

Gefördert durch:



aufgrund eines Beschlusses  
des Deutschen Bundestages



# *Pilot Region E-Mobility Stuttgart*

*Vision • Approach • Projects*

*An introduction*

CARS / Wirtschaftsförderung Region Stuttgart GmbH

*Dr. Rolf Reiner & Holger Haas*

# Content

- The region: facts and figures
- Vision and objectives
- Time scale and first steps
- Demonstrators and pilot projects
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# *1. The region – facts and figures*

# Stuttgart Region – in the heart of Europe









# Do you know Stuttgart Region?



- Population: 2.7 million
- Area: 3.654 km<sup>2</sup>
- Municipalities: 179
- People in employment: 1,3 million
- Members of the Regional Assembly: 93
- Hours of sunshine: 1834 per year
- Wine production per year: 42 million liters
- Spa water per day : 40 million liters
- Michelin stars: 13
- Historic palaces and castles: 68

# Facts and figures

DAIMLER

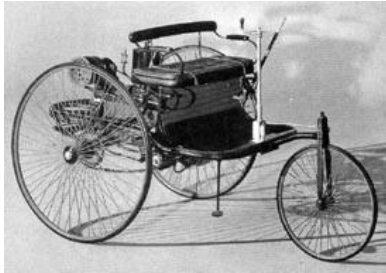


- ~165.000 companies
- Gross domestic product: ~100 billion Euro
- Overseas Sales (manufacturing): ~50 billion Euro
- Unemployment rate: ~4,2 %
- Most important industries: Automotive, Machinery/ Mechanical Engineering, Electrical, IT, Media, Biomedicine.
- Headquarter of corporate groups such as Daimler, Porsche, Bosch, Festo, Trumpf, Behr, Alcatel-SEL, Dürr, Stihl, Celesio, Schuler, Allianz Life etc.
- Extremely high research-density and -intensity R&D expenditure by the private sector: **~7 %** of the GDP!

## *2. Vision and objectives*



# The framework



- Structural change of the automotive sector has high impact of Stuttgart Region's economy and wealth.
- WRS supports the automotive cluster in Southwest Germany to prepare Stuttgart Region for the era of e-mobility.
- Overall ambition is to keep automotive value creation in the region.

