Onshore Power Supply (OPS) in the Port of Hamburg
Application by the Hamburg Port Authority AôR (HPA)

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Overview of our Major Shore Power Projects

City of Hamburg

prevailing wind direction: south-west (towards city)

Project

Budgets

Current projects 75 Mio. €
Altenwerder TBD Mio. €
Others TBD Mio. €

Completion:

Altona (Cruise) since 2016
Steinwerder (Cruise) 2022
Eurogate (Container) 2022
Burchardkai (Container) 2022
Tollerort (Container) 2022
HafenCity (Cruise) 2024

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Technical Challenges

- Plugs
- Ship connection
- Connection Point (CP)

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Connection Point Concepts at Container Terminals

Connection on top of flood control installation

Connection point installed on top of autonomous vehicles w/ & w/o cable reel

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Emission Reduction Focus in Hamburg

**CO₂-Emissions by Seagoing Vessels**

- Maneuver: 6%
- Pilotage waters: 21%
- at berth: 73%

Roughly ¾ of ship emissions whilst at berth

**Projected OPS-ready calls by 2025**

- Container vessels: 23%
- Cruise vessels: 40%

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Shore Power Facility at the Cruise Terminal Altona

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Autonomous Connection System - Altona
Technical Building - Altona

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Vessel Integration and Error Tracing

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Key Challenges

Level Playing Field

Funding for further Connection Points

Vessel Readiness

EEG and Energy Taxes

Final Consumer

Business Case

Operating Model

Power Supply

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Emission of Air Pollutants: Reduction Targets 2025

- NO\textsubscript{X}: -383 to -30,000
- SO\textsubscript{X}: -11 to -2
- PM: -2
- CO\textsubscript{2}: -30,000

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United Nations Sustainable Development Goals

**3 Good Health and Well-being**
By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air pollution and contamination.

**7 Affordable and Clean Energy**
Provision of 100% CO₂-neutral green energy at a competitive price for vessels at berth.

**8 Decent Work and Economic Growth**
Achieve higher levels of economic productivity through diversification, technological upgrading and innovation. Decoupling of economic growth from environmental deggregation. Creating more sustainable tourism (cruise).

**9 Industry, Innovation and Infrastructure**
Development of reliable, sustainable and resilient infrastructure to support economic development and human well-being. Upgrade of existing infrastructure to make it sustainable, with greater adoption of clean and environmentally sound technologies.

**11 Sustainable Cities and Communities**
Reduction of environmental impact of cities by paying special attention to air quality. Support positive economic, social and environmental links between urban, per-urban and rural areas by strengthening national and regional development planning.

**12 Responsible Consumption and Production**
Substitution of fossil fuels through renewable energies.

**13 Climate Action**
Integration of climate change measures into national policies, strategies and planning.

**17 Partnerships for the Goals**
Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals.
Business Case

• CAPEX
  - 85 Mio. € Infrastructure Investments
  - Realization by HPA
    - Collaboration with local power grid provider
      (Stromnetz Hamburg GmbH)
  - Fully funded by
    - The Federal Ministry for Economic Affairs and Energy (50%)
    - The Hamburg Ministry for Economics and Innovation (50%)

• OPEX
  - Operation by HPA
  - Non-Profit Business case
  - Competitive electricity price for 100% renewable energy
    - Cooperation with local energy supplier
      (Hamburg Energie GmbH)
    - Renewables Surcharge Reduction for shore power by the
      Federal Renewable Energy Sources Act 2021
Further questions? Feel free to contact us!

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