



PORT OF THE FUTURE

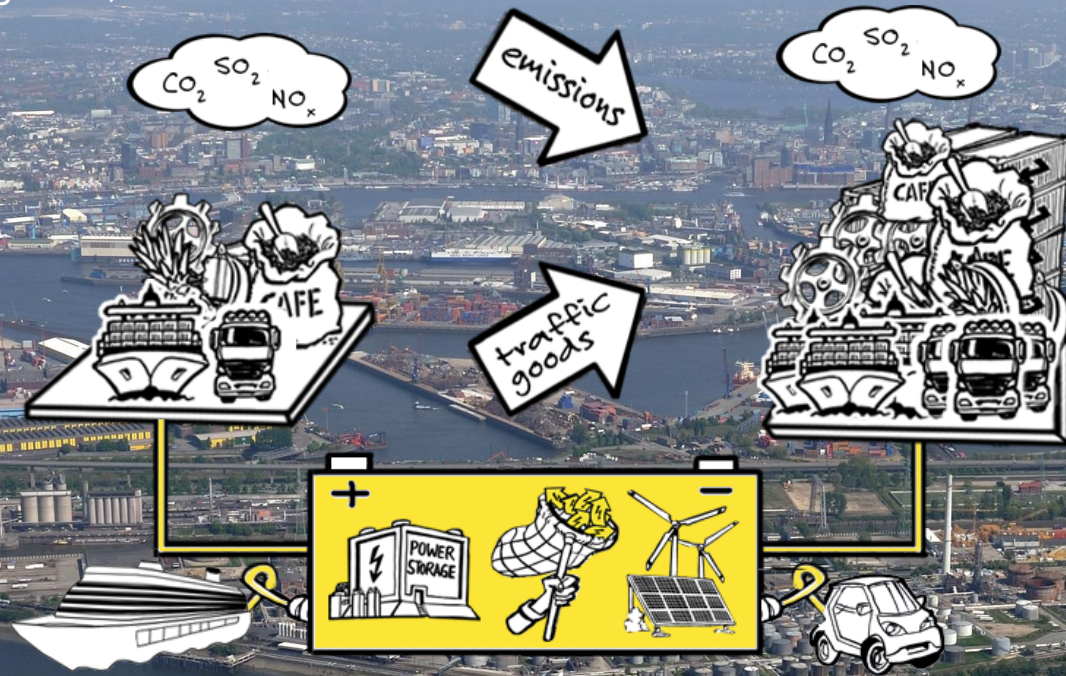
smartPORT energy

Port of Hamburg – efficient and environmentally friendly

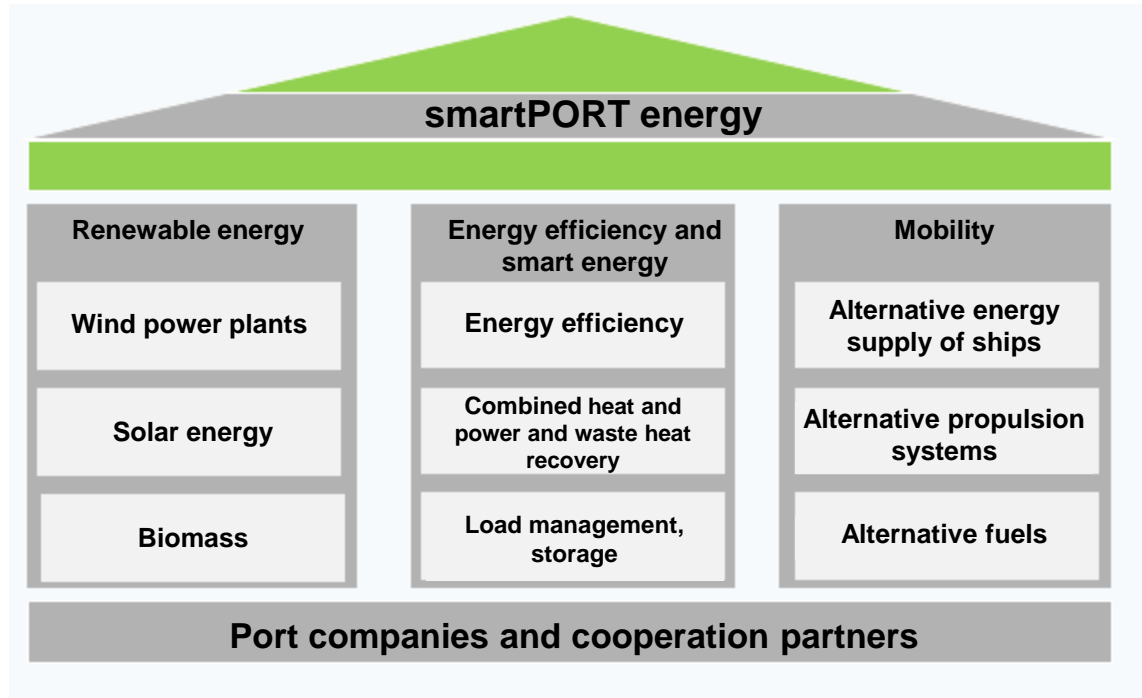
The Port of Hamburg at the heart of a big city has to face multiple challenges



