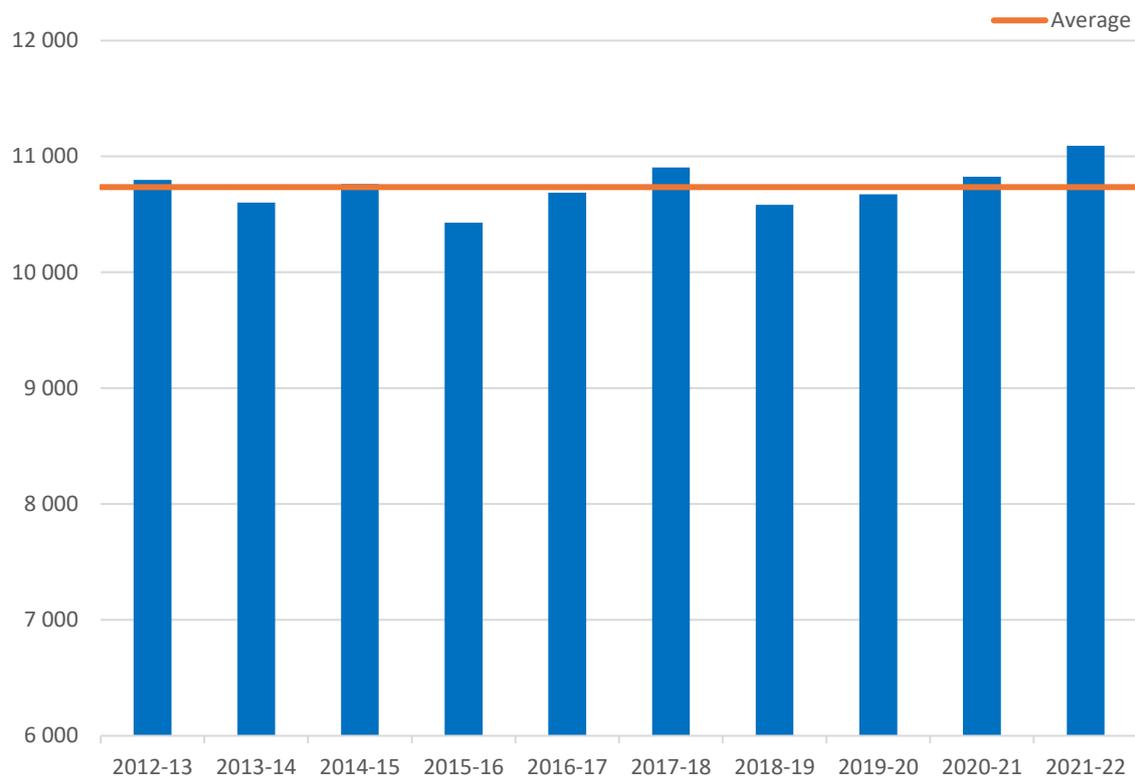
Tasmania's electricity consumption is dominated by large industrial customers involved in industries such as metal smelting, mining and paper production. According to the Energy Security Taskforce, four large major industrial customers account for 54 per cent of the State's electricity load. Residential and business customers connected to the distribution network account for 19 per cent and 23 per cent of Tasmania's load respectively, and other transmission connected customers account for the remaining four per cent of load.<sup>6</sup>

Tasmania's electricity consumption for the 2021-22 water year was 11 092 GWh, representing a 2.5 per cent increase on the 2020-21 water year (10 825 GWh). These consumption estimates include transmission and distribution network losses and therefore represent the total volume of generation needed to satisfy demand.

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

<sup>6</sup> Tasmanian Energy Security Taskforce Final Report, 2017, page 83.

Figure 4: Tasmanian annual electricity consumption (GWh) since 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 electricity into Tasmania.

On 12 November 2021, the Basslink group announced that it had been placed in voluntary administration, and on 10 February 2022 Hydro Tasmania announced that it had terminated the Basslink Services Agreement between it and Basslink Pty Ltd. As a result, Hydro Tasmania's ability to issue bidding instructions to Basslink Pty Ltd ceased. However, Basslink remained operational and energy continued to flow across Bass Strait during the period of administration.

