



Media release – 4 May 2022

New, green power station for Queensland (detailed)

Gladstone – The world’s first Superhybrid™ project is planned for Central Queensland, Australia, Brisbane-based Sunshine Hydro has announced.

The ‘Flavian’ Superhybrid an integrated renewable energy, storage, and green hydrogen infrastructure project is planned within the Central Queensland Renewable Energy Zone (REZ) – and will help cement Gladstone’s place at the forefront of the global clean energy economy.

Sunshine Hydro’s Flavian Superhybrid will support the development of 1.8GW of new wind generation across the state of Queensland bringing the estimated capital investment value of the combined development to \$5.5billion.

During construction the Flavian Superhybrid will generate 500 full time jobs, and when operational, will employ 60 full time employees in both the pumped hydro and hydrogen generation facilities.

Sunshine Hydro has secured land to base the Flavian Superhybrid and commenced detailed feasibility studies and plans to reach FID (final investment decision) in 2025 with commissioning in 2028.

When fully operational the Flavian Superhybrid will provide 220 MW of firm green energy – firm green energy being clean energy supplied 24 hours a day 365 days a year. The project will supply 65 tonnes per day of competitively priced green hydrogen for transport and local industry.

The energy supplied into the grid by the project will be 100% green, balanced on an hour by hour basis. The Flavian Superhybrid will also enhance water security for the region by increasing the amount of stored water and increasing the capacity of a regional desalination plant.

Sunshine Hydro Chairman Michael Myer said “the combination of the long duration pumped hydro combined with the fast acting response of PEM electrolyzers can provide grid services second to none.

“Our proprietary software AESOP (Advanced Energy Storage Optimising Program) ensures that these services are available around the clock every day of the year even though the renewable energy sources are variable. AESOP helps deliver multiple robust revenue streams for investors

and our contracted green energy will put downward pressure on electricity prices for the benefit of Queensland households.”

As well as future proofing the grid and employment in the Gladstone area this project will contribute to land care and biodiversity. Burnett Mary Regional Group (BMRG) and other landholders will provide the land for the footprint of the project. The balance of the land, over 3,000 hectares, will be dedicated to biodiversity protection and conservation, and will be managed by BMRG and Gidarjil Corporation.

Sunshine Hydro is committed to maximising local employment and supply chains and anticipates many of the jobs created during construction and operations can draw from the existing skill base in Central Queensland, one of Australia’s strongest industrial regions.

As a member of the International Hydropower Association (IHA), Sunshine Hydro embraces the San Jose Declaration on Sustainable Hydropower. At the heart of the Declaration is a recognition that sustainable hydropower is a clean, green, modern, and affordable solution to climate change.

The Flavian Superhybrid will incorporate:

- 600 MW of pumped hydro energy storage with 18 hours of operation at full capacity
- 300 MW of hydrogen generation
- 50 MW of liquefaction
- 50 MW hydrogen fuel cell
- 1.8GW of new wind generation

The Flavian Superhybrid will abate on average 4 million tonnes of carbon per annum. This represents a 2.5% reduction of the Queensland’s current level of annual carbon emissions.

The project has been designed to support the decarbonisation of existing large energy users in the Central Queensland region whilst supporting the growth of new export industries including green steel, green fertilisers, and green ammonia.

The project is the first of three similar sized Superhybrid projects that Sunshine Hydro and its partners are developing in the Central Queensland REZ.

Taken together, these 3 Superhybrid projects will generate a minimum of 660MW of firm green energy. This is equivalent to over half of the current output of the Gladstone coal-fired power station. These projects will be ready to provide employment along with baseload and peaking energy when the thermal plants in the area begin to phase out production at the end of this decade.

Combined these projects will also supply 200 tonnes per day of green hydrogen for both the domestic and export markets.

Partners

Sunshine Hydro has partnered with BMRG, and the traditional owners (Gidarjil Development Corporation) to work on planning, education & training, employment, cultural heritage, and conservation outcomes.

Sunshine Hydro and its shareholder and strategic partner, Energy Estate, an Australian renewable energy and green hydrogen developer and accelerator, are co-developing the ecosystem comprising the three Superhybrid projects in the Central Queensland REZ.

