AN INNOVATIVE SOLUTION FOR FIXED OFFSHORE LNG REGASIFICATION TERMINALS

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Foster Wheeler in offshore LNG

• Foster Wheeler is involved in providing solutions and engineering services in the LNG industry

• Growing of offshore LNG has been very significant in the last years.

• It is our belief that this can be an alternative for those places in which an onshore solution can not be provided
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Clients’ objectives

- Market and competition between developers demand fast track by any means
Client’s objectives – site selection

- Potential onshore sites are often not physically feasible or require significant investment, such as extensive dredging, to make the site acceptable.
- Offshore solutions can therefore be attractive.
Client’s objectives - costs

- And of course…

Low operating costs
Design Choices:

Offshore LNG terminals:

- Fixed (sea island jetty, jacket, GBS), or
- Floating (floating wharf i.e. metal buoys fastened to anchor chains, and weathervaning)

FSRU or FSU + FRU  
GBS

Courtesy Dragados Offshore
Foster Wheeler’s Solution:

Foster Wheeler’s solution combines features of the three concepts:

- A conventional LNG carrier modified and classified to function as a FSU that will be moored to a platform which also acts as a jetty
- Jetty/platform with all the facilities for mooring ships (LNG carriers and the FSU). Ships will be moored on opposite sides of the jetty and LNG transfer will be carried out using the unloading arms installed at both sides of the jetty
- Offshore facilities and regasification equipment installed on top of the platform
This comparison is based on a storage capacity of 150,000 m$^3$ and a send-out rate of 500 MMscfd.
Construction Approach:

Due to the challenges of working offshore, the construction strategy is based on:

- Minimizing work offshore at “site”
- Minimizing the construction period
- Designing for modularization
Construction Approach – an alternative:

The compact regas. concept (70 x 50m.) allows a more standardized and modular civil infrastructure approach to be taken, consistent with a fast-track schedule.

Cellular reinforced concrete caissons can be used, comprising a base slab and vertical walls.
Construction Approach – an alternative

The regas. unit is placed on the caisson and they can be transported together, with the caisson functioning similarly to a barge.

Once the caissons arrived at site, caissons are ballasted down with granular material to ensure stability against metocean actions and operation loads.
Conclusions

Foster Wheeler has developed a novel design for a fast-track LNG import terminal solution with attractive economics, with:

- Send-out capacity of 500 MMScf/d of natural gas
- Proven equipment
- Proven technology
- High availability
- Able to deal with a wide range of LNG compositions