

# SCR system for two-stroke marine diesel engines

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**Hitachi Zosen Corporation**



## ***1. Company Outline***

## ***2. New Product ~Hitz Green SCR~***

## ***3. Update of Hitz Green SCR***



# 1. Company Outline



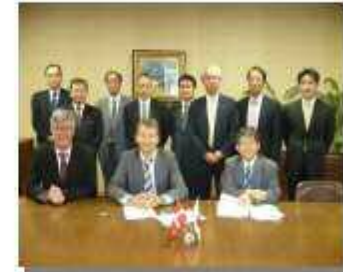
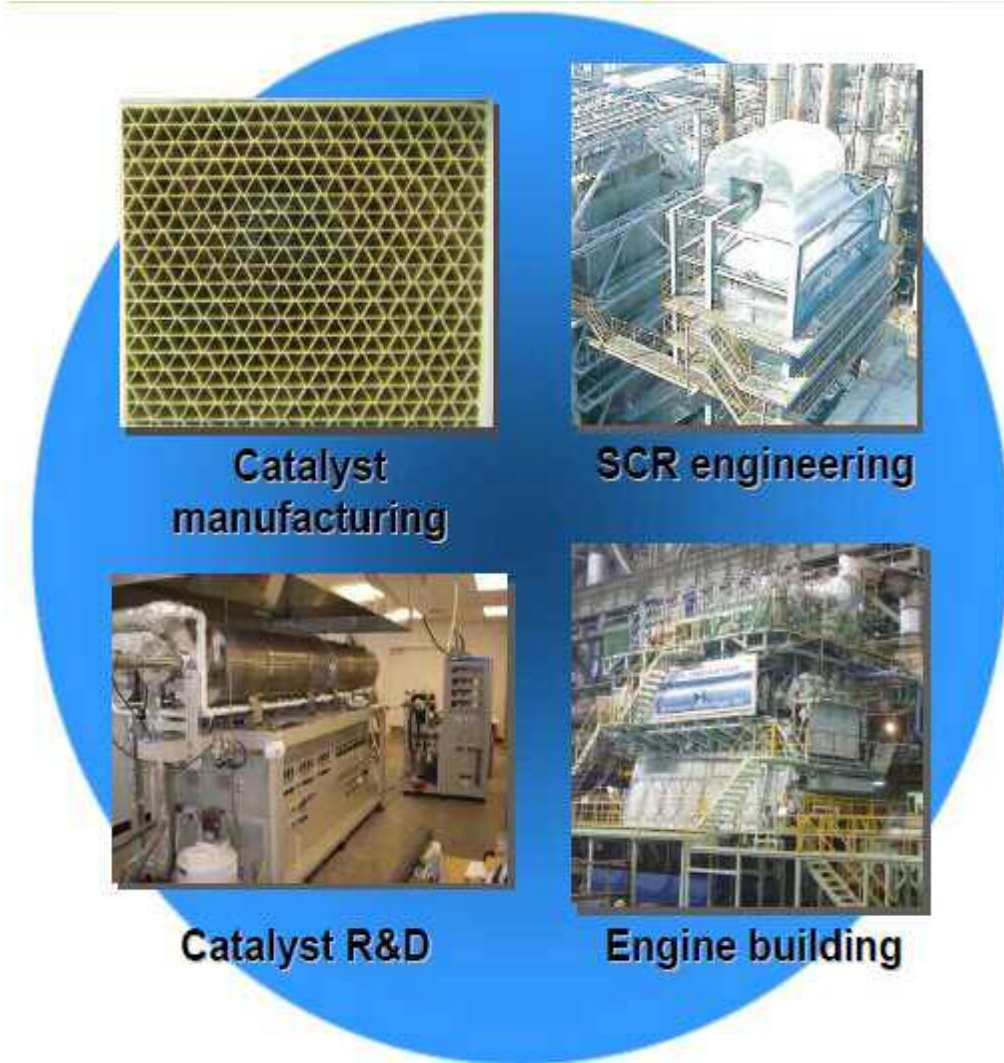
- **Date of founding**                      **April 1, 1881 (134 years)**
- **Headquarter**                              **Osaka, Japan**
- **Number of employees**              **9,039**
- **Main business**                              **Environmental system**  
**Marine diesel engine**

