H2RESTORE

Early feasibility studies on
Underground Hydrogen Storage

Lochard Energy is investigating **H2RESTORE**, a potential project aiming to produce hydrogen during times of high renewable energy generation.

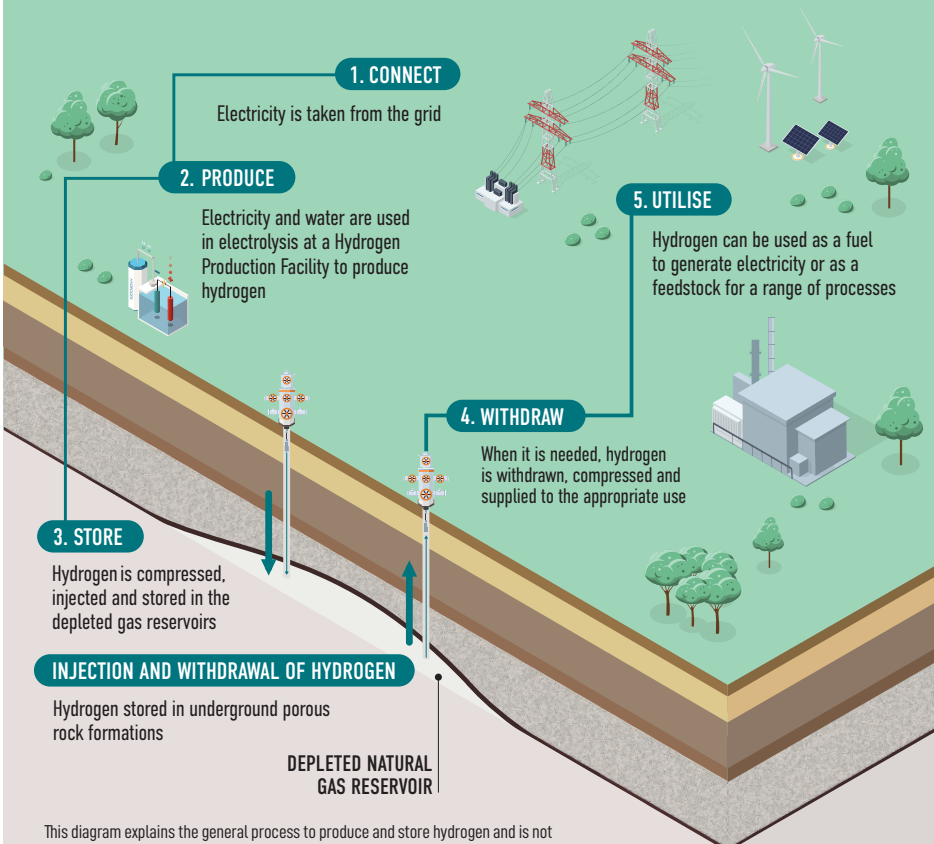
Renewable energy isn't always reliable because it depends on the weather. H2RESTORE could help make renewable energy available more evenly by producing hydrogen and storing it underground in depleted Lochard Energy gas fields. Hydrogen could then be extracted and used to generate power when needed.

Why hydrogen?

- Hydrogen is the most abundant element in the universe
- Non-toxic and non-poisonous
- Can be stored underground in large quantities for long periods
- Makes use of existing depleted gas fields

How would H2RESTORE work?

- Hydrogen for H2RESTORE would be produced through electrolysis.
- During electrolysis, electricity is used to split water (H_2O) into its basic components: hydrogen (H_2) and oxygen (O_2).
- Hydrogen would be produced at a Hydrogen Production Facility, which would use electricity to power the electrolysis process. This hydrogen would then be stored approximately 1500m underground in existing Lochard Energy depleted gas reservoirs.
- When needed, the stored hydrogen would be extracted from the reservoirs and used to generate electricity using an open cycle turbine. It would then enter Victoria's electricity transmission network.



This diagram explains the general process to produce and store hydrogen and is not indicative of the H2RESTORE infrastructure. For illustrative purposes only.

