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Offshore Field Development Feasibility Study, Western Australia

In 2024, ICON Engineering was engaged by an International Energy Company to conduct a Feasibility Study for a potential development offshore Australia.

The Feasibility Study was based around the tie-back of the new field to an existing platform located approximately ten kms away in fifty metres water depth.

ICON's workscope included evaluation of two principal concepts:

- Subsea development; and
- Wellhead platform development

For each of these two development schemes ICON technically defined the physical aspects of the field facilities, provided cost and schedule estimates, and considered the relative risks and opportunities of the concepts.

The feasibility studies included assessment of the pipelines, involving three phase production and gas lift and associated control systems.

For the pipelines, both rigid and flexible pipeline options were evaluated considering capital and operating costs, schedule, installation methods, pipeline stabilisation options, vessel availability etc.

As an example, the total installed cost of a relatively short length rigid pipeline system is significantly affected by the need to mobilise a pipelay vessel from Asia.

For the control systems the use of umbilical-based vs satellite control systems were evaluated.

Pipelines - Piggy-Back Installation

DP2 CSV (typical)

For each of the development schemes and sub-options, the impact of additional producing wells was evaluated on a risked, incremental basis.

The ability to produce additional reserves with limited increase to the initial capital outlay was a major consideration.

ICON worked closely with the Company to define a Facilities Basis. The platform engineering focused on developing a minimum facilities design installable by either a jack up drilling rig or conventional derrick barge.

The subsea manifolds, pipelines and umbilicals engineering focused on installation options, delivery period, expandability, and total installed cost.

One of the major considerations was recognising the benefits of de-coupling the offshore pipeline/umbilical installation timing from the wells/platform/subsea manifold timing.

In Australia, with its remoteness and subsequent large mobilisation costs and limited vessels and rigs, it is a priority to have the relevant field hardware available at the start of the good weather season, and take advantage of any vessels of opportunity that are in the region.

Field Data:

Water depth	50m
Three phase production, gas lift, associated control systems	

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