



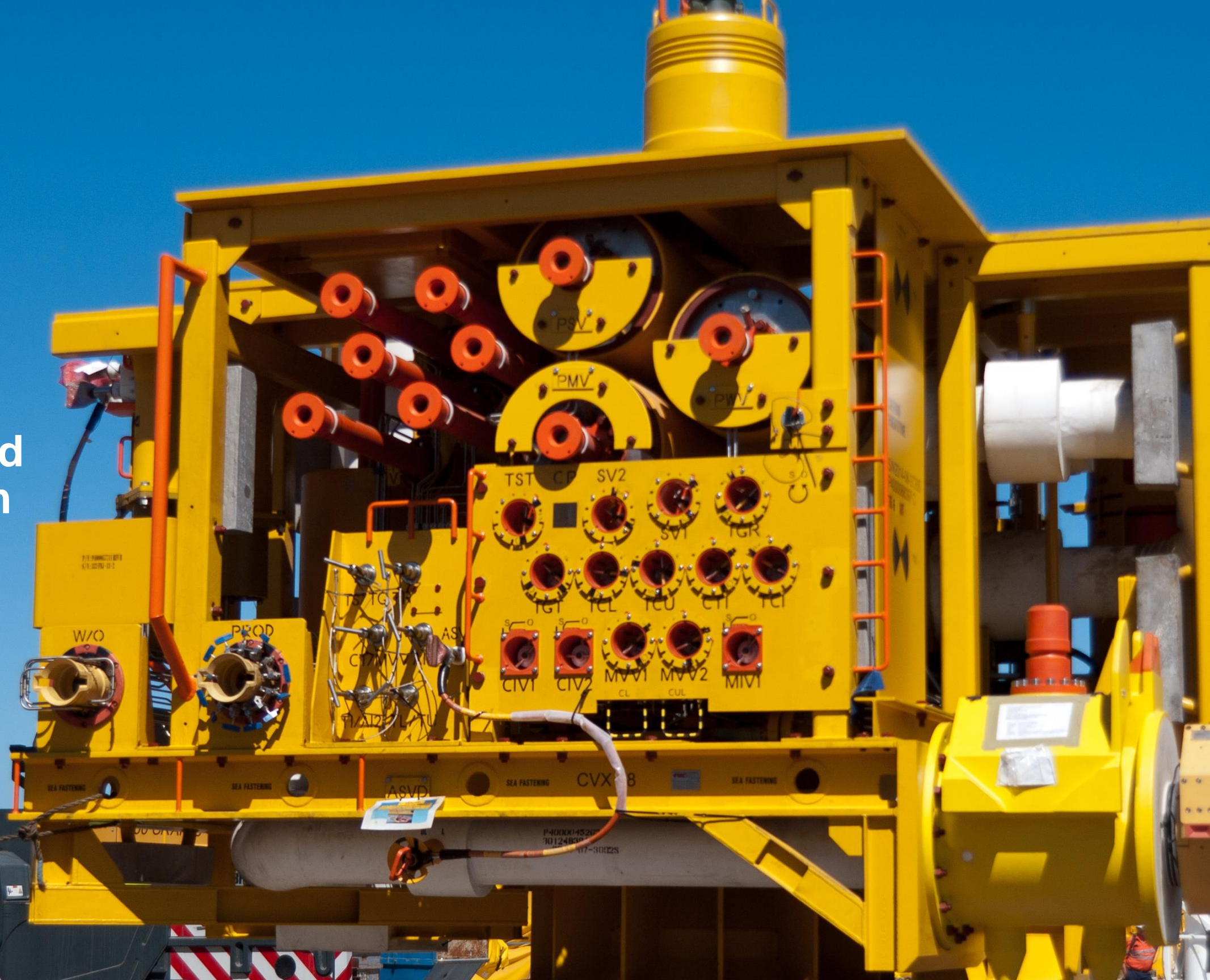
human energy®

Chevron Australia Greater Gorgon

Fantastic Fields and How To Flow Them

Mark Titley
Gas Portfolio Facilities
Engineering Team Lead

AOG Conference
March 2019



Mark Titley

Biography

Australian Business Unit Gas Portfolio
Facilities Engineering Team Lead, previously
Perth Global Technology Centre Manager.

Over 30 years' experience in oil and gas,
refining and petrochemicals. Varied roles from
technology development, to contract
negotiation and developments through all
project phases. Experience includes design
and commissioning of 10 mega or major
projects.