## ***2. New Product***

### ***~Hitz Green SCR~***



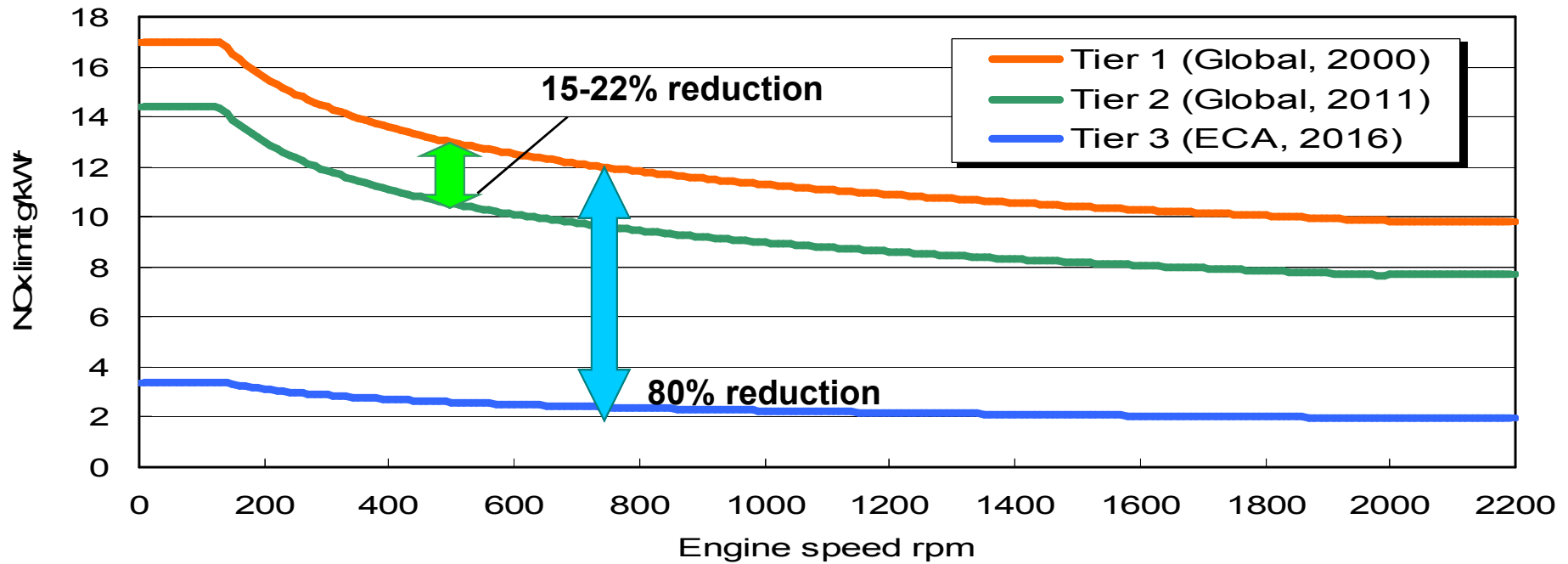
# Hitz + MAN = Total solution for marine SCR system



