Ichthys Carbon Capture and Storage Project

INPEX is actively working to decarbonise its operations and deliver a stable supply of diverse and clean energy sources[1]. Carbon capture and storage (CCS) is a safe and proven emissions reduction technology that can be applied to liquefied natural gas (LNG) production to capture naturally occurring carbon dioxide (CO_2) from the reservoir hydrocarbon stream[2].

INPEX on behalf of Ichthys LNG Pty Ltd, is proposing to develop a buried onshore pipeline system between Ichthys LNG and the inlet to potential CO_2 sequestration projects (Figure 1). Furthermore, it will operate capture, dehydration and compression facilities within Ichthys LNG as part of an integrated CCS system.

The proposed onshore pipeline system would extend from the Ichthys LNG facility boundary on Bladin Point to the Darwin LNG facility on Wickham Point. The pipeline system would comprise two pipeline sections both of which would interface with an onshore inlet station located on Middle Arm.

The development of CO_2 transport (including the onshore inlet station) and sequestration infrastructure is being progressed by INPEX (as operator for the Bonaparte CCS Assessment Joint Venture) as a separate project, referred to as the Bonaparte CCS Project.

An indicative outline of how these two projects may interface is shown in Figure 1.

The purpose of this factsheet is to provide information on the Ichthys CCS Project. For more information on how CCS works, and the proposed Bonaparte CCS Project please visit www.inpex.com.au/projects/ccs-activities.

Environmental Impact Assessment

INPEX intends to refer the Ichthys CCS Project to the Northern Territory Environmental Protection Authority for consideration under the *Environment Protection Act 2019* (NT) and Commonwealth Department of Climate Change, Energy, the Environment and Water under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). Environmental impact assessments of the project would be made publicly available and assessed by Northern Territory and Commonwealth regulators, with opportunities for public comment.

Separately, INPEX is proposing to progress upgrades to existing infrastructure and install a new CO_2 dehydration and compression system within the Ichthys LNG facility, which is required to support the decarbonisation of its operations. These activities are subject to separate approvals. For more information please visit www.inpex.com.au/projects/ccs-activities.

