Hamburg

hy SOLUTIONS
Innovative Antriebe für Hamburg

How can a city set a framework to support up-scaling of green vehicles

Example of different measures in Hamburg

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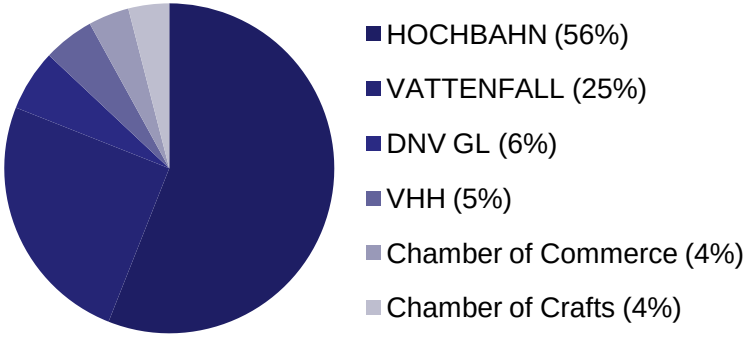
About hySOLUTIONS

Founded:	2005
Tasks:	Project development and management in hydrogen / fuel cell technology and in battery electric drives
	Coordination center for Hamburg, formally mandated by Hamburg Senate
Portfolio:	Some 80 projects (predominantly R&D) both national and international still running or successfully completed
Networks:	Initiating or joining regional, national and European organizations, working groups and expert committees

Shareholders



The overall approach

- The main drivers for low-emission technology in the urban transportation system are sound planning requirements , the environmental and climate protection (EU directives) and economical reasons (generating regional added value)
- The strategic approach is based on 3 fundamental principles :
  - Coherency of technologies (FCVs and BEVs are part of the same technological path!)
  - Complementary use rather than competition between ZE car use and public transport
  - Use of renewable energy is mandatory
- Strong political ties to the federal government, marked by strong political commitment on site
- Setting of political framework
  - BEVs are allowed to park on public spaces all over the city without paying a parking fee
  - ICE vehicles that are parked at CPI will be towed
  - Real estate are allowed to build up less parking space with new buildings when CPI is set on every third parking lot (ratio of parking space to apartments lowered from 0.8 to 0.4)

Bus Strategy

Clear Positioning

- As of 2020, only zero emission buses are purchased
- Long-term strategy to secure energy supply
- Sufficient time for training of experts (technology) and in-company training
- Set up of infrastructure (workshops) only gradually possible Storage for up to 20 h/day vehicle use
- Avoid productivity losses in line service
- Successive conversion > start-up costs cheaper than a later direct fleet replacement
- Since December 2014: first completely emission-free bus route in Germany > “Innovation line” 109
- Evaluation of different drive trains under same operational framework

Municipal fleets

Regulations regarding procurement in municipal fleets

- First Mayor´s directive:
  - Not justify the purchase of an EV **but** justify the continued procurement of conventional ICE vehicles
  - This changed reasoning subsequently opens new perspectives,
- Municipal fleets have been undergoing a systematic analysis of user cases, operation schedules and potentials for a comprehensive EV use.
- Accordingly all public institutions in Hamburg will face a fundamental change in their fleet operations and logistics with regard to a substantial EV procurement strategy.

Current Status

- 500 electric vehicles in public fleets in Hamburg (360) and in the entire region (140)

Commercial fleets

Hamburg Chamber of Commerce: survey with member companies

- Up to 2020 some 18,200 EVs in the corporate fleets of the Chamber's member companies (would be 12% of all registered corporate cars in Hamburg)
- Successful procurement initiative with Automotive Industry - Framework: contracts signed to assure privileged financial terms for all Member companies

Two Funded Lighthouse projects to implement EVs in commercial fleets

- "Electrified Economy": 740 EVs for companies and municipal fleets. All planned vehicles in daily operation
- "E-Powered Fleets": 450 EVs in corporate fleets, so far more than 250 EVs in operation
- More than 20 EVs operated by Taxi companies in Hamburg

