Fremantle PORTS

The use of a Siwertell unloader in Western Australia

Green Ports Webinar Series
16 April 2026

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Connecting Western Australia to the world

Fremantle Ports acknowledges the Noongar people as the Traditional Custodians of port land and waters and pays respect to their Elders past and present.

Fremantle Ports

A Government Trading Enterprise

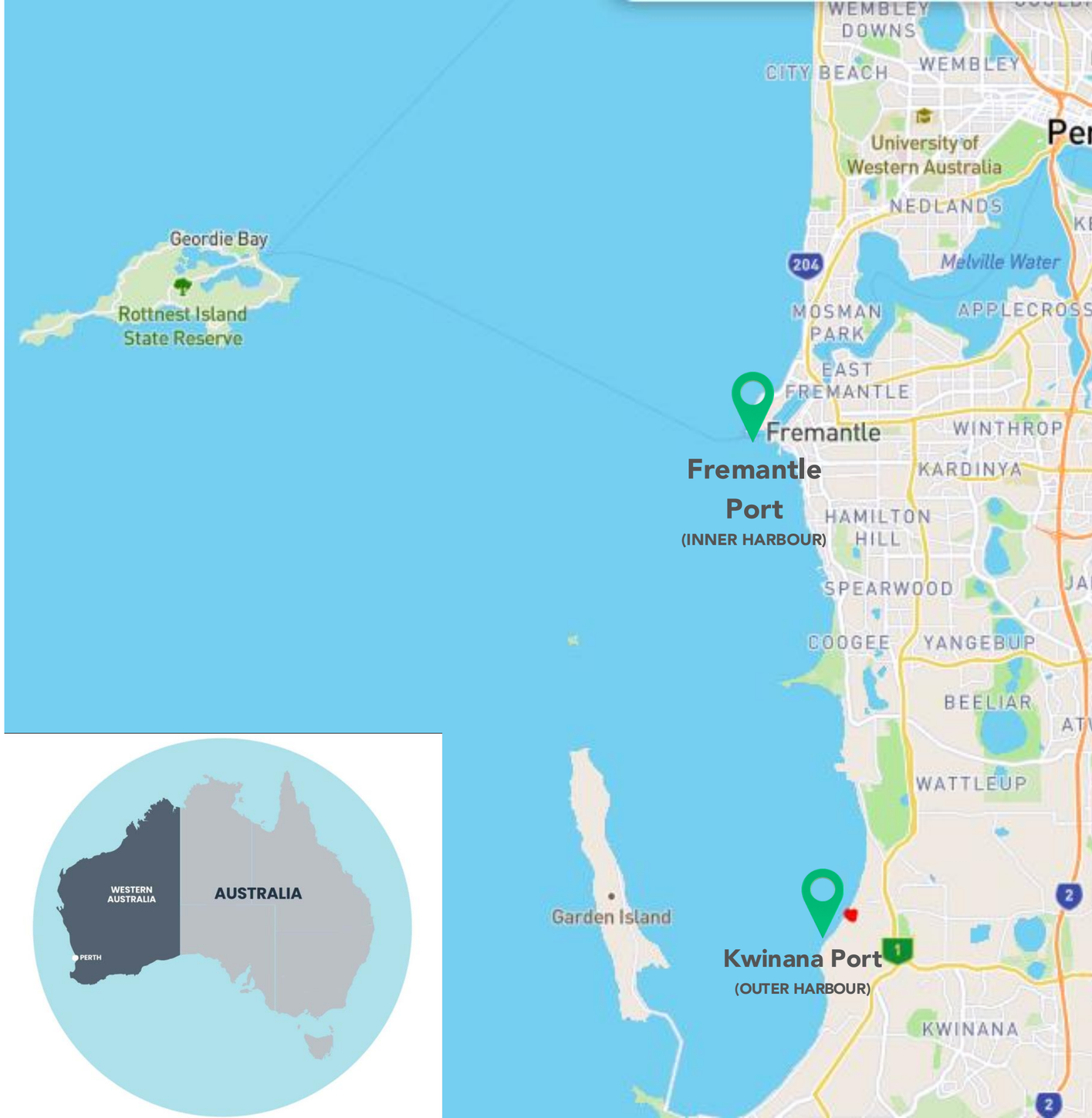
- Owned by the state of Western Australia, acts commercially and to the benefit of the State

