

GEGHA Project Ammonia Production, Storage and Transport

Ammonia and Ammonia production

The chemical formula of Ammonia is NH_3 . Hydrogen produced from the electrolysis process will be piped into the adjacent ammonia plant on site. A nitrogen air separation and storage unit will be installed to capture and remove nitrogen from the surrounding ambient air.

The nitrogen and hydrogen gas will then be blended and circulated within a synthesis loop and ammonia is produced by a reaction in a high pressure reactor via the Haber-Bosch process. Approximately 10-15 kWh of energy is required to produce a kilogram of Ammonia.

The ammonia is then condensed in a heat-exchanger to remove dissolved inert gases and then sent to ambient temperature pressurised storage tanks as 'anhydrous' ammonia meaning that it is free from water.

Ammonia Storage

Ammonia storage will be sized appropriately to meet the expected demand profile by each off-taker. The ammonia will be stored in pressurised bullets measuring approximately 4m in diameter and 32m in length. Ammonia will be stored between 10 and 27.5 bar, depending on ambient temperature.



Transport of Ammonia

Transportation, on-farm storage and use of anhydrous ammonia is well established and safely operated in the region with landowners presently sourcing ammonia from remote manufacturing plants.

Transportation of Anhydrous Ammonia is primarily undertaken by standard HGVs with specialist tanker trailers that will deliver to existing on-farm static storages or mobile 'nurse tanks' that act as mobile storages at the point of use.

Anhydrous Ammonia is specified as Dangerous in the Australian code for the Transport of Dangerous Goods. Transport of Ammonia is regularly undertaken on Australian highways and roads with the closest point of manufacture to Moree being approximately 500 kilometers away in Newcastle.

Production of anhydrous ammonia by the GEGHA plant will save thousands of kilometers of road transportation, generating savings in fuel use, emissions and dangerous goods movements. Delivery routes for anhydrous ammonia will be analysed as part of the Environmental Impact Statement to determine 'least risk' routes for delivery to end users.