

Urban market introduction perspectives of E-mobility

Freiburg, 14th October 2010
Local Renewables Conference 2010

Joint Research Centre – Institute for Energy

*Christian Thiel
Scientific Officer
Institute for Energy*

<http://www.jrc.ec.europa.eu>



- 1. The context**
- 2. What is done at European level**
- 3. Study on identification of E-mobility lead markets in Europe**
- 4. Conclusions**

President's Barroso's Political guidelines of the European Commission:

“...maintain the momentum towards a low emission economy, and in particular towards **decarbonising our electricity supply and the transport sector** – [...], as well as the **development of clean and electric cars.**”

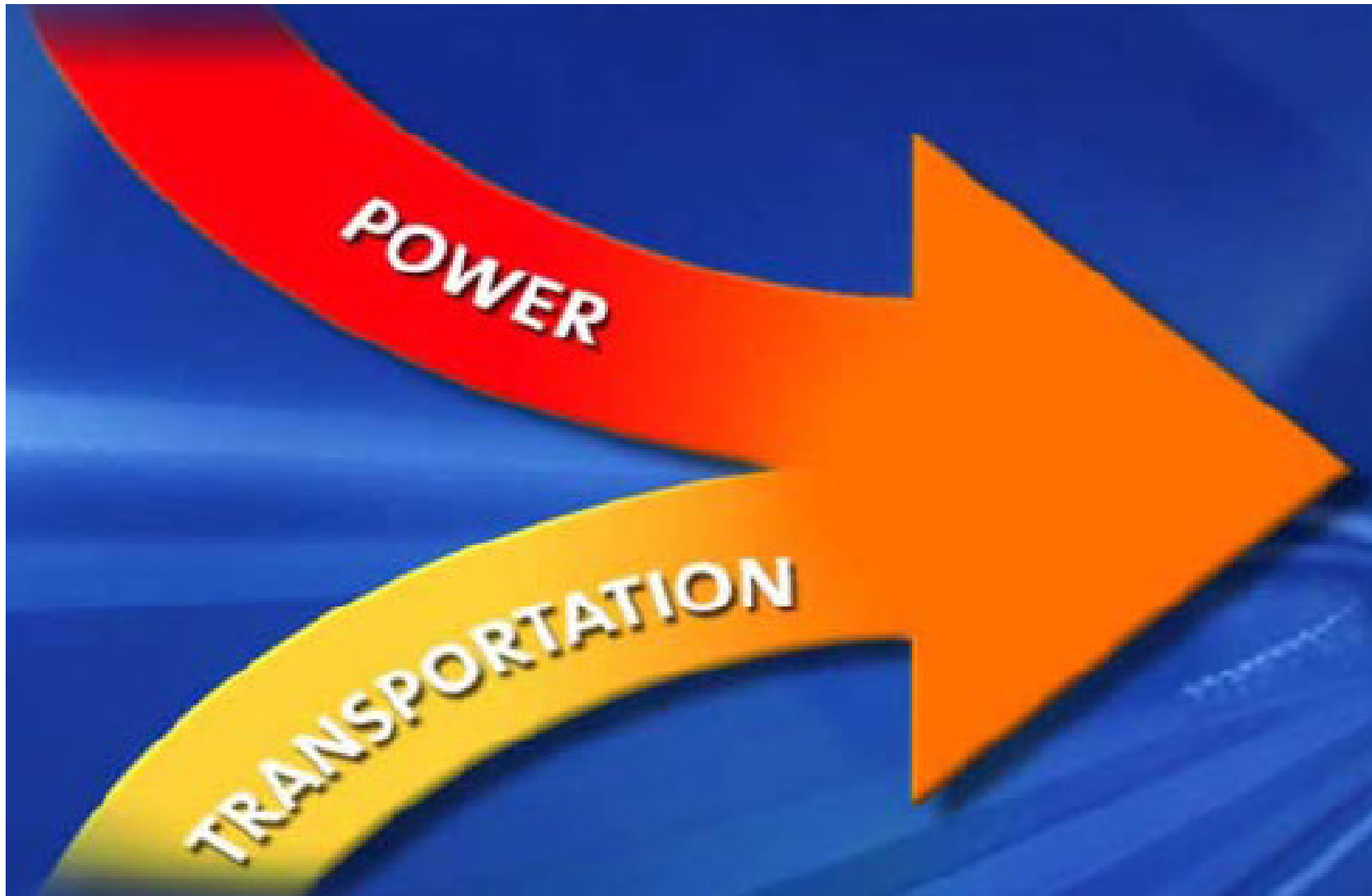
Industry partnerships to address global challenges and opportunities for deployment of electric vehicles:

Daimler-Tesla, Renault-Nissan, Peugeot-Mitsubishi, Fiat-Chrysler, Daimler-BYD, Bosch-Samsung, ...