smartPORT energy –
more traffic and goods, but lower emissions



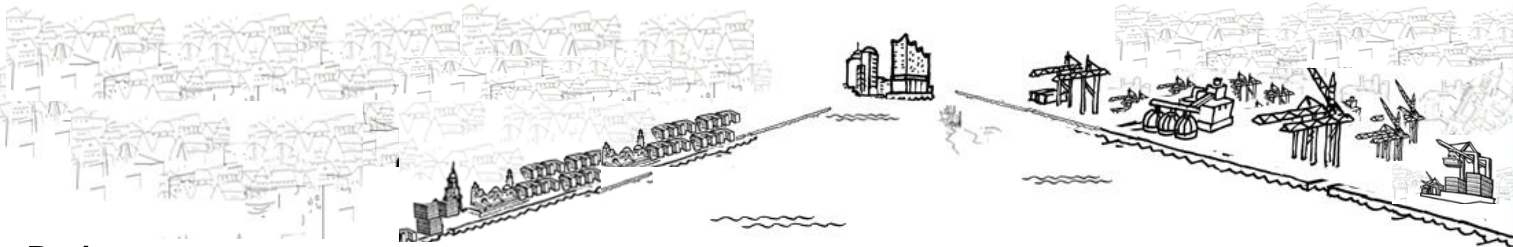
Energy transition in the Port of Hamburg: Showcase for environmental technologies









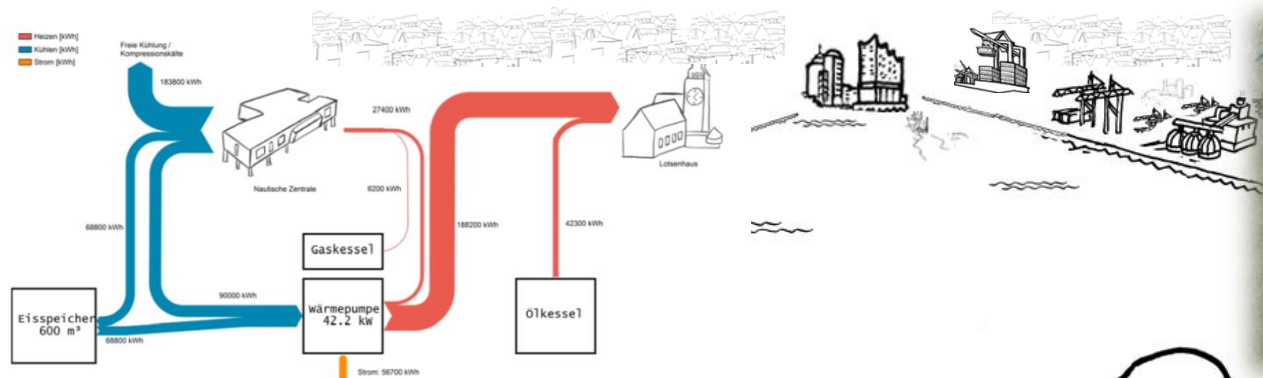


Projects:

