



WORLD GAS CONFERENCE 2015
SPEECH: Mr Louis Bon, Managing Director Ichthys Project

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The Ichthys LNG Project: major subsea installation phase

Good afternoon.

I'm pleased to be in my home city to present on the Ichthys LNG Project – one of the world's largest and most exciting resource development projects.

Ichthys is special.

It is one of the few – if not only – mega subsea projects worldwide that incorporates the whole chain of development and production components: subsea, offshore, pipeline and onshore.

It includes some of the world's biggest and most advanced offshore facilities, massive onshore processing facilities near Darwin, Australia, and an 889 kilometre pipeline to unite them.

It will deliver 8.4 million tonnes of LNG per annum and 1.6 million tonnes of LPG per annum, along with approximately 100,000 barrels of condensate per day at peak.

We have more than 30,000 people – all over the world – working on this thirty four billion dollar project.

Our aim is to successfully deliver a quality, conventional development to operate for at least 40 years.

Today, I would like to highlight our:

- difficult, remote and often extreme environments
- significant HSE challenges
- global supply chain and logistical challenges
- development of infrastructure for remote operations.

And Ichthys is remote.

Our headquarters are in Perth – the world's most isolated continental capital city.

And Western Australia is enormous.

Five Frances would fit inside it.

The flight time to the Ichthys Field from our closest heliport in Broome is nearly two hours.

And in Darwin, our onshore processing facilities required modular construction using global fabrication yards.

Naturally, this presents challenges.

We have a fundamental and absolute commitment to Health, Safety and the Environment, with a goal of zero harm to the workforce and to the environment.

INPEX has as its core value - Anzen Dai Ichi, or "Safety Number One".

And as you can see from the slide, we have significant and quite unique HSE challenges:

- A wide geographic spread.
- Millions of work hours.
- Challenging environments.
- Many subcontractors.
- Logistics.

We must overcome these to ensure our people go home safely every day.

In South Korea, we're constructing two huge offshore facilities: a central processing facility and a floating production, storage and offloading facility.

A big challenge was to design them for 40 years of operation in a remote area with extreme weather conditions.

Cyclones are frequent in the area. They can be unpredictable.

We took this into account via design specifications and in the layout of the hulls where all parts are accessible.

Maintenance without shutdown is factored into the layout and topsides design, and is supported by redundancy of equipment.

The CPF is designed to survive one in 10,000 year storm conditions and will operate in one in 200 year storm conditions.

Having fabrication locations all around the world makes managing our supply chain a challenge.

But our huge global spread is now starting to change.

Our work in Houston, Yokohama, Oslo, London and Leiden is complete.

Our global reach is reducing as we focus on the Ichthys Field.

This began in October 2014 when our Umbilicals, Risers and Flowlines team – URF for short – arrived at the Field to start offshore installation.

I'll give you an example of the URF team's supply chain.

Huge mooring chains fabricated in Spain are shipped to Indonesia and stored, ready for delivery to the Field.

Shorter sections of chain go to South Korea where enormous mooring piles – 460 tonne each – have been fabricated for our offshore facilities.

The shorter chains are connected to the piles, before they're shipped all the way to the team in the Field.

The piles are driven into the seabed and the chains laid on the ocean floor ahead of the

CPF and FPSO arriving next year.

40,000 tonnes of chain is required to secure the facilities for more than 40 years.

During peak offshore installation we'll have around 2,000 people and 20-25 vessels in the Field.

Logistics become a major challenge.

The Ichthys Field is a long way offshore, around 450 kilometres from the nearest airport.

We place the utmost importance in moving our people safely.

At peak up to 100 workers may be transported to the Field each day.

Being so remote it is very important that we have access to high-speed data and voice communication services for the life of our operations.

Last year we announced a joint partnership with Shell to invest in constructing a subsea optical fibre cable system with the Nextgen Group.

Initially, the cable system will provide for Ichthys and Shell's Prelude FLNG projects which, as you can see, are quite close together offshore Western Australia.

The subsea cable will give us a highly reliable and stable high-speed voice and data service, essential for our future offshore facilities.

It means workers will have high speed communications so they can stay in touch with their friends and families.

I mentioned that our onshore site required modular construction.

Limited skilled labour in a city of only 120,000 people was a main consideration in this approach.

Global fabrication yards are producing around 200 modules – up to 6000 tonnes each – to build the liquefaction plant.

This means total module shipping movements of more than one million kilometres.

And we have some challenging conditions in Darwin too.

Like the infamous 'wet season', regular cyclones, and a major tidal variance of up to eight metres.

Our progress on all fronts is very good:

- As of March 2015, we were about 68 per cent complete.
- Our CPF and FPSO topsides and their hulls are being integrated.
- And the FPSO hull is floating. It will be now for more than 40 years.
- Around 70 large LNG modules have arrived at the onshore site.
- We've installed more than 400 km of our 889 km pipeline.
- Both of our onshore LNG storage tank roofs have been lifted into place.

- As of May, 47 kilometres of flowlines, more than 30 flowline sleeper structures and a 6,500 tonne riser support structure tower and its 120 metre long arch have been installed in the Field by the URF team.
- And we started our development drilling program in February – using two rigs to drill twenty production wells.

Our teams are doing a fantastic job overcoming these challenges that come with building a mega-project like Ichthys.

Thank you.