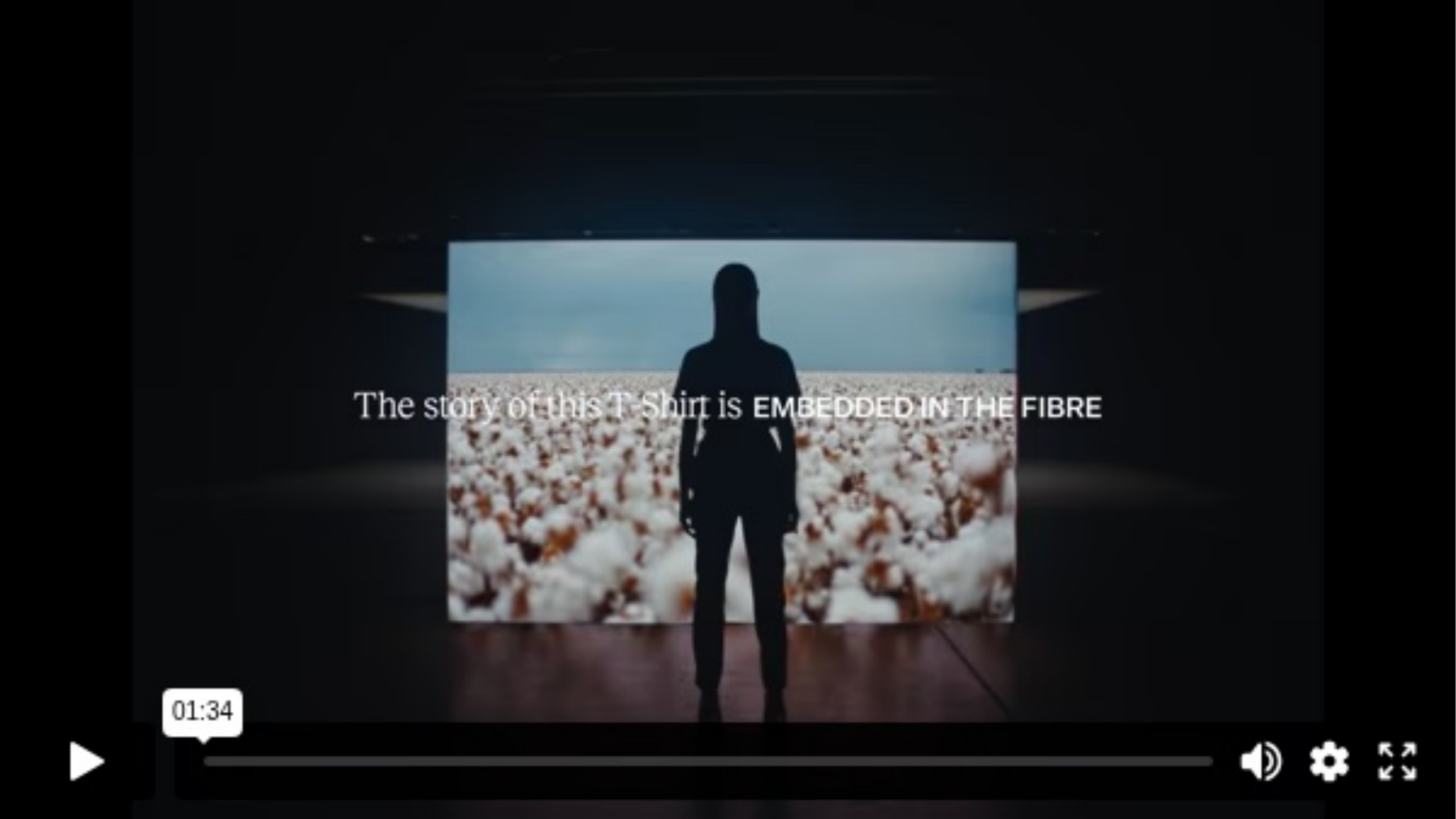
HIRINGA

GOOD EARTH GREEN HYDROGEN & AMMONIA GEGHA


Ammonia Conference Video June 2025
Share
Hydrogen Vehicle
HIRINGA
Waitomo
GREEN HYDROGEN POSITIVE ENERGY
Diesel
for transport, industry and energy sectors.
Watch on YouTube