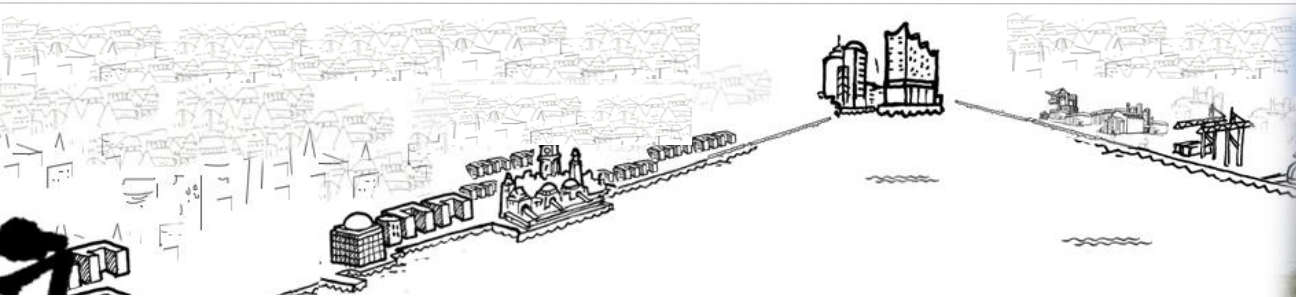
- 2 combined heat and power plants, each with 4.3 MWeI
- 2 hot water storage tanks with a total volume of 1,200 cubic metres
- Investment: 7.3 million Euro
- Operational savings: 2.4 million Euro
- Electricity consumption: approx. 49,000 kWh
- CO₂ savings: approx. 16,000 tonnes











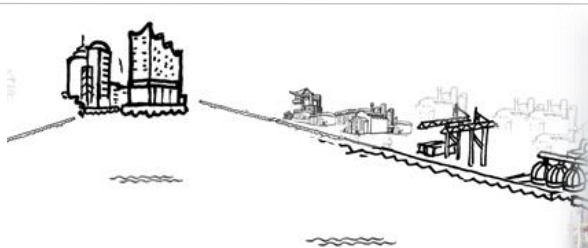
Project: Wind mill at Eurogate Terminal

- performance: 2.4 MW
- more than 9 Mio. kwh production in the first year
- approx. 4,600 tonnes CO₂ reduction



Project: Combined heat and power plant with 849 MWe/ 1006 kWh

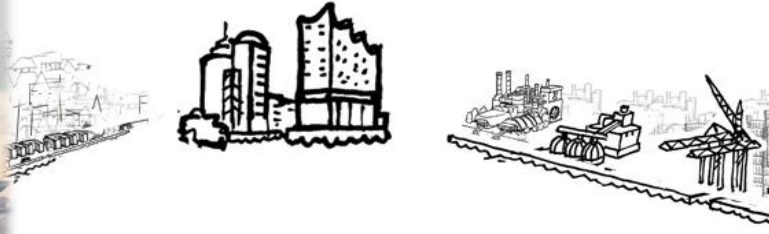
- Investment: 2.0 million Euro
- Operational savings: 0.7 million Euro
- Electricity consumption: approx. 7,300 kWh
- CO₂ savings: approx. 2,800 tonnes