Energy Estate has a track record of developing large scale renewable energy, storage and green hydrogen projects in Australia including Central Queensland Power (a joint venture with RES) which is developing a portfolio of wind and solar projects with a capacity of over 4GW in the CQ region. Energy Estate focuses on long duration energy storage solutions and is developing Dungowan PHES project in the New England REZ in NSW (with Walcha Energy) and Silver City Energy Storage, an innovative advanced compressed air energy storage project at Broken Hill (with its partner and technology provider Hydrostor). Energy Estate has recently appointed a leading global investment bank to raise capital for its pipeline of projects in Australia, New Zealand and globally including the co-development of the Superhybrid projects in the CQ region.

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About Sunshine Hydro:

The technology behind Sunshine Hydro, AESOP, enables new and existing pumped hydro and other deep energy storage projects to maximise decarbonisation and to replace fossil fuel generation plants effectively and efficiently.

The Superhybrid ecosystem optimizes energy flows and leverages multiple revenue streams to make these projects highly viable.

QUOTES:

Simon Currie, Director of Sunshine Hydro and co-founder of Energy Estate (Ph: 0418175927)

“Our goal at Energy Estate is to build upon the CQ region’s natural advantages so it continues to be Australia’s energy capital for generations to come. Superhybrids in the CQ region will enhance energy security and water security. Sunshine Hydro is leveraging software conceived and built here in Queensland to create new industries and support existing industrial users such as the aluminium smelter and alumina refineries.

Rick McElhinney, CEO, Sunshine Hydro (Ph: 0403216664)

“I will be heading to New York in June to host workshops with infrastructure developers and financiers to explain the workings of the Superhybrid asset class now under development in Gladstone. The workshops will highlight the Gladstone region and prepare key stakeholders for the wave of Superhybrid developments that will traverse the world in the pursuit of decarbonisation.”

Luke Sinclair, Associate Vice-Chancellor (CQUniversity)

“Gladstone is “ground zero” for the emerging clean energy economy and the announcement of the Superhybrid project is another exciting step in the right direction. CQUniversity is looking forward to working with Sunshine Hydro and other local partners in maximising the value of this initiative to further grow Gladstone’s clean energy generation capacity and capabilities, and to open the door to smart training, education and research opportunities.”

Sheila Charlesworth, CEO, Burnett Mary Regional Group (BMRG) (Ph: 0428087472)

“We are pleased to be part of this collaborative project that will see a reservoir on the property as part of a pumped hydro facility which will assist in reaching zero carbon emissions, while also achieving conservation and biodiversity initiatives for our region and be available to provide emergency water supply for future bushfires.”

Dr Kerry Blackman, Chief Executive Offer of Gidarjil Development Group (Ph:0412760501)

“This project has special significance to the Meerooni First Nation people as the project is located on Blackmans Gap Road. My great great grandfather Yorkie around 1860/70 led white man, Frederick Archibald Blackman through the Gap to Many Peaks. I look forward to First Nation people benefiting from the project to improve the quality of life of his people and taking up employment and training opportunities in the project. The project is another example of Gidarjil and BMRG'S strong partnership.”

Rosie King, director of engagement and culture at Energy Estate (Ph: 0450554767)

"We are delighted to be co-developing Superhybrids with Sunshine Hydro which optimise renewable energy, storage and hydrogen production to produce better outcomes for consumers and the energy system. Central Queensland is a key focus for Energy Estate and our partnership with Sunshine Hydro builds on the work we have done with RES and Beyond Zero Emissions to highlight the scale of the opportunity in the region. We have a shared vision of creating enduring local jobs and supply chains and ensuring that the region's existing large energy users are globally competitive well into the future."

Rob Ashley, Principal, PwC

"PwC has been working with Sunshine Hydro for three years in developing the financial belt and braces for their Superhybrid projects.

The most important aspect of our work together flows from the power and capacity of their AESOP artificial intelligence software that models weather data and pricing data in the NEM. From this data PwC then created the financial model that brings together P&L, cash flow, balance sheet, and capital planning.

PwC welcomes their deep-seated commitment for these projects to help decarbonise the planet. We look forward to bringing this first Superhybrid project, Flavian, to realisation and continuing our partnership."

Councillor Goodluck, Acting Mayor, Gladstone City Council

"It's fantastic to know that Sunshine Hydro will apply their unique, world-leading hydroelectricity techniques within our region following an assessment of many localities around Australia.

This is a strong vote of confidence in our region's ability to become a leader in sustainable energy investment and production.

Gladstone Regional Council is an advocate for economic growth and diversification, and this announcement further emphasises that we are on a path to becoming the green energy epicentre of Australia".