

## **Challenges in offshore engineering, people and technology in a changing world**

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The Energy business is facing new challenges in all areas today. Some examples are increased demands on safety and resilience in nuclear energy, initiatives to increase power production based on floating wind turbines and tidal turbines in renewable energy, enhanced recovery and marginal fields for oil and gas, the shale gas revolution and a demand for life extension of existing platforms. All of these improvements requires development of new technology and development of new techniques such as additive manufacturing (3d-printing), big data management and simulation driven design.

This has created a new challenge for companies providing codes and standards as well as providing classification, inspection and verification services. The rules of past are not always applicable to the technological advancements being made across the world and the pace of change makes it hard to change the rules or codes fast enough. The focus is now on peoples, skills and methodology to be able to provide a safe energy production and continued technical development. Computational based engineering, mostly FEA and CFD, is a key discipline and as we get more reliant on simulations, this are contains many research and development challenges.

The LR Global Technology Centre has opened in Singapore to provide a focal point for the energy industry and for research and development, leveraging on collaboration with Singaporean institutes and universities to provide industry related research. Examples of ongoing research in Singapore will be given as well as an overview of future projects relevant for the industry.

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