

CIMAC Circle Panel – SMM 2014



Hanne Hostrup Poulsen
Emission Reduction Technology
Marine Low Speed R&D
MAN Diesel & Turbo



[Disclaimer]



All data provided in this document is non-binding.

This data serves informational purposes only and is especially not guaranteed in any way. Depending on the subsequent specific individual projects, the relevant data may be subject to changes and will be assessed and determined individually for each project. This will depend on the particular characteristics of each individual project, especially specific site and operational conditions.

MDT-TWO Stroke engines



ME-C

Diesel Engine

Fuels: MDO, HFO

ME-C-GI

High Pressure Gas Injection

Fuels: Methane, Ethane....

ME-C-LGI

High Pressure LF fuel injection

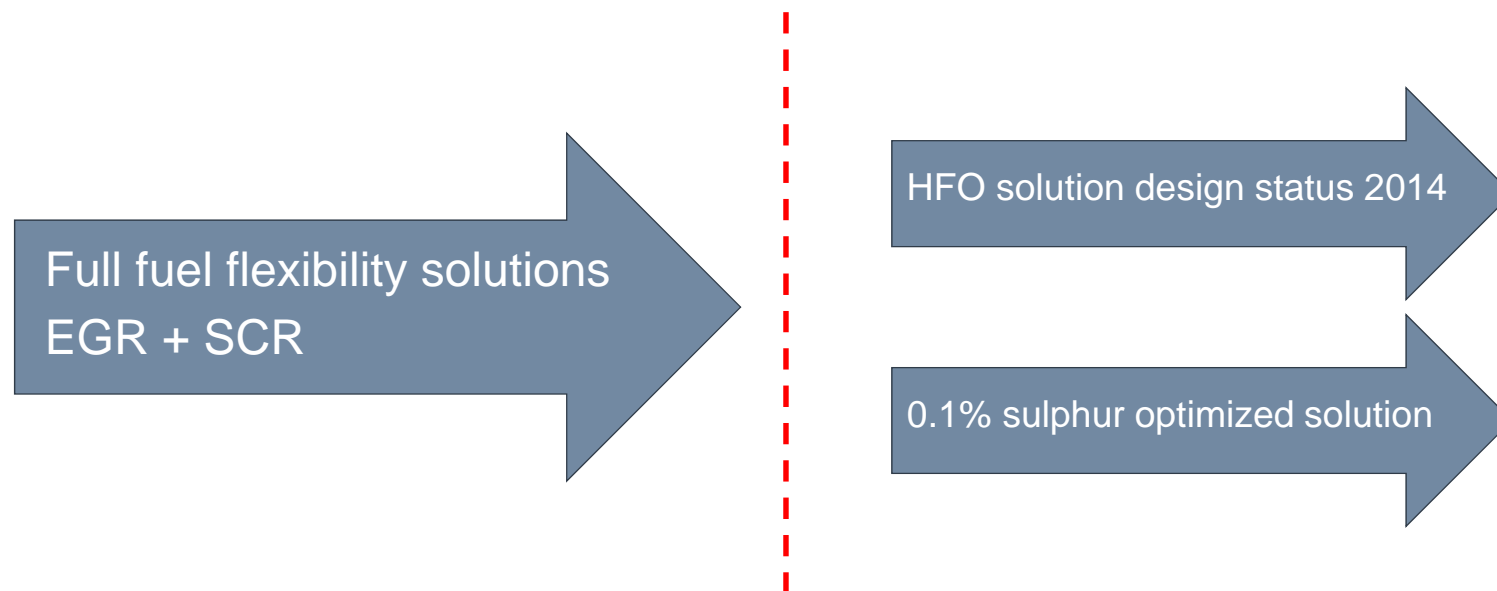
Fuels: Propane, Methanol

MDT Tier III Development



~2006 → 2014

2014 → ...



