GEGHA Project Site Layout, Construction and Operation Overview

What is going to be constructed and operated?

HSPT propose to construct and operate:

- A 10-12 megawatt (MW) hydrogen electrolysis plant, for production of green hydrogen.
- A 15 tonne per day ammonia plant, to convert green hydrogen into green ammonia.
- Up to 3 tonnes of Hydrogen storage to balance local fuel supply and demand.
- Up to 600 tonnes of ammonia storage capacity to buffer the overall process against seasonal ammonia demand and renewable energy variability.
- Ancillary road, power and water pump/ connections, water treatment, telemetry, security camera system, switch room, control room and protective perimeter fencing.
- HGV loading/ unloading bays adjacent to storage vessels.
- Car parking and site office with amenities.

Site Layout Overview

The hydrogen and ammonia plant will be modularised and laid out on a pad measuring approximately 70m x 90m.

A buried water pipeline will be installed and will connect the water source dam to a water tank adjacent to the plant that will act as a fire water source in addition to water feedstock for the plant. Next to the tank, a water treatment station will enable the water to be prepared for use. A lined evaporation pond will be installed to the south of the plant to collect excess water that is released from the treatment station.

Adjacent to the Ammonia plant, there will be a small vent stack that will be used during commissioning, intermittent maintenance and in the case of a plant emergency. A buried cable will be installed to connect a switch room and control room to the existing Wathagar substation to provide power to the plant.

Storage vessels for both Ammonia and Hydrogen will be installed adjacent to a truck loading and turning bay. The security fenced compound will also contain a number of additional ancillary plant items required to support the production of hydrogen and ammonia.

Layout of site is currently being refined with a 3D model being developed to clearly show the design detail.

Design, Construction Schedule, Operational Date and Design life

Design of the Project has been underway since Q2 2023 and the detailed design phase will continue until at least Q2 2024. Construction of the GEGHA Project Plant is scheduled to commence in late 2024 and it is scheduled to be operational from Q3 2025. The GEGHA Project is being designed for an operational life of at least 30 years.

Plant Construction

Construction will require up to 223 full time equivalent positions across the State to support and deliver the Plant to its operational stage. Provision for a site based construction camp is under consideration along with review of accommodation options in Moree to house the construction work force.

Following a period of pre-mobilisation planning, site activity will commence with civil earthworks activities establishing roads, drainage and pads for the plant.

The hydrolysis unit and Ammonia plant are modular and the majority of fabrication will be completed off site. When the modularised systems do arrive, skilled labour will be required to align, weld and connect the plant.

Once constructed, the plant will undergo testing and commissioning before contractual practical completion is achieved and formal handover to operations staff is fulfilled.

Plant Operation

A full operating and maintenance strategy will be developed prior to commissioning including health, safety, environment and general operating, procedures, practices and policies. This will detail how the Plant will operate safely and efficiently.

The Hydrogen and Ammonia Plant will be designed to run autonomously with oversight from an off-site control room that will maintain oversight of the plant's operation and storage via a series of smart-telemetry. Highly trained and skilled site technicians will conduct regular inspections of the operating plant to ensure that any irregularities are picked up with specialist technicians on hand to trouble shoot any operational issues.

It is predicted that GEGHA's operation will generate 30.5 Full Time Equivalent positions annually in NSW with 10 direct positions.

Plant Maintenance

Once operational, the Plant will be subject to a cyclical routine of inspection and maintenance. Plant telemetry will enable real time monitoring of key plant items and will inform the planned maintenance cycle.

The Operations Manager will be responsible for coordinating the overall maintenance of plant during its operational life. Specialist technicians and contractors will be called in to service and maintain specific plant items such as the water treatment station. Local maintenance contractors and personnel will be utilised where possible.

There will be periodic full and partial scheduled plant shutdowns to enable inspection, maintenance and (where necessary) replacement of key plant inventory items.