GREEN PORT CRUISE

Barcelona, 14th October, 2014

becker marine systems

AIDA

Sustainable Growth

- **10 Vessels**
  most modern fleet in the world
- **Success**
  one of the fastest growing and successful travel companies in Germany
- **Future**
  two new vessels until 2016

AIDAcara
1996

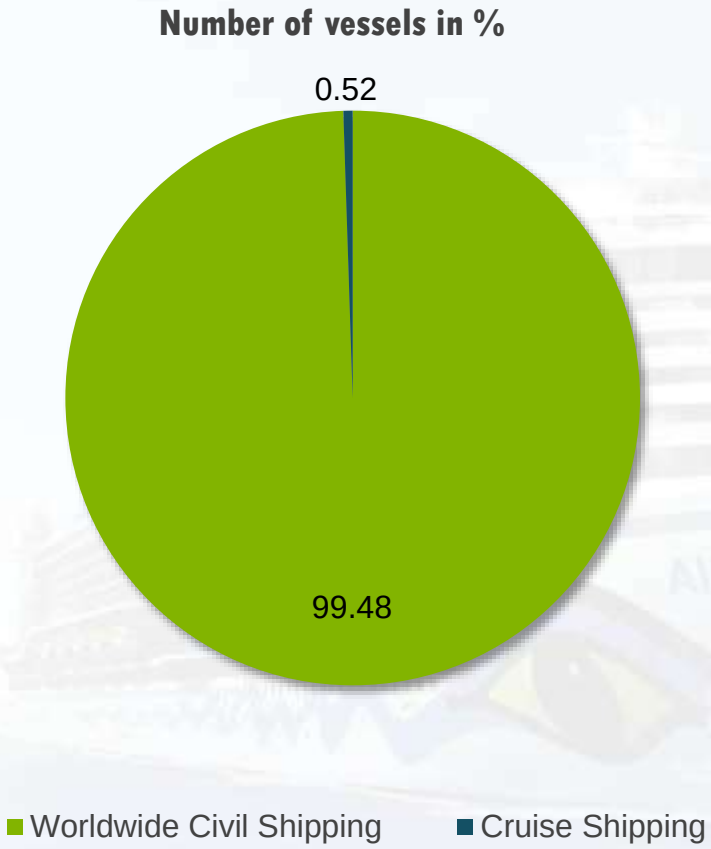
AIDAvita/aura
2002–2003

AIDAdiva/bella/luna
2007–2009

AIDAblu/sol/mar/stella
2010–2013

AIDAprima/…
2015–2016

Worldwide Civil Shipping



- Cruise ships (513 vessels) only equal 0,52% of the civil shipping fleet worldwide (about 99.000 vessels).
- AIDA Cruises: ~0,02% of the entire worldwide civil shipping

Source: Data NABU

Our philosophy

- For AIDA Cruises, acting sustainably is acting responsibly.
- We manage resources carefully and protect the environment, promote cultural and biological diversity and are committed to helping people on board and ashore.
- We are convinced that a sustainable business model is fundamental in allowing us to continue being a successful cruise operator in tomorrow's world.

Our sustainability strategy

- Commitment to preserve the environment and to maintain biological diversity
- Investment in energy efficient technologies
- Close collaboration with science and research partners
- Preserve use of resources and, wherever possible, recycling in technological and biological processes
- “cradle to cradle” approach to procurement and purchasing and wherever possible use of environmental friendly and recyclable products

- We take on social responsibility
- We believe in responsible growth: Protecting the environment and social responsibility are indispensable to future business success.