National and regional initiatives:

France, Germany, United Kingdom, Spain, Denmark, ...
Amsterdam, Paris, London, ...

Electric vehicles will link the Power with the Automotive Sector



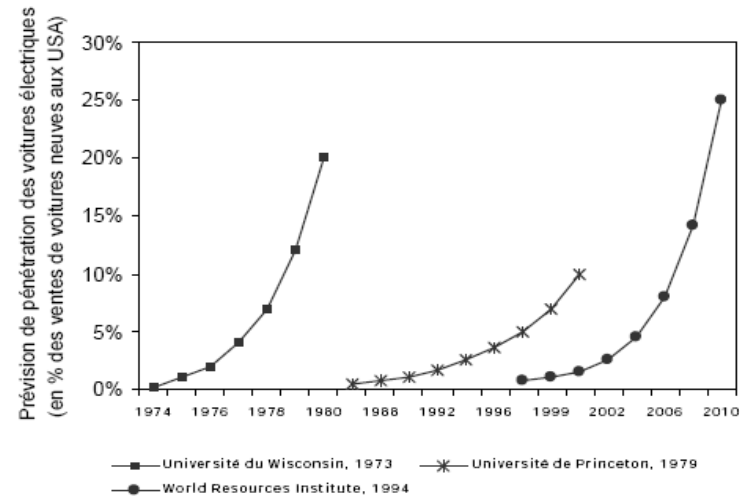
Looking back into the **past**

earlier projections

- 20% of sales in 1980
- 10% of sales in 2000
- 25% of sales in 2010



Photo: Porsche



Source: Frédéric Fréry: Un cas d'amnésie stratégique :l'éternelle émergence de la voiture électrique

Looking into the **future**

50% of sales in 2050

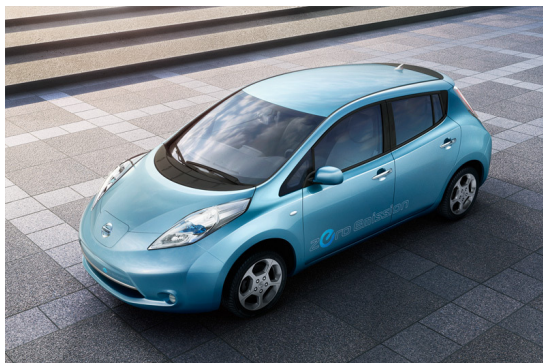
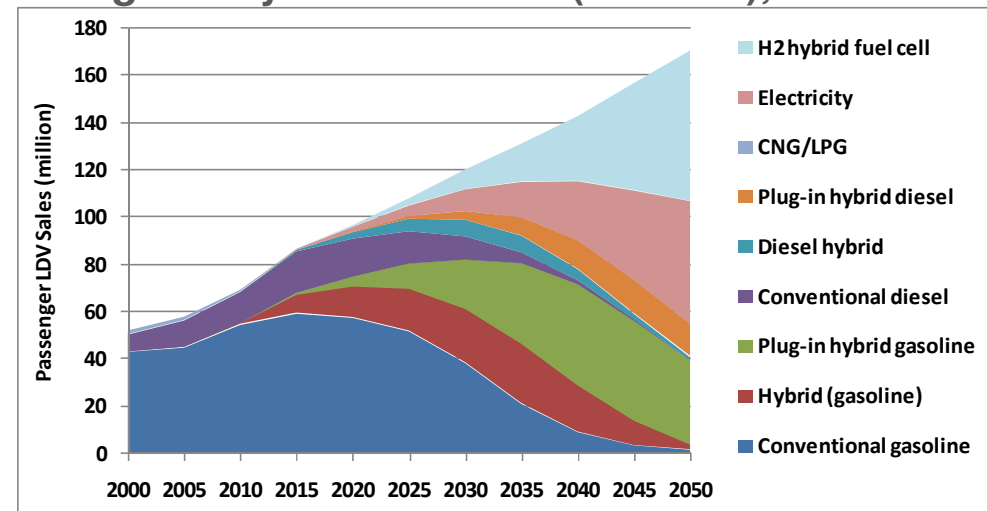