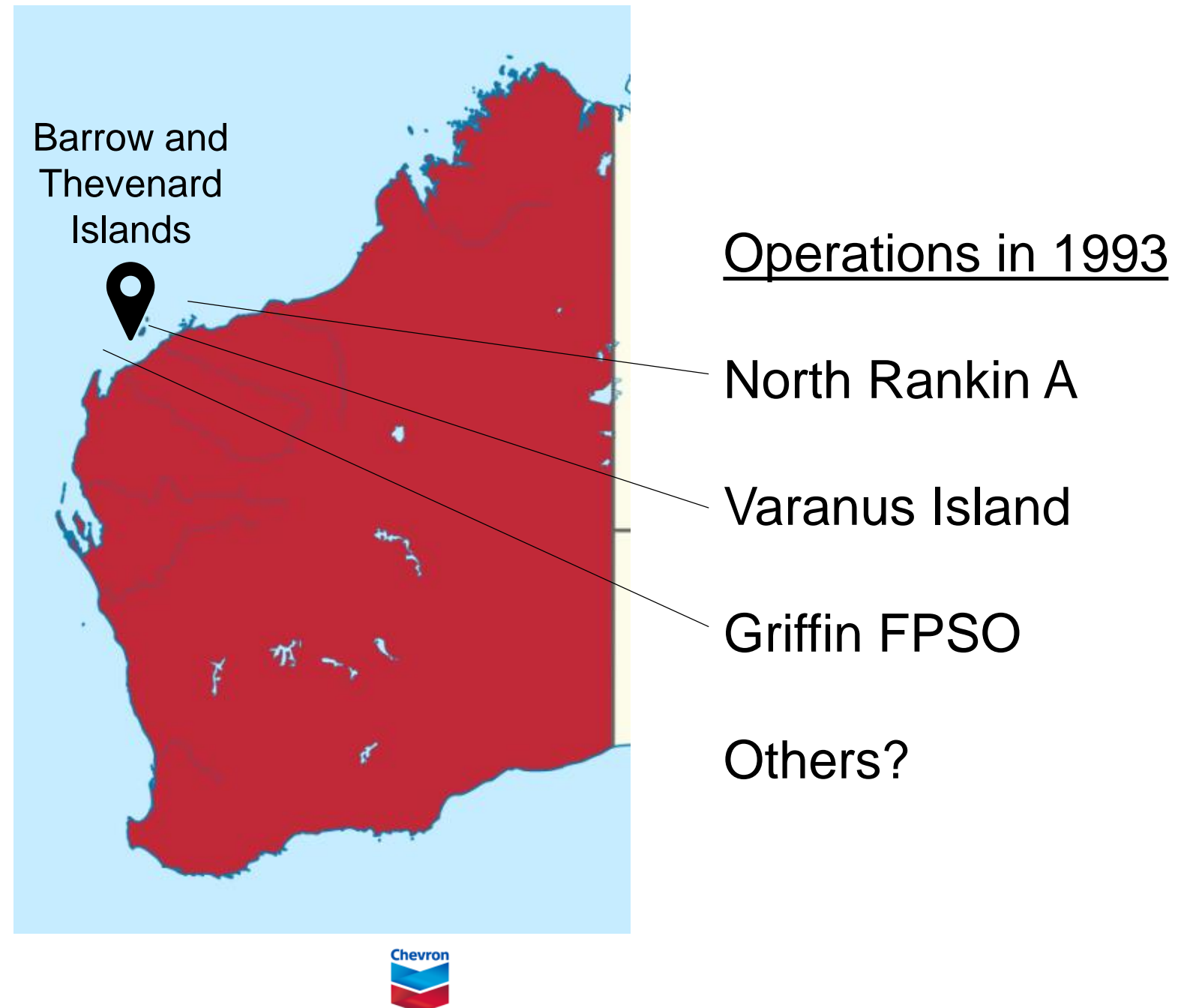


deepwater technology plan
**what got you here,
won't get you there**

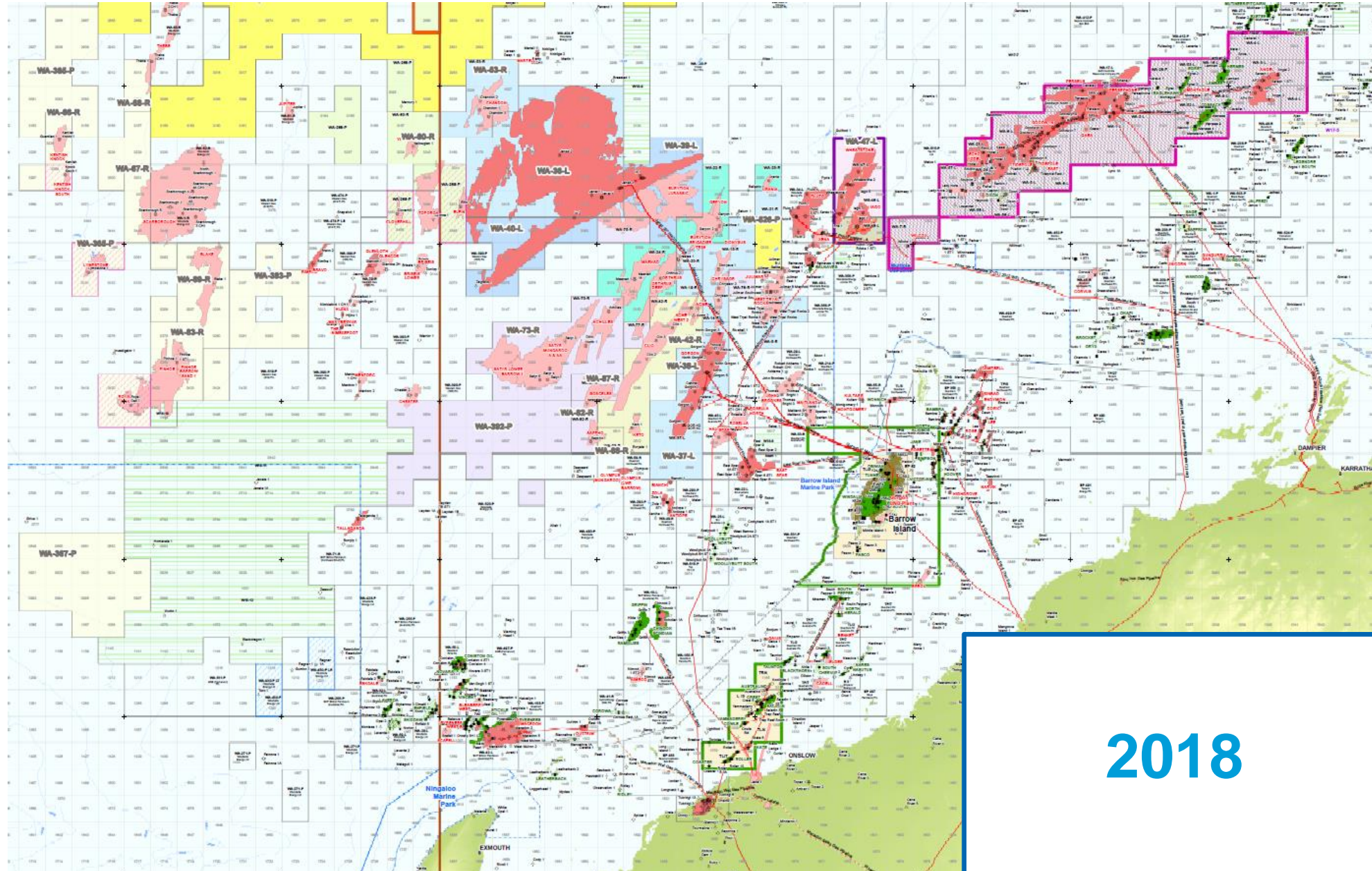