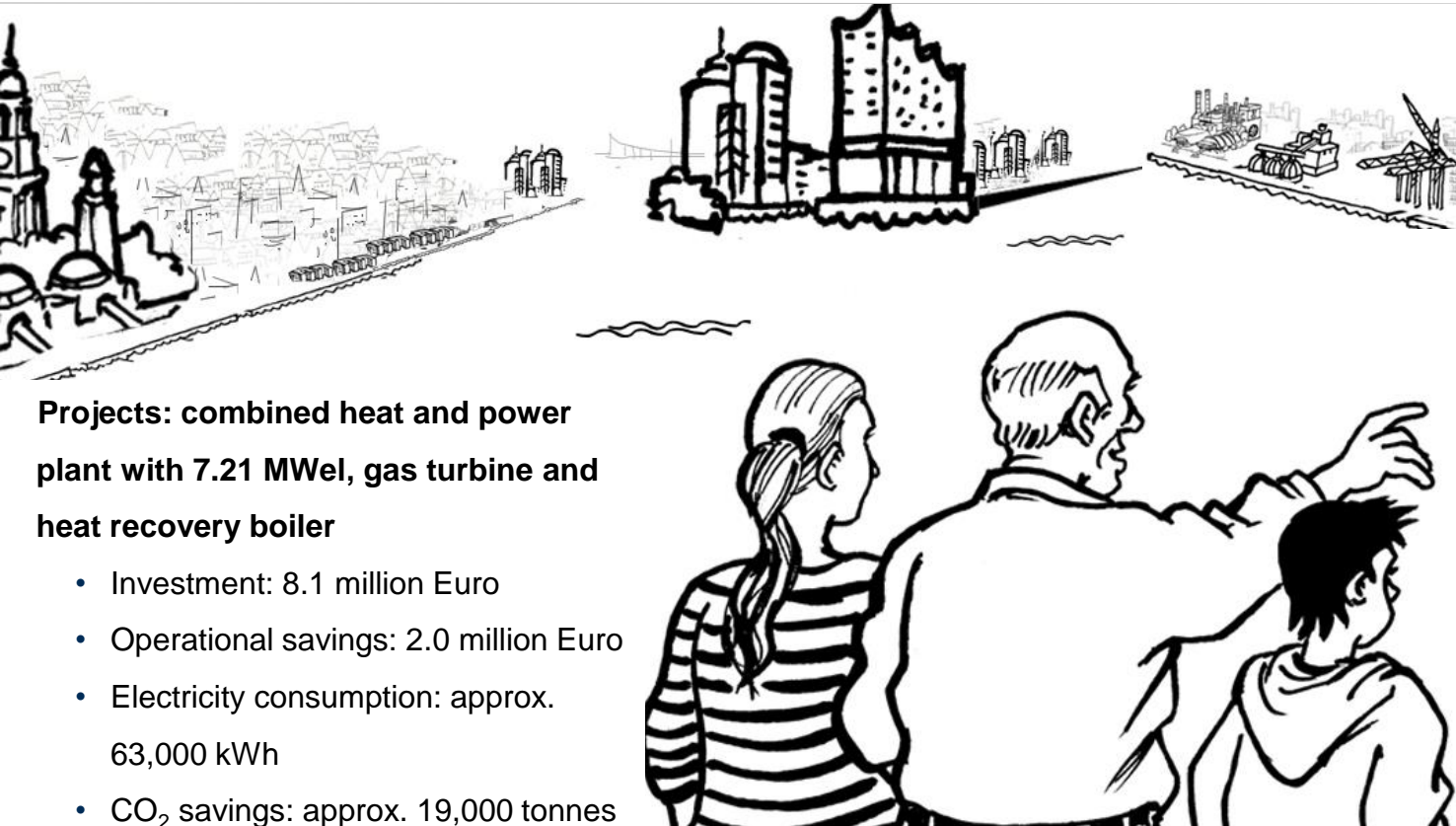


Source: HPA







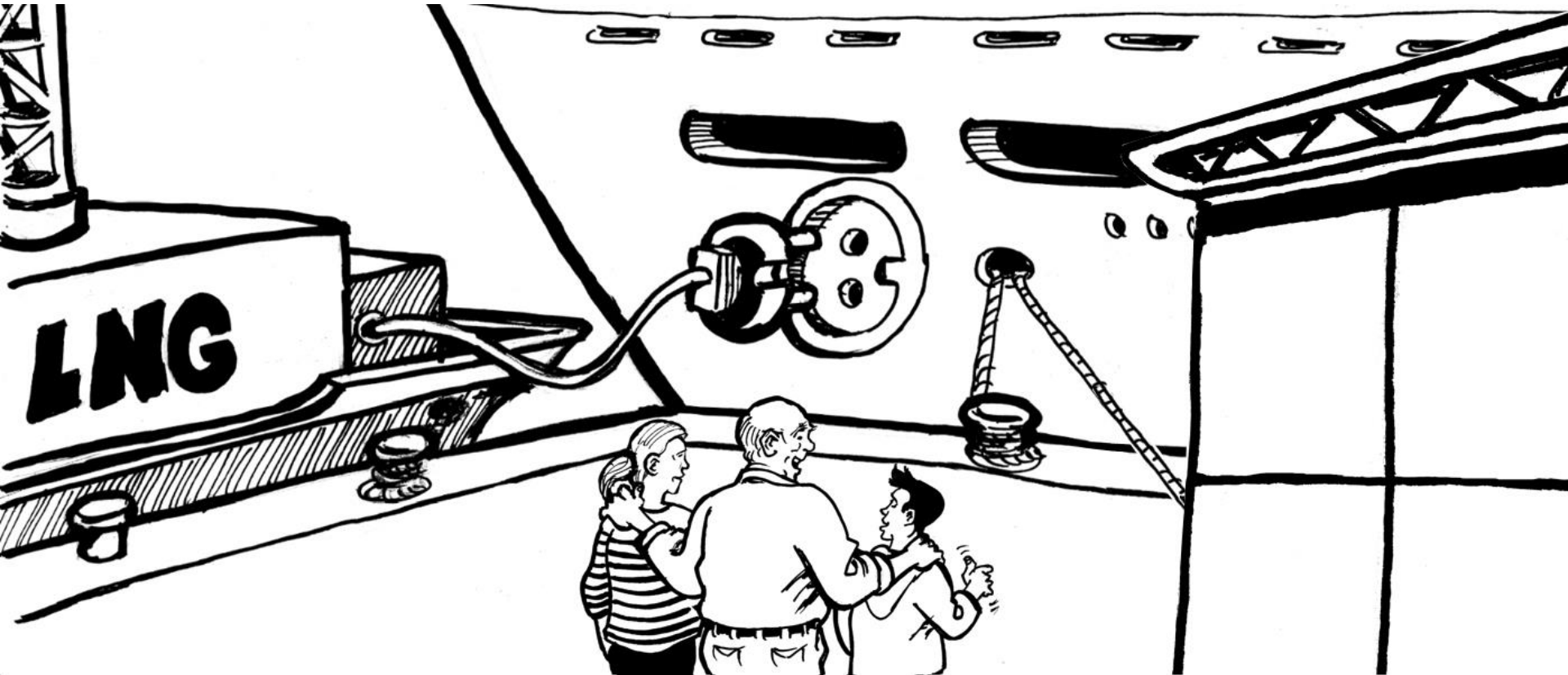


Projects: combined heat and power plant with 7.21 MWe_{el}, gas turbine and heat recovery boiler

