

CONFIDENTIAL CLIENT

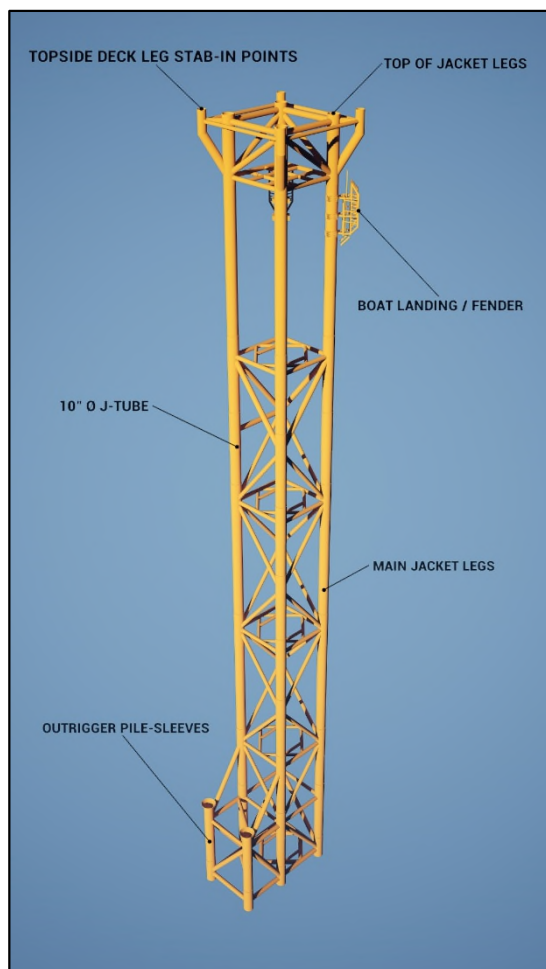
Substructure FEED, Wellhead Platform, Offshore Cambodia

An Asian Energy Company commissioned ICON Engineering to conduct FEED worksopes for a proposed wellhead platform (WHP) offshore Cambodia. The full field development comprised the wellhead platform, pipelines and FPSO. The WHP was to be located in 72m water depth.

The engineering focused on developing an efficient, minimum weight substructure design that was suitable for installation by either jack up drilling rig or conventional derrick barge.

The substructure design was based around use of proven optimised designs developed by ICON for the region, given the site specifics of water depth, met-ocean criteria, geotechnical conditions, personnel transfer philosophy and design of the production wells.

ICON estimated the topsides weight based on the extent of the facilities. The topsides weight was subsequently factored up and was considered as a 'not-to-exceed' weight for input into the substructure SACS model.



Substructure Configuration

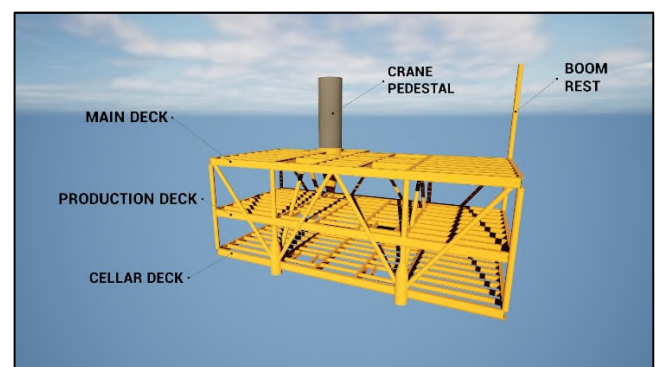
The preferred structural configuration was a four-legged jacket with two additional outrigger piles. Each of the four jacket legs had through-leg conductors/piles. The jacket leg spacing was six metres. The jacket was oriented to the direction of the prevailing storm and metocean conditions.

The substructure FEED included the following analysis cases:

- In-place for operating and extreme storms;
- Boat impact;
- Transportation;
- Installation; and
- Fatigue.

The outputs from the FEED included:

- Substructure configuration;
- Member sizing;
- Member utilisation;
- Joint stress checks;
- Joint fatigue life;
- Pile sizing;
- Dynamic analysis results; and
- Deflected shape.



Topsides Analysis Model

Platform Data:

Water depth	72m
Jacket Weight (excl. piles)	460mT
Topsides Weight(Not-to-exceed)	360mT