

**ENERGY IN TASMANIA
ANNUAL SECURITY REVIEW
2022-23 WATER YEAR**



NOVEMBER 2023

MONITOR AND ASSESSOR FOR ENERGY SECURITY

CONTACT DETAILS

Office of the Tasmanian Economic Regulator

Office hours: 8.45am to 5.00pm, Monday to Friday (except public holidays)

Street address: Level 3, 21 Murray Street, Hobart, Tasmania 7000

Postal address: GPO Box 770, Hobart, Tasmania 7001

Telephone: (03) 6145 5899 or international +61 3 6145 5899

Email: office@economicregulator.tas.gov.au

Website: www.economicregulator.tas.gov.au

Published November 2023

ISSN 2653-7079

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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, defined as the water year. This report reviews the period from 1 November 2022 to 31 October 2023 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 all of the 2022-23 water year. Inflows into Hydro Tasmania's storages during the water year were slightly below the long-term average. However, strong inflows throughout the second half of the water year contributed to energy in storage at the end of the water year being at 6 917 GWh, 7.1 percentage points above the PSL for November and 15.4 percentage points above the HRL for the month. The volume of energy in storage at the conclusion of the 2022-23 water year was 47.9 per cent of the maximum usable energy in storage.

During the 2022-23 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. Hydro Tasmania was not required to prepare any recovery plans during 2022-23.

Given the level of energy in storage at the end of the water year, the Monitor and Assessor considers that there is a very low likelihood that energy in storage will fall below the HRL during 2023-24. The Monitor and Assessor does not expect that Tasmania will face energy security issues related to the level of storage in the 2023-24 water year.

The Monitor and Assessor notes the Australian Energy Market Operator's (AEMO) concerns regarding the risk of short-term gas supply shortfalls and long-term gas supply gaps arising from reduced production in southern Australia (see section 4.3)¹. However, the Monitor and Assessor does not expect that Tasmanian will face energy security issues related to the natural gas market in 2023-24.

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 2023-24, including in the event of a temporary loss of generation from the Tamar Valley Power Station (TVPS) or a Basslink outage.

¹ AEMO's 2023 Gas Statement of Opportunities - March 2023, page 4.

KEY STATISTICS

Table 1: Key statistics for the water year (1 November 2022 to 31 October 2023) in GWh²

	2021-22	2022-23
Energy in storage (as at end of water year)	6 365	6 917
Total inflow to Hydro Tasmania's storages	7 675	8 897
Tasmanian consumption ³	11 092	10 879
Hydro generation	8 884	8 385
Wind generation	1 619	1 939
Gas generation	97	60
Distributed generation ⁴	249	314
Basslink imports	1 310	1 654
Basslink exports	819	1 159
Basslink net imports/(exports)	491	495

² Sources: 2021-22 and 2022-23 energy in storage and inflow data were sourced from Hydro Tasmania. Electricity consumption and generation data were sourced from NEMreview and OpenNEM.

³ 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.

⁴ 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 2017.⁵ 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.

⁵ 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 2022-23

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 2022-23, energy in storage exceeded the PSL every month. Therefore, the Monitor and Assessor did not deem it necessary for any additional monitoring activities to be undertaken.

(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 Monitor and Assessor 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 2022-23, 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 2022-23, 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 2022-23 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.

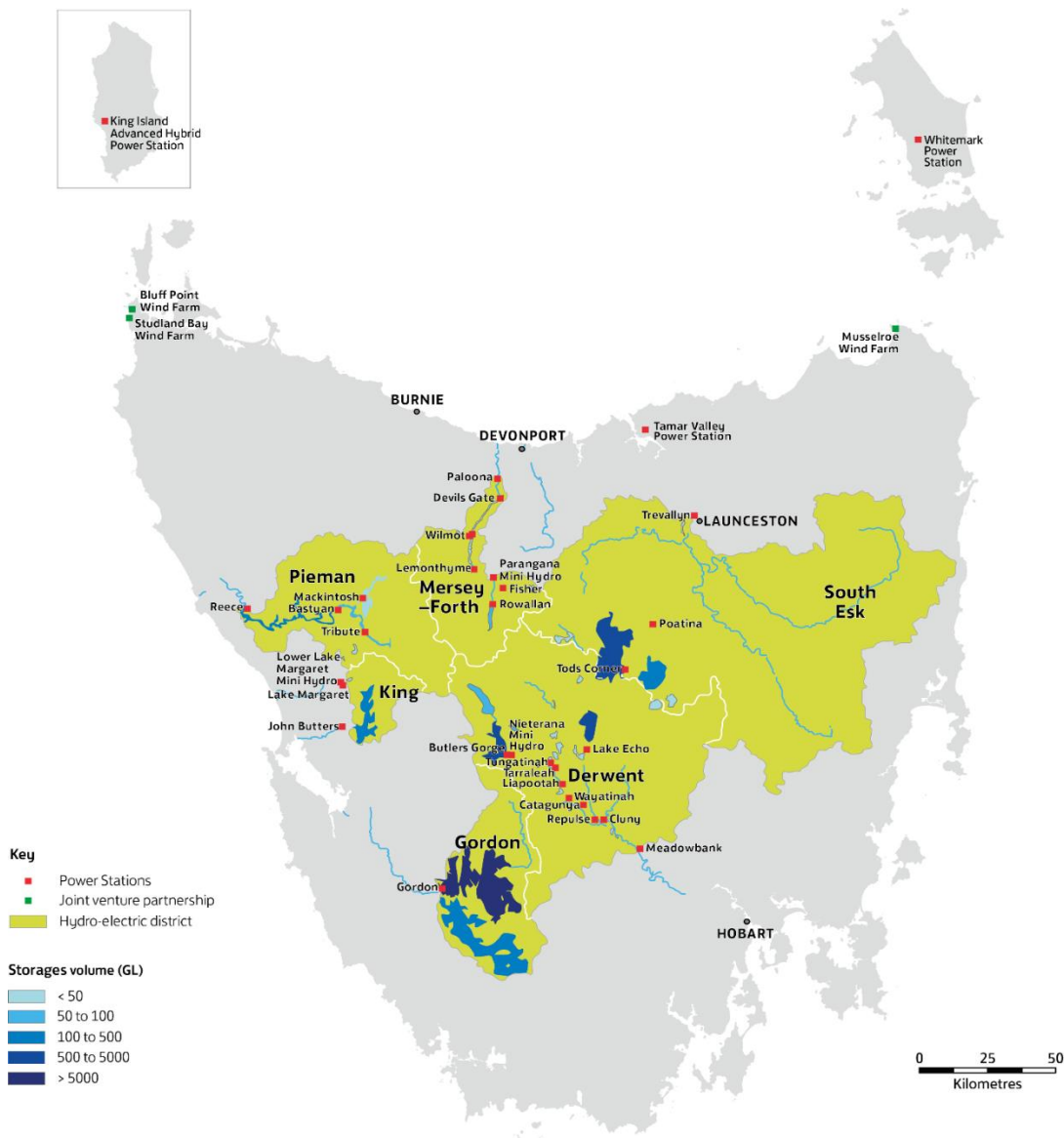
The Monitor and Assessor was not required to exercise any powers under the Act other than those necessary to perform the functions as set out above.