During 2021-22, the NEM experienced operational challenges, including a temporary suspension of the spot market by the Australian Energy Market Operator (AEMO) in June 2022. Basslink Pty Ltd changed its bidding practices which had the impact of restricting flows between Victoria and Tasmania. This limited Hydro Tasmania's ability to export and import electricity for periods of time.

The sale of Basslink Pty Ltd to APA Group Ltd was completed on 20 October 2022. Hydro Tasmania and Basslink Pty Ltd have entered into a new Network Services Agreement which commenced on 21 October 2022 and will remain in place until Basslink is regulated by the AER or until 30 June 2025,

whichever occurs first. The Monitor and Assessor notes that Basslink has returned to normal operation under its new ownership.

### 3.1.5 Tamar Valley Power Station

The TVPS at Bell Bay provides an additional source of electricity generation and therefore contributes to Tasmania's energy security. Electricity generation has been decreasing at the TVPS, which has coincided 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 natural 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 providing system strength.

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.

Output from the TVPS accounted for 0.9 per cent of electricity generation in Tasmania during 2021-22, which is an increase from approximately 0.3 per cent of total generation in the previous year.

### 3.1.6 Electricity generation mix

Table 2 below shows the generation mix in Tasmania for the 2020-21 and 2021-22 water years.

Table 2: Tasmanian generation mix (GWh)

Generation source	2020-21	% of total	2021-22	% of total
Hydro	8 910	80.33%	8 884	81.88%
Wind	1 927	17.37%	1 619	14.93%
Gas	31	0.28%	97	0.90%
Distributed Generation <sup>7</sup>	224	2.02%	249	2.30%

Over the 2021-22 water year, hydro generation accounted for 81.88 per cent of total on-island generation. Despite hydro generation falling compared to the previous water year, hydro generation in 2021-22 made up a larger proportion of Tasmanian generation than in 2020-21.

Wind generation provided 14.93 per cent of on-island generation during 2021-22. This represents a significant decline in both total generation and the proportion of Tasmanian generation from 2020-21. Each of the major windfarms reported lower than target wind resource in 2021-22.

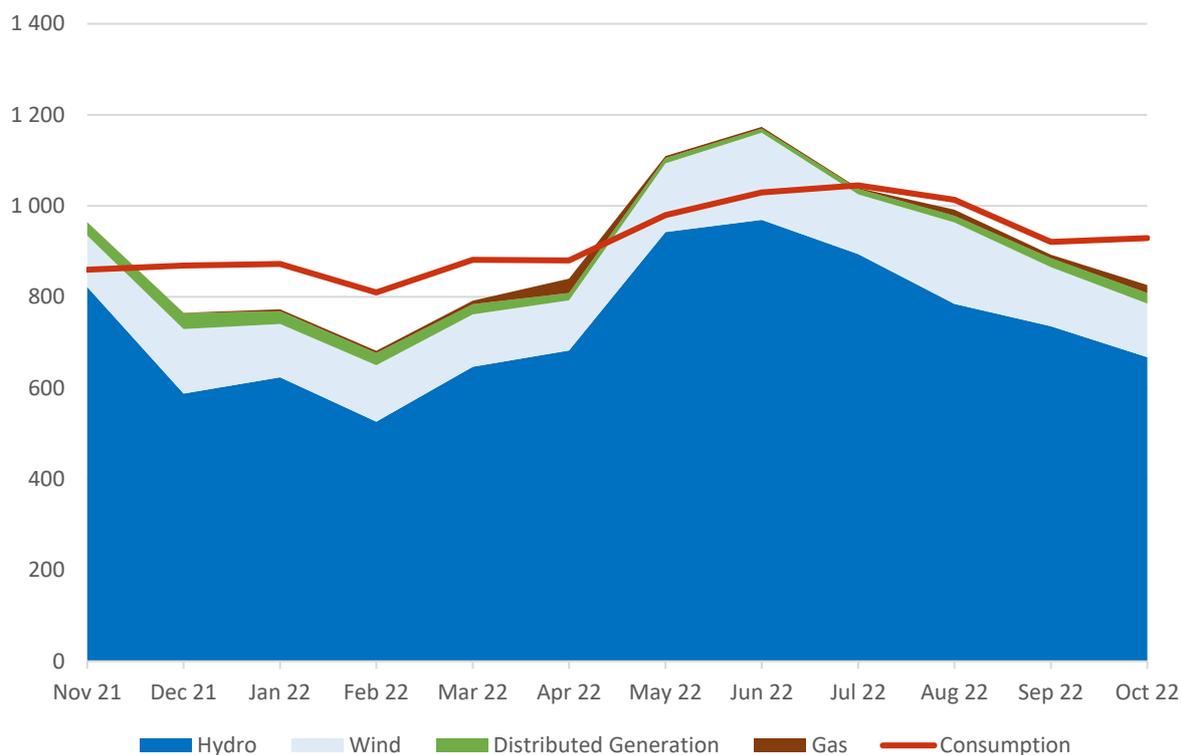
Output from distributed generation systems reduces the requirement for generation from other sources. Table 2 shows that distributed generation makes a small, but increasing, contribution to total