The story of this T-Shirt is EMBEDDED IN THE FIBRE
01:34


HIRINGA
SUNDOWN PASTORAL CO.
PARTNERING TO CREATE ONE OF THE WORLD'S FIRST DECARBONISED VALUE CHAINS

REVERSE VALUE CHAIN DRIVEN BY CONSUMER DEMAND

Consumer Demand

Consumers drive demand for sustainable cotton products.

Brands Drive Supply Chain Change

Brands willing to pay premium for verified low-carbon cotton.

Sustainable Farming

Incentivised to decarbonise farming by introducing sustainable practices.

Green H2 & NH3 Production

Consumer & brand demand create bankable offtake for green fertiliser production.

Good Earth Cotton

GEC is a collective movement that combines smart farming, primary impact data and technology to deliver yearly environmental reporting on a farm-by-farm basis globally.

As the world's first climate-positive, traceable cotton program we place the health of soils at the centre of conservation, protection & enhancement of natural systems.

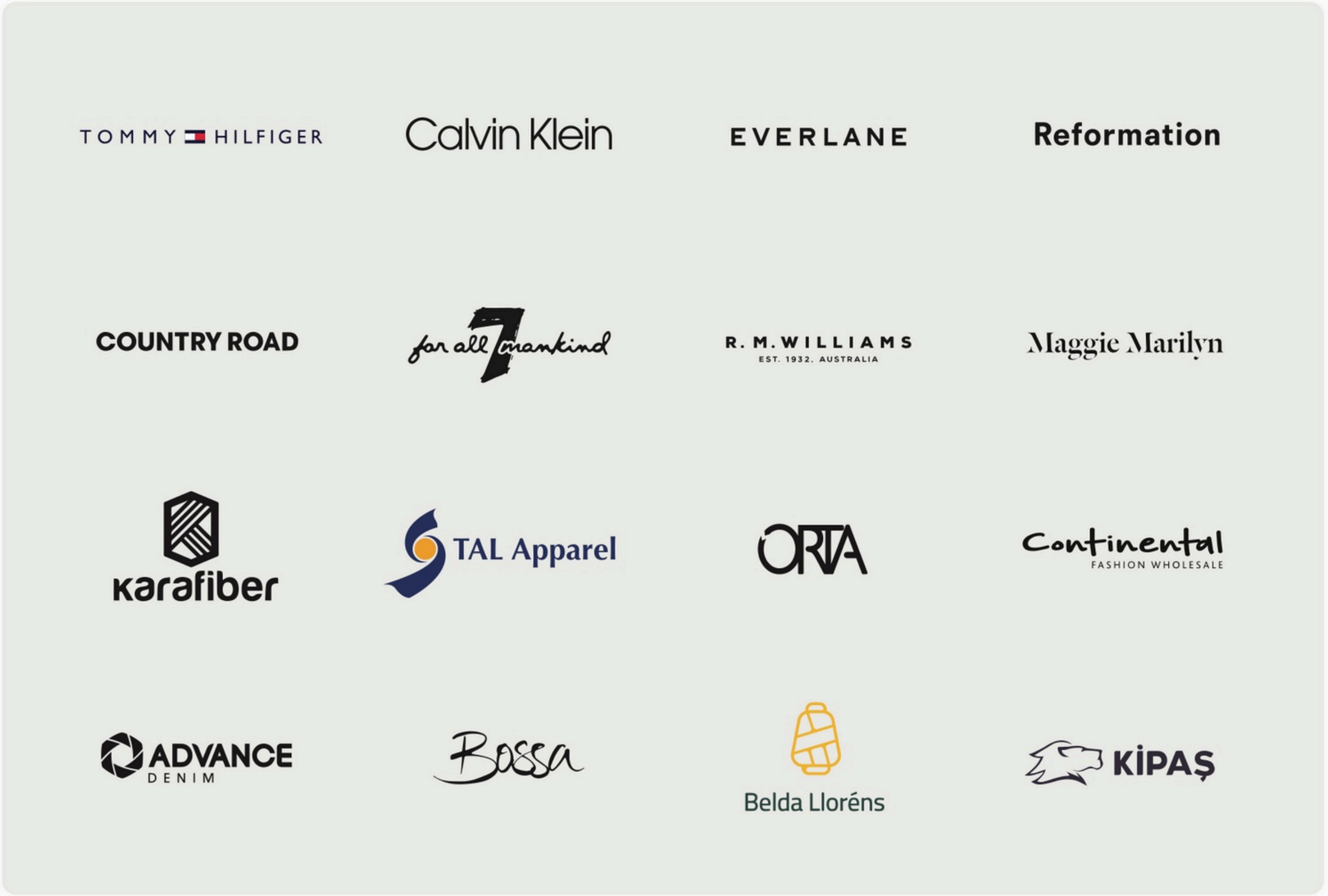
By proving additionality to the land and the raw fibre grown the GEC program is devoted to the improvement of planetary boundaries, rural livelihoods, and its communities.

