

GEGHA Project Site Layout, Construction and Operation Overview

What is going to be constructed and operated?

HSPT propose to construct and operate:

The GEGHA Project's key components consist of the construction and operation of:

- 15 MW of hydrogen electrolysis utilising high pressure alkaline electrolyzers:
 - Nominally 6 tonnes per day
 - Nominal 2,200 tonnes per year
- 16 tonne per day ammonia (NH₃) plant, to convert green hydrogen and atmospheric nitrogen feedstock into green ammonia.
- Production limited to nominally 4,500 Tonnes per year (based on energy availability).
- Up to 3 tonnes of Hydrogen storage to balance production and demand.
- Up to 600 tonnes of ambient temperature ammonia storage capacity to buffer against seasonal ammonia demand and renewable energy variability.
- Approximately 51 ML of water per year.
- Evaporation pond with a capacity of 16,200 KL.
- Ancillary power and water pump/ connections, water treatment, telemetry, security camera system, switch room and control room.
- Protective perimeter fencing.
- Custody transfer metering for both hydrogen and ammonia.
- Ammonia and Hydrogen Load out facilities adjacent to storage vessels.
- Car park and site office.

It is proposed that the ammonia and hydrogen production will be powered by:

1. A new 27 MW (DC) solar farm adjacent to the site;
2. 25 MW of Battery Energy Storage System (BESS) adjacent to site;
3. Utilising redundant energy from the existing 8.65 MW (DC) Wathagar Stage 1 solar farm in close proximity to the development.
4. Low capacity grid connection for firming and stability with renewable energy Power Purchase Agreement (PPA)

Site Layout Overview

The hydrogen and ammonia plant will be modularised and laid out in a compound measuring approximately 140m x 140m.

Two buried water pipelines will be installed and will connect the water sources – an existing bore and an existing gin drainage dam to water tanks adjacent to the plant that will act as a fire water source in addition to water feedstock for the plant.



Next to the tanks, a water treatment station will enable the water to be prepared for use. An evaporation pond will be installed to the

north of the plant to collect produced water that is released from the treatment station.



Adjacent to the Ammonia plant, there will be a small flare that will be used during commissioning, intermittent maintenance and in the case of a plant emergency shutdown. Buried cables will be installed to connect to a switch room and control room to the existing Wathagar substation to provide secondary 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 Q2 2025. Construction of the GEGHA Project Plant is scheduled to commence in mid 2025 and it is scheduled to be operational from early to mid 2026. The GEGHA Project is being designed for an operational life of at least 30 years.

Plant Construction

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

The electrolysis units 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 a 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.

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.