<sup>7</sup> Distributed generation is the total non-scheduled generation in a region and comprises small-scale wind, solar and hydro plants.

generation in Tasmania. In 2021-22, gas-fired electricity generation at the TVPS rose for the first time since 2017-18.

Figure 5 shows the Tasmanian consumption and the generation mix during 2021-22. Basslink was generally in net import mode throughout 2021-22 (when consumption, shown in red, exceeded generation), entering net export mode in only November 2021 and May and June 2022. Overall, imports significantly exceeded exports (by 491 GWh) for the 2021-22 water year. This compares with net imports of 5 GWh for the 2020-21 water year and net exports of 271 GWh in the 2019-20 water year.

Figure 5 - Tasmanian generation mix and consumption (GWh) over the 2021-22 water year

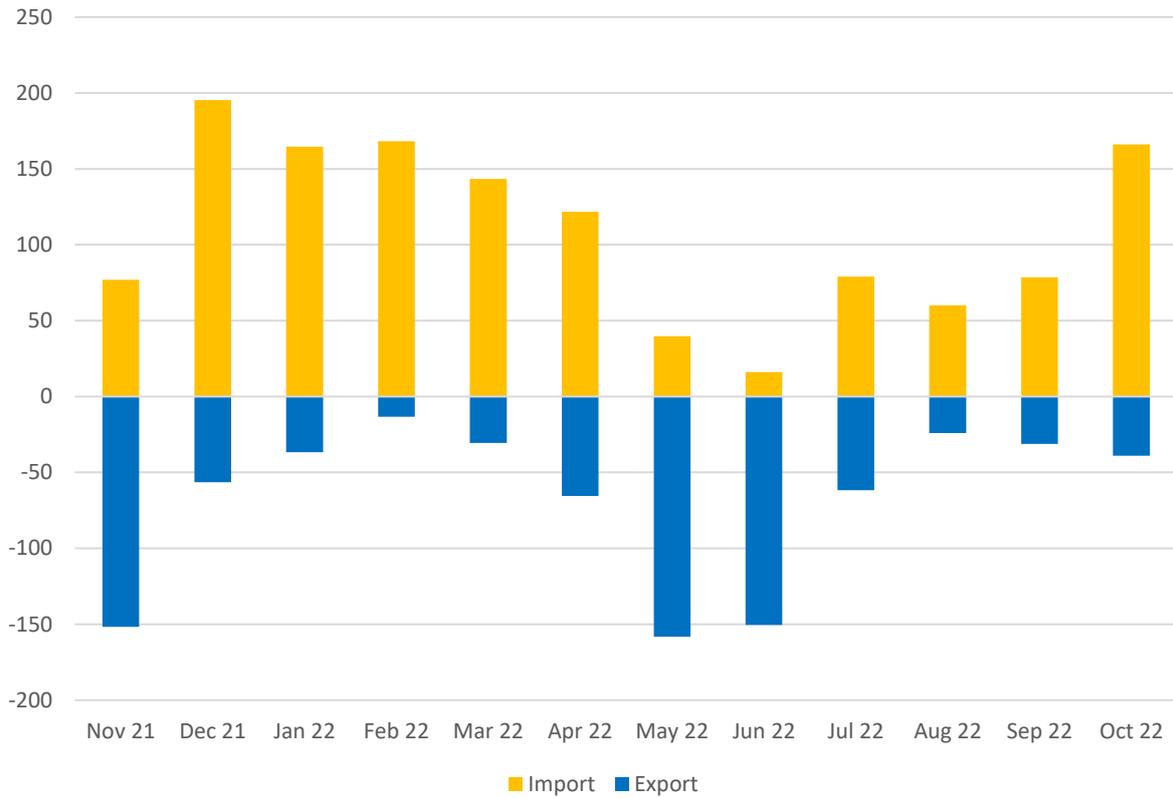


### 3.2 Discussion

At the start of the 2021-22 water year, total energy in storage was 52.5 per cent of the maximum storage level, 11.7 percentage points above the November PSL. By the end of the water year, total energy in storage had fallen to 44.1 per cent, 3.3 percentage points above the PSL for the month.