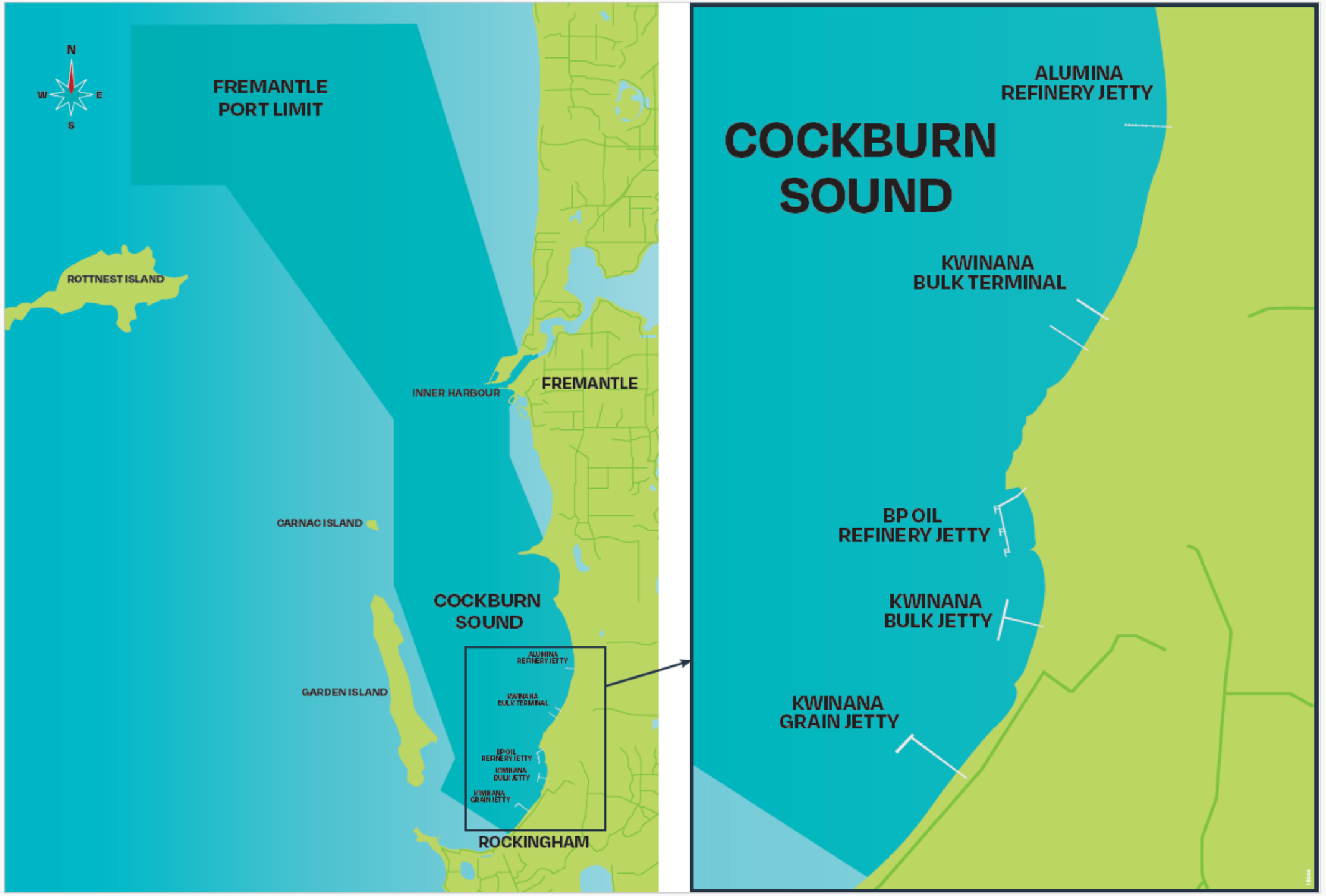
One of the largest ports in Australia

- Handles most of the container trade, vehicles and critical commodities (fuel, building materials, fertiliser) for WA

Statutory functions include to:

- Facilitate trade and plan for future growth and development of the port
- Be responsible for the safe and efficient operation of the port
- Protect the environment and minimise the impact of port operations on that environment

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Kwinana Bulk Jetty

Kwinana Bulk Jetty – sulphur unloading

- Australia's first and longest running Siwertell – operational since 2001
- Can unload cargo at 1200T per hour
- In-built fire suppression
- Site activity licence regulated by Department of Water and Environmental Regulation

Summary of main environmental benefits

Near-zero dust emissions

- Siwertell systems are fully enclosed from ship hold to shore conveyor. This prevents dust escaping into the air during unloading. Eliminates the need for water sprays, large dust suppression systems and dust monitoring networks.

No spillage into water or ground

- Material is conveyed in sealed pipes, not dropped through the air. There is no ‘free fall’ transfer points. Prevents cargo entering the harbour or contaminating soil, avoiding marine contamination and costly berth clean-ups

Lower energy consumption/ greenhouse gas emissions

- Uses a continuous screw mechanism instead of lifting and dropping loads repeatedly which results in typically 30–50% lower energy use than grab unloaders - much more efficient per tonne handled.