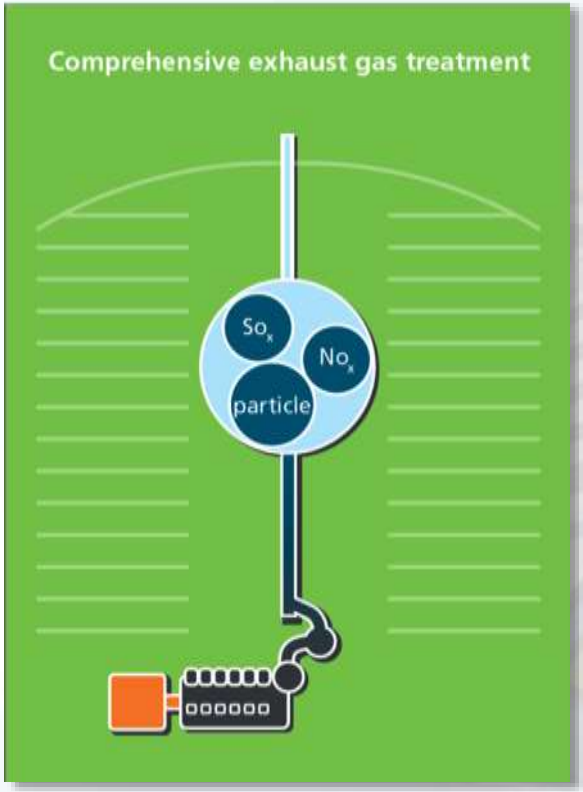
Technology:
We have the 3-Liter-Ship

Application of sustainable technologies

- Energy efficiency: Mitsubishi Air Lubrication System (MALS)
- Reduction of air pollution: exhaust gas treatment, shoreside power, LNG Hybrid barge, dual fuel engines
- Protection of biodiversity: ballast water treatment
- Reduction of water pollution: advanced wastewater treatment

- Dual-fuel engine
- Plug-in for shoreside power
- LNG connection for port operation

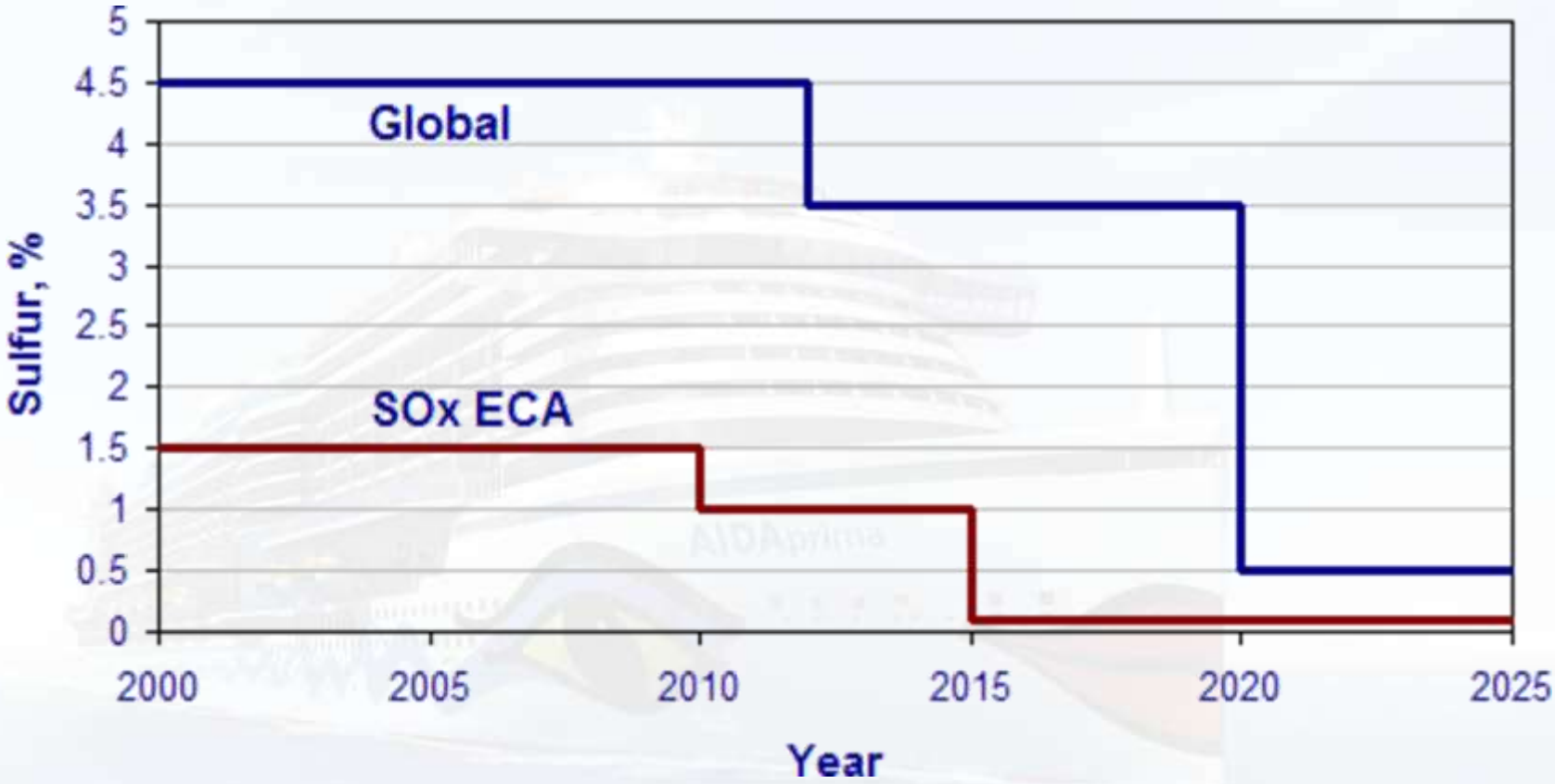
Comprehensive exhaust gas treatment system