Inflows in November 2021 and August and October 2022 were higher than in the respective months in the preceding water year, but inflows in the remaining months were lower. Lower than average annual inflows in 2021-22 partially contributed to low exports and to net imports throughout much of the water year, as displayed in Figure 6.

Figure 6: Tasmanian imports and exports (GWh) over the 2021-22 water year



The Monitor and Assessor did not require Hydro Tasmania to prepare a recovery plan during 2021-22, but did increase monitoring activities from June to October 2022. The Monitor and Assessor was not required to exercise any powers under the Act during 2021-22, apart from those related to monitoring activities.

## 4 ENERGY SECURITY OUTLOOK

### 4.1 Forecast energy in storage

Given the level of energy in storage at the start of the 2022-23 water year, the Monitor and Assessor considers that there is a very low likelihood that energy in storage will fall below the HRL in 2022-23. Inflows into Hydro Tasmania's dams would have to be significantly below long-term average levels for this to occur.

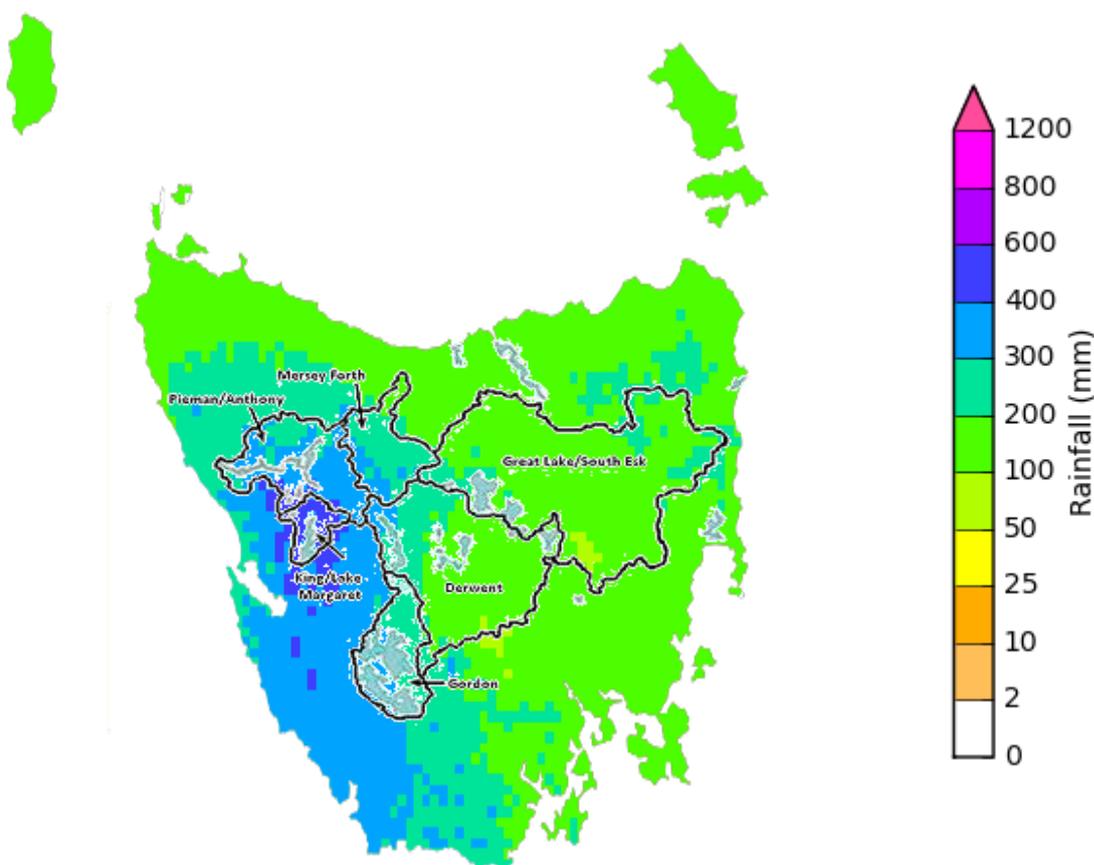
Having consulted with Hydro Tasmania, the Monitor and Assessor considers that there is a moderate likelihood that energy in storage will fall below the PSL in 2022-23. This would only occur if there were periods of unusually low rainfall and a corresponding decrease in inflows.