"The apparel industry has a large contribution to the climate crisis – estimated at 2-8% of global GHG emissions annually"

©2023,
Good Earth Cotton Pty Ltd.

This document contains proprietary
information of Good Earth Cotton Pty Ltd.

Who We Work With



+ Many More

©2023.
Good Earth Cotton Pty Ltd.

This document contains proprietary
information of Good Earth Cotton Pty Ltd.

GEGHA PROJECT HIGHLIGHTS:

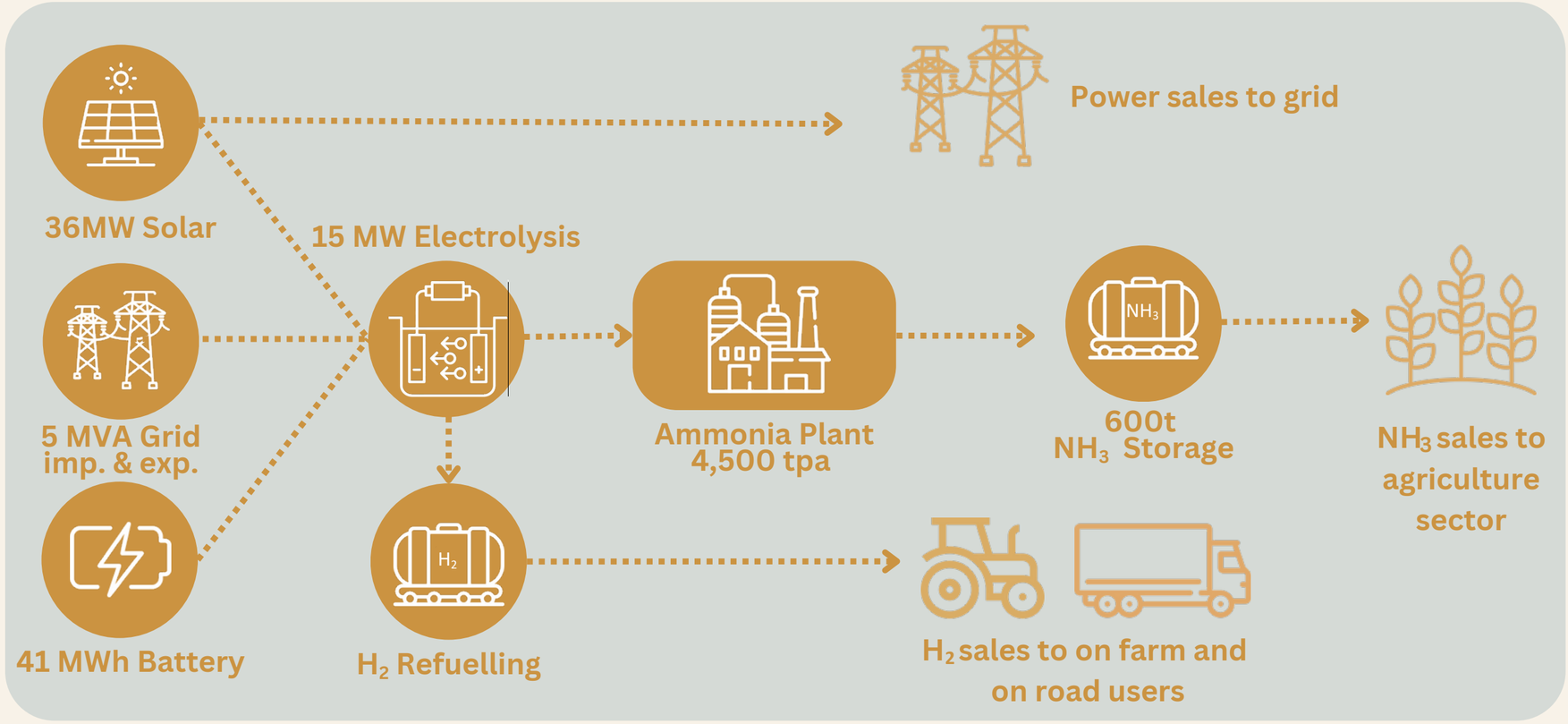
- Supporting value-added production of traceable, low-carbon cotton for export.
- Fully funded green hydrogen and ammonia development in Moree, NSW.
- Providing security and control of fertiliser supply, enhanced ESG credentials, and local economy benefits.
- Activating a sustainable green fertiliser production industry for the region
- Hydrogen supply for on farm equipment and road transport
- Localised and “Behind The Meter” design
- Direct-Injection fertiliser use benefits