Chevron

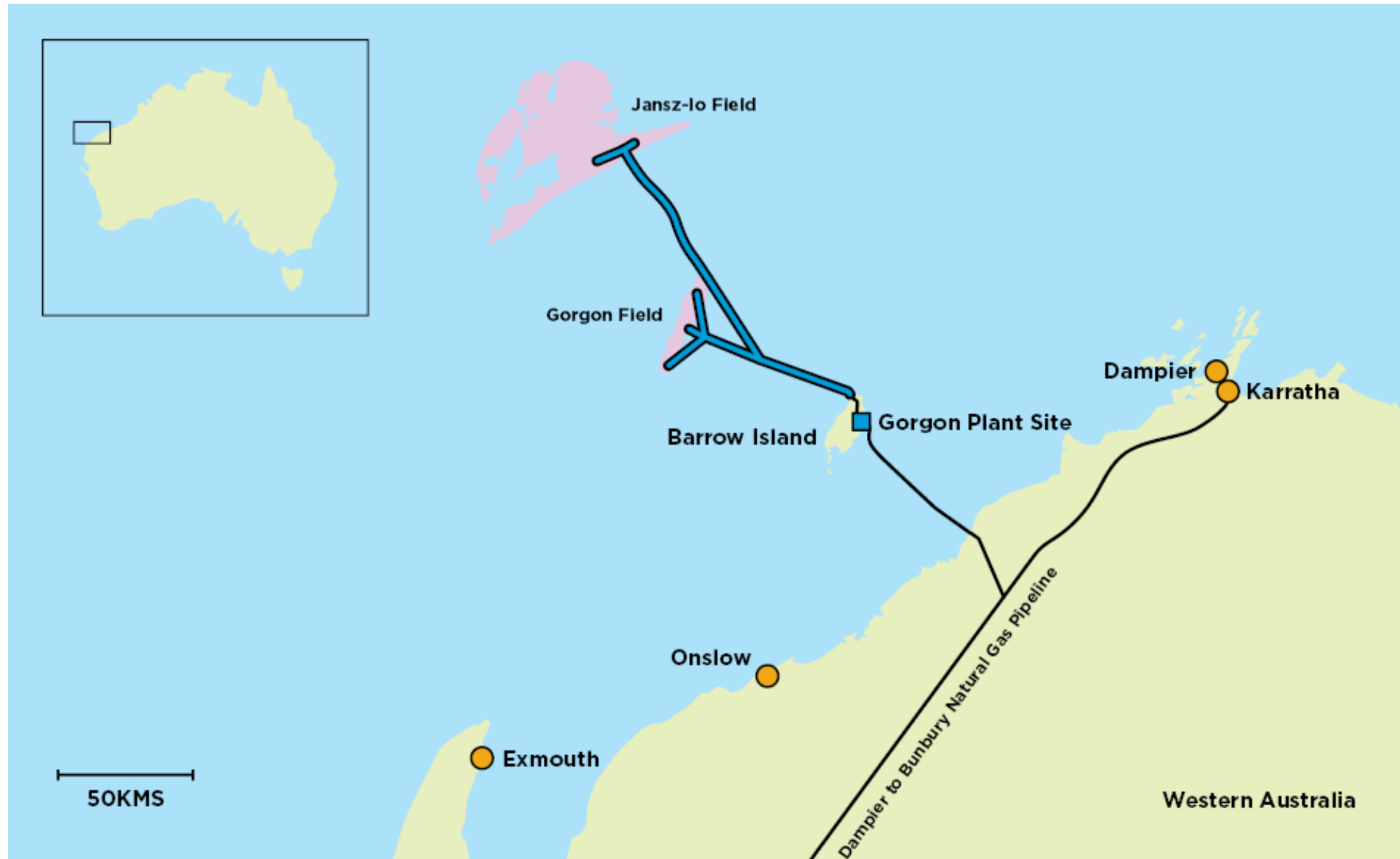
operating in Australia since 1952



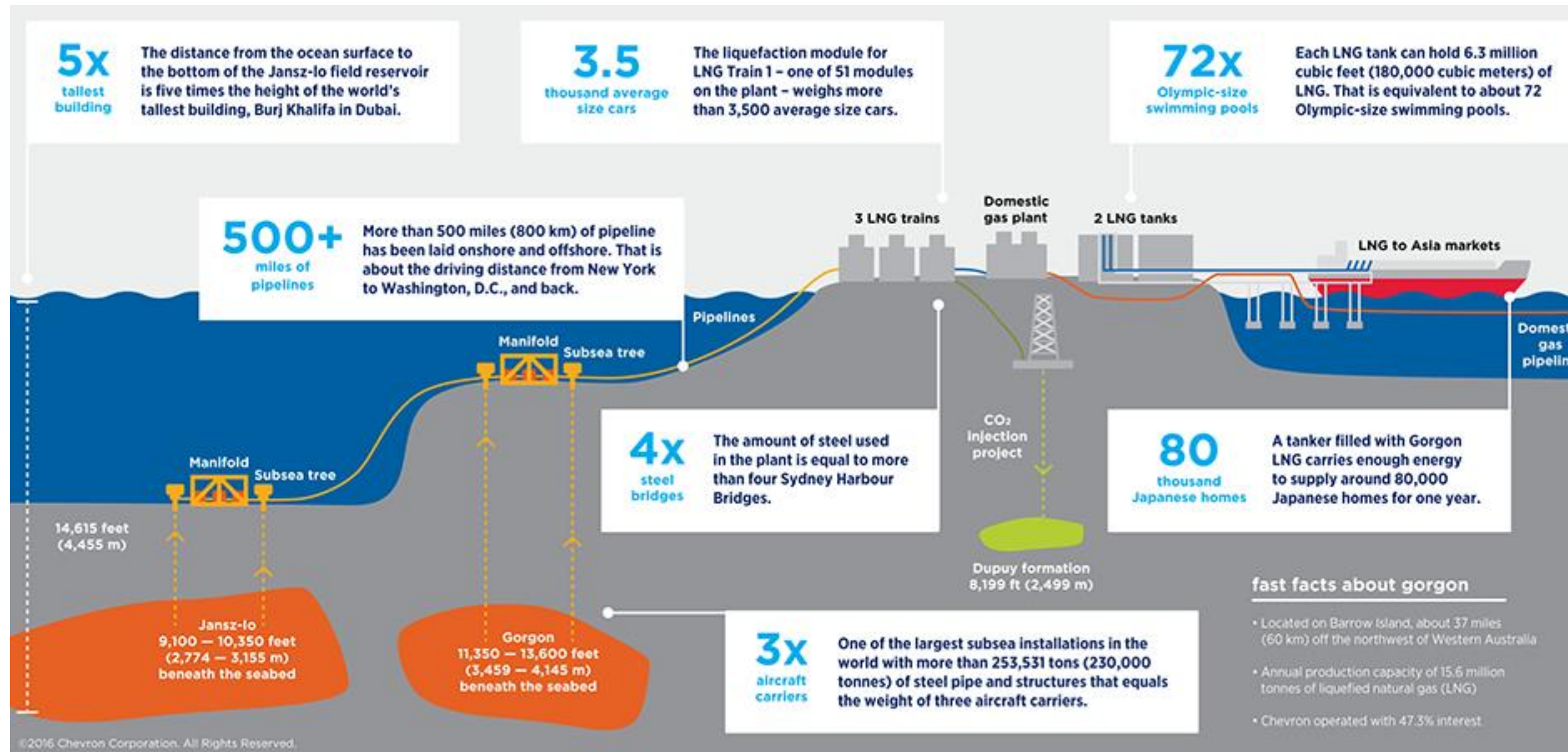