The following sections set out the basis for this assessment.

#### 4.1.1 Forecast rainfall in Hydro Tasmania catchments

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 7 shows the median Tasmanian rainfall over the three-month period from December to February, based on the Bureau of Meteorology's (BOM) observations from 1990 to 2012.

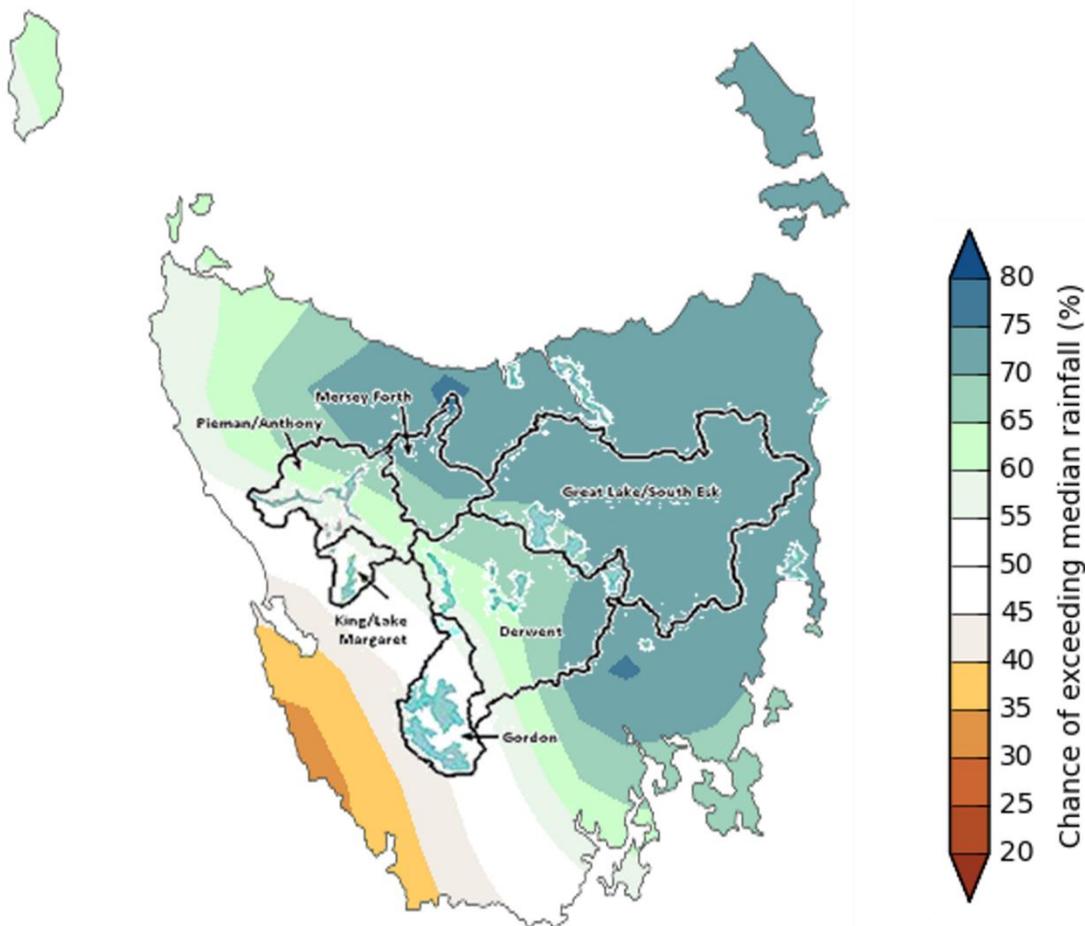
Figure 7: Median rainfall levels in Tasmania - December to February (1990 to 2012)