3 WATER YEAR 2022-23

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

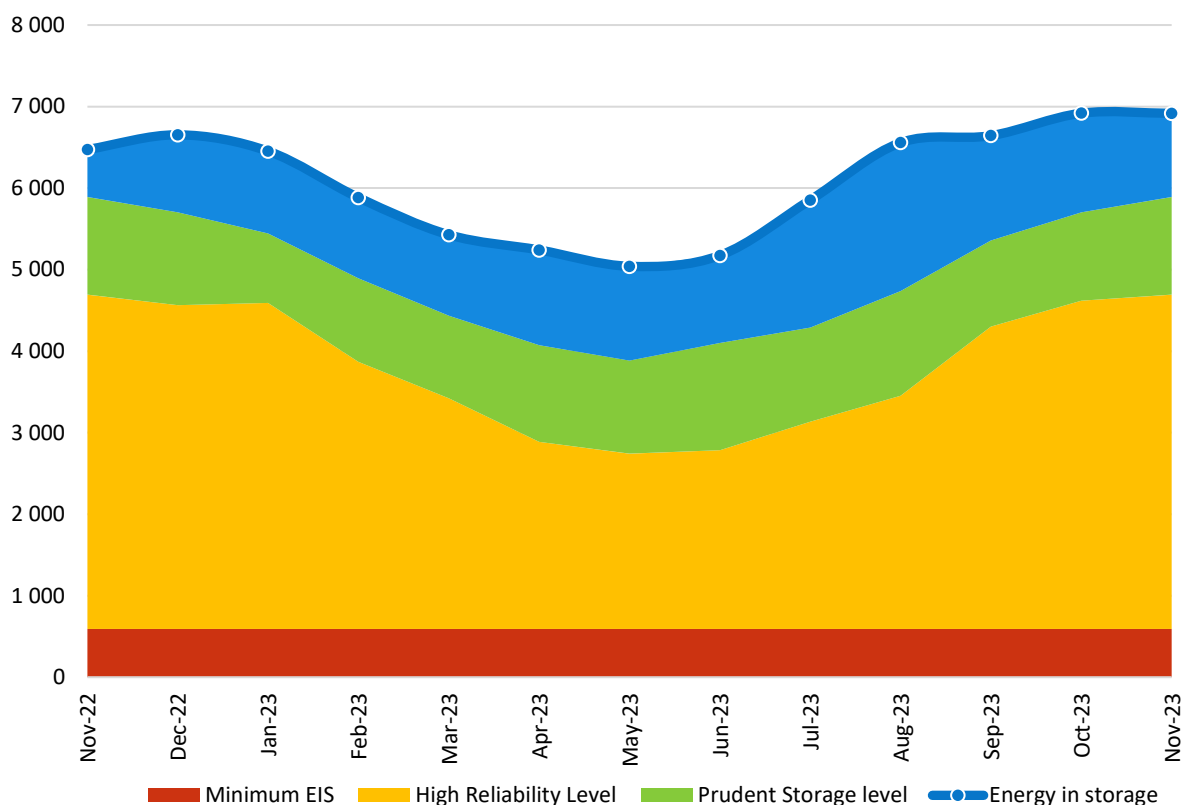
The HRL is a set of monthly storage levels above which Tasmania's electricity supply would be sufficient to meet expected demand in the event of a six-month Basslink outage concurrent with very low inflows to energy in storage, while avoiding extreme environmental risk to *yingina*/Great Lake.

