



Unsere Stadt, unsere Zukunft – elektromobil

Mobilität im Wohnumfeld erfordert Vernetzung und innovative Angebote. Quartiers-Carsharing mit Elektrofahrzeugen ist ein Schlüssel hierzu. In Hamburg schaffen wir schon heute die Angebote von morgen. Weitere Infos unter [www.e-quartier-hamburg.de](http://www.e-quartier-hamburg.de)

e-Quartier Hamburg

Hamburg



## Stadt bewegen: Notwendigkeiten für Wandel

Making cities move: Imperatives for changes

Peter Lindlahr, hySOLUTIONS GmbH, Driving Innovation for Hamburg

Hamburg, 18 February 2015



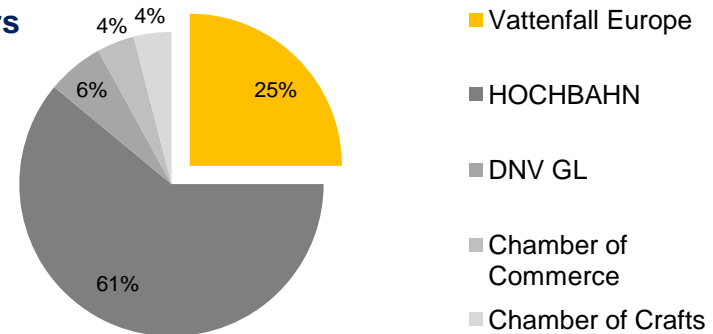
Die Stadt der Zukunft – Die Zukunft der Stadt

# 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



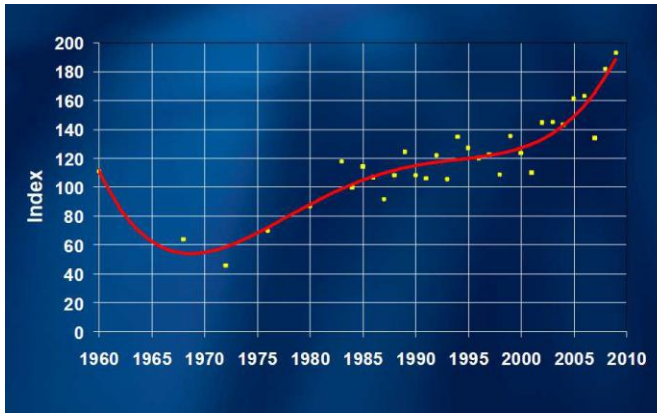


### Governance Approach

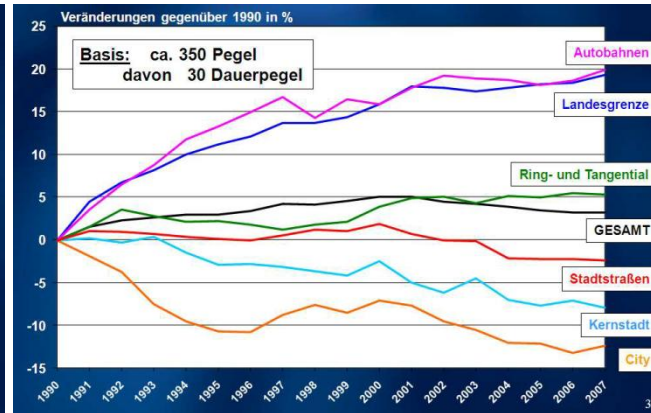
- Wide-ranging Housing Development Program (> 10.000 new built homes per year)
- Improvement of Infrastructure (not just streets, bridges but also schools, universities, kindergartens)
- Specific Climate Action Plan
- Clean Urban Transportation / EV readiness
- „Energiewende“ meets „Mobilitätswende“:  
what is the contribution of the transportation sector to align with overall CO<sub>2</sub>-targets?

