

Topic: **Certification for Automotive Industry**

***AUTOMOTIVE***   
***SUMMIT 2014***

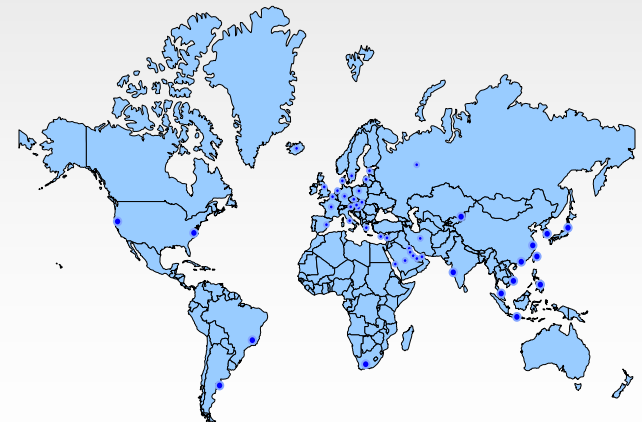


**Mr. Srinivas Reddy Vinta**

Regional Manager for South East Asia  
TÜV NORD

### From the idea to production – everything from one single source

- Detailed technical examinations and consultancy are indispensable for successful introduction of a vehicle to the market. We possess the required experience and solid technical competence.
- As an accredited, independent provider of engineering services, TÜV NORD Institute for Vehicle Technology and Mobility (IFM) offers numerous services in the automotive sector.
- For five decades, we have worked with industrial enterprises and government authorities on a national, European and global scale. Moreover, we are known to possess a high level of competence in mechanical, mechatronic and electronic systems of modern vehicles.



A close-up photograph of a printed circuit board (PCB) with various electronic components, including gold-plated connectors, capacitors, and resistors. The board is densely packed with components and is connected to several multi-colored wires (red, yellow, blue, black). The background is blurred, showing more of the board and its connections.

**For all  
who focus on future technology**

# Technology of the Future

The hybrid and electric vehicle technology has the potential to make the future mobility extensively carbon-neutral and to reduce the dependency on fossil energy sources.



## e Mobility- Key Facts

- Investment by German Govt. estimated to be 1 Billion Euro for R&D.
- Tax incentives (Individual and company), special parking places, Environmental Zones etc. in proposal.
- By 2014- 100,000 e-Mobility cars to be on road.
- 2017 - Increase to 500,000 cars planned
- 2020 - 1 Million cars planned.
- As per EGCI plan an estimated 3M cars will be in Europe by 2020.



### Leads to three major requirements:

- Coordination of results from existing demonstration projects to define best in class solutions
- Standardization of technologies has to be in place 2015 at the latest.
- To drive a car conveniently between the existing demo regions, an overarching coordination is necessary (roaming) and choice to customers.

# TÜV NORD e-mobility Research Project – B0mobil



- Development and production of a small electric delivery van
- Funded by: EU and Ziel2.NRW
- Partners: HS Bochum, Composite Impulse, Delphi, ScienLab, TÜV NORD Mobilität
- Supported by: Opel, Hoppecke, ruhrmobil-E
- Scope of work: consultancy, safety review, measurements and approval