**MAN Diesel & Turbo**  
(best design for SCR-engines)

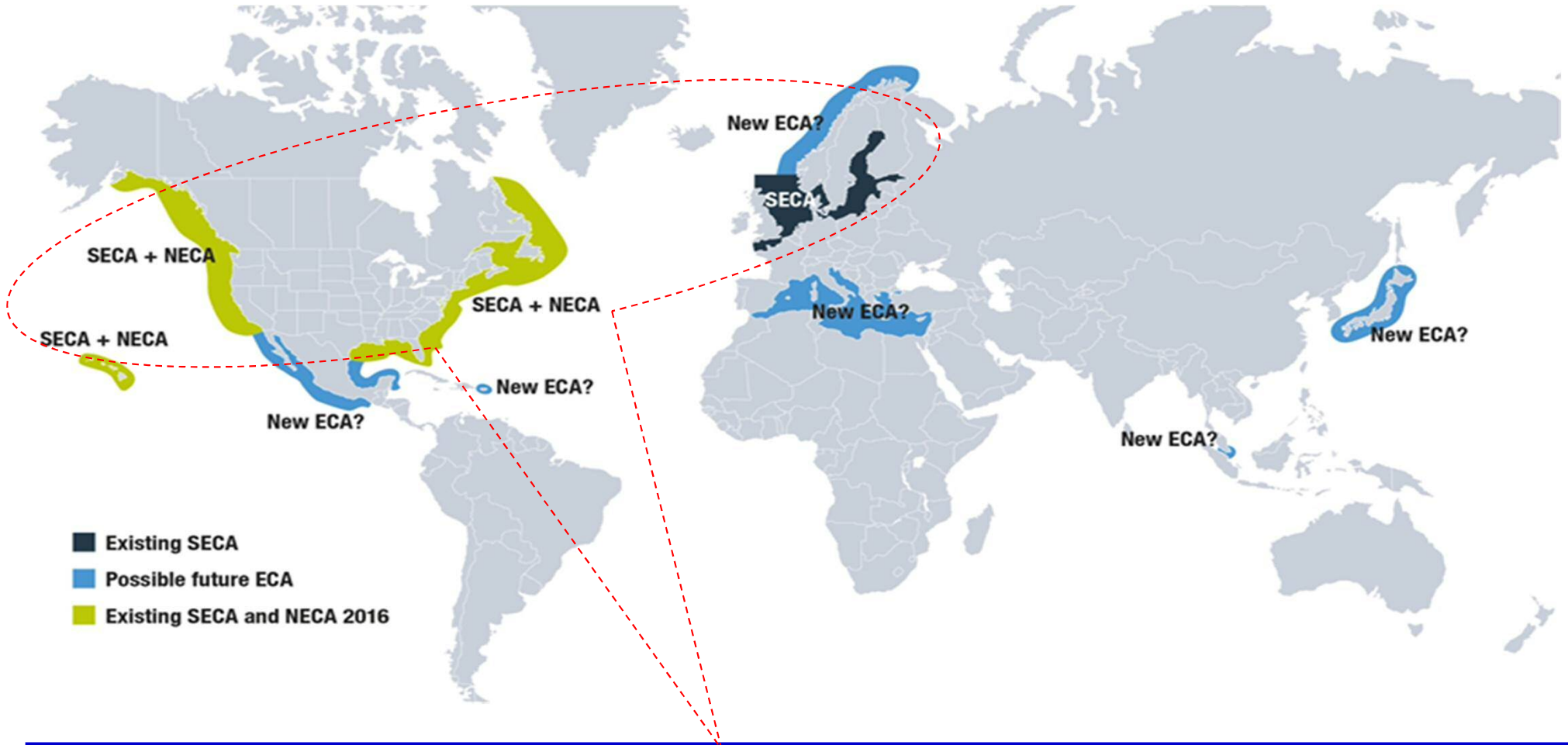
Development Agreement in 2009

## NOx limit - MARPOL Annex VI, Reg 13



- Tier 1: low-Nox atomizer, fuel injection retard,,,
- Tier 2: Miller cycle,,,
- Tier 3: **SCR·EGR·Water in cylinder *etc***