Source: Bureau of Meteorology

The BOM makes regular assessments of whether Tasmania’s rainfall is likely to be above or below the median levels over a following three-month period. The most recent assessment from the BOM, for the period from December 2022 to February 2023, is that in Tasmania’s south-west there are roughly equal chances of rainfall being above or below the median, whilst in Tasmania’s east and parts of the north, there is a 60 per cent or greater likelihood that rainfall will be above the median (Figure 8). Given that most of the catchment areas are in central and west Tasmania, this suggests that average inflows into Hydro Tasmania’s storages are likely. However, it should be noted that during this three-month summer period, rainfall levels are typically lower than other three-month periods, such as in winter and spring.

**Figure 8: Rainfall in Tasmania - Bureau of Meteorology assessment of the likelihood of above median levels from December 2022 to February 2023**



[Source: Bureau of Meteorology](#)

#### 4.1.2 Forecast consumption

The most recent electricity consumption forecasts from the AEMO, prepared for the Electricity Statement of Opportunities and released on 31 August 2022, forecast consumption in Tasmania at 11 581 GWh in 2022-23 increasing to 11 856 in 2023-24. These forecasts include allowances for network losses. A pro-rata adjustment of these forecasts to obtain an estimate for the 2022-23 water year produces a consumption estimate of 11 673 GWh, representing a 5.2 per cent increase from 2021-22 consumption of 11 092 GWh.

### 4.1.3 Energy supply capability

This section compares the forecast available energy supply against the 12 month demand forecast for the 2022-23 water year. The assumptions underlying this approach are set out in Table 3 below.

**Table 3: Energy supply capability assumptions for the 2022-23 water year**

Parameter	Assumptions
Consumption <sup>8</sup>	11 673 GWh
Wind generation	1 941 GWh
Energy in storage above HRL at the start of 2022-23	1 673 GWh
Average inflow scenario	8 968 GWh
Basslink net imports under average inflow scenario	1 000 GWh
TVPS generation average inflow scenario	70 GWh
Low inflow scenario	6 704 GWh
Basslink net imports under low inflow scenario	2 500 GWh
TVPS generation low inflow scenario	140 GWh

Average hydro inflows are assumed to be 8 968 GWh per annum, derived using Hydro Tasmania supplied data from the 1997-98 water year to the 2021-22 water year. The low inflow scenario of 6 704 GWh is calculated as the mean annual inflow minus two standard deviations. This calculation sets the estimated low inflow level such that there is around a 97.5 per cent probability that the inflow in 2022-23 will be above that level.

Total wind generation is assumed to be 1 941 GWh for the 2022-23 water year. This estimate assumes that all turbines in each operational large-scale wind farm in Tasmania are operating during the 2022-23 water year.

Basslink imports are the equivalent of an additional source of electricity generation for Tasmania and in recent years have been around 1 000 GWh. This level has been assumed for the 2022-23 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 381 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 70 GWh under the average inflow scenario, reflecting recent generation levels at TVPS. The average inflow assumption is consistent with the estimate used in the Monitor and Assessor's review of the HRL and PSL profiles, approximately equivalent to the average gas usage during the 2019-20 and 2020-21 water years. Under the low inflow scenario, TVPS output is assumed to be 140 GWh.