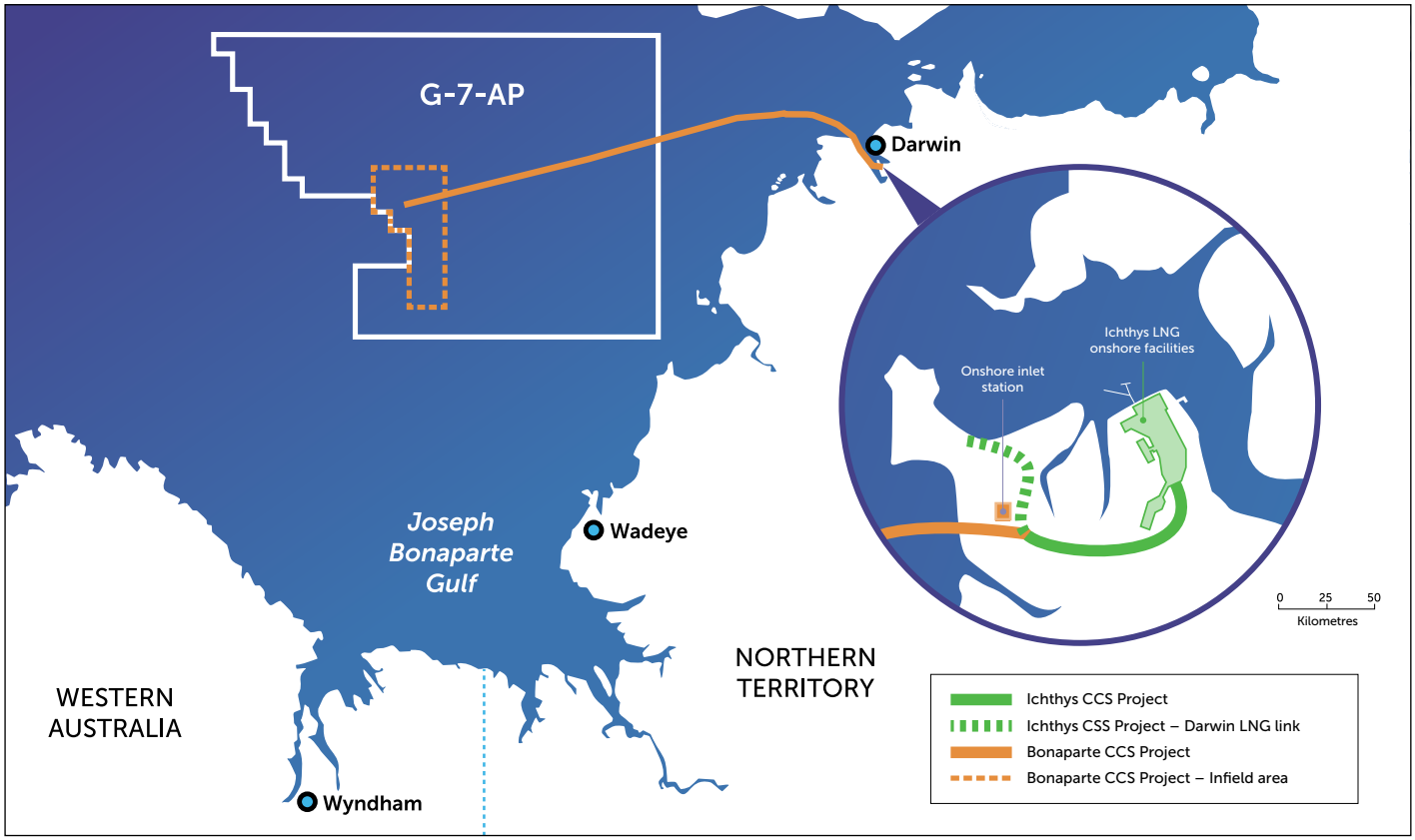


Figure 1: *Location of proposed Ichthys CCS Project and Bonaparte CCS Project (not to scale).*

1 INPEX Australia. 2025. New Energy | INPEX

2 IEA (2021) About CCUS – Analysis - IEA

The Ichthys CCS Project

Project Description

The Ichthys CCS Project proposes to connect the Ichthys LNG onshore facilities, Darwin LNG facility, and Bonaparte CCS infrastructure via a 16-inch diameter onshore CO_2 pipeline system. The pipeline system consists of two segments, linking the proposed Bonaparte CCS Project onshore inlet station (to receive and gather CO_2 for sequestration) with Ichthys LNG and potentially Darwin LNG. The pipelines would have a combined length of approximately 12 kilometres.

The proposed pipeline route extends from the Ichthys LNG facility boundary along the access road to the intersection with Wickham Point Road and then along Wickham Point Road to the Darwin LNG tie-in (Refer to Figure 2). The pipeline route includes a short (approximately 350 metres) deviation from Wickham Point Road to the proposed Bonaparte CCS Project onshore inlet station.

The pipelines would be situated within a 20-40 metre right of way (ROW). The section connecting Ichthys LNG to the proposed Bonaparte CCS Project onshore inlet station is planned to run adjacent to the existing Ichthys gas export pipeline.

The pipeline corridor would also include provision for the installation of power and control cables between Ichthys LNG and the proposed Bonaparte CCS Project onshore inlet station.

Development options for Ichthys LNG supplementary power facilities, including a power supply substation are also being progressed (refer to Figure 2). Electricity would be transferred from the supplementary power facilities to Ichthys LNG via underground power cables located in a dedicated 30-metre-wide corridor adjacent to the Ichthys LNG facility access road.

Schedule

The indicative schedule for the Ichthys CCS Project construction phase spans the period 2028 to 2031 and is dependent on public consultation, regulatory approvals, weather and commercial considerations.

Figure 2: *Proposed infrastructure location*

Overview of Proposed Activities

Pipeline site preparation and earthworks

Clearing and earthworks to establish the ROW and foundation for pipeline installation and utilities corridor would be undertaken. Earthworks are typically conducted using heavy machinery such as front-end loaders and diggers.

Pipeline trench excavation

Open-cut trenching is a common method used to allow for pipelines and cables to be buried. The ground would be excavated along the proposed route within a 20-40 metre pipeline ROW. Two trenches would be excavated, each two to three metres deep to accommodate the pipeline, power and control cables and other necessary utilities and protection. Trenching activities would include soil improvement to ensure safe and efficient construction.

Pipeline and cable installation

The pipeline would be constructed from carbon steel designed to transport CO_2. The sections of line pipe would be transported by trucks to the pipeline corridor, where they would be laid out and welded into long pipe strings (up to 800 metres long) before being installed into the excavated trench or pulled through horizontal bored sections.

Pipeline pre-commissioning

The pipeline would be filled with treated water and pressure tested to confirm its integrity.

Once testing is complete, the water would be removed, the internal walls dried, and preserved with nitrogen in preparation for the later introduction of CO_2.

Pipeline and Ichthys LNG CCS infrastructure commissioning

The Ichthys LNG CO_2 dehydration and compression system would be commissioned using CO_2 sourced from the existing acid gas removal units (AGRUs) installed at Ichthys LNG, which are designed to remove reservoir CO_2 during LNG production.

Once the CO_2 dehydration and compression system has been commissioned, the pipeline would be commissioned by gradually filling it with pressurised CO_2.

Operations and maintenance

Operations of the Ichthys LNG CCS infrastructure would involve:

- Capture of CO_2 via the AGRUs
- Dehydration and compression of the CO_2
- Transport of compressed CO_2 via the onshore pipeline to an onshore inlet station
- Metering and measurement of exported CO_2

Once the CO_2 is received at the onshore inlet station custody of the CO_2 would transfer to the operator of nominated sequestration project (e.g. the proposed Bonaparte CCS Project).

The onshore pipeline and the CO_2 dehydration and compression system would be periodically inspected and maintained as per the approved maintenance and inspection program.

Decommissioning

Decommissioning will be performed at the end of the proposed 30-year design life in accordance with the relevant legislation in place at the time.