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 2022-23 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 2022-23 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 avoided⁶.

Figure 2: Energy in storage during the 2022-23 water year



As shown in Figure 2, monthly levels of energy in storage remained above the PSL over the 2022-23 water year. As at 6 November 2023, energy in storage was 6 917 GWh, representing 47.9 per cent of

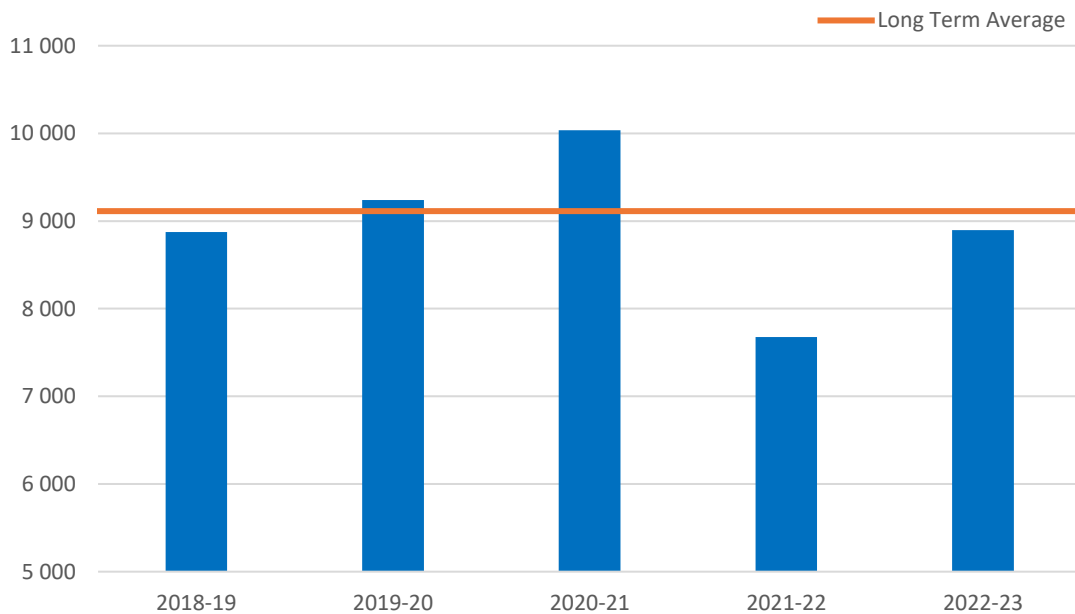
⁶ The Great Lake Extreme Environmental Risk Zone is at 9.1 per cent of Great Lake's total capacity, which represents 4.1 per cent of total Hydro Tasmania storages as shown in Figure 2.

total usable energy in storage. This was 7.1 percentage points above the PSL and 15.4 percentage points above the HRL for November.

3.1.2 Inflows into Hydro Tasmania storages

Total inflow, or yield, for the 2022-23 water year was 8 897 GWh, which was 15.9 per cent higher than the 2021-22 level but 2.4 per cent below the long-term (26 year) average (Figure 3).

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



3.1.3 Electricity consumption

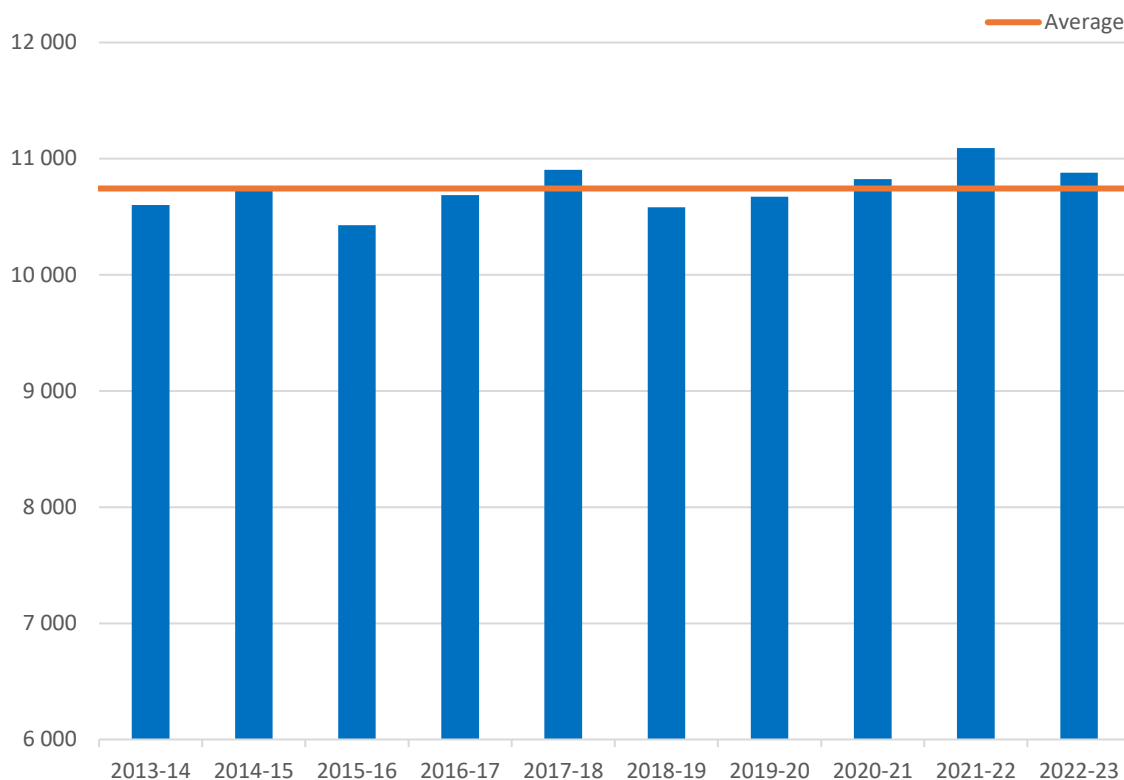
Tasmania's electricity consumption is dominated by large industrial customers involved in industries such as metal smelting, mining and paper production. According to the Energy Security Taskforce, four large major industrial customers account for 54 per cent of the State's electricity load. Residential 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.⁷

