

Hydrexia Pty Ltd

AHC Update

June 2024



HYDREXIA

Hydrexia Company Overview

Providing technology solutions for hydrogen production, storage, transportation, and end-use applications



Our Products and Solutions



Hydrogen production solutions

Design and installation of turnkey hydrogen production, separation and purification plants.

Hydrogen Storage and Transportation (MHx)

Hydrogen supply chain solutions based on our proprietary magnesium based solid-state hydride technology.

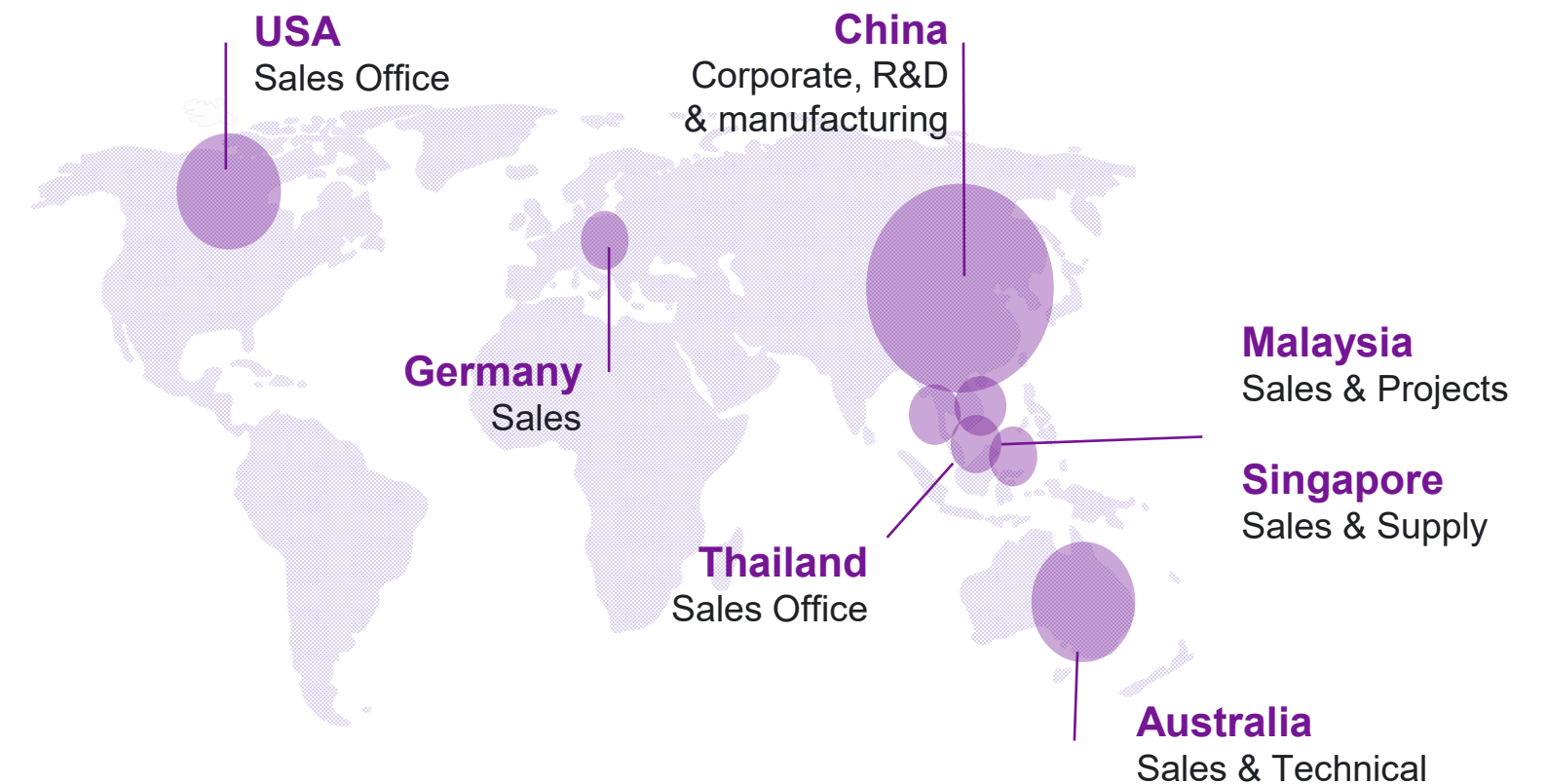


Hydrogen Refueling Stations (HRS)