# Fundamental developments in cycling, road use and public transportation in Hamburg

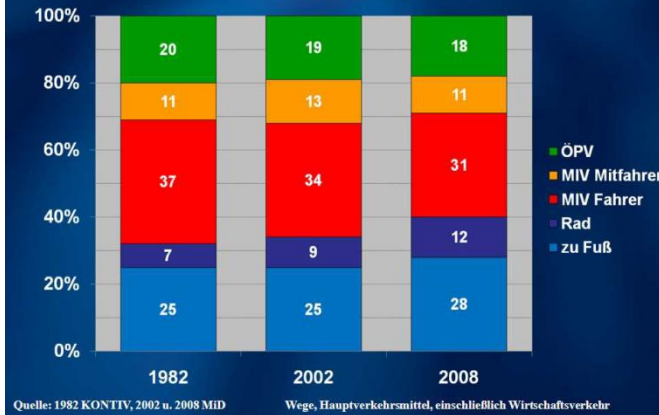
Cycling Index within the last 5 decades



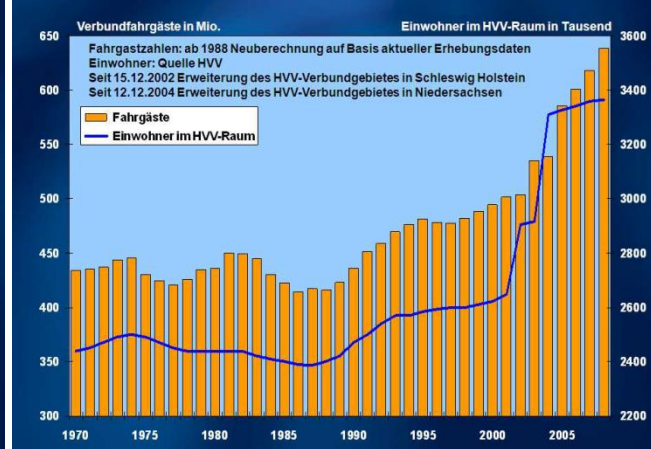
Car traffic: Road use



Modal Split



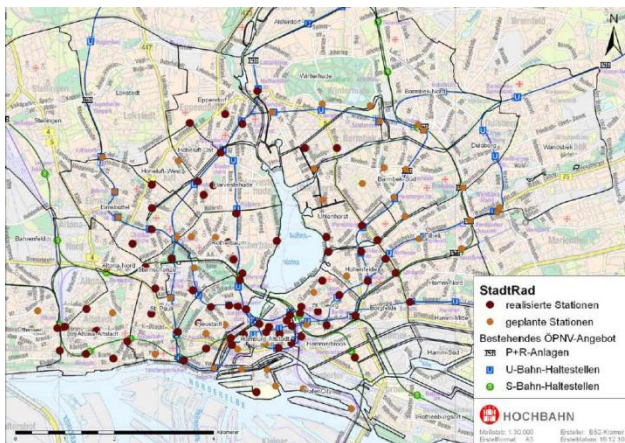
Modal Split Hamburg



Passenger Volume Public Transport

# Innovative approaches promote an advanced multi-modal transport system

**Public Bike System (started 2009)**



**Car sharing (conventional)**



**Car 2Go (started 2011)**



**Electric car fleets and public charging**

# Urban transportation - expected PT trends and challenges until 2020

## (Re-) Urbanization and dense metropolises

- build up capacities in the public transportation sector according to a significant increase of passengers

## Increase of traffic volume and change of mobility needs

- offer customized solutions and improve interfaces

## Escalating commercial traffic

- ensure high-performance public transport to relieve road system, promote low emission technology (e.g. fuel cell and electric cars)

## Demographic Change

- enhance staff requirements to meet customer expectations

## Social Change (“to use rather than to have”)

- implement complementary mobility linked up with diverse offers (e.g. carsharing, public bike system)

## More and more consideration of eco aspects and sustainability

- extend the eco features of public transportation



# Clean Urban Transport in Hamburg

## 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 (BMVI, BMUB), marked by strong political commitment on site
- More Diversification on the project level, expanded objectives, additional target groups
- Fields of action:
  - Integration into corporate fleets and municipal fleets
  - Integration into urban planning procedures and housing projects
  - Integration into intermodal concepts ( "complementary mobility" )
  - Full substitution in the local bus system: systematic approach for green procurement from 2020