Tasmania's electricity consumption for the 2022-23 water year was 10 879 GWh, representing a 1.9 per cent decrease on the 2021-22 water year (11 092 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 ten years has been relatively stable at around 10 700 GWh, with no discernible upward or downward long-term trend (Figure 4).

⁷ Tasmanian Energy Security Taskforce Final Report, 2017, page 83.

Figure 4: Tasmanian annual electricity consumption (GWh) since the 2013-14 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.

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.

On 19 May 2023, APA submitted an application to the AER to convert the Basslink interconnector from a Market Network Service Provider to a prescribed Transmission Network Service Provider and to commence the process for making a revenue determination for the period 1 July 2025 to 30 June 2030.

The AER has noted a decision on the conversion application and revenue determination is expected by December 2024. If APA's application is approved, the commercial arrangement with Hydro Tasmania providing for payment of a facility fee will be replaced with regulated revenues from 1 July 2025.

The Monitor and Assessor notes that Basslink has returned to normal operation under its new ownership, and that there was one unplanned outage of almost three hours duration during the 2022-23 water year.

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 approximately 0.6 per cent of electricity generation in Tasmania during 2022-23, down from 0.9 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 2021-22 and 2022-23 water years.

Table 2: Tasmanian generation mix (GWh)

Generation source	2021-22	% of total	2022-23	% of total
Hydro	8 884	81.88%	8 385	78.38%
Wind	1 619	14.93%	1 939	18.13%
Gas	97	0.90%	60	0.56%
Distributed Generation ⁸	249	2.30%	314	2.93%

Over the 2022-23 water year, hydro generation accounted for 78.38 per cent of total on-island generation. This was a significant decrease in the level and proportion of hydro generation compared with 2021-22.

Wind generation provided 18.13 per cent of on-island generation during 2022-23. This represents a significant increase in both total generation and the proportion of Tasmanian generation from 2021-22. The 2022-23 water year saw record monthly wind generation, with July 2023 recording a high of 239.97 GWh.

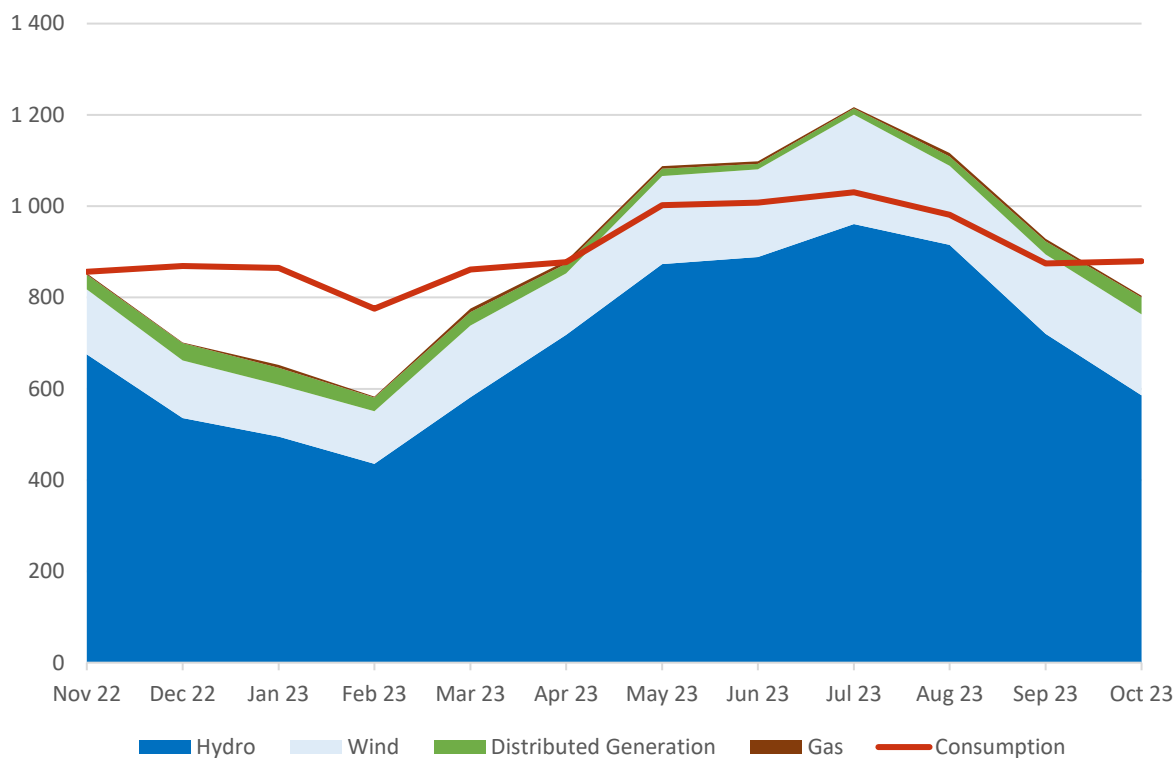
Table 2 shows that distributed generation makes a small, but increasing, contribution to total generation in Tasmania. Output from distributed generation systems reduces the requirement for generation from other sources.

