Towards connected mobility
Electric Mobility in Baden-Wuerttemberg

Cenex Low Carbon Vehicle Event 2013
5th September, 2013
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Baden-Württemberg International
Baden-Württemberg – a perfect location at the heart of Europe.

Baden-Württemberg serves as a central gateway to Europe.

80 per cent of all European capital cities, and thus the key European markets, can be reached within three hours.

Population: 10.8 million (approx. 13% of Germany)

Capital city: Stuttgart

Metropolitan areas: Stuttgart region, Rhine-Neckar (Mannheim), Middle Upper Rhine (Karlsruhe)
The strongest economic sectors in Baden-Württemberg are mechanical engineering and the automotive sector.

- **Mechanical Engineering**
- **Automotive Sector**
- **Electrical Engineering**
- **Health Care Industry / Medical Technology**
- **Sustainable Mobility**
- **Environmental Technologies / Renewables**
- **ICT and Creative Industry**
Major challenges for future mobility

Environmental challenges:
- peak oil
- increasing urbanization
- climate change and increasing ecological damage

Economic and technological challenges:
- growth and employment
- innovations in the fields of …
  - vehicle construction
  - storage technology
  - renewable energies
  - information and communication technology

Societal challenges:
- increasing ecological awareness
- increasing mobility
- increasing individualisation

Recent market situation and future scenarios:

Ongoing urbanisation / growing megacities:
Automotive industry in the German South-West

**Key Facts:**
- more than 125 years of automotive engineering
- three large OEMs: Daimler, Porsche, Audi
- >1000 suppliers (Bosch, mainly SME)
- one third of Germany’s automotive turnover is generated in Baden-Wuerttemberg
- more than 300,000 people employed by OEMs, suppliers and automation industry (39% of Germany’s automotive workforce)

**Ready for future mobility:**
- more than 200 companies involved in the core subjects of electric mobility
- close collaboration between established industry giants and renowned research institutes
- successful interplay between diverse technological disciplines (automotive, energy, ICT, production technology)
The Baden-Württemberg electric mobility initiative

- **First State Initiative for Electric Mobility** in 2009 (volume: 15 million Euros)
- **Second State Initiative for Electric Mobility** in late 2011 (50 million Euros)
- **Key target of the State Initiative**: Intermodal transport based on renewable energies.

**e-mobil BW – State Agency for Electric Mobility and Fuel Cell Technology**

**Portfolio of activities:**
- contact and information centre for all stakeholders in the field of electric mobility
- networking and support activities
- targeted integration of SME into the innovation process
- initiation of collaborative research projects
- active support in the field of infrastructure, education and training, promotion of young talents
- positioning Baden-Württemberg as leading location for business, education and science
Electric mobility – a complex system

Electricity network
- development
- smart grid

Charging station concepts:
- public
- semi-public
- private

Technology
- conductive/inductive
- alternating current/direct current

Users and goods
- smart phones
- mobility services

Vehicle interfaces
- ICT in vehicles
- charging technol.

Urban living
- smart home
- smart city
- energy storage

Further vehicles
- car-to-car
- fleet management/back-end
- logistics

Modes of transport
- connecting public transport
- intermodality
- mobility services

Images: Daimler AG, EnBW Energie Baden-Württemberg AG, Fraunhofer IAO, MVV Energie AG, PTV AG, Robert Bosch GmbH, Stuttgarter Straßenbahnen AG
Germany: The National Platform for Electric Mobility

Vision of the National Platform for Electric Mobility:
- Germany as leading provider and leading market for electric mobility by 2020
- “Electric Mobility made in Germany” as a synonym for systematic solutions that unite the conservation of natural resources with technology leadership and new market potentials.