MEPC 66, London, April 2014

- All N-ECA's also S-ECA's
- No risk of retrofit demands in future N-ECA's
- Newest possible N-ECA: ~ 2017
- Ship owners expect SOx compliance by low S fuel

ME-GI with Tier III technology installed: fuel oil choice implications



Evaluation	HFO on a full fuel flexible Tier III application
Nox Tier III compliance:	
Gas mode	✓
Fuel oil mode	✓
SOx compliance	
Gas mode	✓
Fuel oil mode	✗
Future Tier II (HFO) SFOC reduction	✓*
Reduction potential:	
First cost	(✗)
Size/installation	(✗)

*: For SCR: limited potential due to urea prices

MDT EGR scrubber development for low sulphur fuel



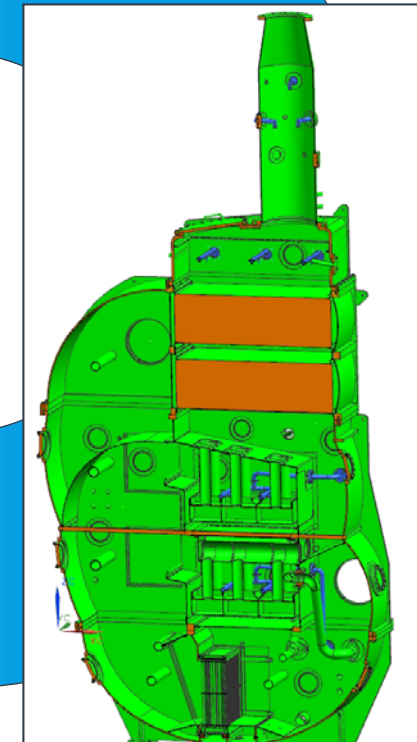
2004: DME-scrubber



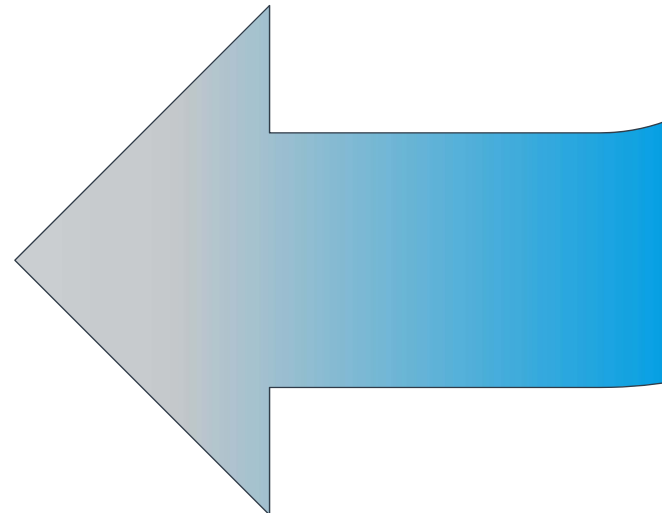
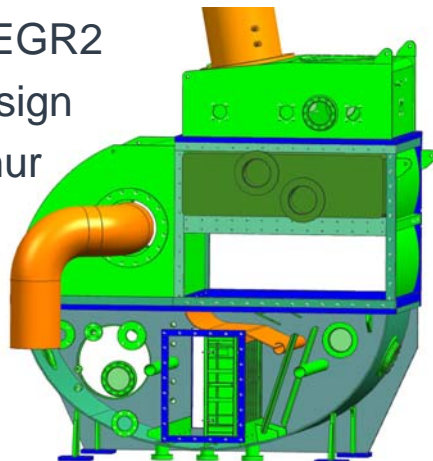
2005: MDT Scrubbing in compartments