Why this matters

Protects air and marine quality around ports

Reduces community complaints and extends social licence to operate

Facilitates environmental approvals and less onerous licence conditions

Improves worker health and safety

Help achieve sustainability goals and emission reduction targets

Siwertell systems in operation in Australia

Unloaders:

- Kwinana Western Australia (sulphur)
- Adelaide, South Australia (cement)
- Mobile Siwertell unloaders – multi-port use

Loaders:

- Newcastle, New South Wales (grain)
- Whyalla, South Australia (iron ore)
- Adelaide, South Australia (cement/clinker)

Considerations

High capital cost

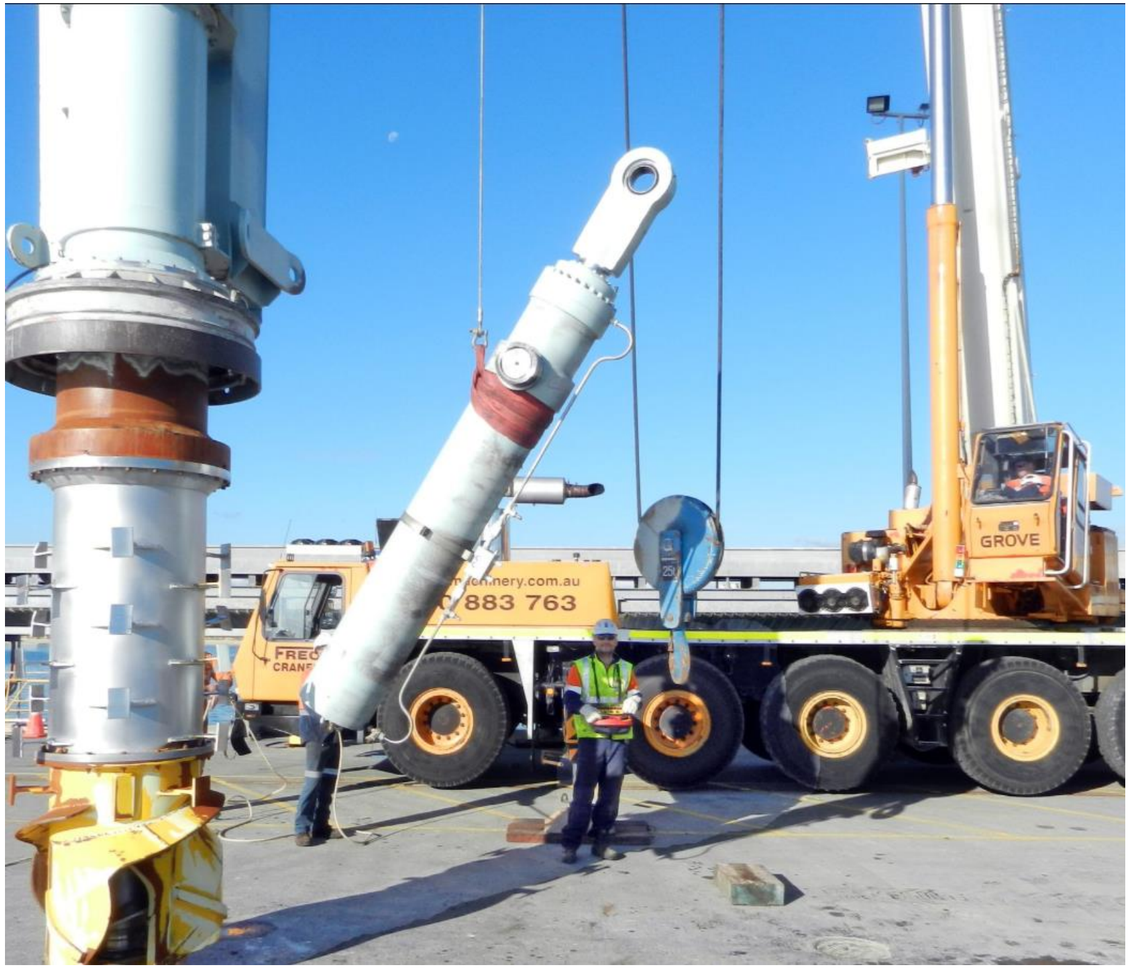
- Siwertell systems are significantly more expensive (2-3 times more than grab crane systems)
- Require purpose-built structure, enclosed conveyors and dust control systems

Limited cargo flexibility

- Can struggle with large lump materials, sticky or highly cohesive cargo, or very abrasive bulk cargo
- Generally, not as suitable for multi-cargo ports handling varied commodities

Increased maintenance requirements

- More mechanically complex and require specialised maintenance compared with grab cranes which are simpler and easier to repair locally



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Thank you

Questions?

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