



MAERSK

TAKING THE LEAD IN REDUCING DIESEL EMISSIONS



Technical Organisation

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TAKING THE LEAD IN REDUCING DIESEL EMISSIONS

Reduction of diesel emissions is trans-national and must be approached...

- holistically
- include all types of motorised vehicles
- the whole supply chain
- from an international view point



VOLUNTARY INITIATIVES:

Maersk Line Air Quality Initiative for California...

- since March 2006
- 0.2 % low sulphur gas oil on both auxiliary and main engines 24 nautical miles from ports in California
- projected annual reductions: 70 % PM, 90 % SO_x and 10% NO_x
- is an effective, economically sound, global and mobile solution

VOLUNTARY INITIATIVES

Why we prefer the Maersk option over shore side electricity...

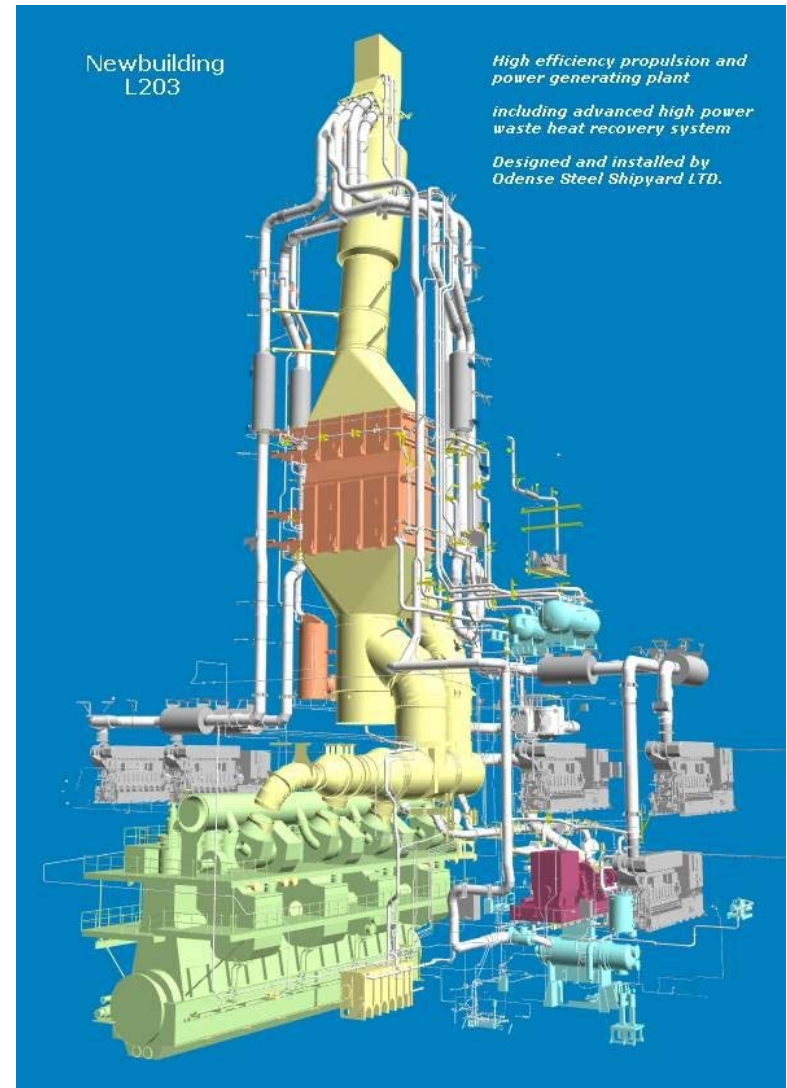
- Avoiding long implementation period
- Avoiding limited application
- Avoiding limited geographical reach

- Having same efficiency in terms of SOx reductions and PM

- Avoiding huge investments both ashore and onboard the ships

Waste Heat Recovery systems

- Recovering 10% of engine output
- Reduction of all emissions by 10%
- Total plant efficiency of 55%
- The most efficient machine existing converting fossil fuel to mechanical energy



VOLUNTARY INITIATIVES

- waste Heat Recovery Systems
- common rail technology for two stroke main engines and four stroke auxiliary engines
- cylinder lubrication system
- optimise engines
- optimise vessel planning

VOLUNTARY INITIATIVES – IN THE FUTURE

- particle matter filter for ships
- catalytic reduction systems
- water injections
- data logger to optimise fuel consumption
- energy saving activities in general
- On the look for new technologies

GUIDING PRINCIPLES FOR OUR WORK HENCEFORWARD

- good decisions are data based
- global solutions are imperative for the shipping industry
- the best environmental solutions are achieved through energy efficiency improvements, efficient terminal design and mobile solutions

THANK YOU FOR YOUR ATTENTION

