

MAP: Climate Change

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Presentation documents:

Page 2: Ian Adams, Executive Director, Clean Shipping Alliance

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Part of
Maritime
Air Pollution
Webinar Week

26-29 May 2020

In association with



marine
propulsion
& auxiliary machinery

riviera |||

MAP: Climate Change

Ian Adams
Executive Director

Introduction

- Assessing our energy options
- Fuels that can achieve zero fossil fuel-sourced carbon emissions
- Bio fuels, hydrogen, ammonia

GHG @ IMO

- Technical/Operational measures
 - Energy Efficiency Design Index (EEDI)
 - Ships Energy Efficiency Management Plan (SEEMP)
 - Energy Efficiency Operational Indicator (EEOI)
- Market-based measures

United Nations Framework Convention on Climate Change (UNFCCC)

- Scientists and policy makers think we should manage the average global warming to no more than 2°C (preferably 1.5 °C)
- CO2 stabilisation target of no more than 450 ppm or is it 550ppm?
- Today's level is approximately 408 ppm CO2
- To stabilise emissions need to peak very soon and then decline
- The Paris Agreement was progress, and had implications for the maritime industry
- Current pledges to reduce emissions will not achieve the 2°C target, and 1.5°C more unlikely – shipping has recognised its responsibility



Alternative Fuels

- LNG
- Hydrogen
- Ammonia
- Biofuels
- Nuclear

Questions

- What fuels have a future?
- What will the shipping industry use as fuel in 2050?