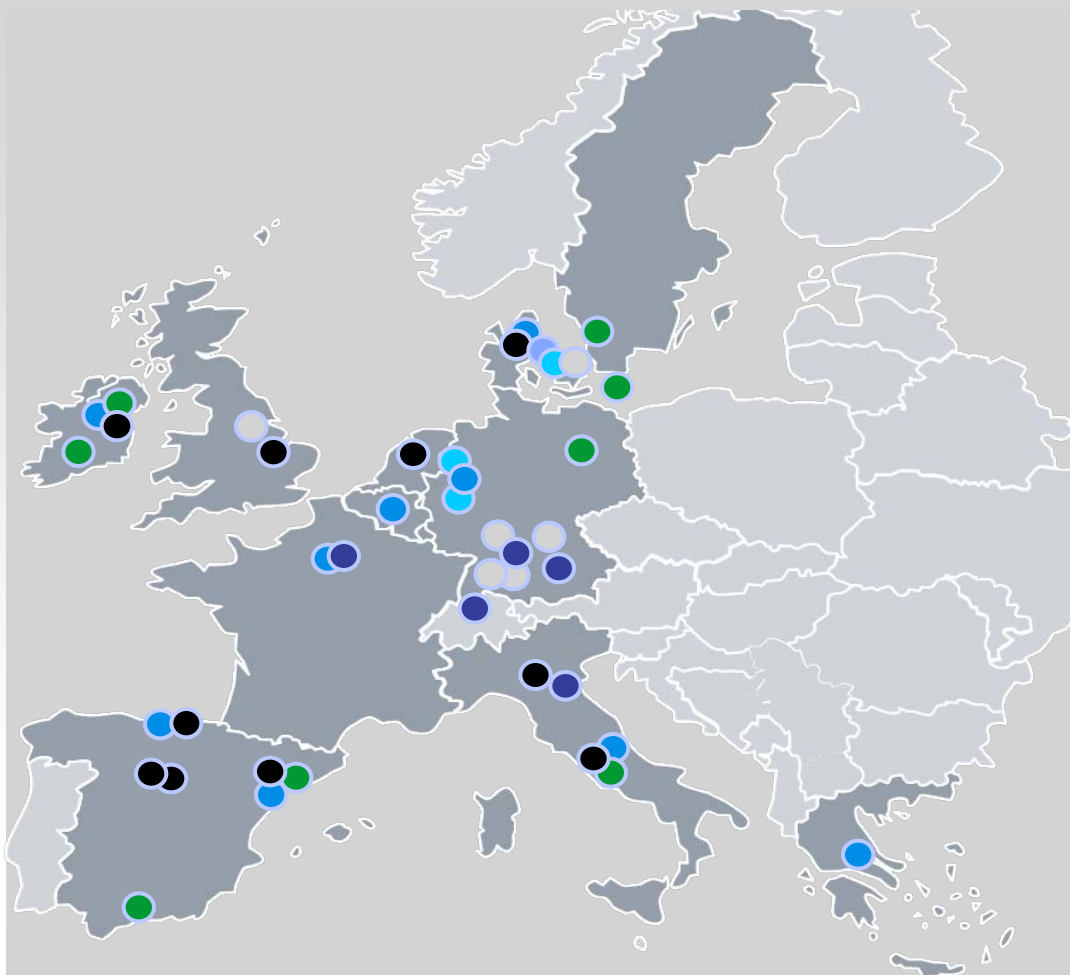


- Development of a European framework for electric mobility
- Consortium of 42 companies, universities and cities
- Scope of work: comparative study on climatic impact on performance and efficiency
- Funded by: 7th Framework Programme



# TÜV NORD e-mobility Research Project – Green eMotion

- FP7 call TRANSPORT – 2010 TREN-1: 24 Mio. € EC funding, 42 partners, project start March 2011



- **Industries:**  
Alstom, Better Place, Bosch, IBM, SAP, Siemens
- **Utilities:**  
Danish Energy Association, EDF, Endesa, Enel, ESB, Eurelectric, Iberdrola, RWE, PPC
- **Electric Vehicle Manufacturers:**  
BMW, Daimler, Micro-Vett, Nissan, Renault
- **Municipalities:**  
Barcelona, Berlin, Bornholm, Copenhagen, Cork, Dublin, Malaga, Malmö, Rome
- **Research Institutions and Universities:**  
Cartif, Cidaut, CTL, DTU, ECN, Imperial, IREC, RSE, TCD, Tecnalia
- **EV Technology Institutions:**  
DTI, FKA, TÜV Nord



## E - Services – Overview

- **Whole Vehicle Type Approval / Homologation**
  - Directive 2007/46/EC
  - ECE R-100
- **Assessment of safety concepts**
  - Functional safety (ISO 26262)
  - Electrical safety
  - Constructional safety
  - Battery safety
- **Tests during the process of development**
  - Experimental vehicle
  - Safety concepts
- **Evaluation of technical parameters**
  - ECE R-101 and additional standards
  - Consumption of energy
  - Evaluation of range, performance and efficiency
- **Benchmarking**



### ■ **Battery Safety**

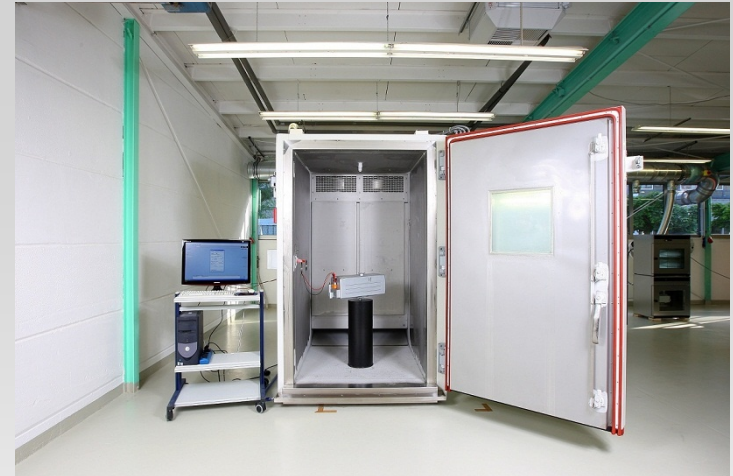
- According to DIN/EN 61851, LVD 2006/95/EC,
- EMC 2004/104/EC and 2005/83/EC
- Battery Safety Certificates
- Security tests
- Abuse tests
- UN transportation tests

### ■ **Certification of Charging Stations**

- According to: DIN EN 61851, 2006/95/EC, 2004/104/EC and 2005/83/EC
- Contents and tests:
  - Charging mode
  - IP protection class
  - Design
  - Electrical Safety
  - Protection against external causes

### ■ **IT Systems**

- IT Security of data communication Car-to-X
- IT Security in billing-systems



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- A close-up photograph of a computer keyboard. The central focus is a blue key with the words "KNOW" in yellow and "HOW" in white. The surrounding keys are white and slightly out of focus.
- **ISO 9001 Quality Management**
  - **ISO 14001 Environmental Management**
  - **ISO/TS 16949 – Quality Management for Automotive Industry**
  - **VDA 6.1 – Quality Management for German Automotive Industry**
  - **OHSAS 18001 – Occupational & Safety**
  - **ISO 50001 – Energy Management**
  - **etc.**

# TÜV NORD e-mobility References



**Thank you for your attention**



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