

# Standard Modular LNG tank container concept

Gas supply system with LNG fuel tank containers



# Introduction & Project Scope

## Purpose of project:

- Development of standard modular – LNG ISO Tank container based – LNG fuel system (for Inland, Fishery and Short Sea, so-called “Small Scale LNG”)
- Reduction of costs, easiness of installation
- LNG Tank container also to be suitable for use as regular LNG transport to facilitate Lease concepts i.e. reduced Capex for Ship Owners



# Introduction & Project Scope

## Project deliverables

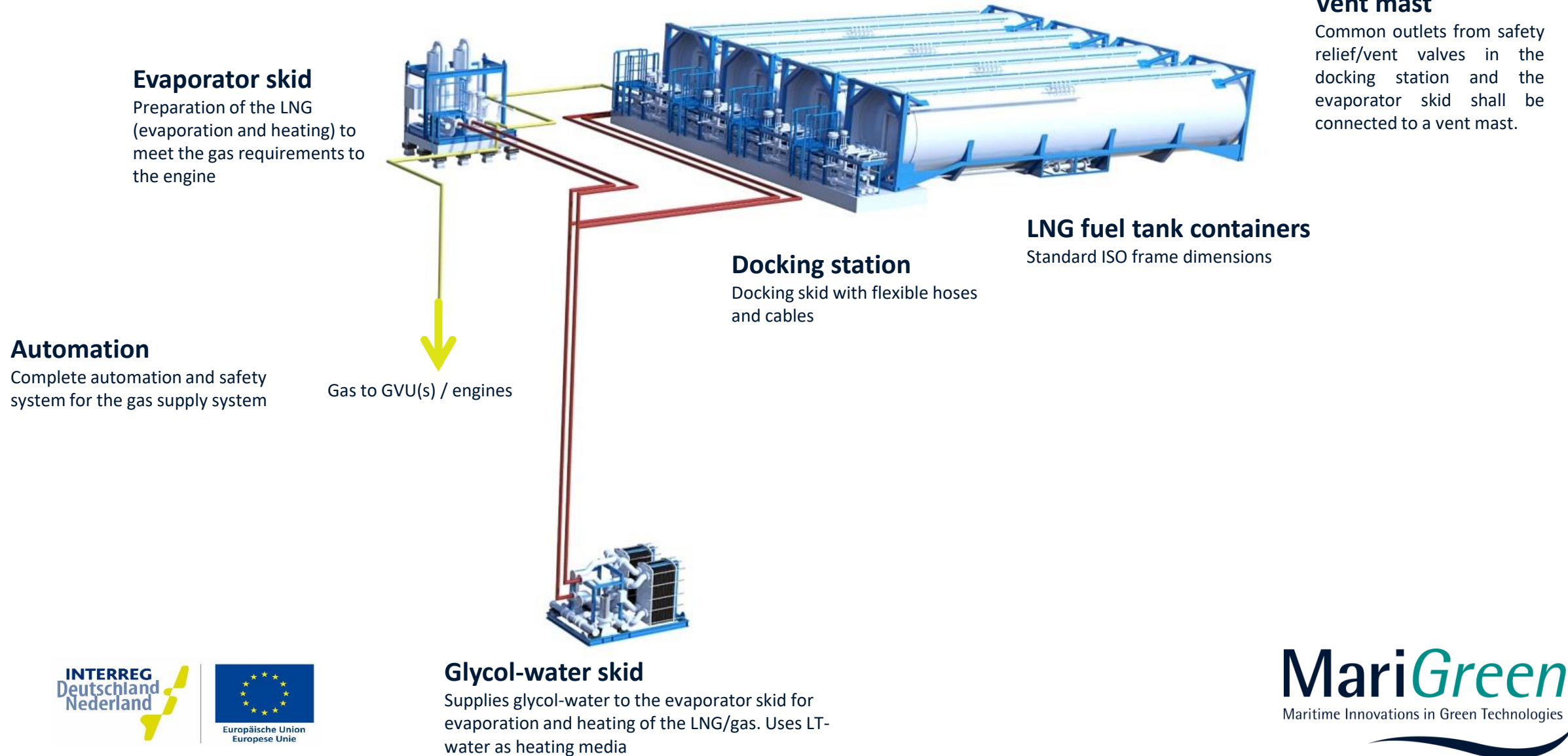
- Feasibility study of the LNG (Fuel/ transport) Tank container different modules and selection tool
- Construction of prototype LNG Tank Container & testing

## Optional

- System “Approval in principle” by Classification society.



# Standard modular LNG tank container concept



# Tank container comparison

	LNG fuel tank container	Standard ISO tank container
Standard ISO frame	✓	✓
Compliance with transportation regulations (IMDG, ADR, RID, CSC among others)	✓	✓
Compliance with rules for use as LNG fuel tank on board ships:		
IMO Type-C tank	✓	✗
Water spraying system (optional on ship)	✓	✗
Connection to external vent mast	✓	✗
LNG leakage detection and protection	✓	✗
Class approved equipment & design	✓	✗
Stainless steel outer shell	✓	✗
Dry disconnect quick couplings	✓	✗
Connections at end for connecting to ship	✓	✗
Connection to automation system on the ship	✓	✗
Connection to safety systems on the ship	✓	✗



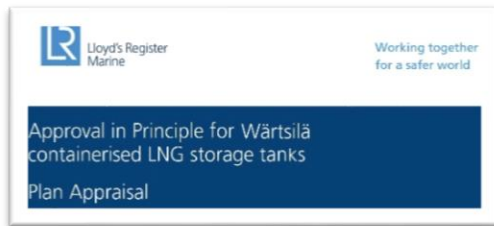
# LNG fuel tank container characteristics

LNG fuel tank container		20 ft	40 ft	45 ft
<b>Frame dimensions (external)</b>				
Length	m	6.058	12.192	13.716
Width	m	2.438	2.438	2.438
Height	m	2.591	2.591	2.896
<b>Tank</b>				
Geometrical volume (approx, room temp.)	m <sup>3</sup>	21.5	40	45
LNG volume (80 % effective volume)	m <sup>3</sup>	17	32	36
Tare weight (approx.)	kg	9 000	16 400	18 600
Max weight (approx.)	kg	15 200	34 000	34 000



# Current status

- Documents sent for approval to Lloyd's Shipping July 2018
- Heads + shells in Cryovat workshop
- Production of container launched
- First Lloyd's inspection coming up this month
- HAZID study on standard modular LNG tank container concept



# Thank you & questions



4 x 46 m3 Rederij Doeksen



37 m3



90 m3



370 m3