2012: MDT EGR2 scrubber

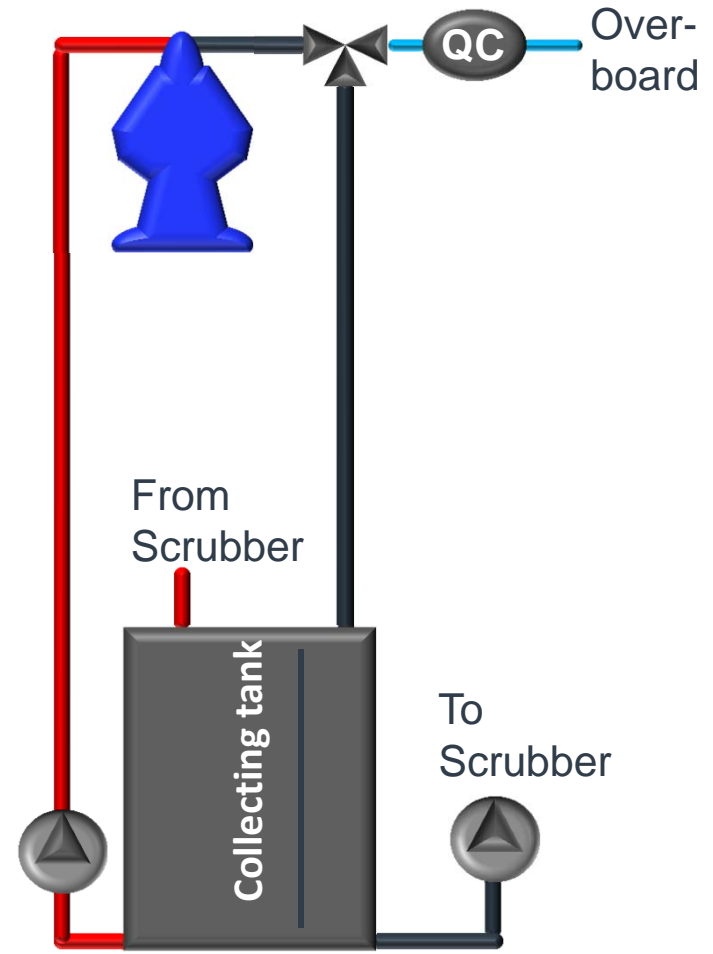
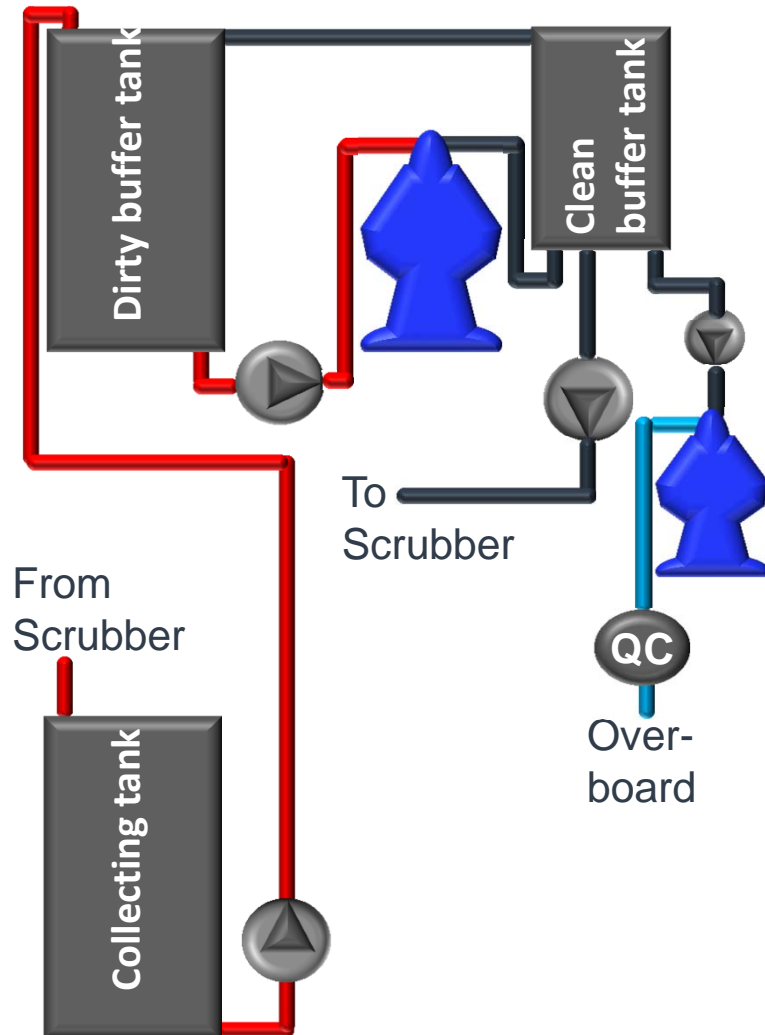


2014: MDT EGR2
Compact design
for low sulphur
fuel.





EGR Water Treatment System reduction (to be tested)



Thank You for Your Attention!



All data provided in this document is non-binding. This data serves informational purposes only and is especially not guaranteed in any way. Depending on the subsequent specific individual projects, the relevant data may be subject to changes and will be assessed and determined individually for each project. This will depend on the particular characteristics of each individual project, especially specific site and operational conditions.