HIRINGA

COMMERCIAL PILOT: GEGHA

Hiringa are 50/50 partner with Sundown Pastoral: a large-scale cotton producer with a sustainable brand (Good Earth Cotton)

SOLAR-TO-H_2 & NH_3 "POWER-TO-X"



Proudly funded by

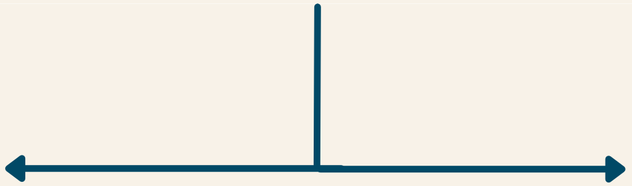
NSW GOVERNMENT

HIRINGA

GEGHA PROJECT – VISUAL OVERLAY

GEGHA NH3 VALUE PROPOSITION / BENEFITS

REDUCED CARBON FOOTPRINT



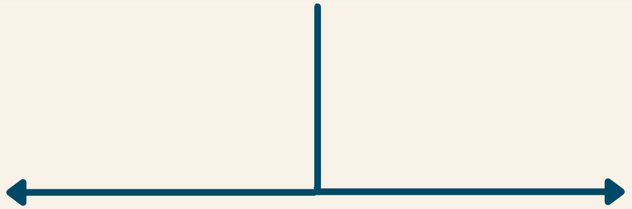
INCREASE GROWER PROFITABILITY

- Drive sales by meeting consumer and stakeholder expectations.
- Enhance sustainability credentials via emissions accounting.
- Use "Product GO" to track and verify product emissions.
- Emissions verified by 3rd party (LCA).

REDUCE REGULATORY BURDEN AND IMPROVE READINESS FOR CLIMATE POLICIES

- CRFD framework requires climate-related disclosures.
- Potential Australian CBAM may raise import costs.
- EU Taxonomy gives Australian producers an edge in Europe

LOCALISED AND BTM DESIGN



SUPPLY SECURITY

- Imported urea and incumbent-produced NH_3 are vulnerable to disruptions and price swings.
- Coastal transport to NSW adds cost.
- Local production ensures steady, demand-aligned supply.