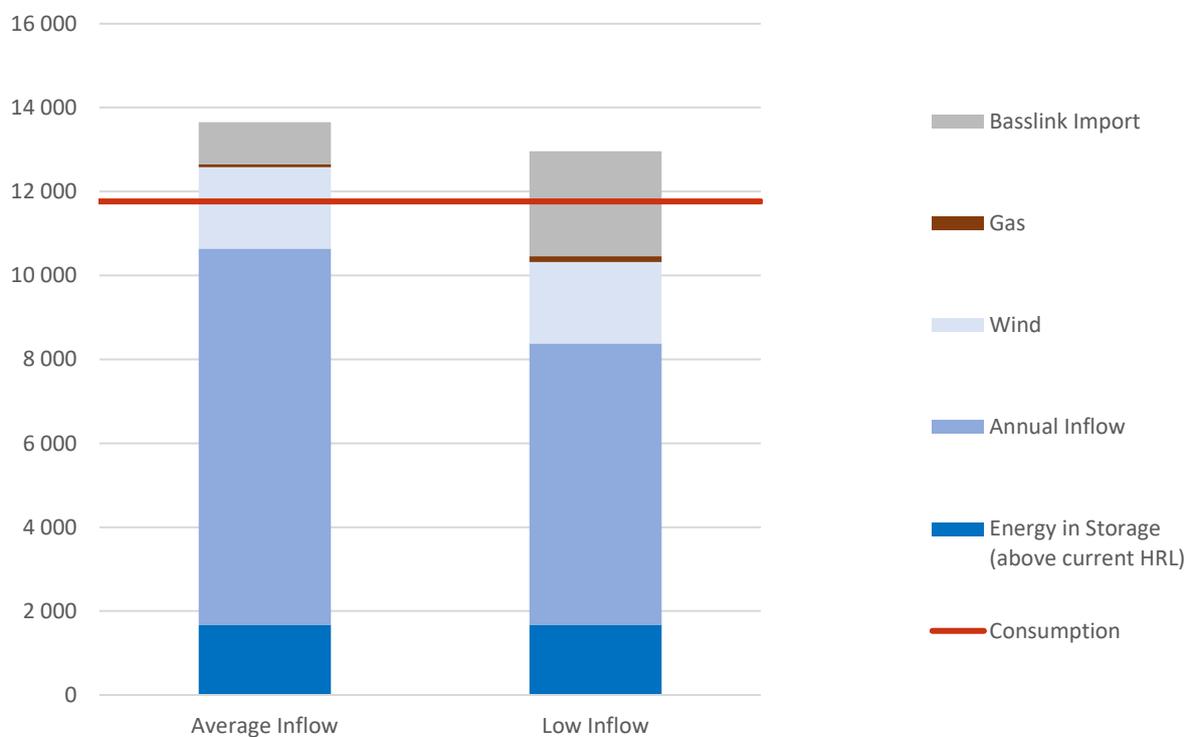
<sup>8</sup> This value refers to the level of electricity generation required to meet forecast annual consumption and therefore includes transmission and distribution network losses.

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 2.3 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 2022-23 water year, energy in storage was 1 673 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 previously discussed, would be utilised before energy in storage falls below the HRL level.

Under both the average and low inflow scenarios, energy supply capability in Tasmania in 2022-23 is expected to be above forecast demand, as shown in Figure 9 below.

Figure 9: Energy supply capability in Tasmania 2022-23 water year (GWh)



Hydro Tasmania’s modelling shows a moderate (around 25 per cent) likelihood of energy in storage falling below the PSL during parts of the 2022-23 water year. The likelihood that energy in storage could fall below the HRL, which is substantially below the PSL, during the 2022-23 water year is very low, based on Hydro Tasmania’s modelling. The Monitor and Assessor agrees and has assessed the overall level of energy security risk as low over the 2022-23 water year.

## 4.2 Potential future developments

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

The Act was amended in 2020 to include targets for the generation of electricity using renewable energy sources in Tasmania. These targets are 15 750 GWhs by 2030 and 21 000 GWhs by 2040. This compares with 10 753 GWhs produced by renewable energy resources in the 2021-22 water year. A significant increase in generation from renewable energy sources is therefore required to meet these targets.

### 4.2.1 The proposed Marinus Link

Marinus Link is a proposed 1 500 MW capacity undersea electricity interconnector that would provide a further interconnection 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.<sup>9</sup>

The effect of an interconnector 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 interconnectors, based on the Marinus Link proposal, is greater than the maximum demand recorded in Tasmania to date.