# EV Roll Out in Hamburg

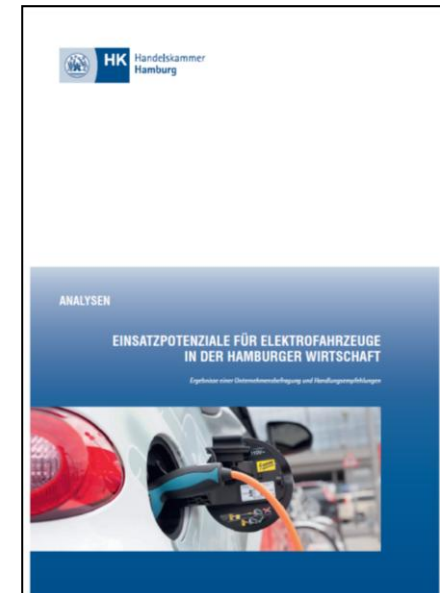
## Commercial fleets

### Hamburg Chamber of Commerce: survey with member companies

- 46,000 member companies were involved , some 2,000 responders
- 3 out of 10 companies believe that they have a 50% EV share within the next 2 years

### Results

- Up to 2020 some 18,200 EVs (2,800 delivery vans included) in the corporate fleets of the Chamber's member companies
- Local market share of 12% of all registered corporate cars in Hamburg
- Currently a new survey has been launched with 400 responders so far
- Successful procurement initiative with Automotive Industry - Framework: contracts signed to assure privileged financial terms for all Member companies





## EV Roll Out in Hamburg

### Municipal fleets

*Current Status:*

**290 electric vehicles** in public fleets in Hamburg (245) and in the entire region (45)

### Municipal Fleets in Hamburg

- are bound to the First Mayor's directive, not to constitute the purchase of an EV but to constitute the continued procurement of conventional ICE vehicles; this changed reasoning subsequently opens new perspectives,
- 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.

### = Result

**~30% of all cars in stock will be replaced by EV, REEV or PHEV**



## EV Roll Out in Hamburg

### Taxi fleets

#### e-Taxi Hamburg

- will integrate up to 50 EV/PHEV into Hamburg's taxi fleets in strong cooperation with Nissan Europe and others,
- will offer local taxi companies to join the trial by incentivizing with funds from federal programme (up to 50% of leasing costs),
- will have a strong impact on environmental effects due to the substitution of an overall mileage of some 7.5 m kilometers with electric drives,
- will serve as a booster programme to create public awareness for EV deployment in the overall urban transportation system.

= Results  
~ 350,000 zero emission cab  
rides per year



# Commercial Fleets Hamburg

## Two Lighthouse Projects

- 1.100 EV / PHEV already in operation
- Project scope “Electrified Economy”:  
820 EVs for companies and municipal fleets.  
Focus on site-specific industry branches such as port management, logistics and aviation, as well as a number of SME (service and trade),  
already more than 550 vehicles in daily operation
- Project scope “E-Powered Fleets”:  
450 EVs in corporate fleets, focus on German OEMs such as BMW, Daimler and Volkswagen,  
scientific monitoring on eco parameters



# Best Practice in business innovation

## e-Quartier Hamburg



### e-Quarter Hamburg

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

#### = Results

Residents will benefit from new mobility schemes and quit their own cars

**up to 10 sites  
2,000 users  
120 vehicles**

#### Classifications:

- # 1 closed vehicle pools and intermodal mobility concepts for private local residents
- # 2 closed vehicle pools, integrated energy concepts and intermodal mobility concepts for private local residents
- # 3 closed vehicle pools and intermodal mobility concepts for private and commercial users
- # 4 public car-sharing in reference to the residential region
- # 5 public car-sharing combined with closed vehicle pools and intermodal mobility concepts
- # 6 individual use for private residents with integrated energy concepts

### Masterplan CPI Hamburg

Assumptions based on today's CP portfolio:

- increasing availability of charging points will lead to more access,
- accelerating the distribution of RFID-cards and enforcing green power standards will lead to higher customer acceptance
- the ongoing diversification of use cases (private clients, corporate clients, taxi, car sharing) will lead to a more specific distinction between fast charging modes and usual AC charging,
- the estimation of demand is according to EV deployment within the respective use cases, CP use frequency (regular use, intensive use), mileage, individual attractiveness of inner-city destinations and discrimination-free CP use (low barriers).