- Reduction of emissions:
  - NOx red. > 95%
  - SOx red. > 99%
  - PM red. > 90%
- PLUS
  - CO red. > 70%
  - Unburnt hydrocarbon red. > 85 %

Installation first stage – scrubber

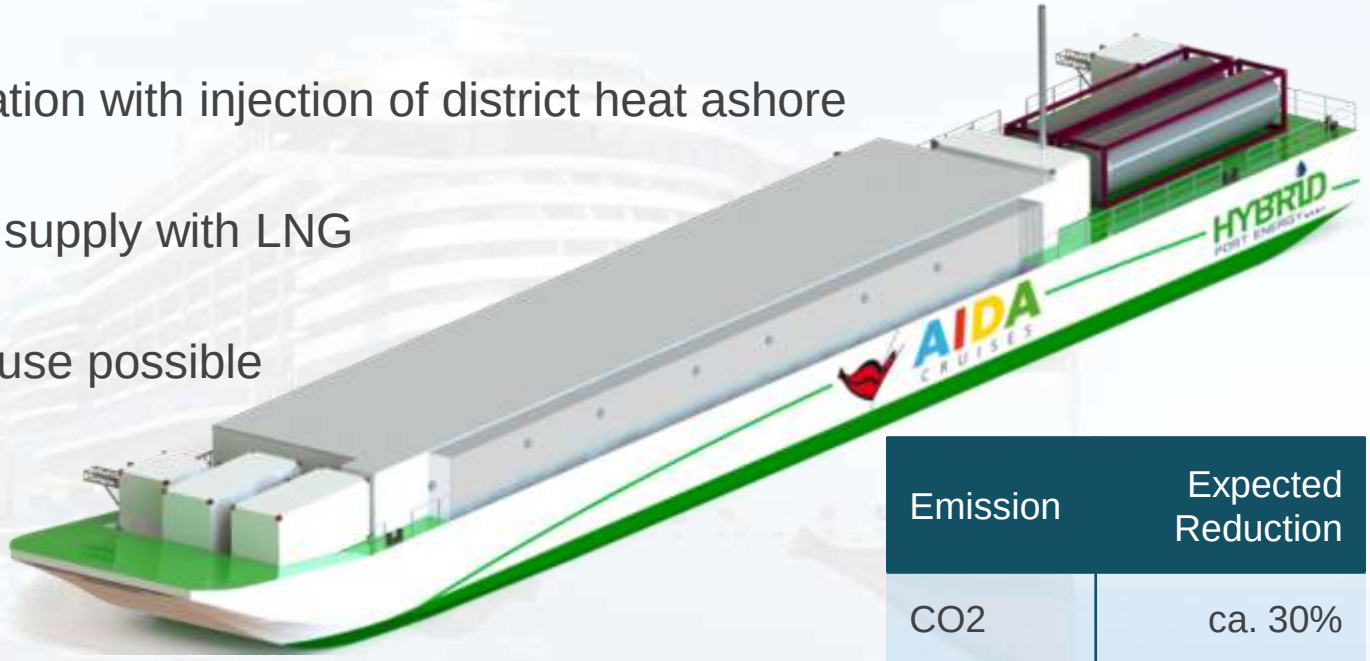
IMO timeline



Emission Control Areas

Innovative technology – LNG Hybrid Barge at Hamburg Port

- Eco-friendly energy supply with liquefied natural gas (LNG) during port stay
- Combination with injection of district heat ashore
- Modular supply with LNG
- Flexible use possible