NWS Operations



Greater Gorgon



Greater Gorgon overview

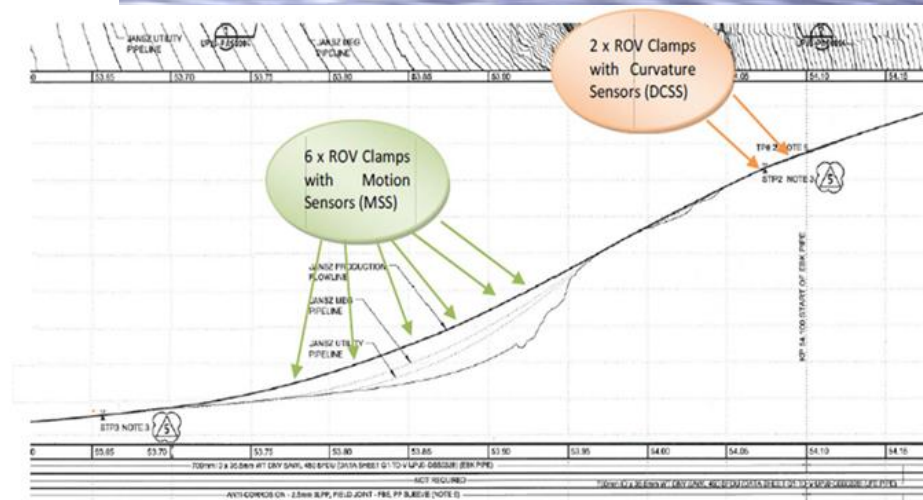
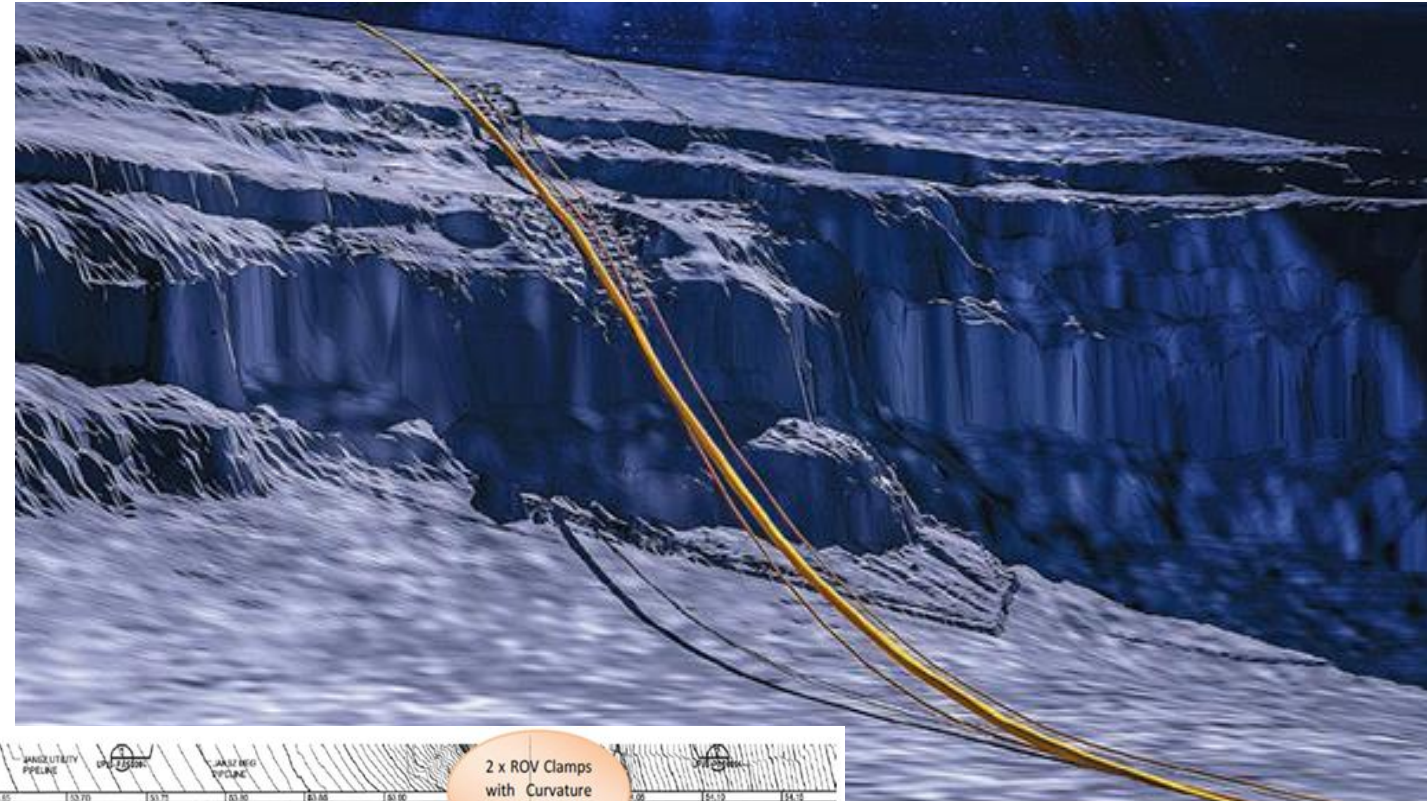


