PORT OF KIEL.
GREEN PORT.

3 September 2015
Knud Sörensen, Director Marketing & Sales
KIEL-FJORD & HARBOUR

- baltic deep-water port
- short distance from open sea
- no tidal range
- weather protection from the near coast line
- entrance to the Kiel-Canal

- 1,500 jobs in the commercial harbour
- ferry & RoRo-service to/from Scandinavia, Baltic States and Russia
- turnaround port for cruise ships in summer
PORT OF KIEL TERMINAL AREAS

CANAL PORTS
AIRPORT
SCHWEDEKAI
NORWEGENKAI
OSTSEEKAI
OSTUFERHAFEN
<table>
<thead>
<tr>
<th>EMISSION TYPE</th>
<th>IMPACT</th>
<th>EFFECT</th>
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</thead>
<tbody>
<tr>
<td>NO\textsubscript{x}</td>
<td>Nitrogenoxide</td>
<td>– local</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– regional</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– global</td>
</tr>
<tr>
<td>SO\textsubscript{2}</td>
<td>Sulphur Dioxide</td>
<td>– local</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– regional</td>
</tr>
<tr>
<td>PM\textsubscript{2.5/10}</td>
<td>Soot Particles</td>
<td>– local</td>
</tr>
<tr>
<td>CO\textsubscript{2}</td>
<td>Carbon Dioxide</td>
<td>– global</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>
"Color Magic" (route Kiel – Oslo) was fitted with open loop scrubbers in January 2015.
Color Line ferries are fitted with Wärtsilä open loop scrubbers.
DFDS OPTED FOR SCRUBBERS

„Victoria Seaways“ trading on the Kiel – Klaipeda route.

A seawater scrubber was installed already in autumn 2014.
METHANOL – FUEL OF THE FUTURE?

“Stena Germanica“ was converted to run on Methanol in February 2015.
Dan Sten Olsson (left) is showing a Methanol-molecule to the press on the occasion of the first call of "Stena Germanica" running on Methanol (27 March 2015).
METHANOL CONVERSION

Ballast tank converted to methanol fuel tank

Double walled High pressure fuel pipes

High pressure pump room

Transfer pump room
EMISSIONS FROM DIFFERENT FUELS

HFO (2.3 %) | HFO (1.0 %) | MGO (0.1 %) | LNG | Methanol (NG) | Methanol (Bio)
---|---|---|---|---|---
**CO2** | **SOx** | **NOx** | **PM**

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The State Capital City of Kiel has been member of the International Alliance for Climate Protection since 2004.

By joining the Alliance, Kiel voluntarily commits to reducing CO₂ emissions.

In 2000, the CO₂ emissions of Kiel’s energy systems amounted to 1.5 million tons.

The State Capital City of Kiel supports shore power connections for ferries and cruise ships.
SHORE POWER CONNECTION IN KIEL
REQUIREMENTS FOR HVSC AT NORWEGENKAI

- Grid connection from station to terminal
- Shore-side substation at Norwegenkai
- Shore to Color Line-ship connection
Grid connection: 2.800 m (thereof 1.100 m new cable); design load: 5.2 MVA; from main substation Konrad-Adenauer-Damm (KAD) to Norwegenkai

Shore-side substation with MV switchgear and shore-side control

Ship connection Color Line

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**FERRY TERMINAL SCHWEDENKAI**

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td>Max. Tiefgang/Maximum draft</td>
<td>9 m</td>
</tr>
<tr>
<td>Kailänge/Length of quayside</td>
<td>720 m</td>
</tr>
<tr>
<td>RoRo-Anleger/RoRo-berths</td>
<td>2</td>
</tr>
<tr>
<td>Gesamtfläche/Total area</td>
<td>64,000 m²</td>
</tr>
<tr>
<td>1 RTG-Kran/1 RTG crane</td>
<td>bis 40 t Traglast/</td>
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<td></td>
<td>up to 40 tons capacity</td>
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THANK YOU FOR YOUR ATTENTION

Knud Sörensen
Director Marketing & Sales