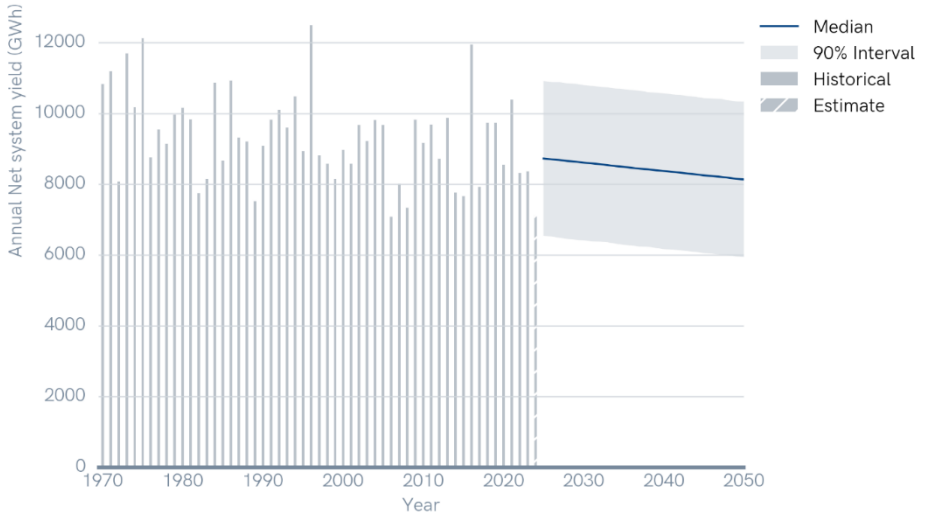
Hydro Tasmania responses to Questions on Notice from 29 April 2025 Hearing of Joint Select Committee on Energy Matters		
Topic	**Question**	**Response**
Future modelling	P5 – Vica Bayley MP: You talked about the future rainfall modelling and the work with the CSIRO and the like. I note that, in advance of the Basslink development, you did quite a detailed report on the potential effects or changes to hydropower generation that looked at downstream modelling, ecological impacts, and so forth. Are you in a position to table that future rainfall modelling? Mr Bolt: I think it's a pretty reasonable request to understand what the risk to to the state is with those things. Vica Bayley MP: That's right. Obviously this has been driven by Marinus, by the generation profile that you're looking to entertain into the future, and	**Note on definitions:** • While **rainfall** is commonly discussed, the variable that is of most concern is runoff, and especially *net* runoff into storages. • **Runoff** is also frequently called "**inflows**", and we will use the term interchangeably. • **Net runoff** is a function of three elements: rainfall, the catchments response to that rainfall, less the evaporation from the storages. **Future modelling:** Hydro uses a range of modelling methods to forecast future inflows, that inform Hydro's system operation at all timescales from daily dispatch to long-term strategies. **Short-term forecasts:** Under the portfolio optimisation project Hydro partnered with CSIRO to develop an ensemble inflow prediction system. This system generates 14-day hourly forecasts with uncertainty represented. The system is based on the system for continual hydrologic ensemble forecasts (SCHEF), a cutting-edge hybrid statistical-dynamical prediction system developed by CSIRO and the Bureau of Meteorology. **Outlook forecasts:** The Outlook forecasts period extends from the end of the short-term forecast out to a lead time of three months. Forecasts for this period are now informed by the runoff forecast provided by the Bureau of Meteorology's Australian Water Outlook (AWO). See Australian Water Outlook for more details on this model. **Long Range Inflow Projections:** As part of Hydro Tasmania's inflow modelling improvements with CSIRO, we have developed a statistical inflow model that accounts for the impacts of climate change on net runoff, as well as provides a representation of the broad range of variability that is inherent in the hydrological cycle.