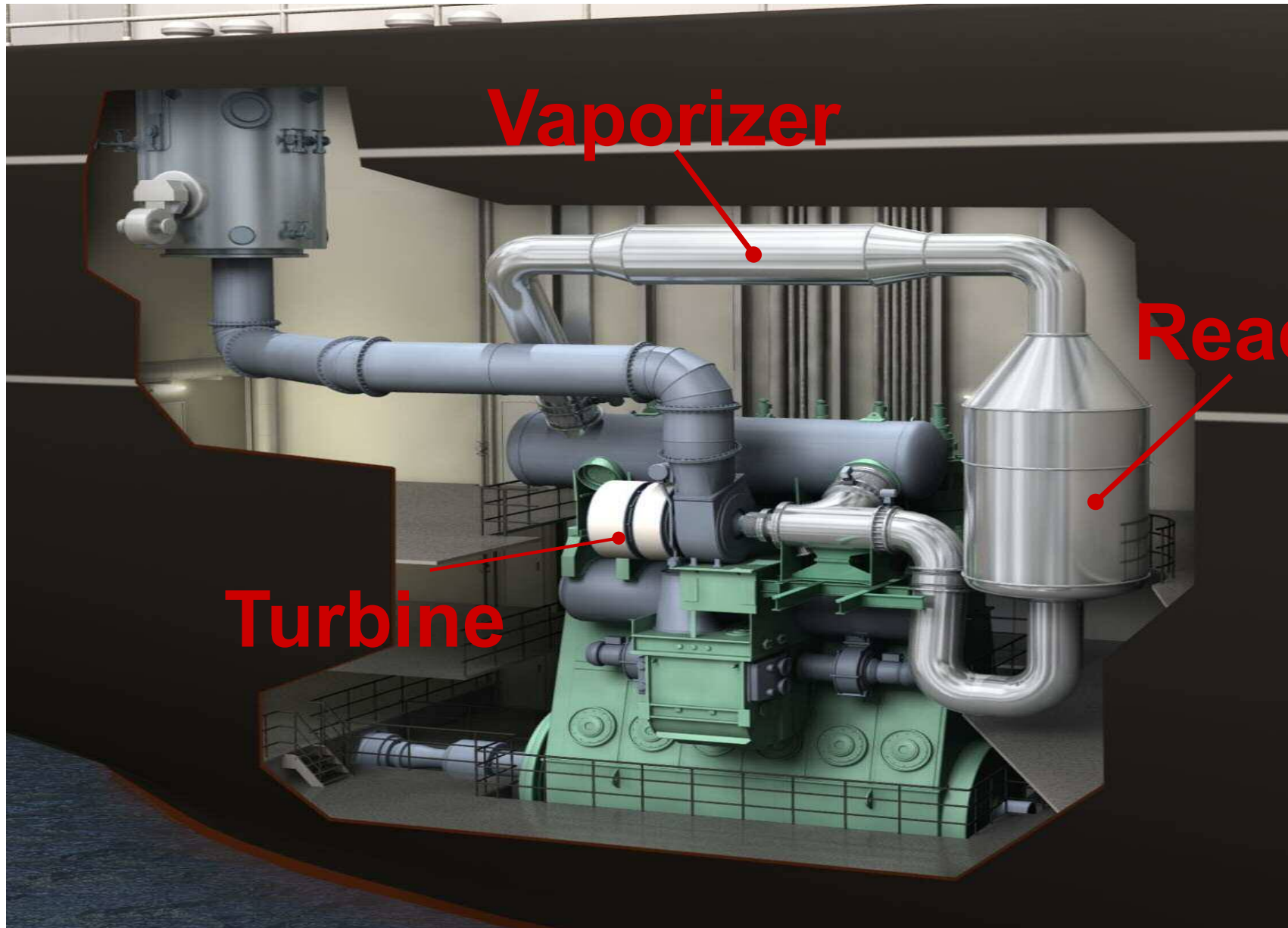
# Emission Control Areas (ECAs)



*Nox ECA : North America and United states Caribbean Sea*  
*Future Nox ECA : Baltic sea and North sea*



# Hitz High Pressure SCR



**Turbine**

**Vaporizer**

**Reactor**

## ***3. Update of Hitz Green SCR***

MAN Diesel & Turbo



## *Certificate of Approval*

This is to certify that

**Hitachi Zosen Corporation**  
7-89, Nankokita, 1-chome, Suminoe-ku, Osaka, 559-8559, Japan

is approved by MAN Diesel & Turbo for the manufacture and supply of:

**High Pressure Selective Catalytic Reduction  
(SCR) Systems for IMO NOx Tier III**

Under the control of and quality management by:

**Hitachi Zosen Corporation**  
1, Ariake, Nagasu-Machi, Tamana-Gun, Kumamoto, 869-0113, Japan

for MAN Diesel & Turbo two-stroke diesel engines in accordance with the Terms and Conditions stated in the agreement between Hitachi Zosen Corporation and MAN Diesel & Turbo.