Design, installation, operation and maintenance of hydrogen refueling stations



Our Global Presence



Hydrexia is in the process of opening its office for Japan & Korea

Accelerating Hydrogen Infrastructure

Solid state Magnesium based Hydrides (MHx)

Solid state Hydrides are low pressure, zero loss options for supply chains. Hydrexia's Magnesium based alloy is lightweight, readily available and offers increased carrying capacity.



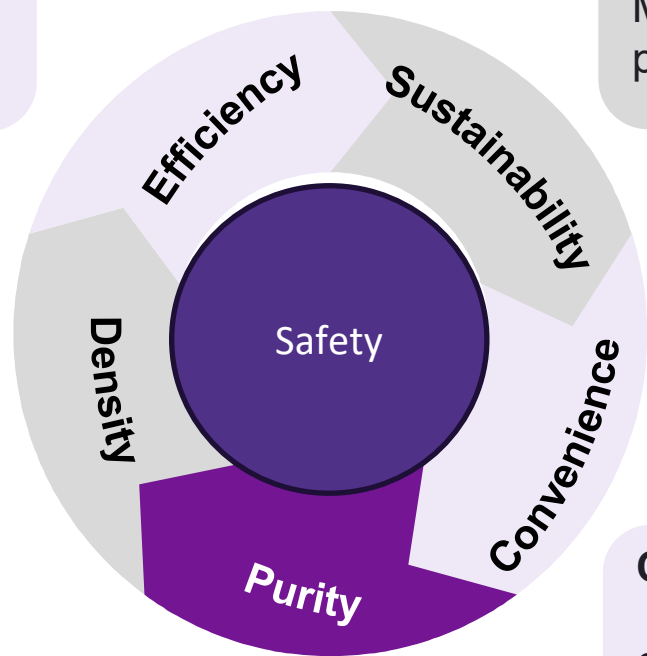
Why Hydrides?

Efficiency:

Higher storage capacity reduces transport costs.

Density:

IMDG approved 20' ISO has 950kg H2 capacity.



Sustainability:

MHx can be re-processed in house.

Convenience:

Suitable for road, rail and marine transport..