www.cleanshippingalliance2020.org

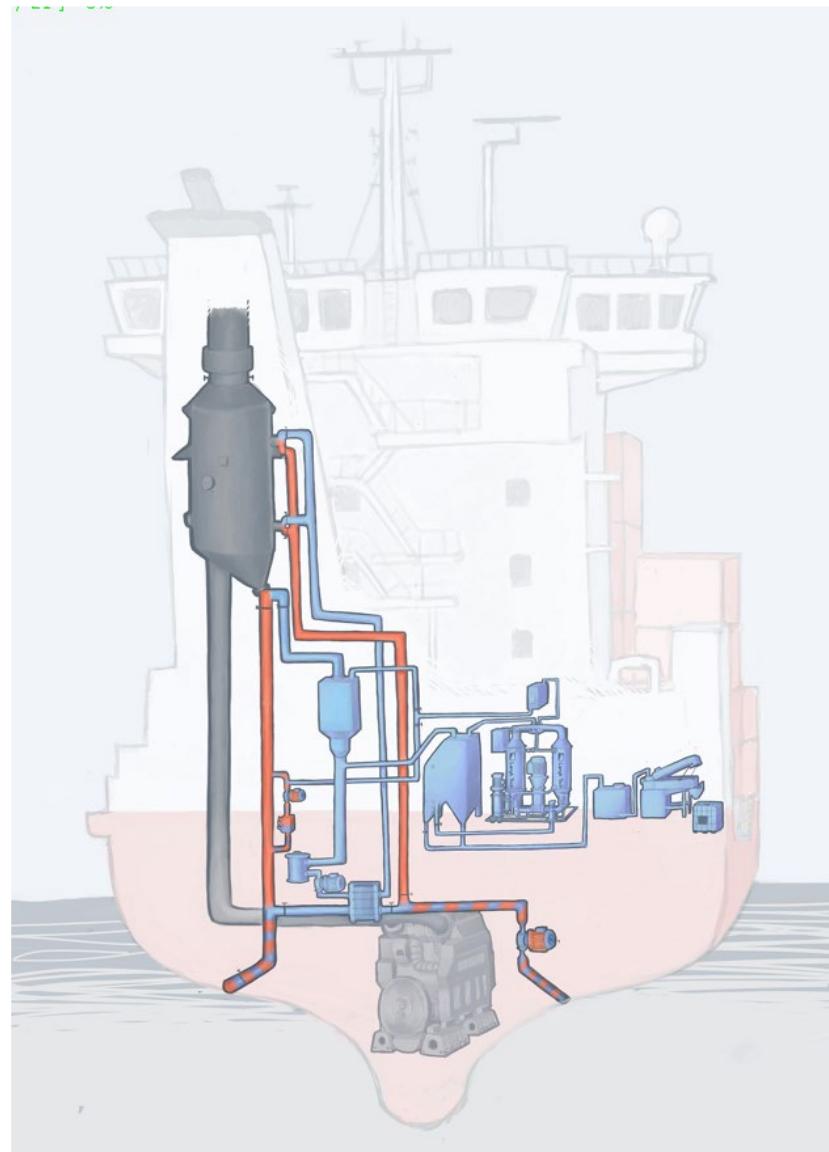
email your questions to us

ian.adams@cleanshippingalliance2020.org

Maritime Air Pollution Webinar

May 26TH 2020

Langh Tech
Mr. Eero Pajunen
Sales Manager





Langh companies



SOX SCRUBBERS AND WATER TREATMENT



Langh Tech Oy Ab designs and produces scrubbers for SOx removal from exhaust gases and water treatment units for closed loop scrubbers and other marine applications.



CLEANING SERVICES FOR SHIPS, BUILDINGS AND INDUSTRY



Industrial and Ship Cleaning Services Hans Langh has produced cleaning services for the shipping, building and manufacturing industries since 1973 continuously creating new and more efficient solutions to serve the clients.



SPECIAL CONTAINER SALES AND RENTAL



Langh Cargo Solutions sells and leases a wide selection of special containers for sea, road and rail transports.



A FINNISH SHIPPING COMPANY



Langh Ship Oy Ab is a ship owning company with five multipurpose cargo vessels.

FROM SHIP OWNER'S PERSPECTIVE:

- ❑ Current IMO regulations
- ❑ Local regulations
- ❑ Future IMO regulations and roadmap



EGCSA webinar 26-05-2020 Marine fuels which might reduce the CO2 footprint and why the diesel engine has for the moment no substitute.



Kjeld Aabo
Sales and Promotion Two stroke Marine
Member of WG ISO 8217 & Chairman CIMAC Fuels