	understanding exactly what those inflows are going to be.	The model is still undergoing active development, and the work is being prepared for peer review in the academic literature. However, it is a significant improvement over the previous method and is used to inform Hydro's energy security and environmental storage decisions. The new long term inflow model also gives a better representation of inflow variability. More detailed results will be presented in a future academic paper; however, we present a sample of the results here. The scale of the impacts of climate change generally agrees with previous work done by the Climate Futures project, Bennett *et al.* (2010). The long-term energy yield impact is an average reduction in the annual net system 17 GWh/year per annum (about 2%/decade of 2020 levels). Figure 1 shows the projected annual yield compared to historical.  ***Figure 1*** *Historical and projected annual (calendar year) net system yield. Historical yields are modelled, i.e. simulated from net runoff with the current system and a standard outage schedule.*

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What has changed since 2016?	Pg 7 – Vica Bayley MP: On the storages, 2016 was a case study in management. What's changed? What are the internal policies and procedures for, and guardrails around, storage management and downstream river management to make sure that we don't get into that situation again and they're not drawn down to that extent again?	**Refer to answer provided by Ms van Maanen in the Hearing:** "I talked earlier about the investment we've made in the inflow forecasting. Just to cover on that, we'll have a look at what we can provide on notice to answer your question. It is live modelling; it's not like a point in time report, so we'll look at what we can provide out of that. "The broader project was to invest in a whole suite of tools that we use for modelling our system and optimising it so we have greater detail when we're looking at different weather scenarios, as well as different market price scenarios. The tools that we have enable us to look at that in a much more sophisticated way, and look at, not just the average case outcomes, but also what those more extreme outcomes might be. "That's from a modelling and a planning perspective. We have the energy security framework, which has things like the prudent storage level and the high reliability level that we work to in terms of guardrails, as well. Then, it's some of the steps that we're taking to give us more flexibility within the portfolio, like the solar offtake, for example, and progress of our major projects so that we are better equipped within the portfolio to respond to those events." **Further information:** The main change since 2016 is the Tasmanian Government's implementation of the Energy Security Framework, as highlighted in Ms van Maanen response at the hearing, including the Prudent Storage Level (PSL) and High Reliability Level (HRL) thresholds meaning more water is kept in storage to prepare for droughts or supply issues. (See: Energy Security Framework, ReCFIT) Hydro Tasmania updates our storage levels on our website every week, and provides data to the Office of the Tasmanian Economic Regulator's Tasmanian Energy Security Monthly Dashboard. Within Hydro Tasmania we have improved our modelling since 2016, working with external experts including CSIRO. See the previous answer for more detail on our modelling systems. A summary of the changes in modelling from 2016 to today is outlined in the table below.

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<tr><th>System</th><th>2016</th><th>Current</th></tr>
<tr><td>Short-term inflows</td><td>• 0–7-day best estimate forecast
• Informed by catchment hydrologic models and 7-day weather forecast</td><td>• 0–14 day forecast with uncertainty
• Informed by catchment hydrologic models and 14-day weather forecast with uncertainty.</td></tr>
<tr><td>Outlook inflows</td><td rowspan="2">• Random resampling of historical inflows</td><td>• 3 months forecast informed by hydrologic models and long-range forecast.</td></tr>
<tr><td>Long-term inflows</td><td>• Stochastic inflow sequence with historical and future trends, uncertainty, wet/dry sequences and extremes captured.</td></tr>
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<td>Basslink regulation</td>
<td>Pg 19

Michael Ferguson MP: Wouldn’t there be an argument about anti-competitive behaviour – the expectation that government-supported businesses, which is</td>
<td>As noted in the session we consider this specific query is a question for the relevant regulator(s).

The AER is continuing to consider its final decision on Basslink’s application to convert to a regulated interconnector. We strongly support conversion as it would ensure a transparent, reliable and efficiently utilised interconnector that supports market stability and Australia’s energy market transition.</td>
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	what Marinus is, are unfairly competing in that situation?	In relation to Marinus – should the AER decide against conversion of Basslink to a regulated interconnector, Marinus and Basslink would have different operating models which will create less efficient market outcomes. Conversion of Basslink to a regulated interconnector avoids the uncertainty of merchant operation and would ensure Basslink would operate as an open link consistent with the proposed operating model for Marinus Link.