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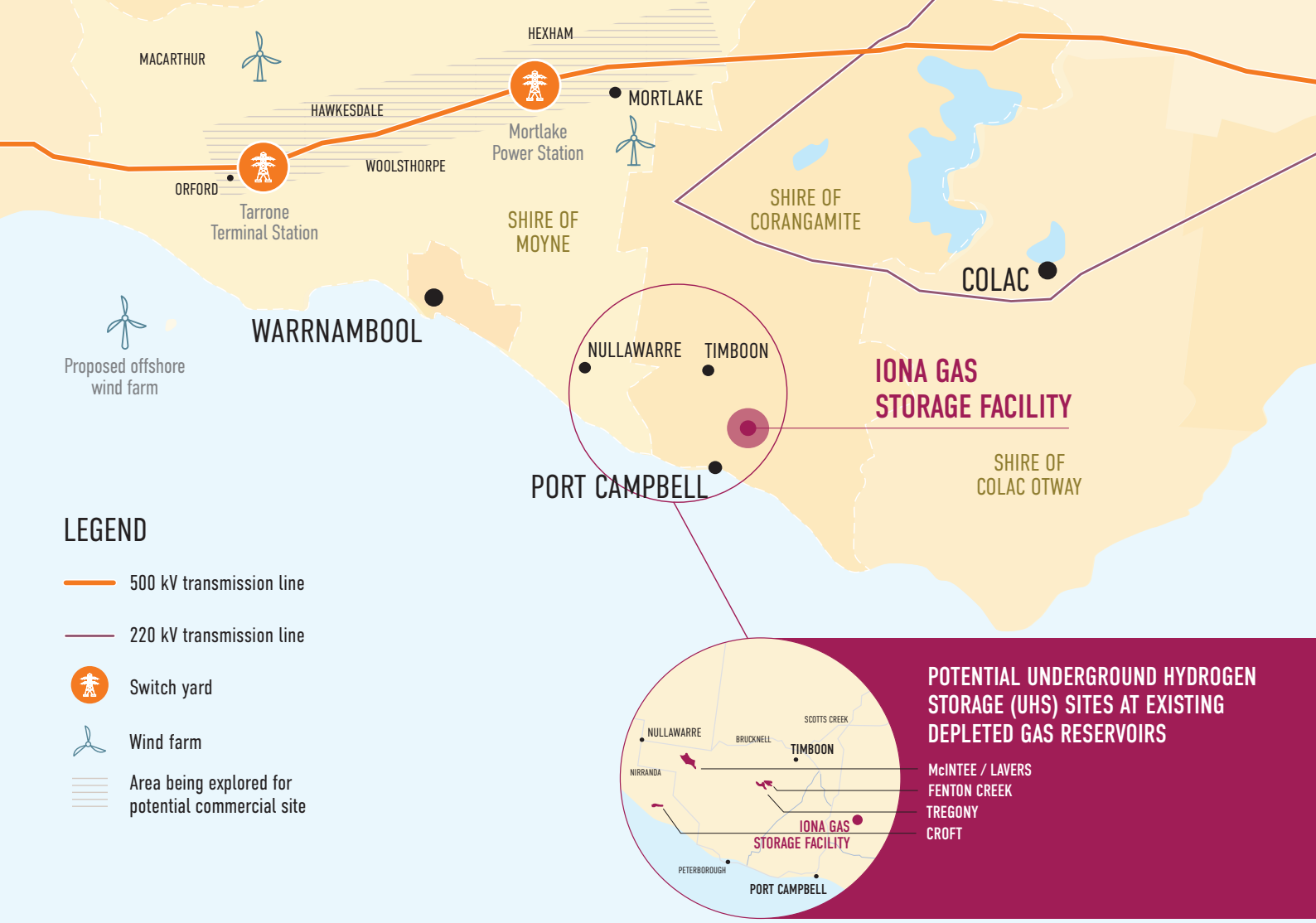

Where would H2RESTORE be located?

Lochard Energy is considering locations within Corangamite and Moyne Shire, in Southwest Victoria where our existing depleted gas reservoirs are located for the Hydrogen Underground Storage.

Any potential production site is yet to be determined, but is expected to be located close to existing 500 kV or 220 kV transmission infrastructure, potentially near Tarrone Terminal Station, Mortlake Power Station, or within the Cobden–Terang area.

Lochard Energy has engaged with landowners around Lochard's existing depleted gas reservoirs.

Indicative timeline

2024

The Australian Renewable Energy Agency (ARENA) dedicated $2 million for an **18-month Feasibility Study** to investigate and assess viability.

2025

The Feasibility Study is **expected to conclude** later this year. Lochard Energy will share a public engagement report.

LATE 2020s

Potential to develop a **small-scale pilot** demonstration facility.

MID 2030s

Potential to develop the Project into a **commercial scale operation**.

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