MAN B&W 2-stroke Engines



Residual
ME/MC



Distillates
ME/MC



ULSFO
ME/MC



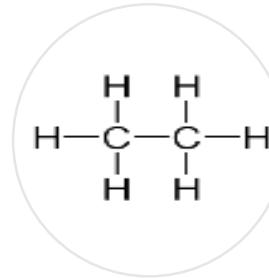
Methane
ME-GI/MEGA



Methanol
ME-LGIM



LPG
ME-LGIP



Ethane
ME-GIE

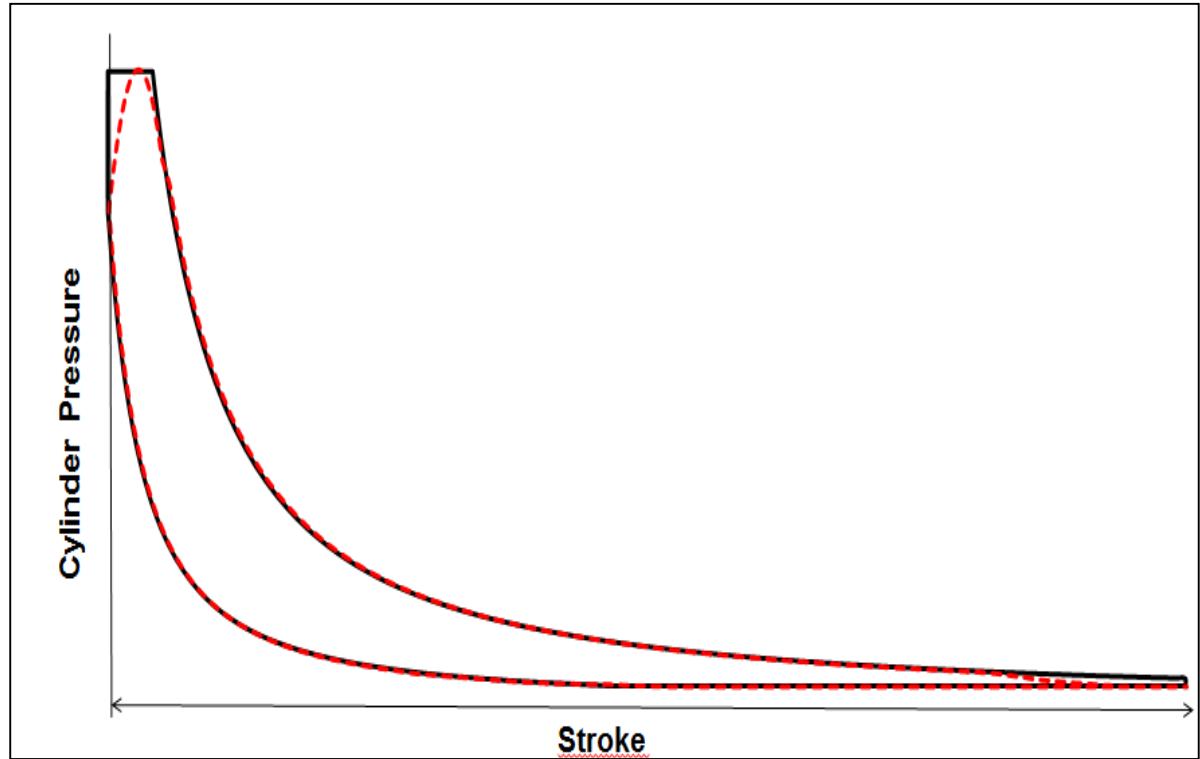
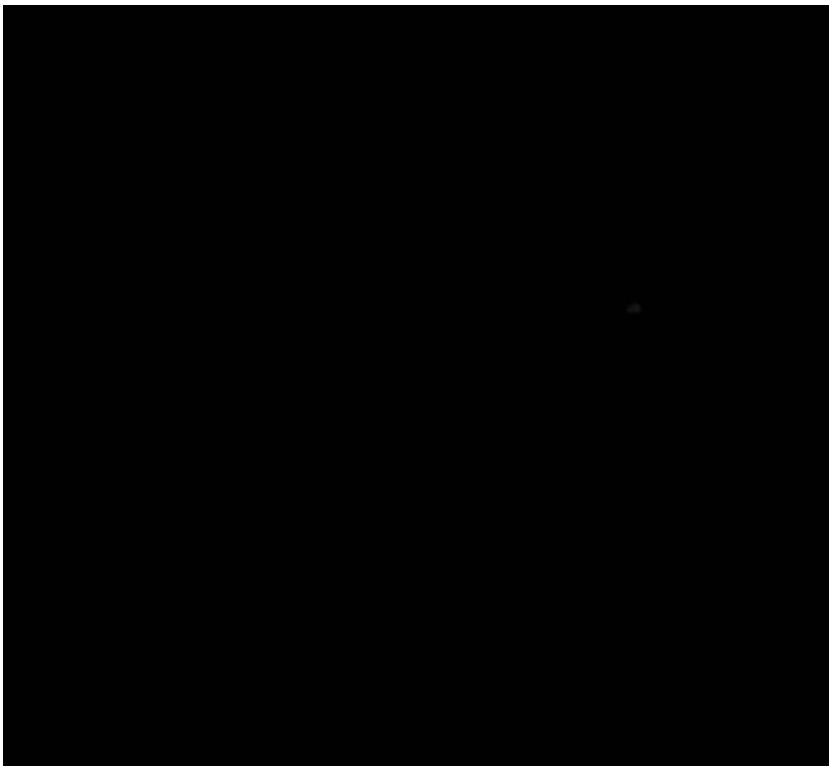


Biofuel
(2nd+3rd gen.)
ME/MC

MAN Energy Solutions **supports all**



Why is Internal combustion 2 stroke diesel engines also the choice for the future !



- Highest thermal efficiency
- Lowest unburned hydrocarbons
- Largest range of available fuel types
- Best controlled combustion under all dynamic and ambient conditions

