LNG projects and experience.

Klaipeda December 10th. 2014

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Company introduction
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Safe, reliable and efficient access to bunkering and burning LNG as a ship fuel
Rules and Regulations

Conventions
- IGC
- IGF
- MARPOL
- SOLAS

National and local authorities legislation

Detailed outlined rules on
- Construction
- Systems
- Operation
Risk

- Social and environmental impacts of accidents
- Social acceptance
- Design based contingencies

Source: Ola Joslin Stockhol m Port Authoritites , LNG in the port of Stockholm 2013
Iterative and adaptive learning process

- Technology
- Risk
- Capacities
- Budget
- Maintenance
- Performance

Idea

- Purpose
- Operation
- Rules and regulations

Design
LNG Vessel Design Considerations

Operations and Design

- Short sea or local distribution of LNG to end users
- General harbor bunkering
- Dedicated to special vessels
Capacities

- Market demand
- Tank sizes
- Time frames
- Close related to technology solutions
- Supply chain lead times

Source: Internett pictures of LNG technology
LNG Vessel Design Considerations

Performance

• Safety
• Reliability
• Vessel handling capabilities
• Closely related to technology solutions

Source: Ola Joslin Stockhol m Port Authoritites, LNG in the port of Stockholm 2013
Maintenance

- Vessel and technology lay-out
- Accessibility to system details
- Materials

Source: Ola Joslin Stockhol m Port Authoritites, LNG in the port of Stockholm 2013
The Seagas project

• Pilot project / prototype
• Conversion to the world`s first dedicated LNG bunker vessel
• Hull and engine/propulsion system kept
• Hull and engine/propulsion system kept
• Short turnaround in terminal
The Seagas project

From ferry to fuelling vessel

Car and passenger ferry Fjalir before conversion

LNGF Seagas the first dedicated LNG bunkering vessel in operation

Source: Ola Joslin Stockholm Port Authorities, LNG in the port of Stockholm 2013
The Seagas project

Prototyping

Rules and norms based on large scale LNG transport created challenges

- System lay-out
- Dimensioning
- Space limitations
The Seagas project

The Conversion

Numerous dimensions to the transformation process
- Comprehensive rebuilding
- Change of trade
- New classification
- Assembling of a lot of new equipment
- Old hull and limited space
- Gas zones and mandatory deck machinery
Multi Maritime and Fiskerstrand LNG project experience significantly reduced project risk, increased understanding as well as contributed to social acceptance and enhanced operational risk handling.
Technology chosen based on previous LNG project experience made the vessel a success.
The Seagas project

Performance

Spotless record of operation
• More than 500 bunkering operations
• No incidents
• No spillage
• No technical issues post delivery

Source: Ola Joslin Stockholm Port Authorities, LNG in the port of Stockholm 2013
LNG experience

In total 10 vessels

Safe, reliable and efficient access to bunkering
LNG experience
THANK YOU FOR YOUR ATTENTION!