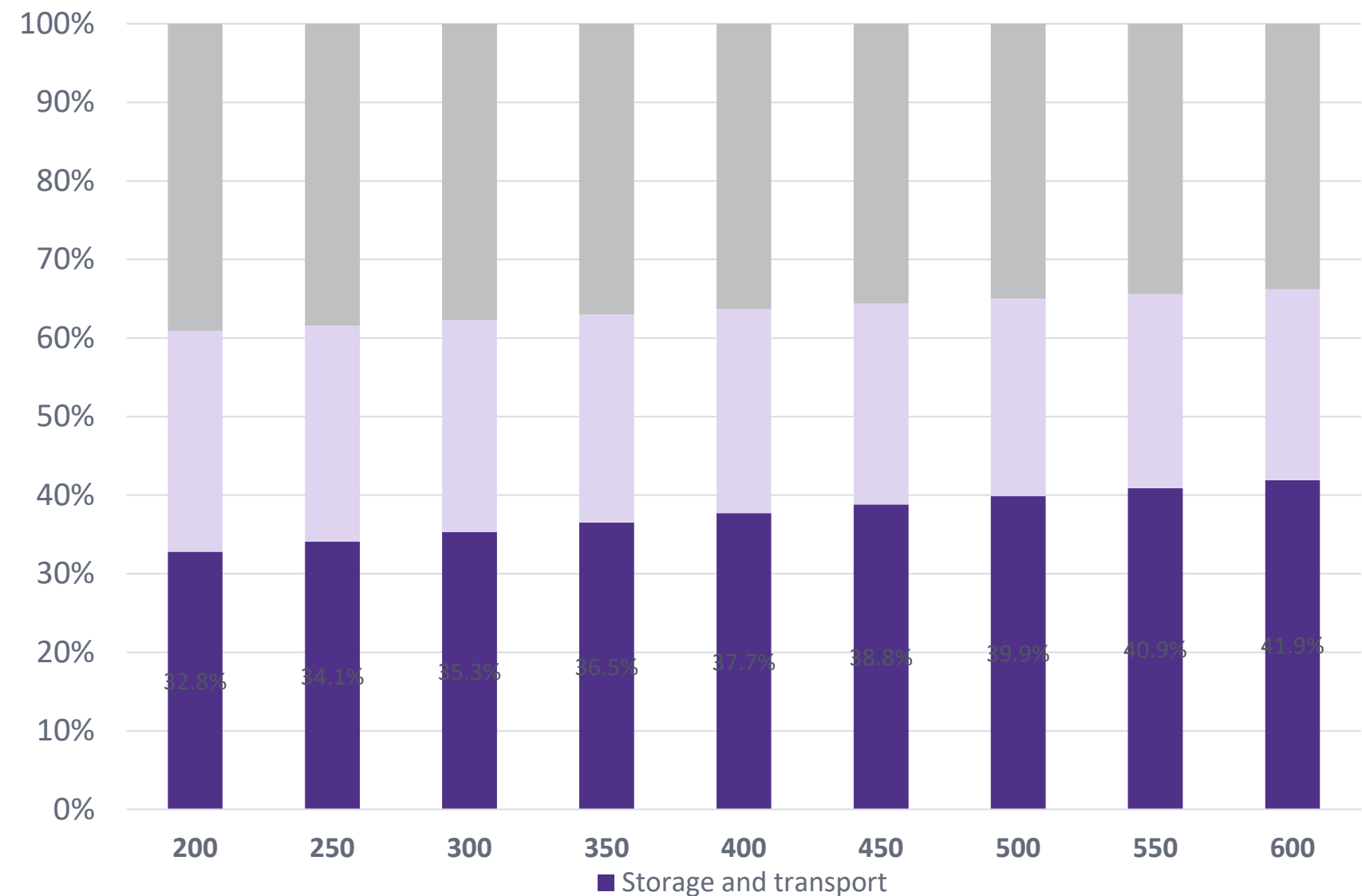
Retention:

Once absorbed, offers zero loss.



Impact of Supply Chain decisions

Independent Modelling of HRS Supply Costs (Europe) 2023



Accelerating Hydrogen Infrastructure Technology Overview

MHx Iso containers

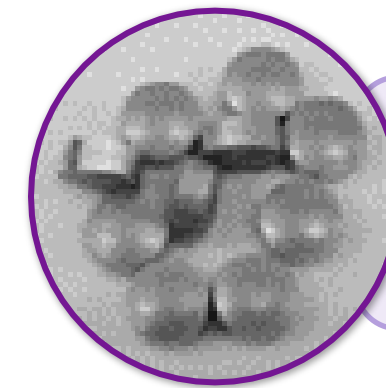


- Each ISO container can hold ~950 kg of Hydrogen at between 5 and 7 barg.
- An internal heat exchanger within the ISO container is used to heat & cool the hydride to control absorption and desorption rates.
- Absorption and desorption rates are typically 100 kg/hr

Absorption Process

Hydrogen Source:

Hydrogen supply is connected to the ISO container



Heating

Magnesium alloy is indirectly heated which initiates Hydride formation

Cooling

Exothermic reaction self sustains.
Cooling applied to control absorption rate

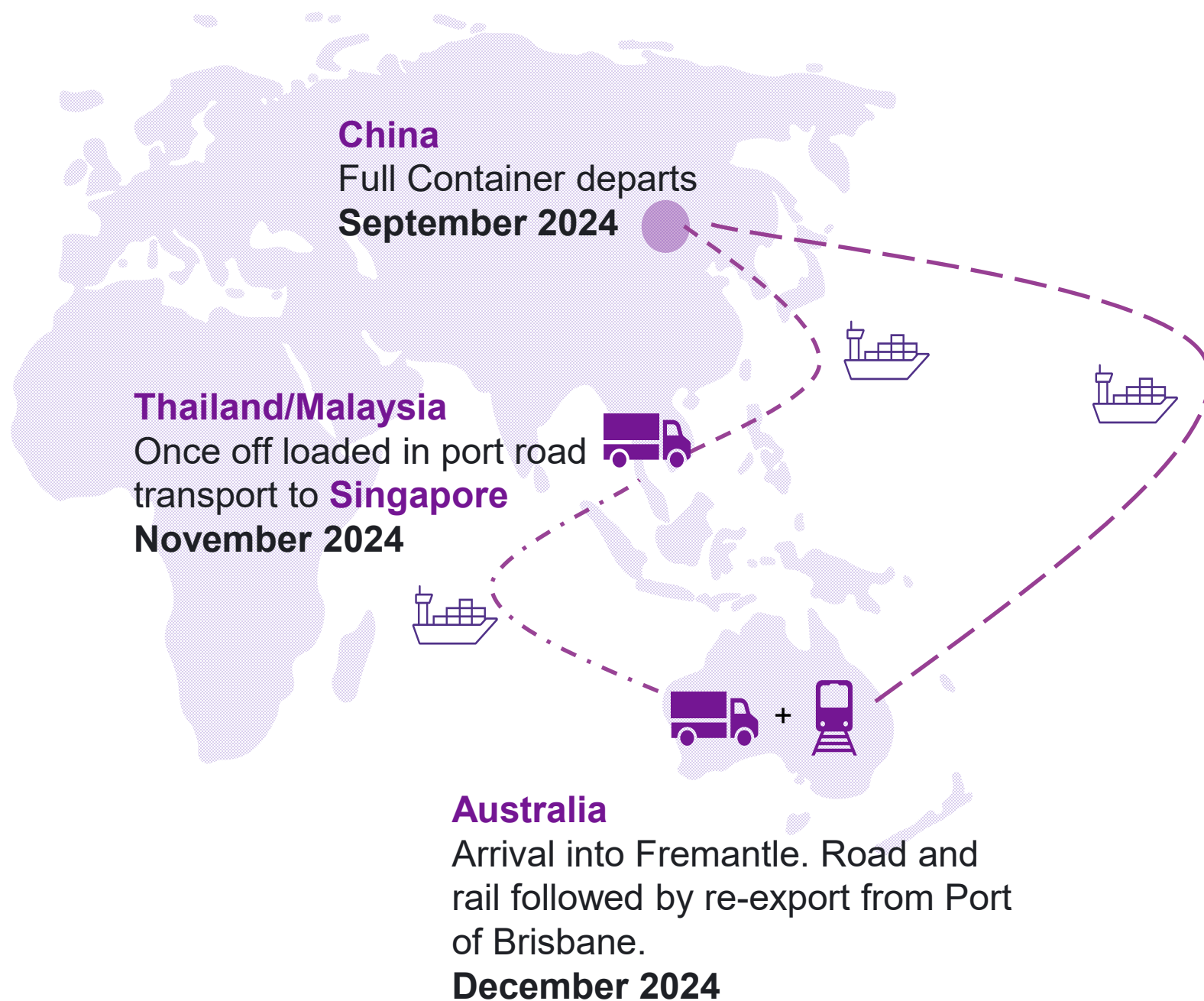


Transport:

Full ISO container cools to ambient temperature and is ready for shipment.

Accelerating Hydrogen Infrastructure Technology Demonstration

Testing plan & Deliverables



- **Regulatory compliance** and validation of cost / supply chain / Safety Management Systems across multiple countries. IMDG approvals obtained, CCS obtained.
- **“Shake Down” testing** of the ISO container / Magnesium Hydride by Road, Rail, and Marine
- **Zero Loss:** Hydrogen despatched = Hydrogen returned,.

Within Australia:
Movement through **WA, SA, VIC, NSW** and **QLD**.

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