On the Fringes of FLNG

Report on SUT Perth Branch Evening Technical Meeting
Wednesday 19th August 2015

By Chris Saunders, Perth Branch Committee Member.

August saw the SUT host another successful evening technical meeting at Parmelia Hilton. Presenters were invited to discuss the topic of "On the Fringes of FLNG" and the popularity of the subject was reflected in the "full house" audience and additional speaker slot for the evening.

The evening was opened by SUT Perth Branch Chair, Julie Morgan and chaired by SUT Committee Member Chris Saunders. The event was sponsored by Lloyds Register Energy and S2V Consulting.

With Australia exploring and developing a number of Floating Liquefied Natural Gas (FLNG) projects regionally, the evening was able to cover off a range of relevant disciplines which are critical to success of FLNG as a concept. Presenters were also able to draw on this extensive local experience to provide case studies which helped to reinforce the subjects covered.

Four technical presentations were delivered during the evening covering FLNG:

- "Technical and practical challenges of FLNG";
- "Can the SEA FLNG approach monetise small Australian stranded gas resources?";
- "FLNG riser design"
- "FLNG and the Cow"

All four presentations can be downloaded at http://www.sut.org/event/perth-evening-technical-meeting-4/?tribe_event_display=past&b=556

Jeff Baker of Lloyds Register Energy got the evening up and running with an introduction to FLNG concepts and in particular was able to present some of the challenges and solutions associated with the concept such as sloshing, cooling demands, mooring loads, dynamic offloading systems and the size of projects such as Shell Prelude. The presentation concluded by covering some of the LNG containment systems that are available, offloading system options and importantly the safety aspects of cryogenic fluids.

Next up, Francesco Piasentin of S2V Consulting presented alternative FLNG concepts being explored in the South East Asia (SEA) region. Australian LNG developments are typically perceived to require large reserves to support a business case, which in turn can imply complex projects with eye watering budgets and schedule risk. Francesco, shared concepts which might be viable for small scale and marginal gas fields in SEA which may allow operators to unlock small stranded gas resources in Australia. The benefits presented included reduced execution schedules, access to more fabrication yards and cheaper liquefaction costs – all driven by a smaller design FLNG vessel.

FLNG requires connection of the floating system to the subsea infrastructure including manifolds, trees and flowlines. Christian Weibe of Wood Group Kenny gave a specialists perspective of the FLNG design looking at the challenges of riser design. During the presentation Christian discussed issues such as riser design optimisation, riser design life requirements, water depths, system reliability, HP/HT fluids and metocean conditions. The over-riding message from Christian was that the FLNG riser design is not unique in anyone of the challenges, but it is the combined accumulative contribution of these issues in a single project that can create the challenge.

The final presentation of the evening was delivered by James Holbeach, also of Wood Group Kenny. James gave a novel presentation creating an analogy between the FLNG concept design and driving a car. James asked us – "Imagine you are hurtling along in a car doing 110km/h and there is a cow on the road ahead… Would you want that cow to be 800m away or 6m away when you see it? How fast will your brakes respond? Will your car respond automatically or does it require all driver inputs? Can you avoid the accident and if not what can you do to minimise the damage?". The serious challenge James asked was: how do you maintain steady operation on an FLNG system which is subject to unpredictable upsets upstream of the production plant? Unlike conventional LNG design, with large trunklines, the export pipelines can act as a buffer providing visibility and time to react to these "cows".

Each presentation was concluded with an active Q&A session which was a testimony to the quality and interest in each of the presentations.

The rest of the evening was concluded with food and drinks at the bar – where the technical conversations continued.