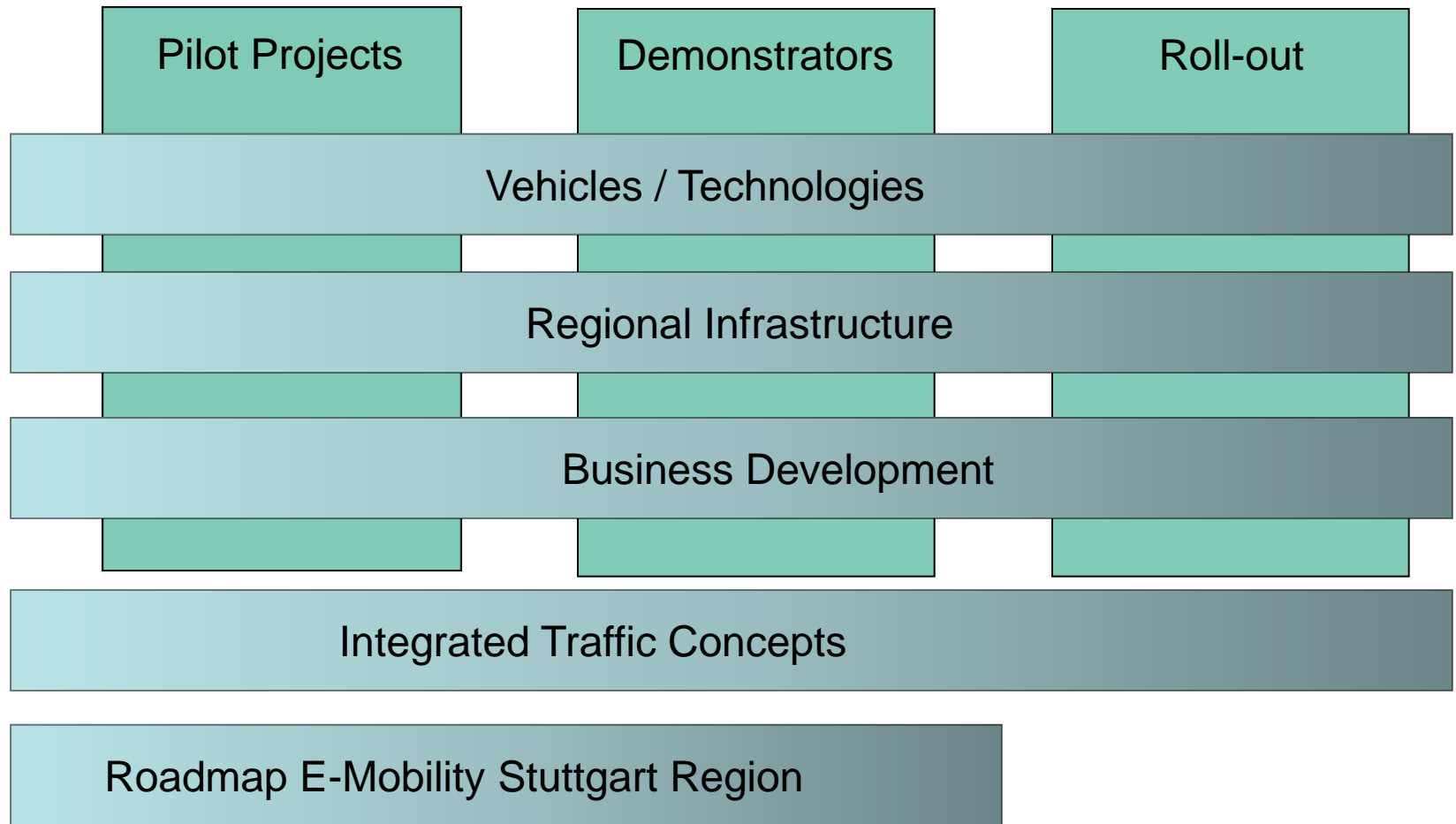
# Stuttgart Region – a lead market for green mobility



- Holistic approach for market preparation
- Regional showcase for integrated e-mobility solutions
- Pilot projects and demonstrators for
  - infrastructure
  - inter-modal hubs
  - (locally) emission free city logistics
  - billing and roaming models
  - variety of vehicles and usage



# Model Region e-Mobility – overall approach



Market Development  
Technology Development

Market Entry

# Model Region E-Mobility - Partners



- Municipalities und urban transport (e.g. SSB)
- Daimler, EnBW, Bosch, SAP
- Suppliers throughout Baden-Württemberg (Mahle, Eberspächer, Dietz Automotive, Huber, Heldele, ...)
- Fraunhofer institutes
- University of Stuttgart and FKFS
- University of Karlsruhe / KIT
- University of Applied Science Esslingen
- Wirtschaftsförderung Region Stuttgart / Cluster Automotive Region Stuttgart as regional project management and clearing point