⁸ Distributed generation is the total non-scheduled generation in a region and comprises small-scale wind, solar and hydro plants.

Figure 5 shows the Tasmanian consumption and the generation mix during 2022-23.

Basslink was generally in net import mode for the first half of 2022-23 (when consumption, shown in red, exceeded generation), then entered net export mode from May to September 2023. Overall, imports exceeded exports (by 495 GWh) for the 2022-23 water year. This compares with net imports of 491 GWh for the 2021-22 water year and 5 GWh for the 2020-21 water year.

Figure 5 - Tasmanian generation mix and consumption (GWh) over the 2022-23 water year



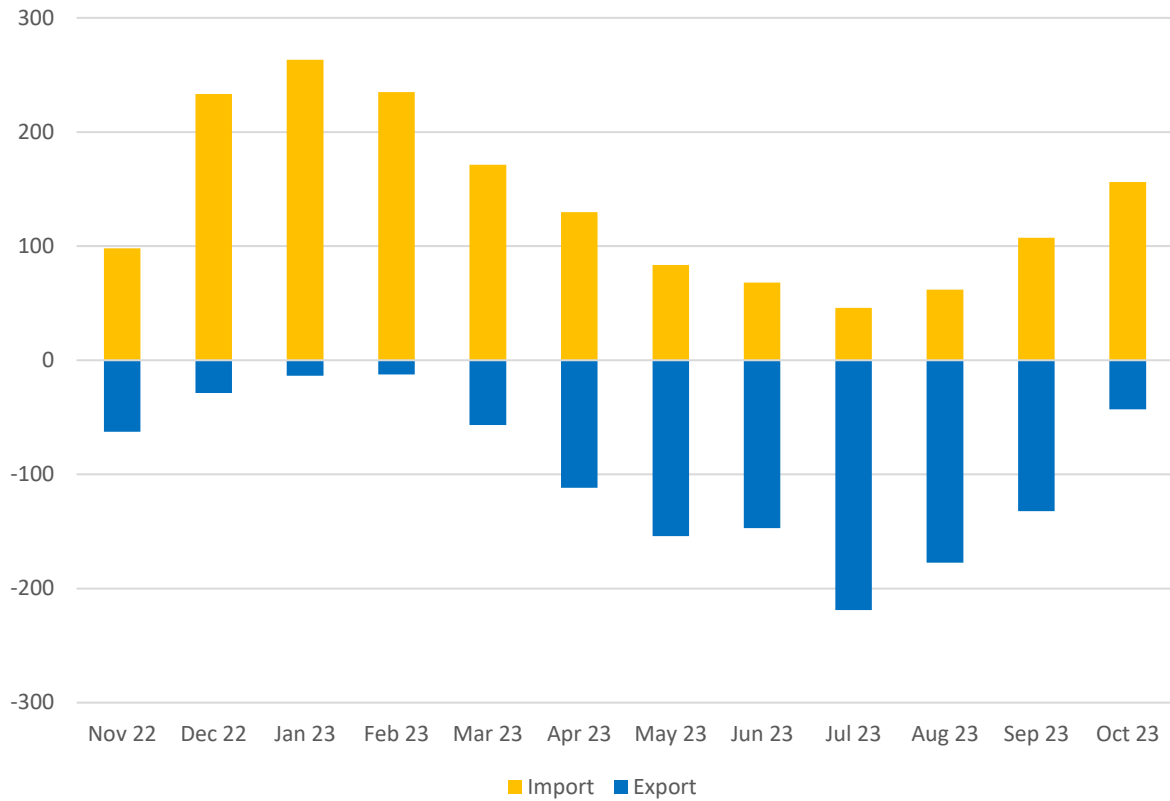
3.2 Discussion

At the start of the 2022-23 water year, total energy in storage was 44.1 per cent of the maximum storage level, 12.3 percentage points above the November PSL⁹. By the end of the water year, total energy in storage had increased to 47.9 per cent, 7.1 percentage points above the PSL for the month.

Inflows were up 15.9 per cent compared to the 2021-22 water year, but remained below the long-term average. Lower than average inflows from January to May 2023 partially contributed to net imports throughout summer and autumn, as displayed in Figure 6.

⁹ EIS at 31 October 2022, consistent with the end of the 2021-22 water year reported in the *Annual Energy Security Review 2021-22*.

Figure 6: Tasmanian imports and exports (GWh) over the 2022-23 water year



The Monitor and Assessor did not require Hydro Tasmania to prepare a recovery plan during 2022-23 and did not increase monitoring activities. The Monitor and Assessor was not required to exercise any powers under the Act during 2022-23, 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 2023-24 water year, the Monitor and Assessor considers that there is a very low likelihood that energy in storage will fall below the HRL in 2023-24. 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 also a low likelihood that energy in storage will fall below the PSL in 2023-24. This would only occur if there were periods of unusually low rainfall and a corresponding decrease in inflows.