Altogether more than 900 EVs in operation in commercial fleets in Hamburg

Hamburg as a role model for other cities worldwide

Masterplan CPI Hamburg

- The directives for the charging infrastructure on public space are standardized
  - Payment and navigation system will be offered via Smart-Phone (“direct payment”)
  - The new and standardized CP-design, independent from the particular provider
- The municipal Stromnetz Hamburg GmbH is responsible for the construction and operation of the charging points
- Public accessible charging infrastructure on corporate ground can be funded by the city (new launched funding program, expected in Q 1/2016)
- Sufficient financial funds (4,7 Mio.€ public + round. 0,5 Mio.€ third-party-funds)

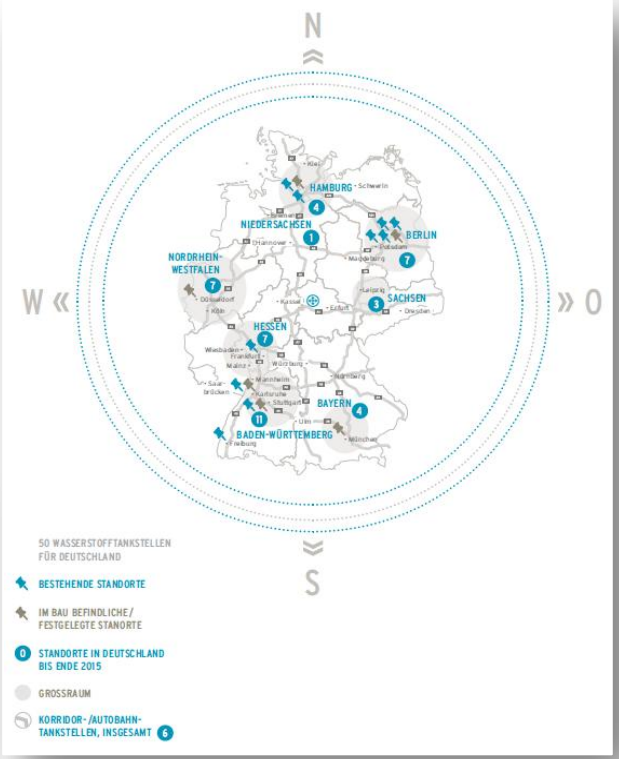
Structured process

Where are we coming from?	138 charging points public accessible
What is the ramp-up plan?	454 charging points in additional 227 places
What is the overall target?	592 charging points on public space, thereof 70 DC-chargers

Hydrogen Refueling Stations

Coping with chicken-egg

- By 2015, 5 hydrogen refuelling stations (4 already existing)
- Partners: Vattenfall, Shell and TOTAL
- German masterplan interlinks Hamburg with Berlin and Denmark
- Link with volatile wind energy



Disruptive business models

e-Quarter Hamburg

- The project follows the rationale that residents use electric vehicles communally (“neighborhood pools”) in different classifications
- E-Quarter Hamburg lays stress on the qualification of locations with regard to planning variations for the area allocations, intermodal traffic aspects, decentralized energy supply
- The project will enable the derivation of urban planning scenarios and parameters, standardization methods and create indicators for planning procedures

Disruptive business models

switchh – mobility-as-a-service

- Build up of so called “mobility service station” on public transport stations (9 so far), where rental cars, free floating car sharing vehicles and rental bikes can be parked and rented
- Business model:
- User of public transport monthly pass pay 10 Euro extra to their ticket and get a RFID card with access to all modes of transport:
  - 60 minutes free floating carsharing inclusive
  - Use of rental bikes (first 30 minutes free)
  - 20 Euro price reduction on every rent of a rental car

- Mobile app of linked transport systems shows available modes of transport and gives a multimodal comparison of routes and travel time
- From April 2016 on switchh system will include two different free floating car sharing supplier and two station-based car sharing schemes

Thank you very much!

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