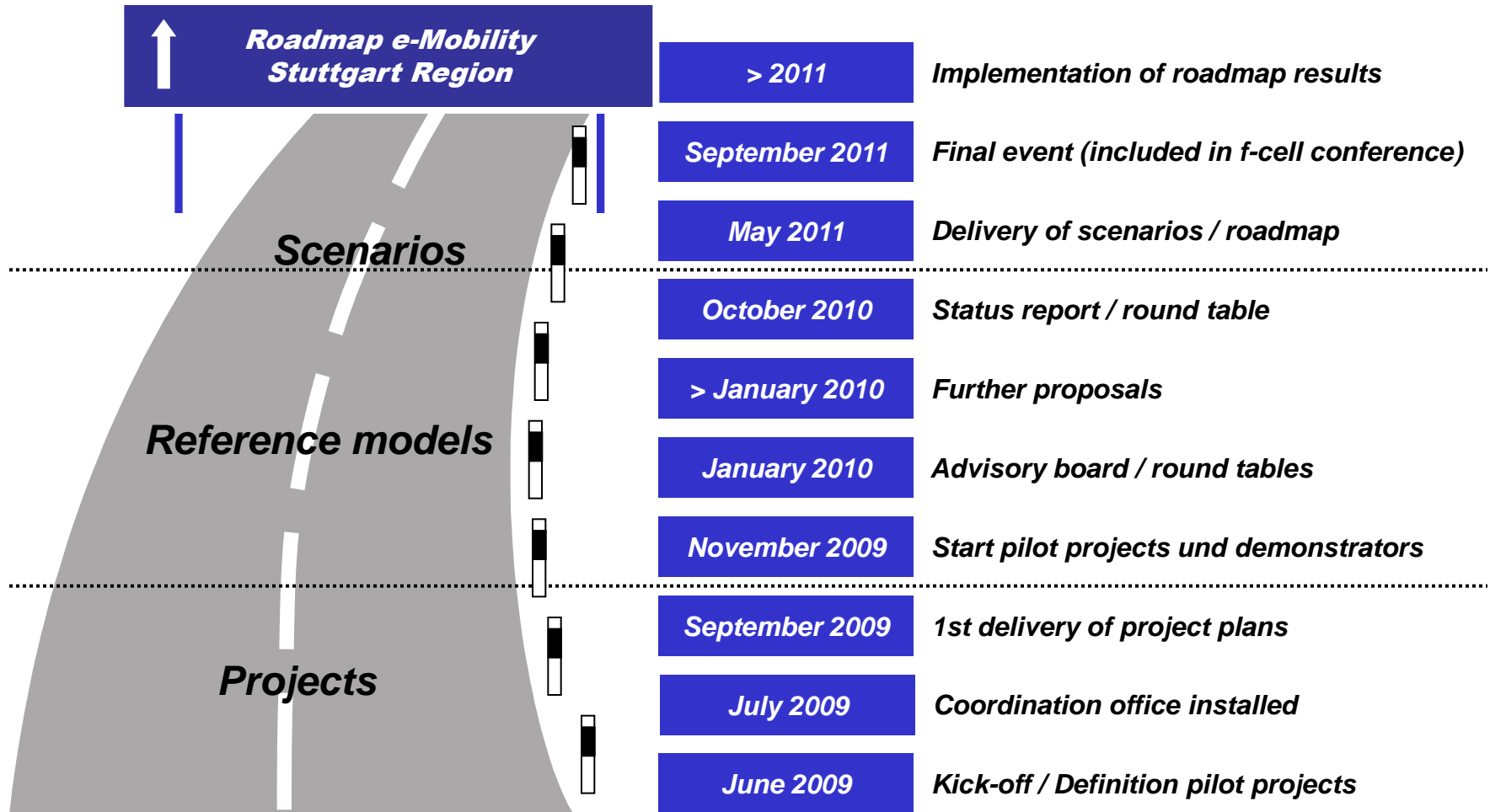
### *3. Time scale and first steps*



# *We are on the way ...*

- Regional project management and clearing point established.
- First regional projects kicked-off.
- Advisory Board established (representing all stakeholders: OEMs, energy suppliers, Tier 1 suppliers, lower Tier suppliers, university and research institutes, municipalities, state of Baden-Württemberg)
- 5 proposals in the evaluation process.
- Further proposals in submitted end of April.

# Milestones (State: 22. May 2010)



## *4. Demonstrators and pilot projects*

# Test drivers wanted...

EnBW AG: Pionier-Projekt - Mozilla Firefox

Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

http://www.enbw.com/content/de/privatkunden/innovative\_tech/e\_mobility/projekt\_pionier/index.jsp

Google Zeitfassung > Wirts... PLANYC 2030 Countdown 2010: Bu... Welcome to COP 9 SixCMS 6.0: Login http://www.spiegel.de/ http://www.statistik1... Fuel Cell Blog Öffentlicher-Dienst.In...