- AIDA Cruises is pioneer

Emission	Expected Reduction
CO2	ca. 30%
NOx	ca. 80%
SOx	100%
PM	nearly 100%

AIDAsol – ready for shoreside power

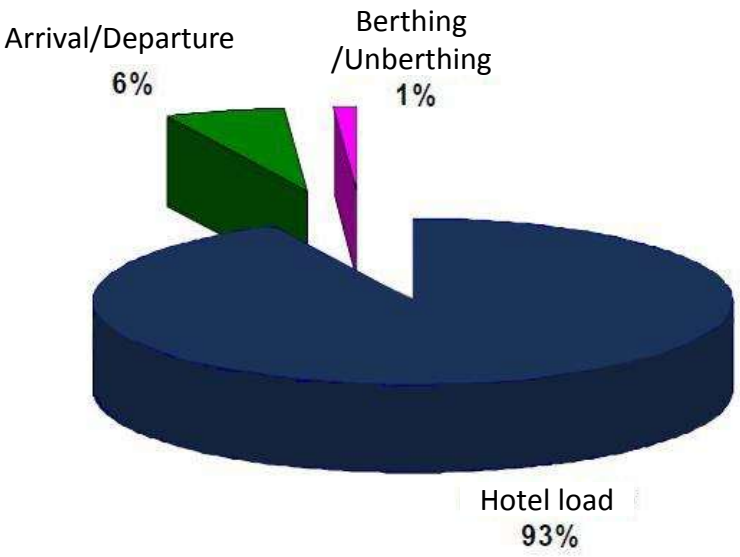
Since 2007 annual sustainability report

- www.aida.de/aidacares

LNG HYBRID Barge makes sence

Present challenges: Reduction of emissions

One average cruise ship (2.000 Pax) caused about 93 % of the emissions during a typical stay in the port while it´s lying at the berth.



Percentage of total emissions in the port of an average Cruise Ship abt. 2000 Pax

Source: Study Germanischer Lloyd: „Reduction of emissions from cruise ships in Hamburg“

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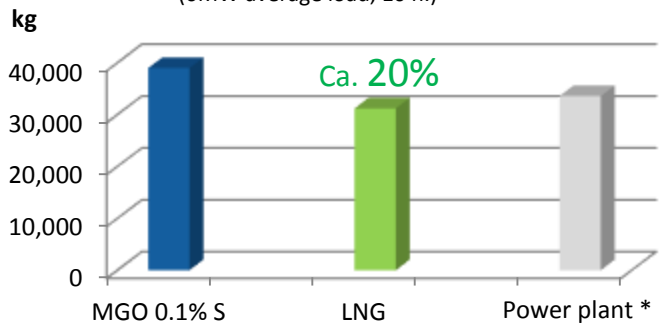
LNG stands for clean energy

CO_2 Emissions per call

(6MW average load; 10 h.)

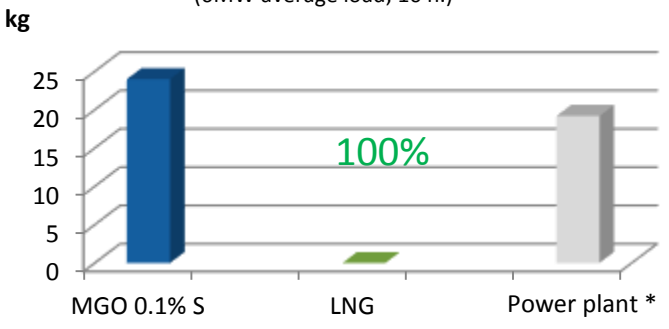


*Federal Environment Agency - Energymix Germany

Savings Percentage

SO_x Emissions per call

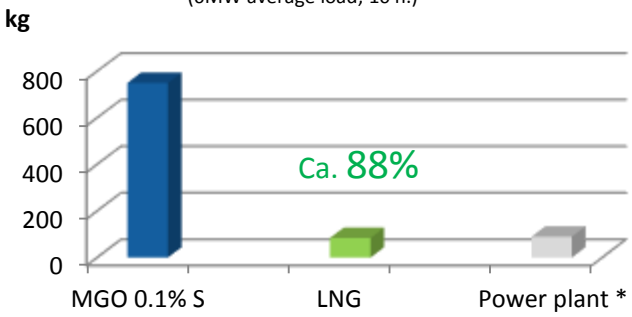
(6MW average load; 10 h.)