Greater Gorgon

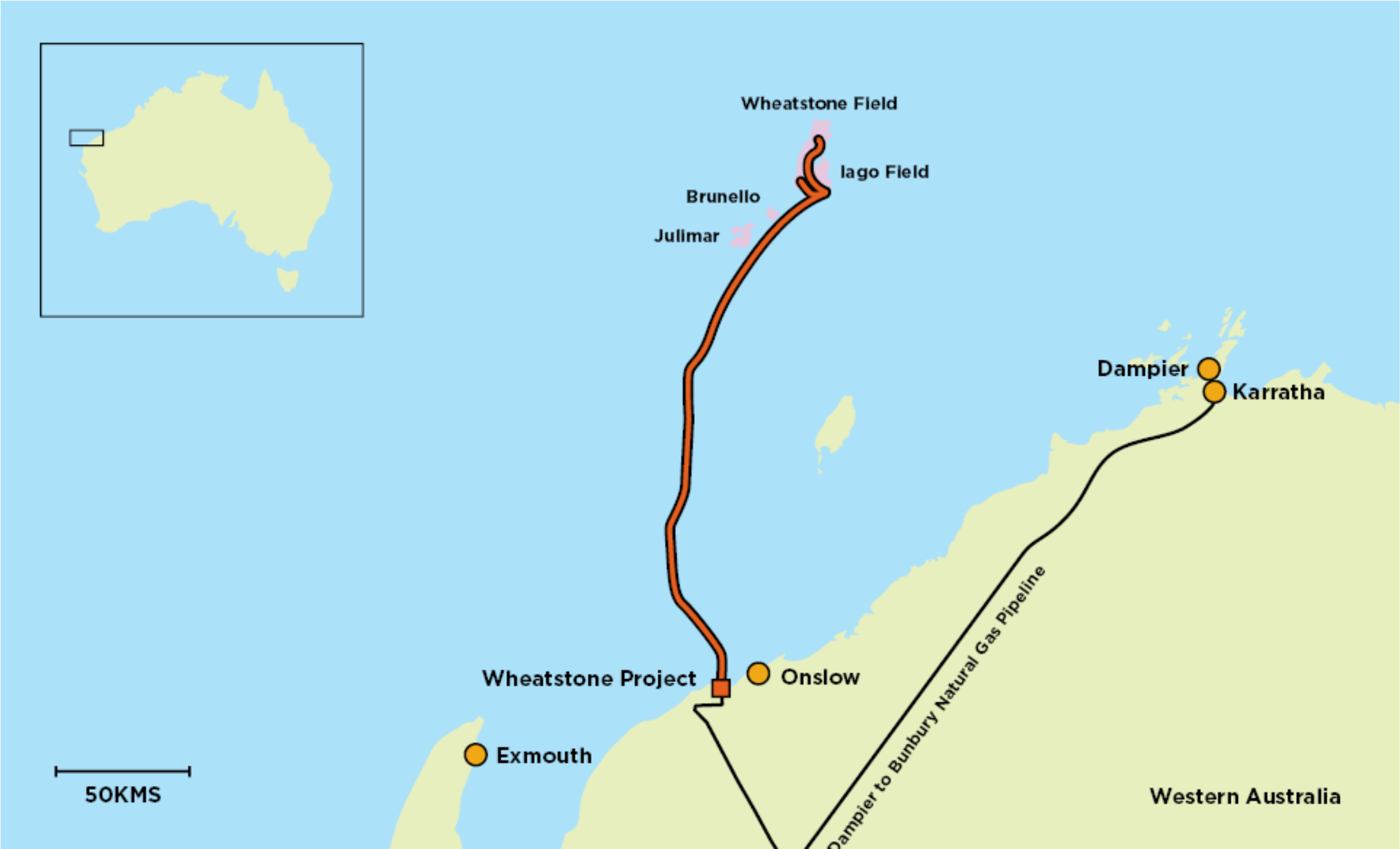
Jansz-lo scarp crossing

In 2014, the Jansz-lo Subsea Pipeline Scarp Crossing won the “innovation and development” category at both the Western Australian and the National Engineering Excellence Awards.

The concepts and methods developed will provide the enabling technology for future deepwater pipeline projects.



Wheatstone



Wheatstone microtunnel

An innovative shoreline crossing solution to preserve the Ashburton River Delta, which serves as habitat for the green sawfish and other species.

Chevron Australia was awarded the 2015 Golden Gecko Award for Environmental Excellence by the Government of Western Australia, Department of Mines and Petroleum for utilising the micro-tunnel shoreline crossing solution.

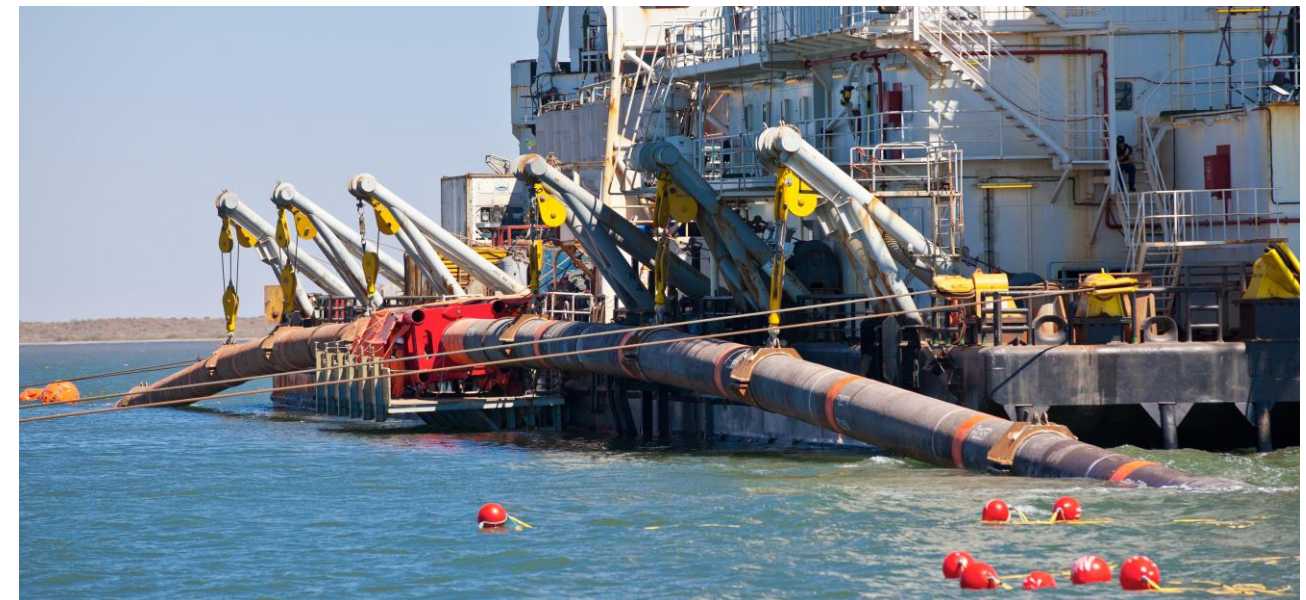
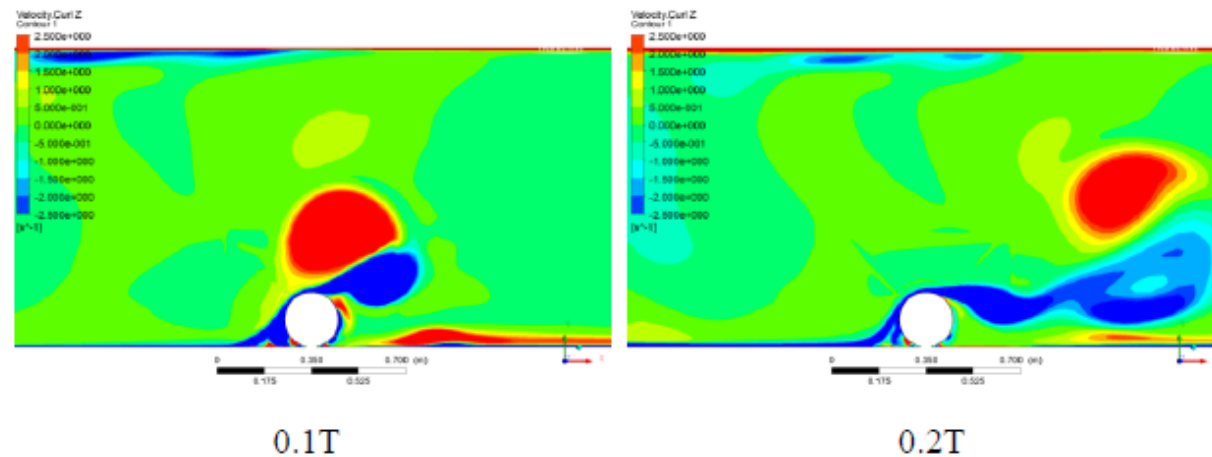


