CEDA Working Group on Energy Efficiency

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CEDA WGEE - Introduction

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CEDA WGEE – Introduction

Drivers of Energy Efficiency
• Cost of Fuel
• Fuel related Emissions

Timeline

Drivers of Energy Efficiency
Greenhouse Gasses
Air Pollution
Cost of Fuel
CEDA WGEE – Legislation

International Maritime Organization - International Shipping

- **Fuel Efficiency**
  Ship Energy Efficiency Management Plan (SEEMP),
  Energy Efficiency Design Index (EEDI), Data Collection System (DCS)

- **Air Pollution**
  NOx, SOx & Particle Matter (PM)

- **Greenhouse Gasses**
  Global shipping shall reduce its GHG emissions:
  at least 50 percent by 2050 compared with 2008
CEDA WGEE – Legislation

Paris Agreement

1st Route

IMO

International Shipping

2nd Route

Nation

Flagstate

Capital & Maintenance Dredging Projects

Operation & Mobilization Dredging Vessels
CEDA WGEE – Legislation

PAR S AGREEMENT

1st Route

IMO

International Shipping

2nd Route

Nation

3rd Route

Flagstate

Capital & Maintenance Dredging Projects

Operation & Mobilization Dredging Vessels
CEDA WGEE – Benchmarks

Some Numbers from a Global Perspective

CO₂ Emissions in Absolute Numbers:
The World Dredging Fleet was estimated to have produced:
6.3 Mton of CO₂ in 2008 (= IMO ‘reference year’).
The emissions of the European Dredging Industry (EuDA members) was:
3.6 Mton of CO₂ in 2008.

CO₂ Emissions in Relative Numbers:
The emissions of the World Dredging Fleet is:
ca. 0.6% of the total CO₂ emissions of Global Shipping.
The emissions of Global Shipping is:
ca. 2% of the Global Total of CO₂ emissions.
CEDA WGEE – Benchmarks

Some Numbers from an Equipment Perspective

Environmental Impact of Dredging Equipment
Life Cycle Analysis of Dredging Equipment shows:
The Environmental Impact of Dredging Equipment is Dominated by the use of Fossil Fuels and the Fuel Related Emissions.

CO₂ footprint Fleet Owners
The CO₂ footprint of a Fleet Owner in the Transport Industry:
is generally Dominated by Fuel used by the Fleet.
This holds for Transport by Ship, Truck and Airplane alike.
Energy Efficiency of Dredging Projects

Each dredging project has its unique set of amongst others soil & rock conditions, volumes, transport distances and water depths. Moreover projects are often located close to – or in the confined space of busy port areas. Giving all these factors’ impact on energy consumption and given recent and upcoming developments in legislation, it is a challenge to define and evaluate the Energy Efficiency of a Project.
CEDA WGEE – Dredging Equipment

Technology Development

- Hull Design & Propulsion
  *Hydrodynamic optimization*
- Pump Design
  *Efficiency, Suction Performance & Passage*
- Efficient Excavation Tools
  *Enabling high density mixtures*
- Efficient Drive Trains
  *Energy Management Systems*
- Automation & Control
  *Smart Use of Information*
- Alternative Fuel Sources
  *See next slide*
CEDA WGEE – Dredging Equipment

Energy Transition – Fuels in Shipping

Source: Meyer Group
CEDA WGEE – Information Paper

‘Structured Information on Energy Efficiency in Dredging’

Introduction

1. Definitions & Terminology
2. Dredging Projects
   Scope, Procurement & Execution
3. Dredging Equipment
   Development of Technology & Alternative Fuels
4. Policies & Legislation

Annexes
List of References
Case Studies