Decommissioning will consider a range of options and methodologies including flushing of the pipelines and infrastructure and removal of infrastructure within Ichthys LNG.

Environmental values, potential impact and mitigation

Environmental and social values

The environmental values associated with, or in proximity to the proposed Ichthys CCS Project area include, but are not limited to, the following:

- Cultural heritage sites
- Listed species (plants and animals)
- Migratory species
- Important coastal habitats
- Community receptors.

Potential environmental impacts and management

INPEX is in the process of preparing an environmental impact assessment to support the Ichthys CCS Project approval applications. To support this process a range of environmental studies/surveys may be undertaken. These studies and surveys would assist INPEX in further understanding the potential impacts and risks associated with the proposed activities to inform the development of appropriate management strategies to mitigate these, as far as practicable.

A preliminary environmental impact assessment has identified the following key potential environmental impacts and risks associated with the development of the proposed Ichthys CCS Project:

- Fauna interactions
- Biosecurity risks (weeds)
- Wastewater discharges
- Air emissions
- Increased road traffic
- Unplanned scenarios (disturbance to cultural heritage sites, spills).

INPEX recognises that stakeholder consultation is an integral part of the environmental impact assessment process. Feedback received during the stakeholder consultation process will be used, where relevant, to inform the environmental impact assessment and development of controls that may be adopted to prevent/mitigate identified environmental risks/impacts.

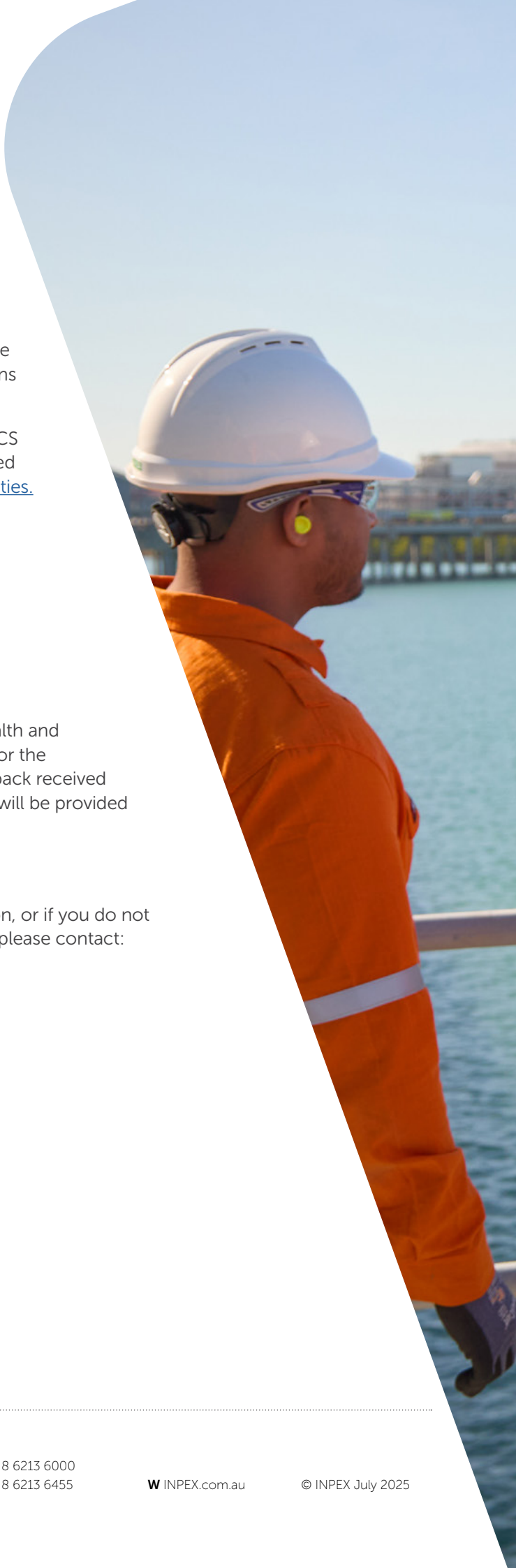
Working with the local community

At INPEX, we believe community engagement is essential to forging trusted and strong relationships within the communities in which we operate. We engage and work with stakeholders and ensure information is readily available to the community, as well as providing mechanisms for feedback and response.

Further information and feedback

INPEX welcomes your feedback on the proposed activities. To provide feedback or to request additional information, please see the 'Comments and enquiries' section below. All communications will be logged, assessed and acknowledged with a response.

For more information on how CCS works, proposed onshore CCS preparedness activities and what happens to CO_2 once it is stored underground please visit www.inpex.com.au/projects/ccs-activities.



How is your feedback used?

Feedback received will be used to inform relevant Commonwealth and Northern Territory Government approval applications required for the management framework of the activity. A summary of the feedback received from stakeholders and how INPEX has addressed this feedback will be provided to the regulatory authorities as part of the submissions.

Comments and enquiries

If you would like to provide comment or seek further information, or if you do not wish to receive future communications about project activities, please contact:

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