* EON - Data 2011

NO_x Emissions per call

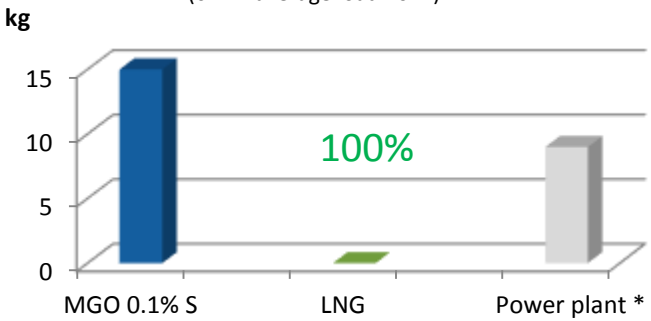
(6MW average load; 10 h.)



* Federal Environment Agency – Energymix Germany

PM Emissions per Call

(6MW average load 10 h.)



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Data based on the electrical power !

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LNG HYBRID Barge

BALTIC SEA
CLEAN MARITIME AWARD WINNER 2013

Dimensions:	76 x 11,4 x 2,5 m
Capacity:	2 x 17 t LNG Containers
Power:	7,5 MW - Gasmotoren
	10,5 MW (Ausbaustufe)

Classified as seagoing ship

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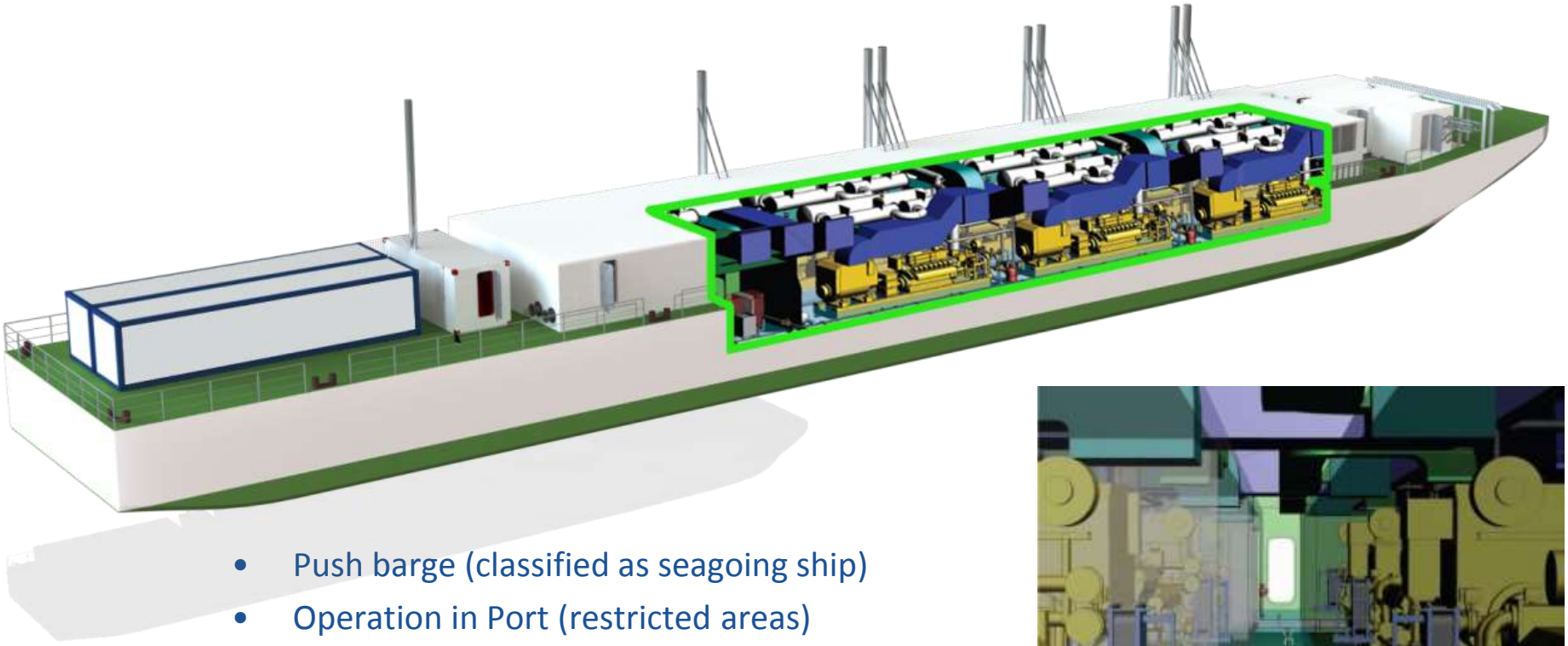
LNG HYBRID Barge