Wheatstone

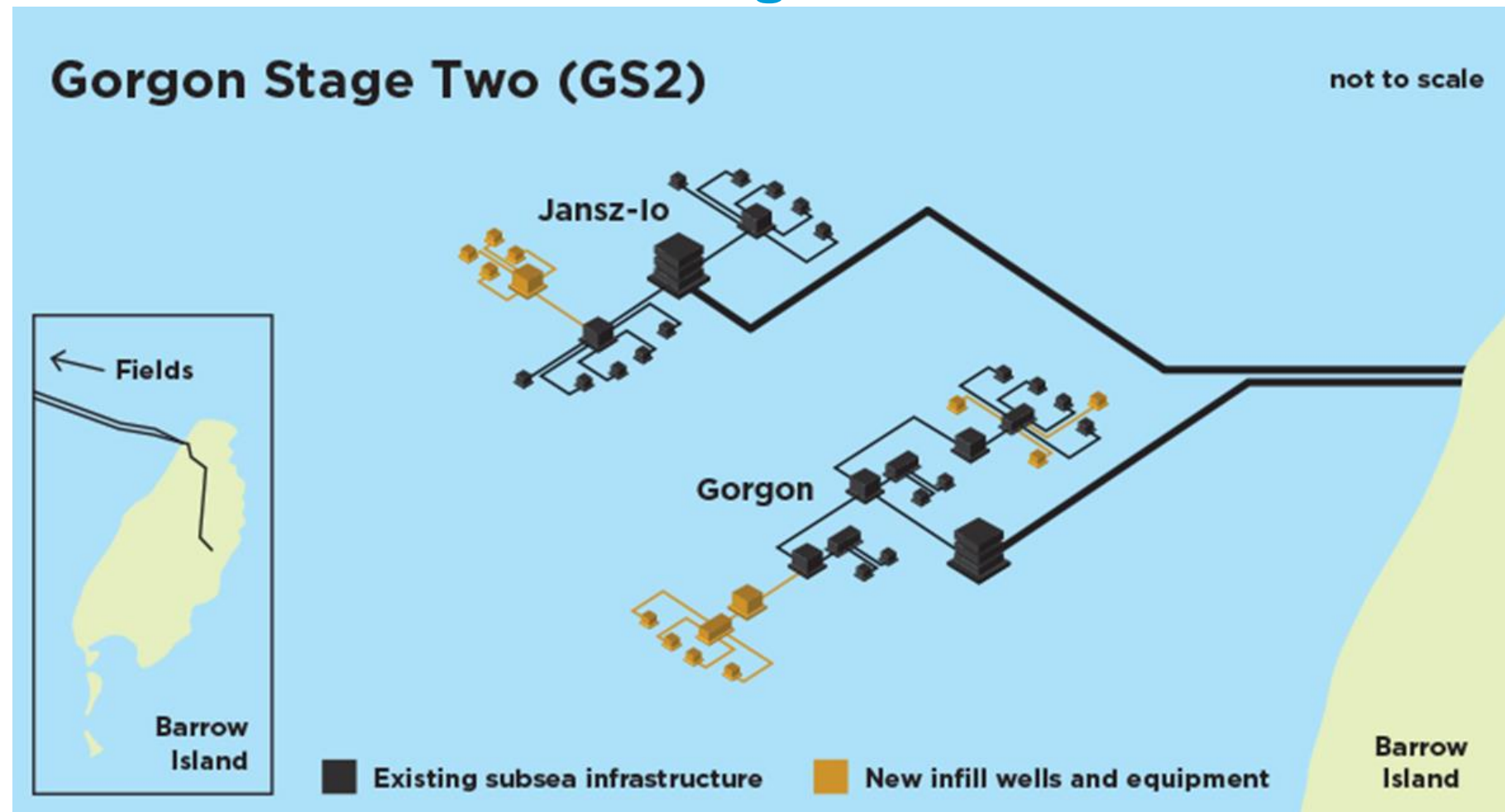
O-tube

In 2014, the STABLEpipe project won the Australasian Industrial Research Group (AIRG) Medal for Australasian Major Industry Technological Innovation for its cutting edge O-Tube program. These were Woodside Energy Ltd, Chevron Australia Pty Ltd, Wood Group Kenny Pty Ltd, Atteris Pty Ltd and UWA.

Chevron used the O-tube for studies to optimise pipeline design for Chevron-operated Wheatstone Project, providing significant savings.



Greater Gorgon stage 2



Announced on 14 April 2018, Gorgon Stage Two is part of the original development plan for Gorgon and includes the expansion of the subsea gas gathering network required to maintain long-term natural gas supply to Barrow Island. The development involves new wells in the Gorgon and Jansz-lo fields, and accompanying offshore production pipelines and subsea structures.