COMPETITIVE AND STABLE PRICING

- Controlled input costs (water & BTM electricity) shield from grid price swings.
- NH_3 costs tied to volatile fossil fuel prices—local control offers stability.

GREEN HYDROGEN
POSITIVE ENERGY

HIRINGA

TIMELINE OF GEGHA PROJECT

Q2 2022

JV Partnership

Formation of strategic Joint Venture to drive project development

Q3 2023

FEED

Front-End Engineering Design completed, defining technical & commercial scope.

Q2 2025

FID

Final Investment Decision made, confirming commitment to proceed.

Q2 2025

Financial Close

All funding agreements finalised, enabling full-scale execution.

Q3 2025

Construction

Physical works commence, making the start of onsite development.

Q4 2026

Commissioning

H2 and NH3 systems tested and verified to ensure operational readiness.

Q1 2027

Operational

Facility producing H2 and NH3 - commercial operations officially commence.

GREEN HYDROGEN
POSITIVE ENERGY

HIRINGA

GREEN AMONIA FERTILISER PRODUCTION EXPANSION

Q1 2027

Phase 1 (GEGHA)

Northern NSW - Gwydir Valley
16tpd plant

2029

Phase 2

Southern NSW - Riverina
~60tpd plant

2030

Phase 3

Northern NSW - Gwydir Valley
~60tpd plant

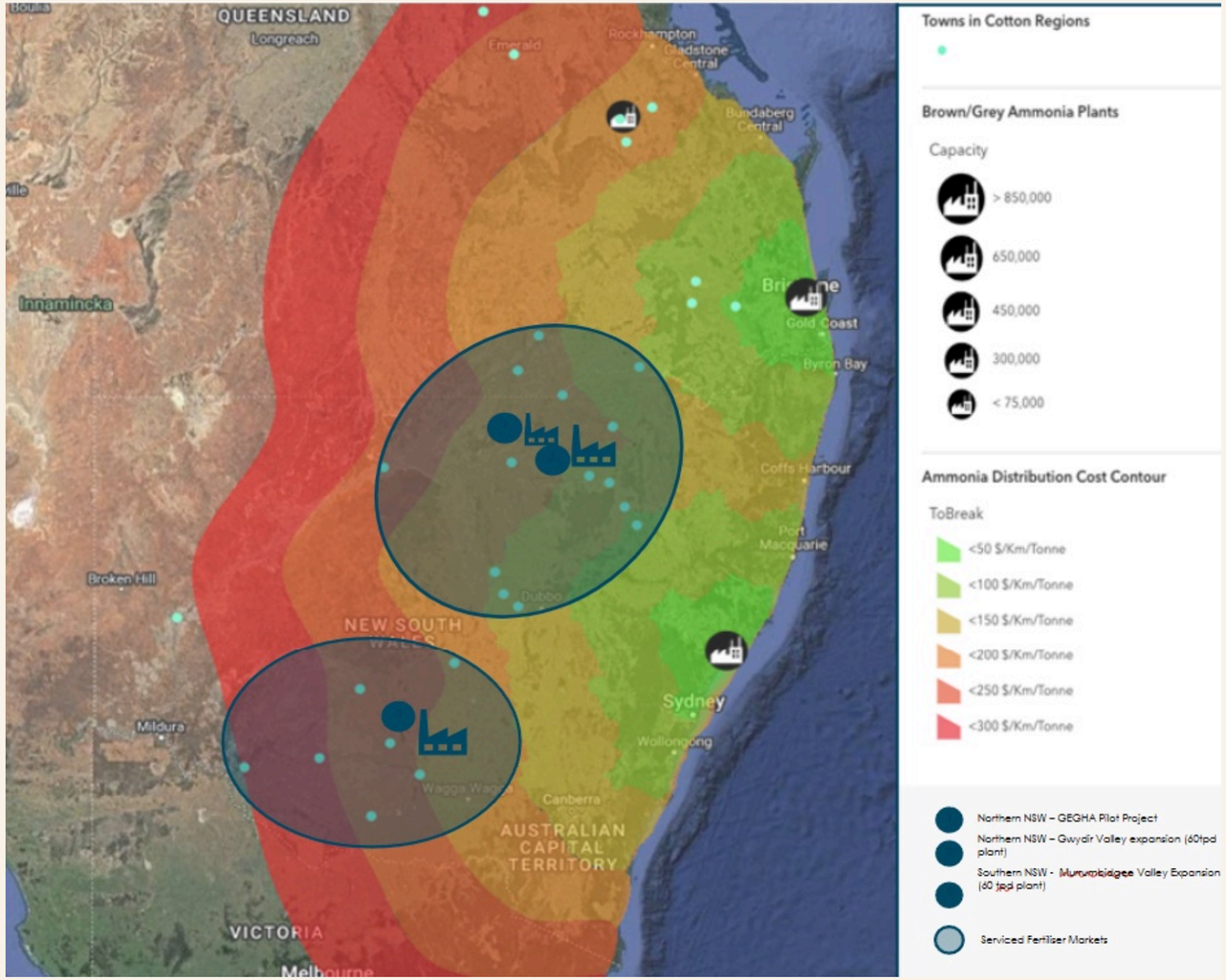
Supply security - local production minimises supply chain risk.