- Push barge (classified as seagoing ship)
- Operation in Port (restricted areas)
- Modular LNG engines in acoustic bonnets
- Silent operation (60 dBA / 10m)
- Heat recovery for gasification

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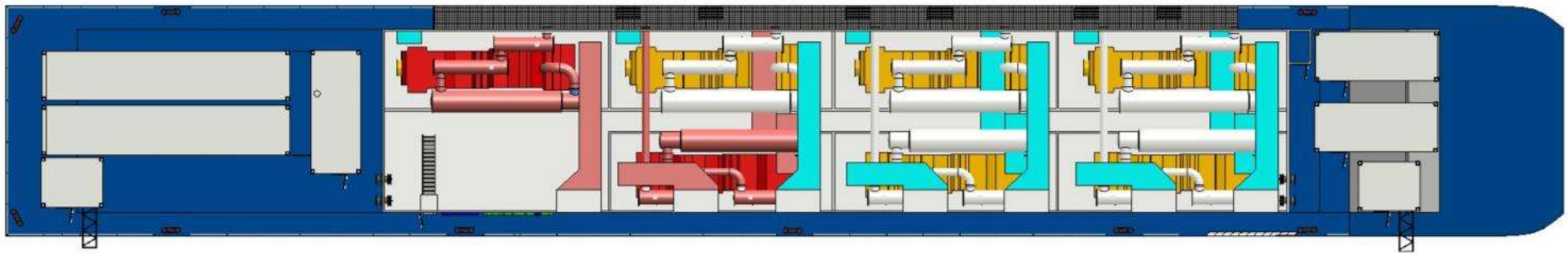
LNG HYBRID Barge



Standard

5 x	1.500 kW 11 kV 60 Hz	**7.500 kW** Barge/Ship
5x	~1.400 kW 10 kV 50 Hz	**~7.000 kW** Barge/Shore
Thermal Capacity:		**~7.500 kW**

Option

7 x	1.500 kW 11 kV 60 Hz	**10.500 kW** Barge/Ship
7x	~1.400 kW 10 kV 50 Hz	**~9.800 kW** Barge/Shore
Thermal Capacity:		**~10.500 kW**

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Concept Summer & Winter

operating 365 days/year

Summer season:

Cruise ships

Power supply 60Hz / 11kV

20 – 90 arrivals, 10 hrs.

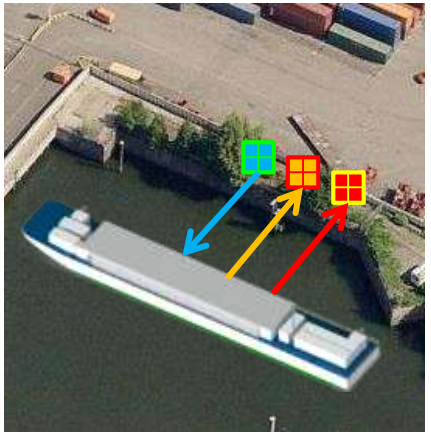
…creating earnings

Winter season:

Industriel Customer

Power supply 50Hz / 10kV

24 hrs. / 7 days



Natural gas grid

Transfer point - Electricity

Long distance heat grid

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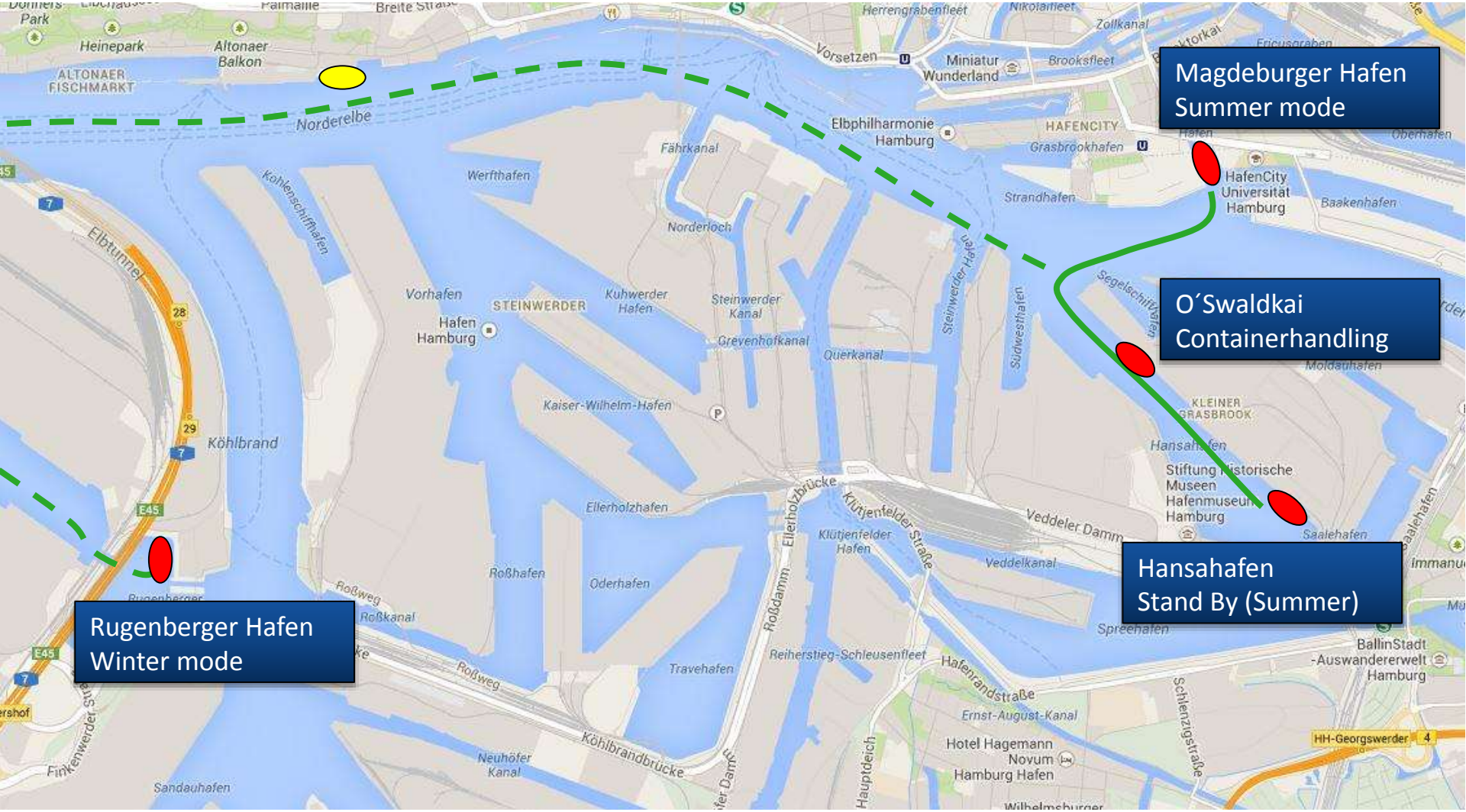
Moving the Barge