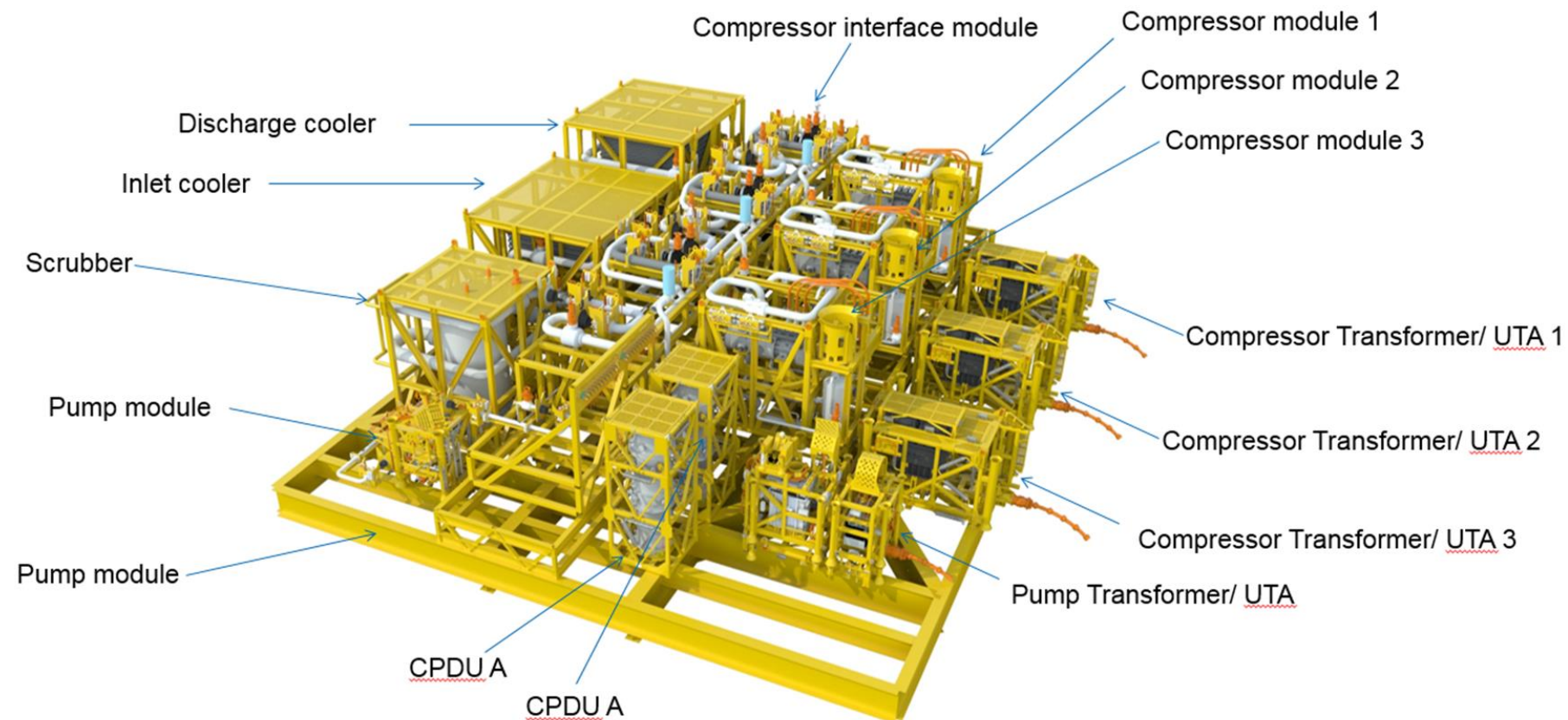


Greater Gorgon

Jansz-lo compression

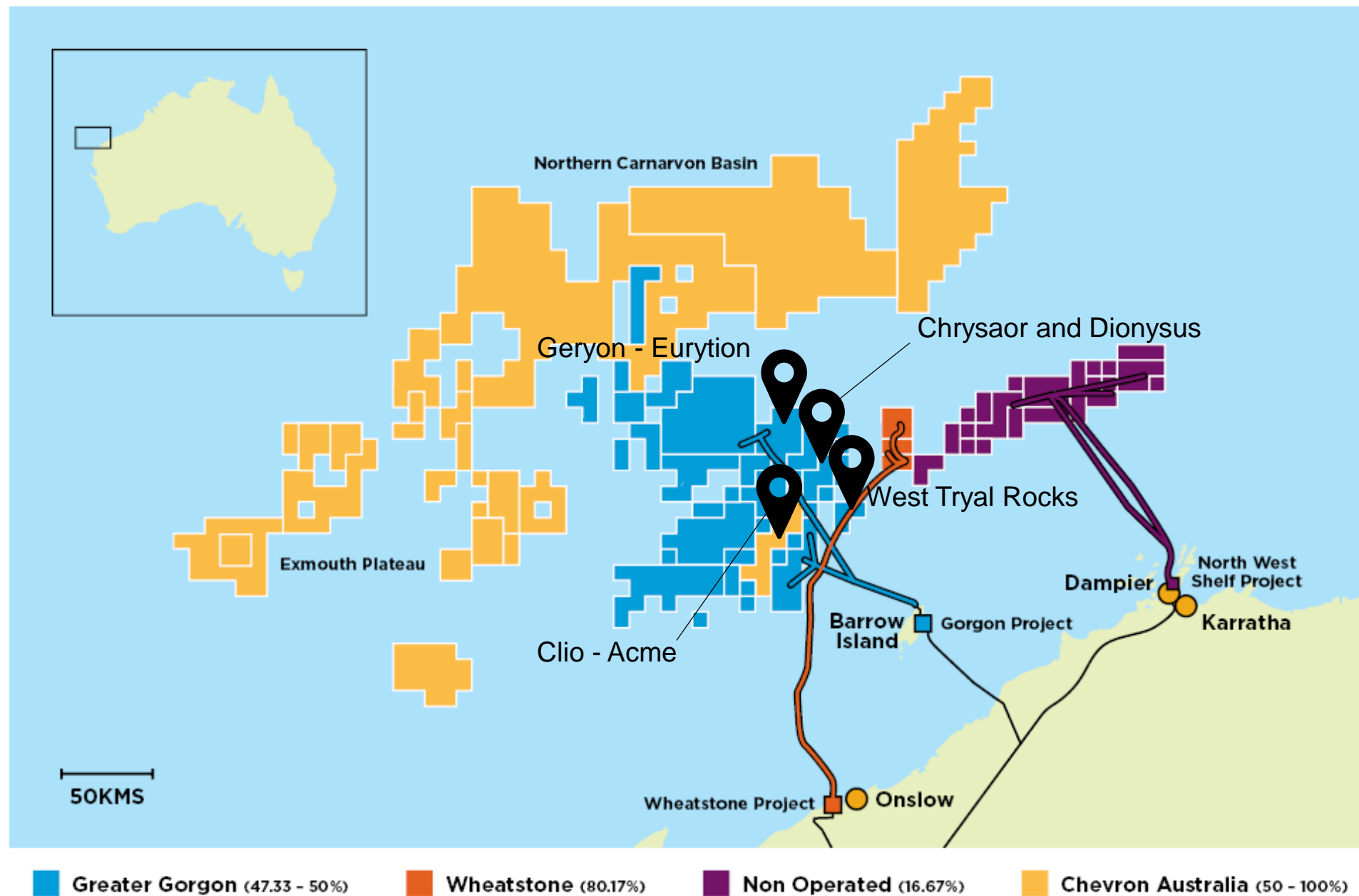
Ongoing work includes the next stage for the Jansz-lo reservoirs. One option is subsea compression to boost pressure from the fields to offset depletion drive.

Significant development work is ongoing with an expected start-up in the 2025 – 2026 timeframe



Upcoming developments

50 TCF of total discovered resources



Upcoming developments

Chrysaor and Dionysus

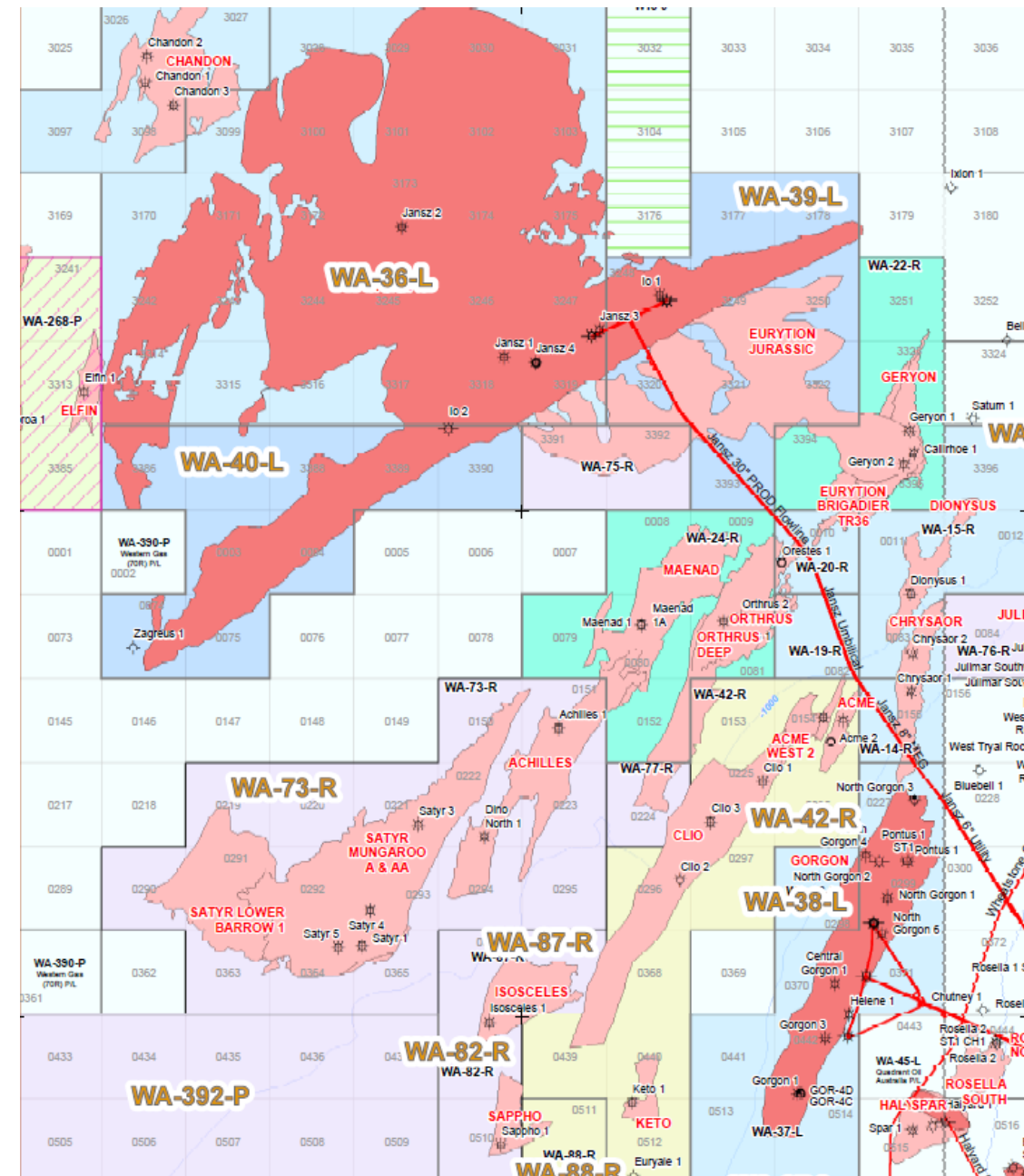
Opportunity is in Phase 2, concept selection, with RFSU targeting 2027. Potential development could be:

- 5-6 production wells, central manifold in 1000m water depth
- 40 – 50 km tie-back to Gorgon trunkline, 20" – 24" diameter
- MEG and utility service lines, control umbilical. Scarp crossing north of existing Jansz crossing

Geryon and Eurytion

Opportunity is again in Phase 2, with RFSU targeting 2031 or potentially earlier. A development could be:

- 5-6 production wells drilled from a central manifold
- 40 km tieback to Jansz trunkline, 24" diameter. Tie-in with Jansz-lo compression
- MEG and utility service lines, control umbilical



Upcoming developments

Other developments

A number of future tie-backs and projects follow Chrysaor & Dionysus, and Geryon & Eurytion in the development sequence

Staged 5-8 years apart out to 2048, these are required to keep the Gorgon and Jansz trunklines full.

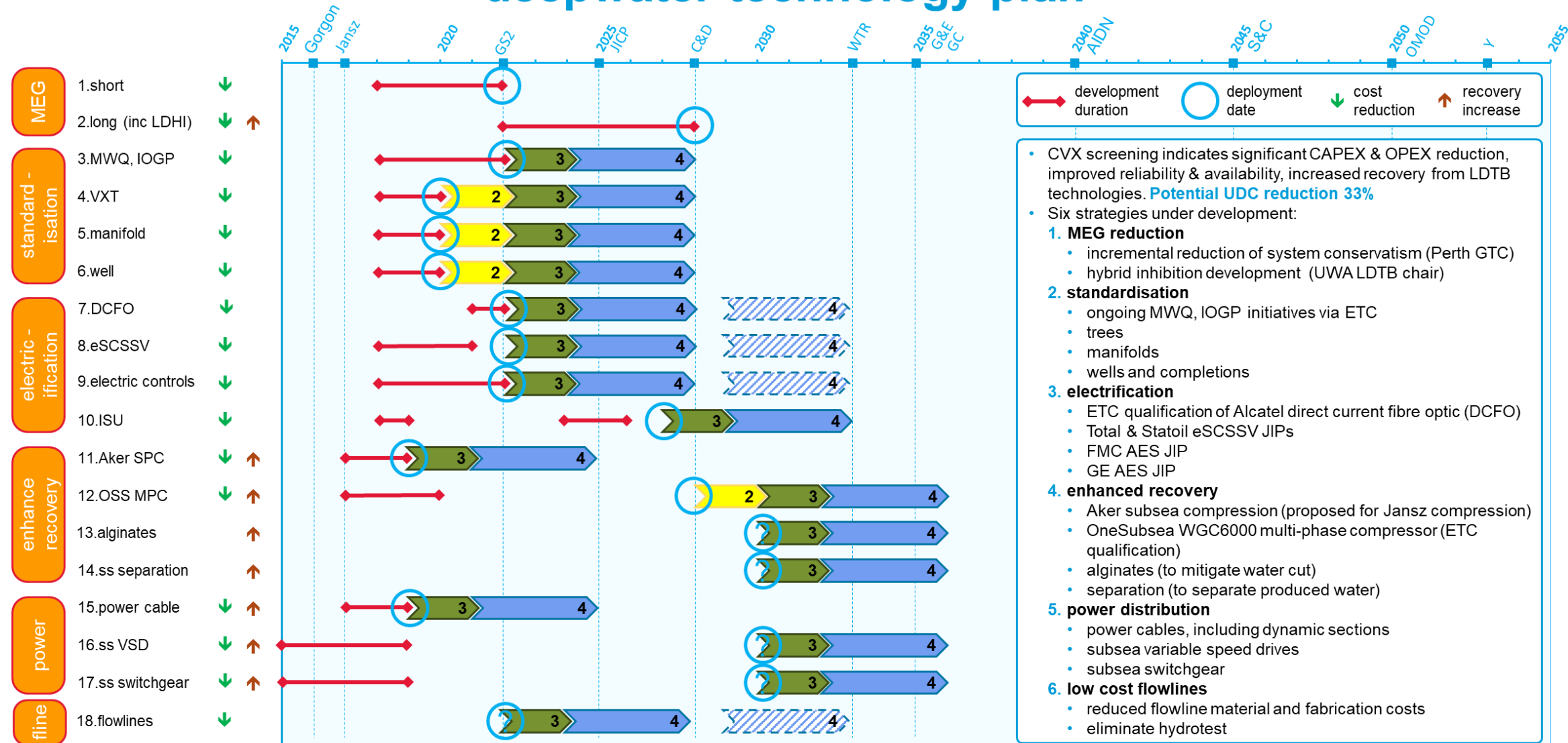
- West Tryal Rocks
- Gorgon compression
- Satyr, Achilles, Dino and Isoceles
- Semele
- Orthrus, Maenad, Orthrus Deep
- Chandon
- Yellowglen



Other opportunities include Clio-Acme, Sappho, Urania, etc. These are in deepwater other than West Tryal Rocks

Future developments what got you here, won't get you there

deepwater technology plan



Gorgon project local benefits

From 2009 to 2040, the benefits of the Gorgon Project are estimated* to result in:



**\$440
billion**

added to Australia's gross
domestic product



60,000+

direct and indirect full-time
equivalent jobs created in
Australia



\$69 billion

direct taxation revenues paid
to the Federal Government

**Economic forecasts are based on the period 2009 – 2040. Source: ACIL Allen Consulting independent research report October 2015.*



Q&A