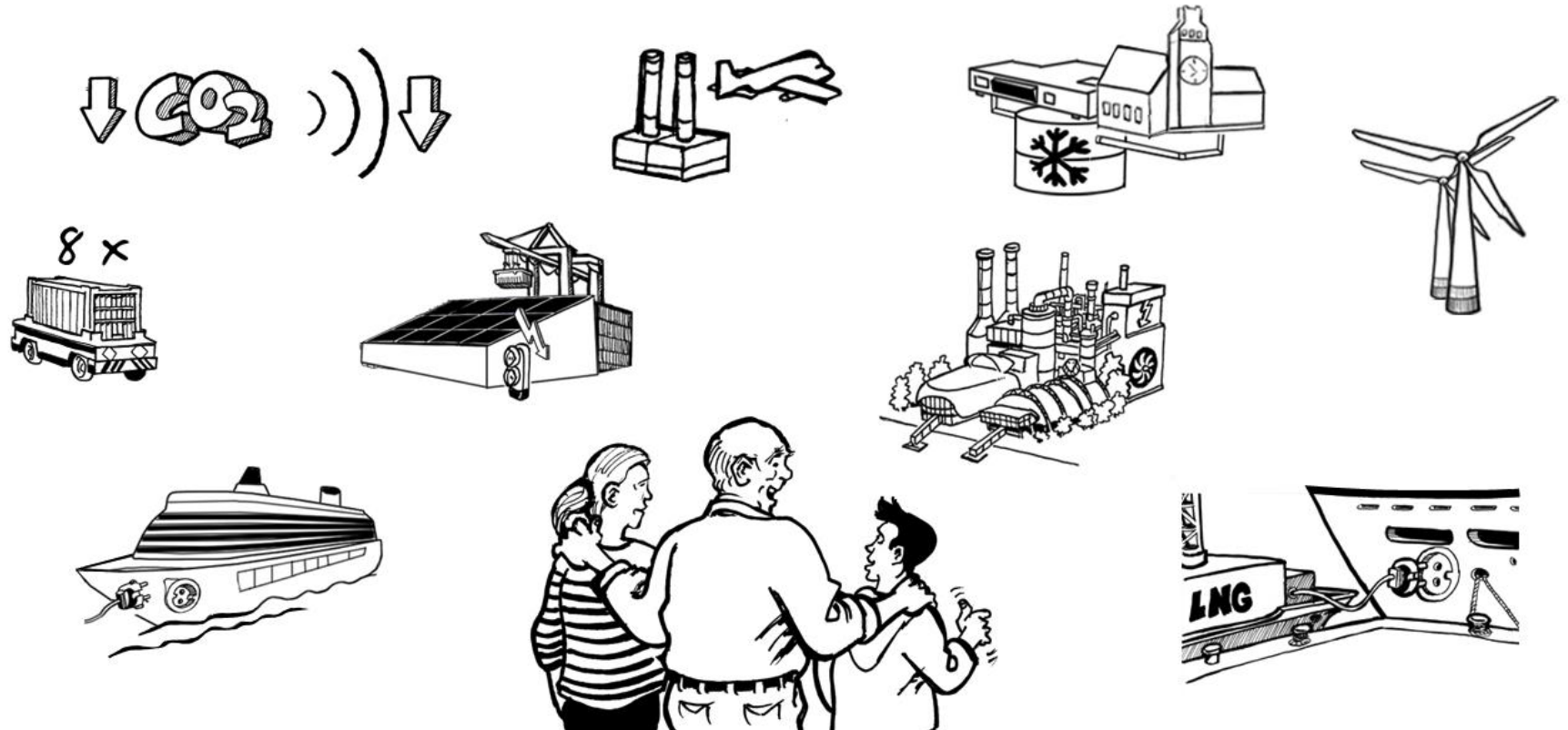
- Investment: 8.1 million Euro
- Operational savings: 2.0 million Euro
- Electricity consumption: approx. 63,000 kWh
- CO₂ savings: approx. 19,000 tonnes



Source: HPA







Conclusion

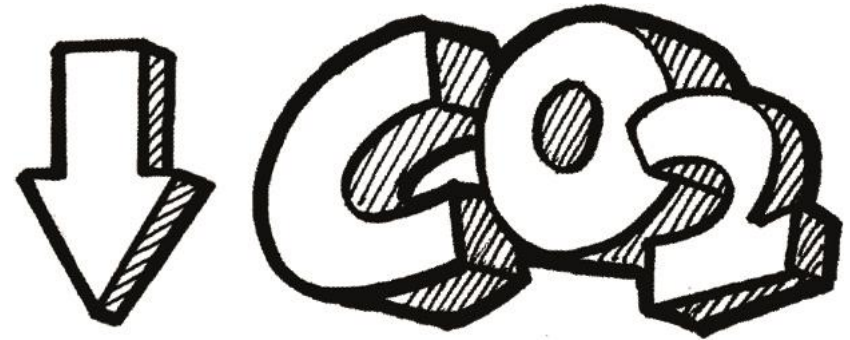
Renewables – Projects that have already been implemented

- Photovoltaic systems are installed
- Implemented: 2 wind mills
- Permission phase: 5 wind mills
- Limited area
- Distance to hazardous goods and traffic
- Birds flocks and radar



Energy efficiency – Projects that have already been implemented

- 59 projects in 2 years
- Total investment: 30.5 million Euro
- Total contribution (Free and Hanseatic City of Hamburg): 2.5 million Euro
- Total operational savings: 7.2 million Euro p.a.
- Total electricity savings: approx. 142,900 kWh p.a.
- Total CO₂ savings: approx. 58,500 tonnes p.a.