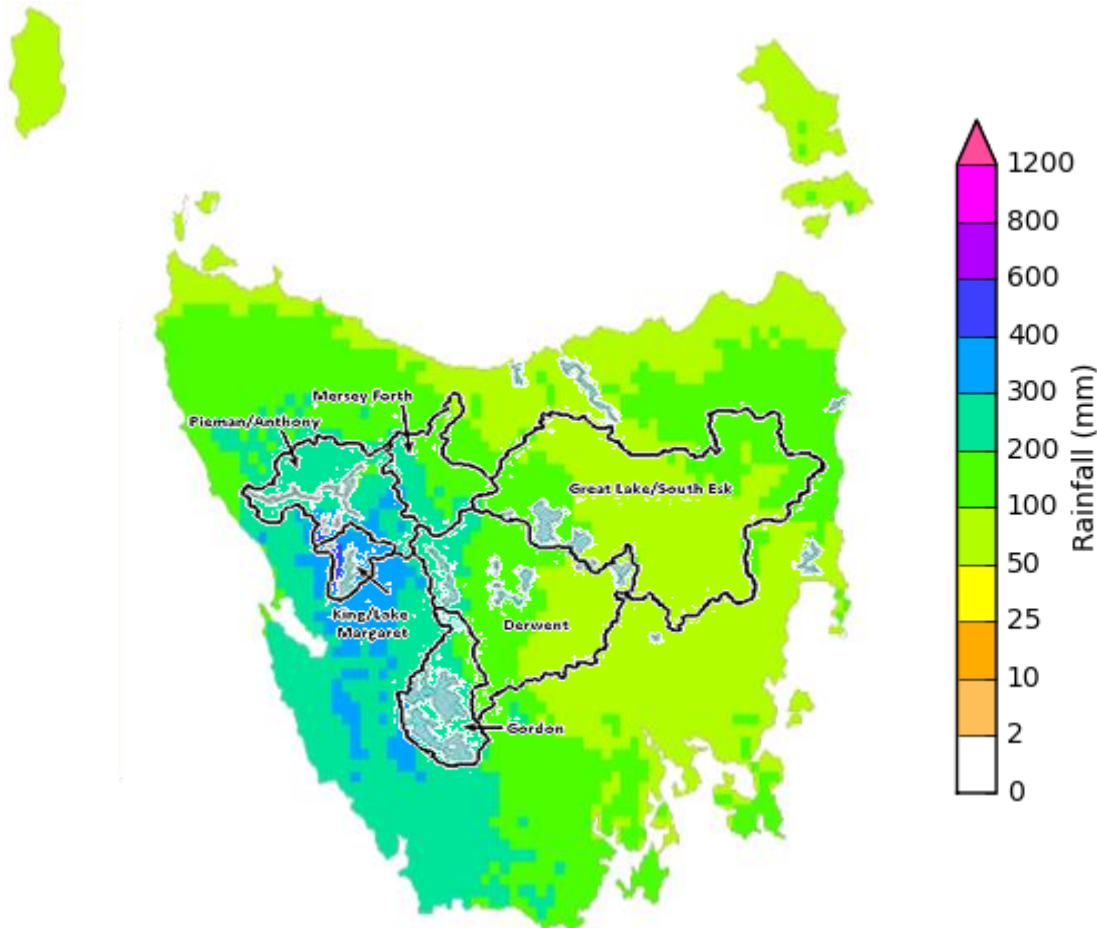
The Bureau of Meteorology (BOM) has declared an El Nino event and has estimated that the event is likely to continue into autumn 2024. Hydro Tasmania has advised that it is currently monitoring the impact El Nino will have on its water supply for the next water year. It expects warmer and drier weather to occur in the northern and eastern areas of the State, with a more neutral outlook to occur in the southwest, where its primary water storages are located. The Monitor and Assessor will continue to monitor the impact El Nino has on water storages.

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 BOM's observations from 1990 to 2012.