issued on 2014-10-09

expires on 2019-10-09

Certificate no.: 2700-2014-419.0

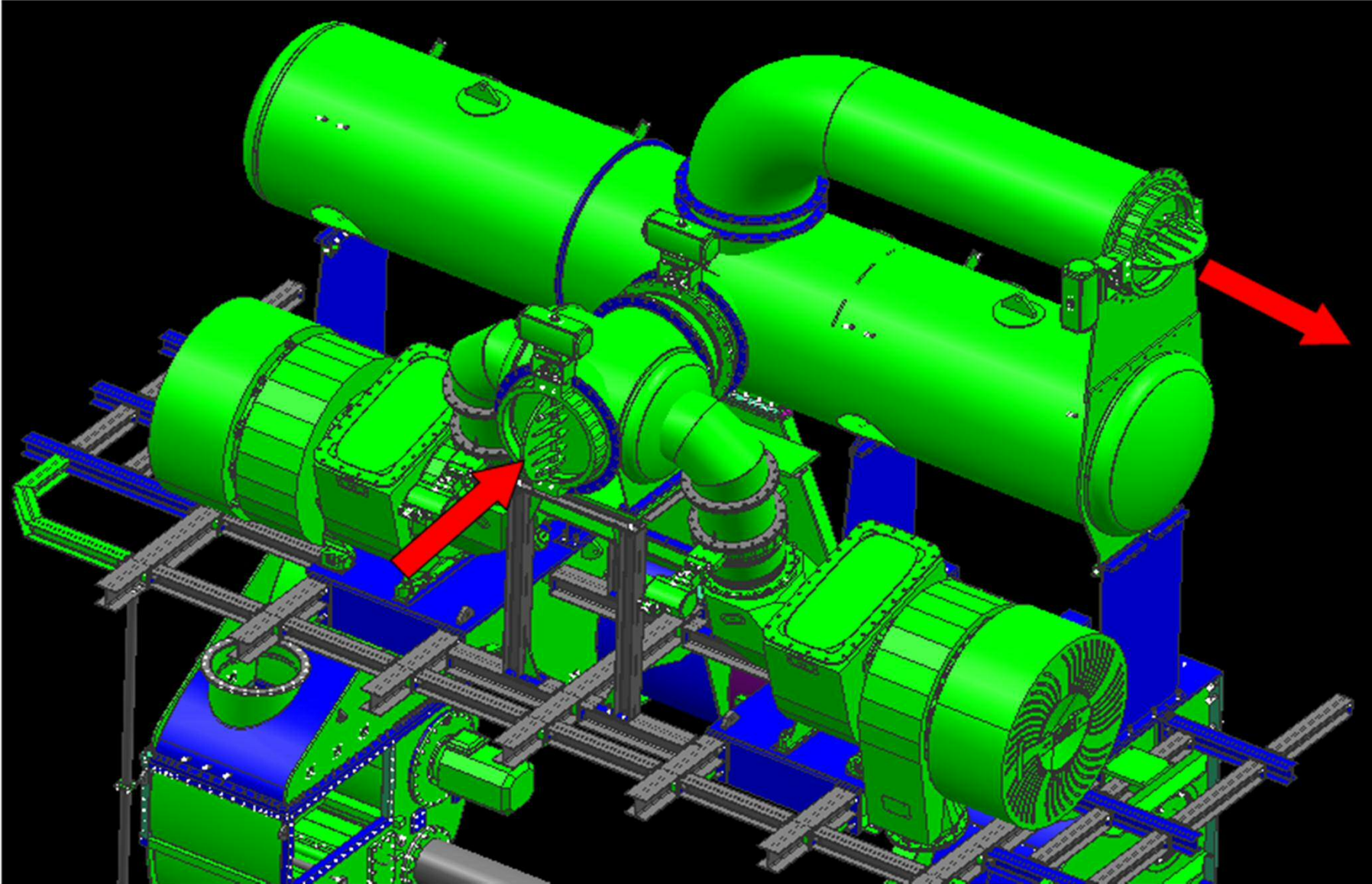
MAN Diesel & Turbo

  
Kenneth Tolberg

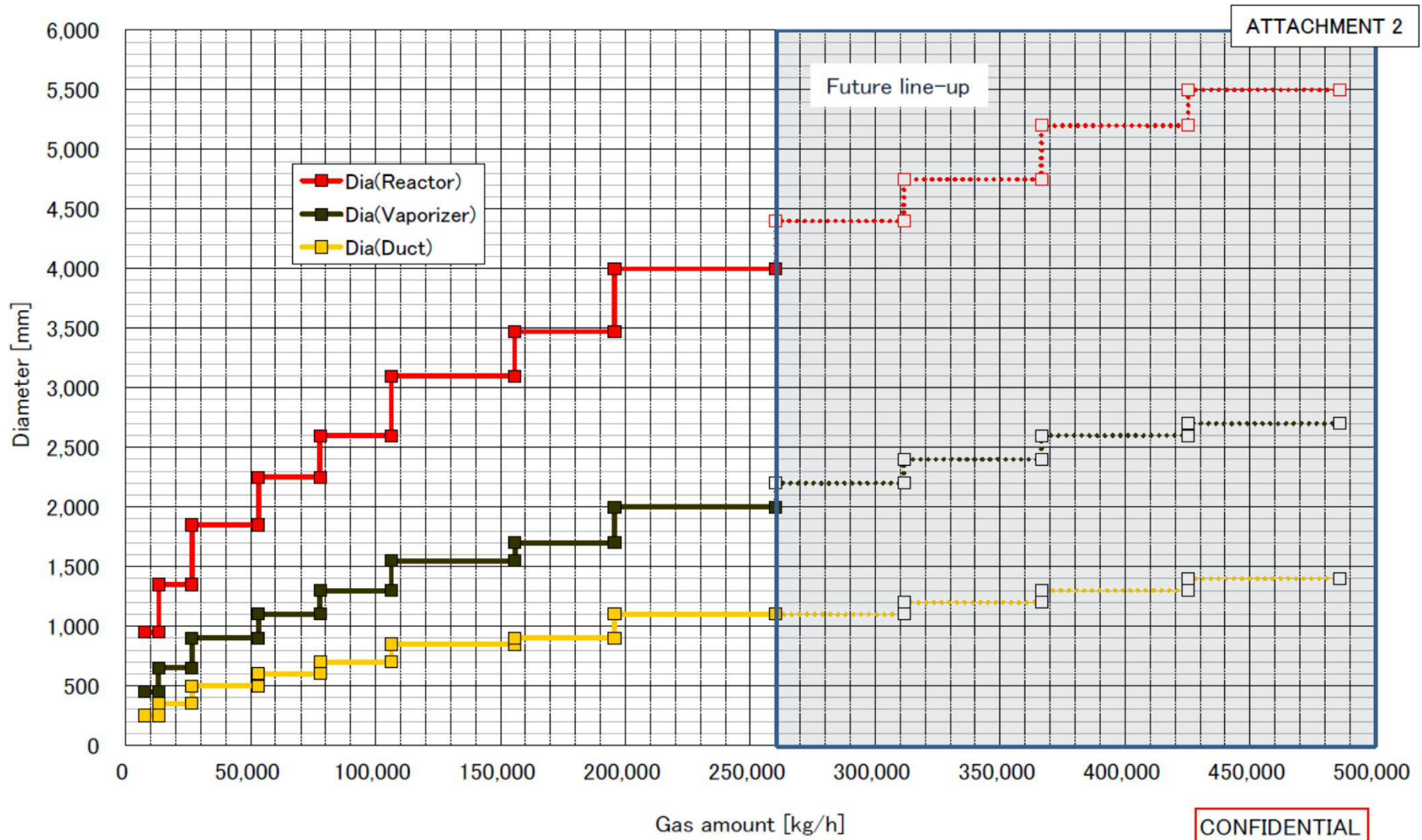
  
Niels Kjemtrup

**2014 Oct. Approved.**

# Duct Arrangement for SCR for Multi-TC Engine



# SCR Line up



CONFIDENTIAL



**Thank you for your attention!**

SANTA VISTA  
PANAMA

2011/10/16