Timeline of the National Platform for Electric Mobility:

- **market preparation until 2014**: research and development, showcases for electric mobility
- **market development until 2017**: market set-up of vehicles and facilities
- **high-volume market until 2020**: starting point of the mass market, stable business concept
Electric mobility projects in Baden-Wuerttemberg – an overview

Key figures:
- more than 2500 battery-electric and hybrid vehicles and more than 1000 electric bikes
- more than 450 charging points in public and semi-public places

Collaborative research projects:
- technical challenges in the automotive sector, bidirectional inductive charging and multimodal transport management

Current demonstration projects:
(overview not complete)
- Stuttgart Electric Mobility Pilot Region
- Future Fleet (Mannheim region)
- MeRegio mobil (Karlsruhe region)
- iZeus (Karlsruhe region)
- German-French fleet test CROME
Cluster Electric Mobility South West – road to global market

- more than 80 partners from industry and science
- cluster region: Karlsruhe – Mannheim – Stuttgart – Ulm
- cluster management: e-mobil BW GmbH

Objectives:
- realizing a high-capacity, low-emission and market-driven mobility
- Baden-Wuerttemberg as leading market and supplier for electromobile solutions
- strengthening the regional economic power (esp. SMEs)
- linking industry and local research institutions

Vision:
- Developing and producing the most attractive solutions for future mobility and turning Germany into a leading provider and key market for electric mobility.
The Living Lab BW\textsuperscript{e} mobil is a key part of Baden-Wuerttemberg’s roadmap to sustainable mobility.

Its projects focus on several key questions of electric mobility:
- intermodality
- fleets and commercial traffic
- charging infrastructure and ICT
- urban and transport planning
- automotive technology
- communication and participation

Key facts:
- More than 100 partners in 40 projects with a total volume of 150 million Euros.
- More than 2,000 electric vehicles and 1,000 charging points until 2015.
- Vision: 100,000 electric vehicles by 2020.
Fuel Cell Cluster Brennstoffzelle BW

**Vision:**
- promoting the industrialisation of mobile and stationary fuel cell applications
- regional value creation & allocation of jobs
- supporting use of renewable energies and introduction of electric mobility
- leading European location for production, storage and use of hydrogen

**Strategic fields:**
- industrialisation of fuel cell technology
- infrastructure (hydrogen generation, storage and distribution)
- research and development in the fields of electrolysis and fuel cell technology
- creation of markets for fuel cell vehicles
- education and training
- targeted public relation activities

Images: Daimler AG, EnBW Energie Baden-Württemberg AG, OMV Aktiengesellschaft, ZSW Ulm
Baden-Wuerttemberg’s roadmap to sustainable mobility

- The combination of Leading-Edge Cluster Electric Mobility South West (lead manufacturer – industrialisation), Living Lab BW² mobil (lead market – business models) and Fuel Cell Cluster BW is a perfect complement and enables an interactive, fortifying innovation process.

- National and international cooperation is a key element of Baden-Wuerttemberg’s roadmap to sustainable mobility.


Images: e-mobil BW GmbH
World of Energy Solutions 2013

- 30 September to 2 October 2013
- Stuttgart trade fair grounds, Stuttgart
- in 2012: more than 3000 visitors from 22 countries

The World of Energy Solutions brings together three renowned events...

- f-cell – Fuel Cell Forum for Producers and Users
- Battery+Storage – Conference for Battery and Storage Technologies
- e-mobil BW Technologietag 2013
- Multinational Brokerage Event “New Energy Vehicle Technologies” (01.10.2013) (in cooperation with Steinbeis Europa Zentrum)

more information: http://technologietag.e-mobilbw.de/en/
Baden-Württemberg International – Your one-stop agency on the way to success.

Our support services include:

• Provision of general information on Baden-Württemberg as a location for business and science, as well as specific location and structural data.
• Supply of general information on the legal framework and social insurance.
• Provision of the "Baden-Württemberg Cluster Survey", an overview of cluster-related networks and initiatives.
• Identification of suitable business and scientific partners for your company.
• Identification of potential sites and organisation of site visits in cooperation with regional and local business-promotion agencies.
• Support with administrative procedures.
• Gateway to all actors in the field of business promotion and development, such as technology-oriented industrial institutions and sector-specific networks.
For more information, visit www.bw-i.de and www.bw-invest.de

Thank you for your attention.