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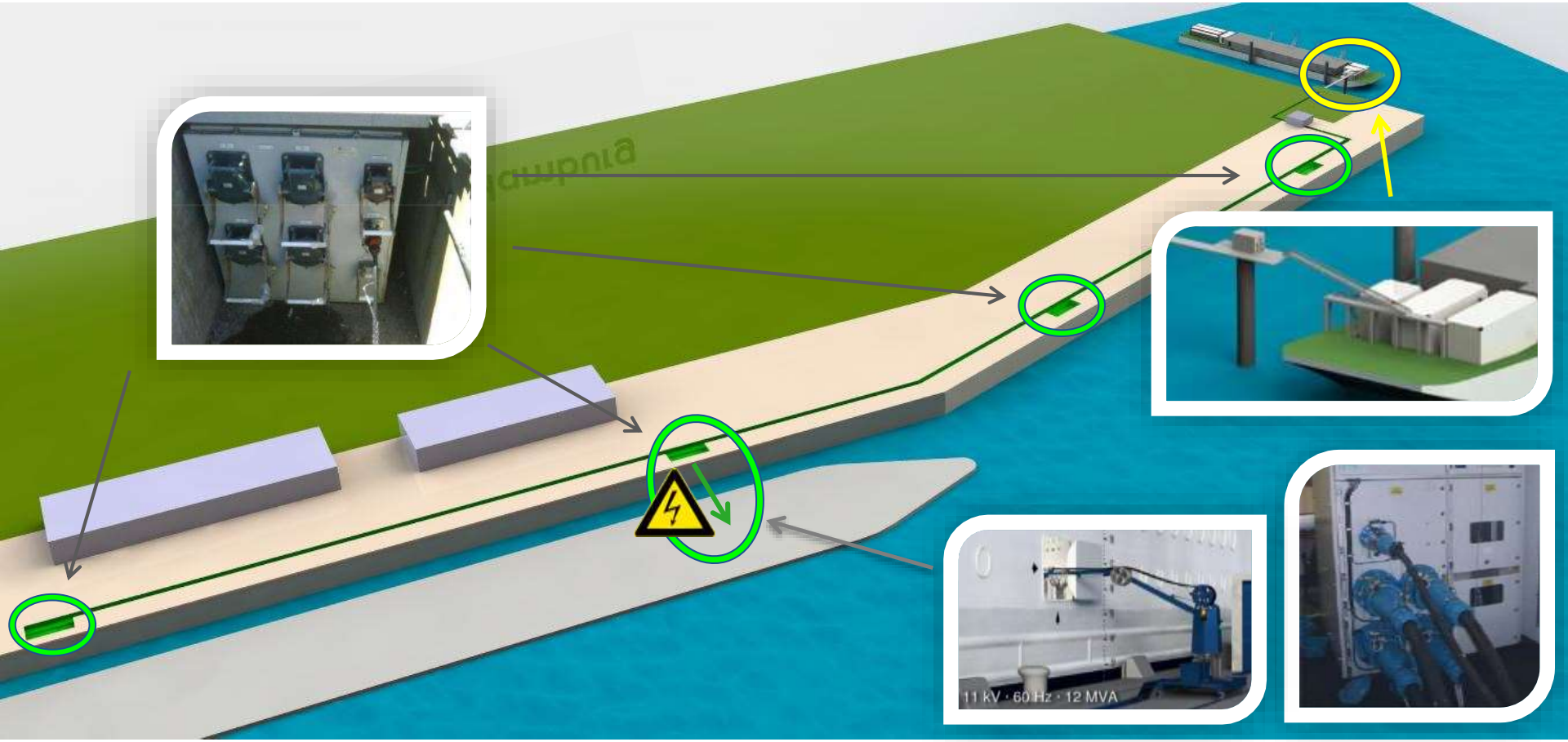
LNG HYBRID Barge

Shore Junction Box & Cable Channel



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Approvals from Authorities

Flag State
BG Verkehr

BimSchV
Federal Emission Control Act

BSU
Department of Civil Engineering and the Environment

CHP Law
Combined Heat & Power Law

Class Society
Bureau Veritas

- Hazard Workshop

Port Authority

- Departments
  - Port Captain
  - Fire Brigade
  - Water Police
- Approvals for safe operation
  - Risk Analysis
  - Collision Analysis

LNG HYBRID Barge arrived in Hamburg

Project start 02/2012 + + + Keel laying 01/2014 + + + Launching 09/2014 + + + Arrival Hamburg 10/2014

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THANKS FOR YOUR ATTENTION

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