### = Result

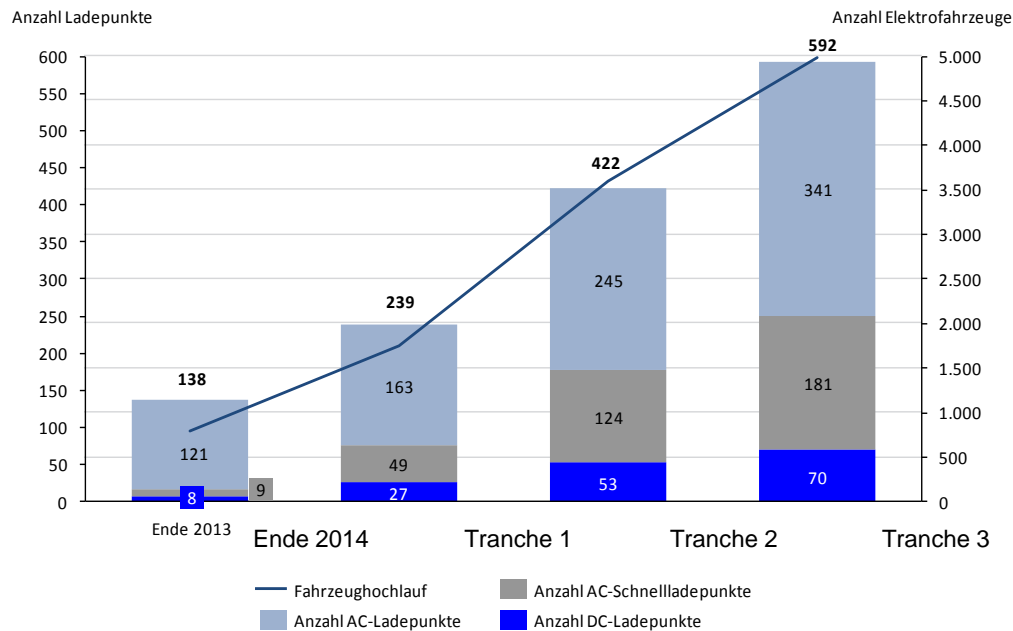
**~ 600 public accessible CP (AC and DC) by August 2016**

# EV Charging Infrastructure

## Why Master Plan? Planning perspective!

### Structured process

- Current status: 138 charging points on public space
- Planned growth: 454 charging points in additional 227 places
- Overall target: 592 charging points on public space in all seven districts



## EV Charging Infrastructure

### What's new?

- The municipal Stromnetz Hamburg GmbH is responsible for the construction and operation of the charging points
- The directives for the charging infrastructure on public space will be standardized
- Public accessible charging infrastructure on corporate ground can be supported publicly (new launched funding program, expected in Q II/2015)
- Payment and navigation system will be offered via Smart-Phone (“direct payment”)
- Sufficient financial funds (4,7 Mio.€ public + round. 0,5 Mio.€ third-party-funds)
- The new and standardized CP-design, independent from the particular provider



## User's perspective

Access  
via RFD card



Access  
via Smartphone

User signs contract with his  
respective electricity supplier and  
receives a chip card

1

User authentication via  
Smartphone/App

User authentication via chip card at  
charging station

2

Energy supplier cannot be chosen but  
is predefined

User receives his invoice monthly

3

Direct settlement with the  
supplier



## Fields of Action =

- Safeguard Public Transport as the backbone of urban transportation
- Promote Clean technology (EV, Fuel Cell/Hydrogen, Hybrid) in commercial fleets
- Establish new flexible schemes to link PT & Individual car use
- Create Innovative business development with real estate & housing industry



## Criteria of Success =

- Availability
- Connectivity
- Scalability
- Visibility



**Thank you very much!**

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