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**EnBW** Energie braucht Impulse

**Privatkunden**

Produkte Energiesparen Kundenservice Energiezukunft Unsere Region SüdBest

Startseite Privatkunden Energiezukunft E-Mobilität Pionier-Projekt

**Die große E-Mobilmachung**

500 Testfahrer bringen gemeinsam mit uns E-Mobilität auf die Überholspur

**Das Pionier-Projekt**

Entspannt durch die City, emissionsfrei übers Land: 500 Testfahrer sind unserem Aufruf gefolgt, mit uns E-Mobilität auf die Überholspur zu bringen. Damit gehören ab 2010 Elektrofahrzeuge auch im Stuttgarter Raum zum Alltag. Auf diesen Seiten stellen wir Ihnen das Thema vor und berichten laufend zu aktuellen Entwicklungen. Schauen Sie also öfter vorbei – es lohnt sich!

**Die neue E-Mobilität**

Klimawandel, Lärm und Abgase in den Innenstädten: Unsere Lebensqualität wird in Zukunft entscheidend von der Art unserer Fortbewegung abhängen. Wir sind überzeugt von Strom als einer leisen und emissionsarmen Alternative zum herkömmlichen Benzin-Fahrzeug. Deshalb bringen wir 500 Elektrofahrräder im Raum Stuttgart auf die Straßen, um das Fahrverhalten der nächsten Generation besser kennen zu lernen und die Vernetzung zum intelligenten Energiemanagement zu testen. Auf Basis dieser Erkenntnisse können wir dann unsere Infrastruktur, Ladestationen und Abrechnungssystem, bedarfsgerecht weiter ausbauen.

[Unsere aktuellen Ladestationen](#)

**Generation E**

Mobil und dabei umweltbewusst. Eine neue Generation von Verkehrsteilnehmern verbindet Fahrspaß und Nachhaltigkeit.

[E-Mobilität](#)

**Hinter den Kulissen**

Die Vorbereitungen zur Aktion: Unser Projektleiter im Interview.

[zum Video](#)

Bereichsauswahl

Frage oder Suchbegriff

[Kontakt](#) [Drucken](#) [Feedback](#)

**Kostenfreie Servicenummern**

Noch Fragen? Rufen Sie uns an.

**Rund um das Projekt:**

Mo-Fr von 7:00 bis 19:00 Uhr  
Telefon: 0800 3629 888

**Rund um die Stromtankstelle:**

Mo-Fr von 7:00 bis 19:00 Uhr  
Telefon: 0800 3629 001

**Die häufigsten Fragen und Antworten auf einen Blick**

[Fragen und Antworten](#)

Fertig

# Interplay e-scooter usage – infrastructure – mobility portal (lead: EnBW AG)



- Project started in September 2009
- Pilot project for private use of electric vehicles
  - 700 scooters with tracking systems
  - 500 private and 200 public charging points
  - mobility portal
  - analysis of patterns of use / charging needs / user acceptance / ...
  - test bed for billing and roaming models
- Partners: EnBW AG, Robert Bosch GmbH, Dornier Consult
- Closely related and linked to MeRegio mobil (additional charging points within and outside the region) and Call-a-Bike Pedelec Stuttgart



# S-HyBus (lead: SSB AG)

- Project started in September 2009
- Trial operation of 5 articulated buses with serial hybrid drive
  - recuperation
  - reliability (engines and batteries)
  - life cycle assessment
  - cost analysis
- Partners: SSB AG, TÜV Nord and PE International



# *IKONE – integrated concept for sustainable e-mobility (lead: Daimler AG)*



- Project started in January 2010
- Fleet test and validation of 50 electric light trucks
  - different profiles of services
  - city logistics / craftsmen / ...
  - recuperation potential, reliability, maintenance
  - user analysis / patterns of use
- Partners: Daimler AG, TÜV Süd, EnBW AG, Fraunhofer IAO