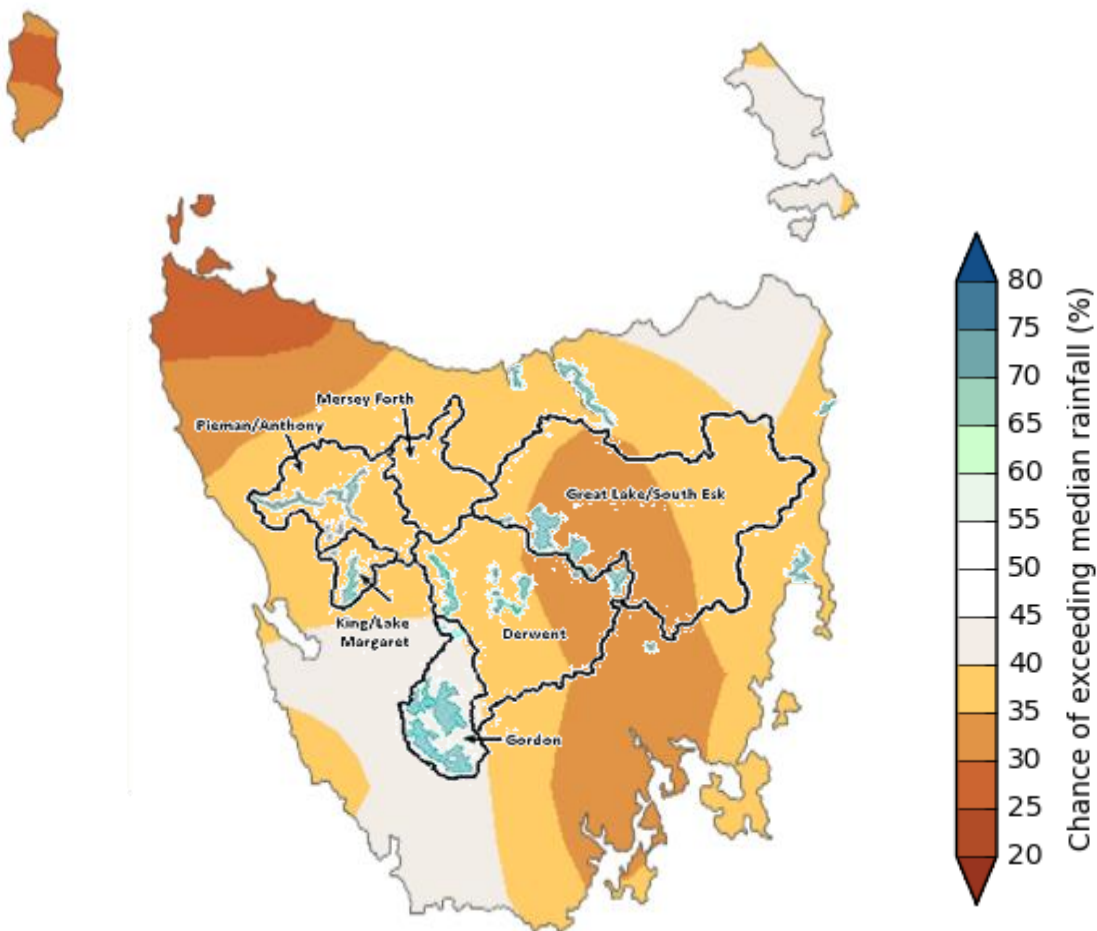
Figure 7: Median rainfall levels in Tasmania - December to February (1990 to 2012)



Source: Bureau of Meteorology

The BOM makes regular assessments of the chance of Tasmania's rainfall being above or below median levels over a following three-month period. The most recent assessment from the BOM indicates that Tasmania is likely to receive below median rainfall levels for the period from December 2023 to February 2024. There is a 40 per cent chance of rainfall exceeding the median over Hydro Tasmania's Gordon catchment, whilst the chances of rainfall exceeding the median for Hydro Tasmania's remaining catchments falls in the 30 to 40 per cent range (Figure 8). This suggests that median inflows into Hydro Tasmania's storages over the coming summer are unlikely. However, it should be noted that rainfall levels are typically lower during this three-month period than in winter and spring.

Figure 8: Rainfall in Tasmania - Bureau of Meteorology assessment of the likelihood of above median levels from December 2023 to February 2024



[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 2023, forecast consumption in Tasmania at 11 097 GWh in 2023-24 increasing to 11 269 GWh in 2024-25. These forecasts include allowances for network losses. A pro-rata adjustment of these forecasts to obtain an estimate for the 2023-24 water year produces a consumption estimate of 11 212 GWh, representing a 3.1 per cent increase from 2022-23 consumption of 10 879 GWh.

4.1.3 Energy supply capability

This section compares the forecast available energy supply against the 12 month consumption forecast for the 2023-24 water year. The assumptions underlying this approach are set out in Table 3 below.

Table 3: Energy supply capability assumptions for the 2023-24 water year

Parameter	Assumptions
Consumption ¹⁰	11 212 GWh
Wind generation	1 940 GWh
Energy in storage above HRL at the start of 2023-24	2 225 GWh
Average inflow scenario	9 113 GWh
Basslink total imports under average inflow scenario	1 000 GWh
TVPS generation average inflow scenario	70 GWh
Low inflow scenario	6 742 GWh
Basslink total imports under low inflow scenario	2 500 GWh
TVPS generation low inflow scenario	140 GWh

Average hydro inflows are assumed to be 9 113 GWh per annum, derived using Hydro Tasmania supplied data from the 1997-98 water year to the 2022-23 water year. The low inflow scenario of 6 742 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 2023-24 will be above that level.

Total wind generation is assumed to be 1 940 GWh for the 2023-24 water year. This estimate assumes that all turbines in each operational large-scale wind farm in Tasmania are operating during the 2023-24 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 2023-24 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.