Hamburg invests in eco-friendly mobility



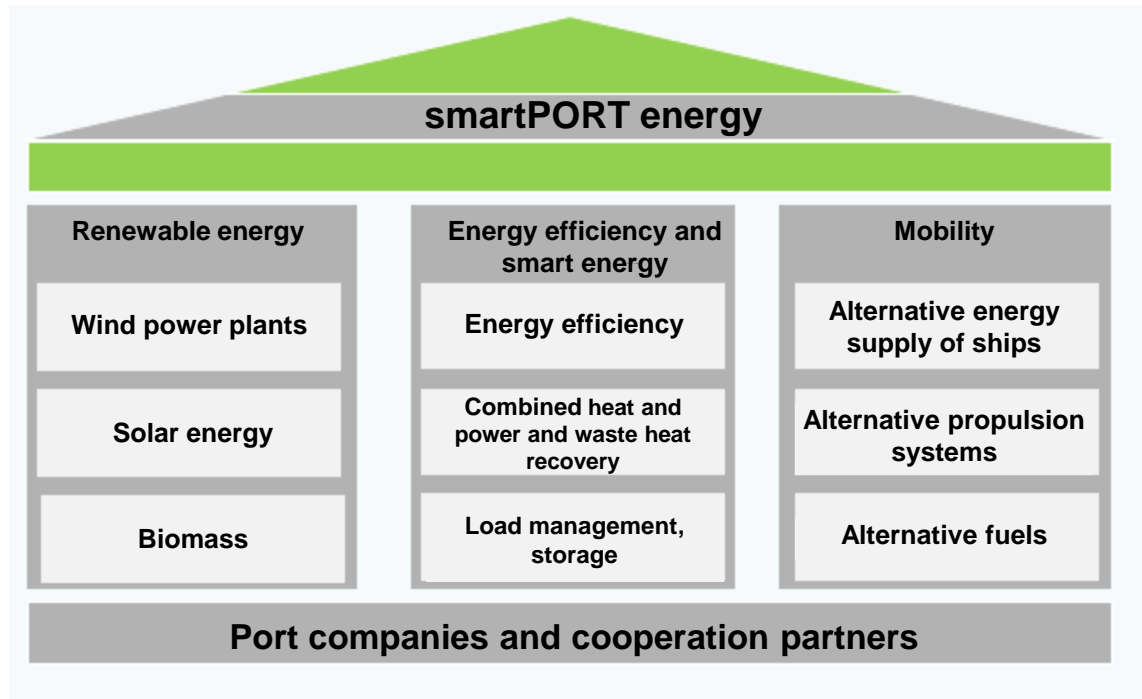
Source: www.dw.de
Source: www.bildarchiv-hamburg.de

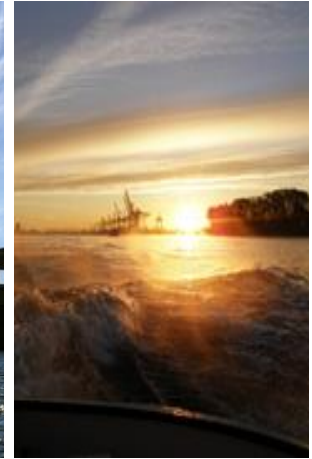


Source: HPA
Source: www.dw.de

- 8 e-AGV at the Containerterminal Altenwerder
- The largest single project "Hamburg – Wirtschaft am Strom": 655 e-cars in use
- 92 e-cars in use in the port
- Thereof 65 are from HHLA
- Thereof 8 e-cars are from HPA
- All together 1,450 e-cars in the metropolitan region of Hamburg
- Alternative power for vessels

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