# *EleNa – e-mobility retrofitting for diesel engine delivery vans*

- Project started in April 2010
- Development and testing of an e-mobility retrofitting package for delivery vans with conventional combustion engines
- Partners: Lauer & Weiss GmbH, Telemotive AG, ARADEX AG, Huber Automotive AG, J. Eberspächer GmbH & Co. KG, WSEngineering GmbH & Co. KG, TÜV SÜD Automotive GmbH, Heldele GmbH, FKFS, IBZ, Hochschule Esslingen, Kompetenznetzwerk Mechatronik BW e.V., Fraunhofer IPA

# The „E-Boxster“



- Project started in April 2010
- Construction of a full electric roadster based on the Porsche Boxster (Typ 987 II)
  - Range of 150 km / 0-100 km/h < 6sec
  - Operational strategy for optimal consumption and performance
  - Testing of charging strategies of batteries, billing systems / durability of batteries
  - Layout, calibration and optimisation of ancillary units
  - Specifications for an e-roadster
- Partner: Porsche

# Call-a-bike Pedelec Stuttgart

- Project started in March 2010
- Technical and economic integration of e-bikes into „Call a Bike fix Stuttgart“
  - 450 pedelecs capable for renting systems
  - Upgrading of renting stations
  - Integration in the public transport system
- Partners: Stadt Stuttgart, db rent



# *E-mobility in urban environments (Ludwigsburg)*

- Project started in April 2010
- Public charging infrastructure
- Integration of electric vehicles in carsharing models
- Rental of pedelecs
- Partners: Stadt Ludwigsburg, stadtmobil carsharing AG, University of Stuttgart, Stadtwerke Ludwigsburg-Kornwestheim GmbH, Ludwigsburger Parkieranlagen GmbH, Eder GmbH, CargoLogix GmbH, Fraunhofer IPA

# *The e-mobile city (Airfield Böblingen/Sindelfingen)*

- Project started in April 2010
- Linking urban infrastructure with electric vehicles and related mobility models
  - 2 full electric utility vehicles
  - 3 full electric cars (smart ed or Fiat) for shuttle services and test drives
  - 10 full electric scooters
  - Innovative charging infrastructure (e.g. inductive charging)
- Partners: Zweckverband Flugfeld Böblingen/Sindelfingen, Sensapolis GmbH, City of Böblingen, City of Sindelfingen, Stadtwerke Böblingen und Sindelfingen, Max Holder GmbH, Siedlungswerk, University of Stuttgart, LIC Langmatz GmbH, Fraunhofer IAO

# *Projects in preparation*

- E-mobility showroom
- Competence Centre E-Mobility
- Smart ed test operation in social and charitable services

# Overview vehicles in the field

- **Two-wheelers**
  - Up to 700 electric scooters
  - 480 rental pedelecs
- **Buses**
  - 5 Citaro articulated hybrid buses
  - 1 FIAT Ducato hybrid bus
- **Vans**
  - 50 Vitos E-CELL
- **Cars**
  - 3 Fiat 500 Elektra
  - 5 full electric cars for car-sharing (n.n.)
  - 26 Smart ed
- **Other**
  - 2 municipal utility vehicles

## *5. Contact*

# *We welcome you to Stuttgart...*



- July 4<sup>th</sup>, 2010, Schlossplatz, 1pm-5pm  
Public „Kick-off-event“ Pilot Region E-Mobility



- September 27<sup>th</sup>-28<sup>th</sup>, 2010, Haus der Wirtschaft  
f-cell 2010 – Congress and Trade Fair  
Including the f-cell special:  
“Electromobility – fuel cells and batteries moving the future”

For further details and registration see:

<http://www.f-cell.de/englisch/Home/>



## Contact details

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# Thank you for your attention!

Gefördert durch:



Bundesministerium  
für Verkehr, Bau  
und Stadtentwicklung

aufgrund eines Beschlusses  
des Deutschen Bundestages