Tasmania's energy security prospects would be improved significantly if the Marinus Link interconnector were constructed. A second interconnector would, for example, reduce the risk that Tasmania would not be able to import electricity from Victoria. The Marinus Link could also lead to higher investment in renewable electricity generation in Tasmania due to greater export-potential to the larger mainland NEM jurisdictions, which would further decrease energy security risk in Tasmania.

On 19 October 2022, the Australian, Tasmanian and Victorian Governments announced an agreement to jointly fund Marinus Link. A final investment decision on Marinus Link is scheduled to be made in late 2024.

The Monitor and Assessor will continue to monitor the project's development and its potential impact on Tasmania's energy security, noting that the proposed commencement date is not until the late 2020s.

### 4.2.2 New wind and solar generation

There are a number of additional large-scale wind projects proposed for construction in Tasmania. The most significant of these are the Robbins Island wind farm, the North East Wind project, and the Bass Strait Offshore Energy project, each of which is proposed to have a capacity of 500 to 1 260 MW. These three projects would more than double Tasmania's wind generation capacity on their own. Some of the proposed projects may be driven by large increases in load growth in Tasmania, while others may be contingent on the proposed Marinus Link.

There are also a small number of small solar generation projects currently in development. However, at 5-12 MW each, these projects are not expected to make a significant contribution to energy security.

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<sup>9</sup> <https://www.marinuslink.com.au/>

### 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 hydro-electric 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. Hydro Tasmania has also stated that additional interconnection such as the Marinus Link would support the expansion of Tasmania's hydroelectric power system.<sup>10</sup>

In January 2021, Hydro Tasmania announced that Lake Cethana had been selected as Hydro Tasmania's preferred site of its top three Tasmanian pumped hydro opportunities and that it will now progress to the last stage of its feasibility study. A pumped hydro site is planned to be commissioned in line with the completion of the proposed Marinus Link.

Tasmania's energy security prospects would be improved if these projects result in increased hydro generation, particularly if they support a greater contribution from intermittent generators, such as wind farms. The Monitor and Assessor will continue to monitor Hydro Tasmania's progress with its Battery of the Nation projects and their potential impact on Tasmania's energy security.

### 4.2.4 Hydrogen production in Tasmania

The Tasmania Government is seeking to establish a hydrogen production industry at Bell Bay in northern Tasmania under its Green Hydrogen Hub Project. Several hydrogen production plants are being considered that would each increase electricity demand by around 100 MW (around 880 GWh annually) to 300 MW (around 2 630 GWh annually).

This would result in substantially increased electricity consumption in Tasmania. As an example, the annual consumption of one 300 MW plant represents almost one quarter of Tasmania's total electricity consumption in recent years.

The Monitor and Assessor has been advised that it is not expected that any plants would be in operation until mid-2023 at the earliest and that to accommodate an increase of more than 300 MW of additional demand, major transmission upgrades would be required.

At this stage, no project has been confirmed and any projects that progress would add to Tasmania's energy demand after the 2022-23 water year. In light of the scale of these projects, the Monitor and Assessor is monitoring developments closely and confirmation of a large scale hydrogen production plant is likely to trigger a review of the PSL and HRL by the Monitor and Assessor.

## 4.3 Natural gas

In its 2022 Gas Statement of Opportunities (GSOO), 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 2041.

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<sup>10</sup> <https://www.hydro.com.au/clean-energy/battery-of-the-nation/>

AEMO forecasts that long-term supply from existing and committed gas developments should provide adequate supply to meet domestic demand until at least 2026. AEMO has identified short to medium-term risks of small and infrequent gas shortfalls during extreme weather events in south-east Australia.

AEMO has projected that Tasmanian natural gas demand will increase moderately until 2026 before slowing and ultimately declining by the end of the forecasting horizon.

Gas supply adequacy forecasts for the next five years have fallen compared to the forecasts in the 2021 GSOO due to delays in the Port Kembla Energy Terminal as well as gas production falling in south-eastern Australia from 2023 onwards. AEMO predicts that these factors may contribute to potential domestic peak day gas shortfalls in 2023, with the situation resolving itself as projects begin operating in late 2023 and during 2024. The Monitor and Assessor does not expect that Tasmania will face energy security issues related to the natural gas market in the short to medium-term.