MAN B&W Multifuel Engines

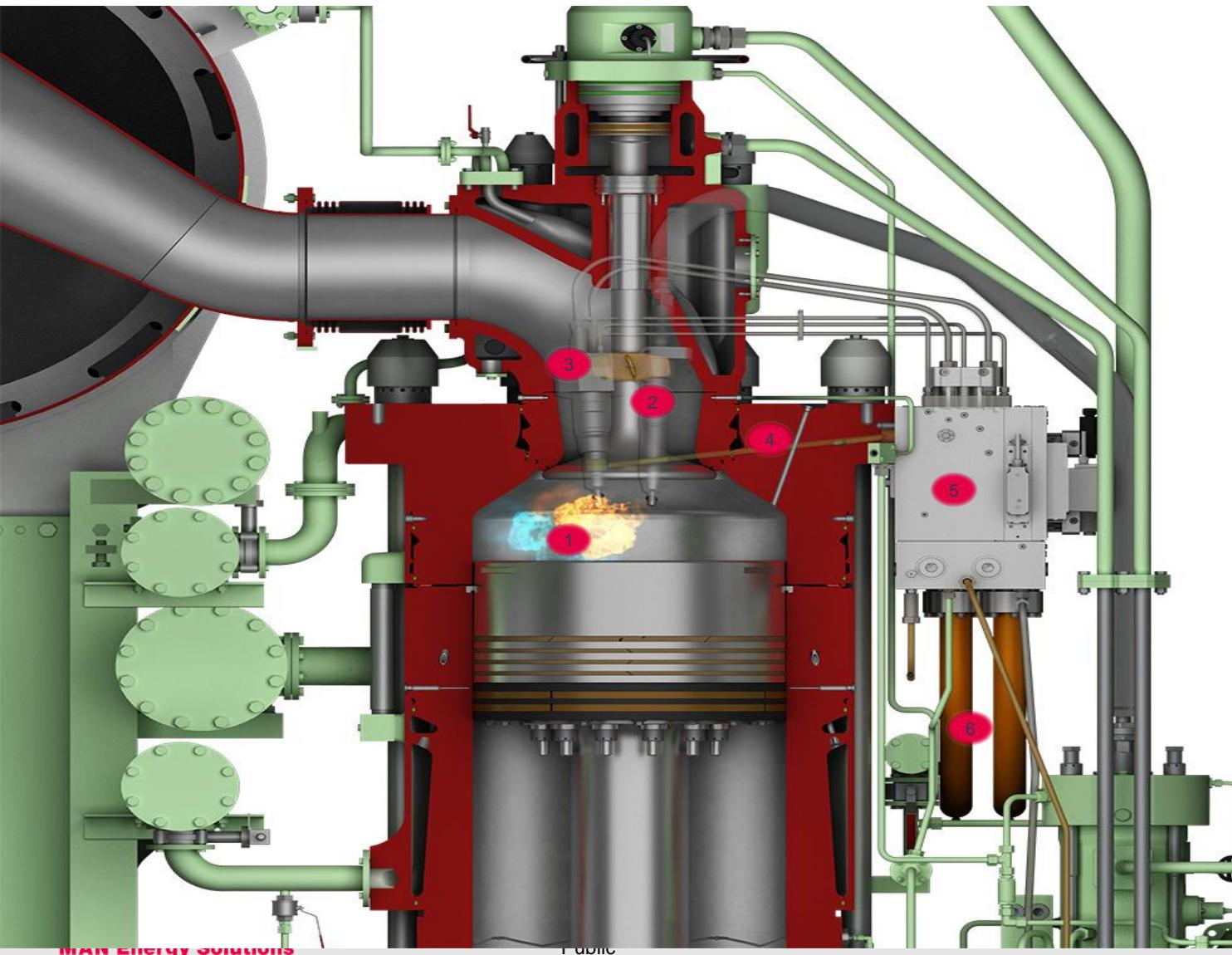
New fuels - emissions

| | NO _x | SO _x | PM | CO ₂ |
|----------|-----------------|-----------------|-----|-----------------|
| LNG | 20-30% | 90-99% | 90% | 24% |
| LPG | 10-15% | 90-100% | 90% | 13-18% |
| Methanol | 30-50% | 90-97% | 90% | 15% |
| Ethane | 30-50% | 90-97% | 90% | 15% |

- Compared with Tier II engines on HFO
- Based on estimates
- Tier III can be met with EGR, PIFIW or SCR

ME-GI Concept

Combustion Concept



- 1 Direct injection of pilot oil and gas
Yellow = pilot oil
Blue = gas
- 2 Conventional slide fuel valve
- 3 Gas fuel valve
- 4 Gas distribution channel
- 5 Gas block
- 6 Gas chain link double-walled pipes

Ammonia Development Project – Road Map

*Commercial application schedule is depending on order

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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.

Thank you very much!

Kjeld Aabo
Director New Technologies
Sales and Promotion Two stroke Marine
Member of WG ISO 8217 & Chairman CIMAC Fuels