Competitive pricing - enabled through reduced logistics costs compared to imports from east coast.

Carbon abatement - significant reduction in carbon footprint, resulting in commodity green premium

Supply price stability - delivered via long-term contracts with supply shortfall penalties.

Diversification - Green NH3 and H2 supply for other markets, such as transport, chemical feedstock and fuel substitution.



HIRINGA

GREEN HYDROGEN
POSITIVE ENERGY

DIRECT-INJECTION FERTILISER USE

Nitrogen to soil as anhydrous ammonia

- Significant avoided carbon emissions compared with urea or ammonia derived from fossil fuels
- Avoided logistics costs – most ammonia produced in Middle East, shipped to Australian port, stored in bulk, trucked (as urea or ammonia) to customer with multiple stages of logistics costs and intermediary profit margins.

Benefits to customers and stakeholders (in addition to carbon abatement)

- Local production removes reliance on global supply chains.
- Vertical integration for farmers: use own energy resources to make own fertiliser and replace on-farm diesel use.
- More stable pricing compared with internationally-traded ammonia prices (related to global gas prices).
- Boosts regional economies through decentralised development.
- Fewer heavy freight movements on highways and regional roads.

DECARBONISING FARM ACTIVITIES

On-farm irrigation pumps

- Over 30 large irrigation pumps utilised intermittently across cotton farm
- Programme to trial direct hydrogen injection dual fuel pumps
- Working with developers of ammonia engine

Decarbonising the “Green Gear”

- Dual fuel technologies have significant potential to further reduce on-farm emissions

Trucks and road trains

- Technology exists today to activate low emission prime movers

Economies of scale unlocked by integrating multiple on-farm and off-farm activities - Uses balance seasonality demand for ammonia

OPTIMISING THE ENERGY FLOWS

Leverages Hiringa's algorithms developed and operating in New Zealand refuelling infrastructure:

- Dynamic market and asset optimisation
- Look ahead market and demand forecasting driven by machine learning

Optimised energy flow modelling applied to project from start:

- Storage sizing (BESS, Hydrogen, Ammonia, water)
- Process facility sizing (Solar, Electrolysis, ASU, HB Reactor)
- Connections
- Market (Hydrogen, Power, Ammonia)
- Enables "Digital Twin" approach

Proudly funded by

NSW GOVERNMENT

Thank you.

HIRINGA

GREEN HYDROGEN
POSITIVE ENERGY

https://www.gegha.com.au/