

The irony of Hydro generation is that it is the one resource that can be severely affected in Australia by climate change, the very beast the technology is in place to curb. This was shown in 2019 when the severe drought hit across the east of the country. This resulted in the technology outputting its lowest contribution to the energy mix for years. Prior to the drought, the technology made up about 40% of renewably sourced electricity in the system, but in 2019 this dropped to 26%.

There are more than 100 Hydro plants operating across Australia with the most well-known being Snowy Hydro, which began in 1949. This will continue to dominate following the approval of the Snowy 2.0 extension, becoming the largest committed Renewable energy project in Australia. This should mean that Hydro is unlikely to be surpassed after it becomes operational in 2025. This will be further supported by the 2.5GW Battery of the Nation project from Tasmania being able to export 1.5GW across the Marinus Link.

The future of Hydroelectricity, especially the pumped hydro storage facilities, will be an integral part of a net-zero future with its ability to start and be at full capacity within 90 seconds. This will allow those facilities to be a part of the technology which can back up more intermittent renewable technology such as wind and solar.

If we look at the growing tidal and river-run Hydro generation, which is more predictable in terms of output and generation, you have a wealth of potential hydro-electric sources across the coastline. The concerns over cost of development and maintenance coupled with the timing of returns make it a less attractive Capex investment than its pumped hydro cousin. However, with new technology like the floating turbines removing barriers such as maintenance and eco-system disturbance concerns, the technology could emerge as a new player in the renewable energy block.