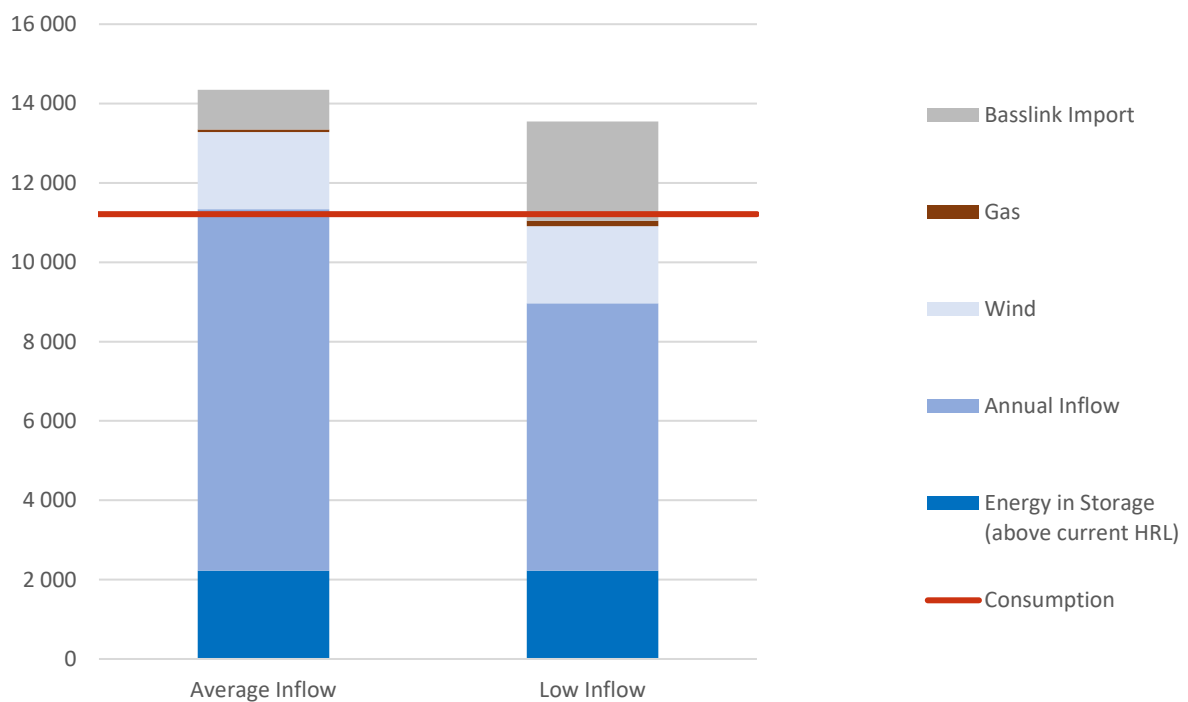
¹⁰ This value refers to the level of electricity generation required to meet forecast annual consumption and therefore includes transmission and distribution network losses.

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 consumption 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 2.9 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 2023-24 water year, energy in storage was 2 225 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 2023-24 is expected to be above forecast consumption, as shown in Figure 9 below.

Figure 9: Energy supply capability in Tasmania 2023-24 water year (GWh)



Hydro Tasmania’s modelling shows a low (around 5 per cent) likelihood of energy in storage falling below the PSL during parts of the 2023-24 water year. The likelihood that energy in storage could fall below the HRL, which is substantially below the PSL, during the 2023-24 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 2023-24 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 GWh by 2030 and 21 000 GWh by 2040. This compares with 10 638 GWh produced by renewable energy resources in the 2022-23 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 undersea electricity interconnector that would provide a further interconnection between Tasmania and Victoria. The Marinus Link would provide substantially increased opportunities for renewable energy from Tasmania to contribute to meeting energy demand in mainland Australia.¹¹

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.

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 3 September 2023, a new deal between the Tasmanian and Australian governments to progress Marinus Link was announced. The proposed new arrangement will only include one subsea transmission cable, with the fate of the second cable to be determined as part of the final investment decision in late 2024.

4.2.2 New wind and solar generation

There are a number of large-scale onshore and offshore wind projects proposed for construction in Tasmania, including several in the 1 GW range. The progression of a small number of such projects could substantially increase Tasmania's wind generation capacity.

However, some of the proposed projects may be dependent on large increases in load in Tasmania (hydrogen production, for example), while others may be contingent on the proposed Marinus Link.

There are also a small number of solar generation projects currently in development. However, at up to 400 MW each, these projects would make a less significant contribution to energy security.

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

¹¹ <https://www.marinuslink.com.au/>

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.¹²

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.

Hydro Tasmania is also investigating the redevelopment of the Tarraleah hydro power scheme, which has the potential to increase the capacity of the scheme from around 90 MW to around 190 MW.

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.

A number of hydrogen production facilities in Tasmania have been proposed, although none have progressed to the construction phase.

In light of the number and scale of the proposed 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.

4.2.5 Big Batteries

A number of grid scale batteries have also been proposed for Tasmania, with capacities up to 300 MW. Batteries have the benefit of being able to store energy generated from renewable sources (such as wind and solar) during times of low demand and dispatch it at times of peak demand. Batteries provide flexibility and can respond faster than other storage or generation technologies, helping to maintain grid stability through frequency control and load shifting.

The Monitor and Assessor will monitor the development of big batteries in Tasmania and their impact on the stability of Tasmania's energy security.

4.3 Natural gas

In its 2023 Gas Statement of Opportunities (2023 GSOO), AEMO forecasts demand and uses information from gas producers about reserves and forecast production to project the supply-demand balance and

¹² <https://www.hydro.com.au/clean-energy/battery-of-the-nation/>

potential gaps under a range of plausible scenarios for eastern and south-eastern Australian gas markets to 2042.

AEMO noted that gas supply in southern Australia is declining faster than projected demand and there is a continued risk of short-term gas supply shortfalls and long-term gas supply gaps arising from reduced production from southern Australia. However, AEMO states that annual gas supply from existing, committed and anticipated production is forecast to be adequate until 2026. AEMO states that investments are needed in the near-term to ensure operational solutions from 2027, despite falling gas consumption.

However, 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.