Photo: Nissan

Light-duty vehicle sales (millions), 2010-50



Source: IEA Roadmap (Blue Map scenario) 2009

Electrification of Road Transport is affecting many European policy areas and activities:

- Transport Whitepaper
- Strategy on Clean and efficient Vehicles
- Emission Trading Scheme
- Regulatory: Technical Regulations, Emissions, Fuel Quality, CO₂ for Cars and LDVs
- RTD: FP7 – Projects in the fields transport, energy, information society and materials; Direct Actions of Joint Research Centre
- Public-Private Partnerships: European Green Car Initiative, Fuel Cells and H₂ Joint Undertaking, SET-Plan Industrial Initiatives, ...
- Innovation Union (Europe 2020 Strategy)
- Standardisation

● Smart Cities

● Objective

- » Cities at the forefront of **EU** energy and climate policy

By

- » increasing energy efficiency and the use of RES
- » improving the sustainability of urban transport

And at the same time

- » ensuring citizens' quality of life
- » providing a competitive edge to the EU industry



Accelerating the deployment of low carbon technologies in urban areas

Joint Research Centre of the EC

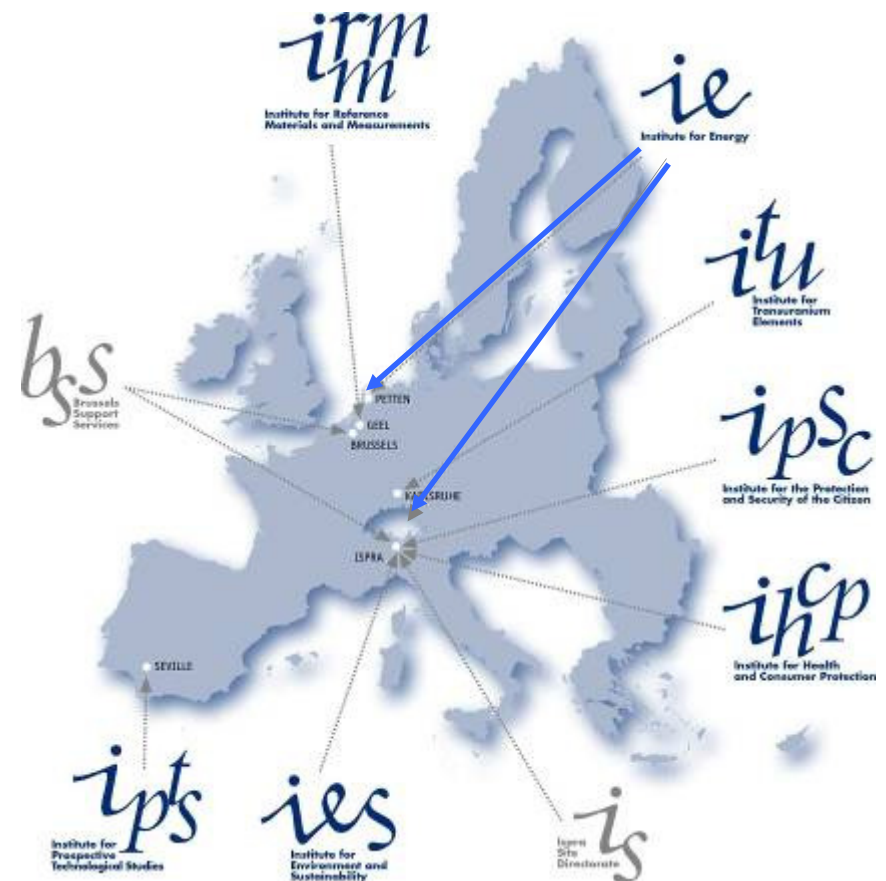
The mission of the JRC is to provide customer-driven S&T support for the conception, development, implementation, and monitoring of EU policies

7 Institutes in 5 Member States

~ 2800 staff

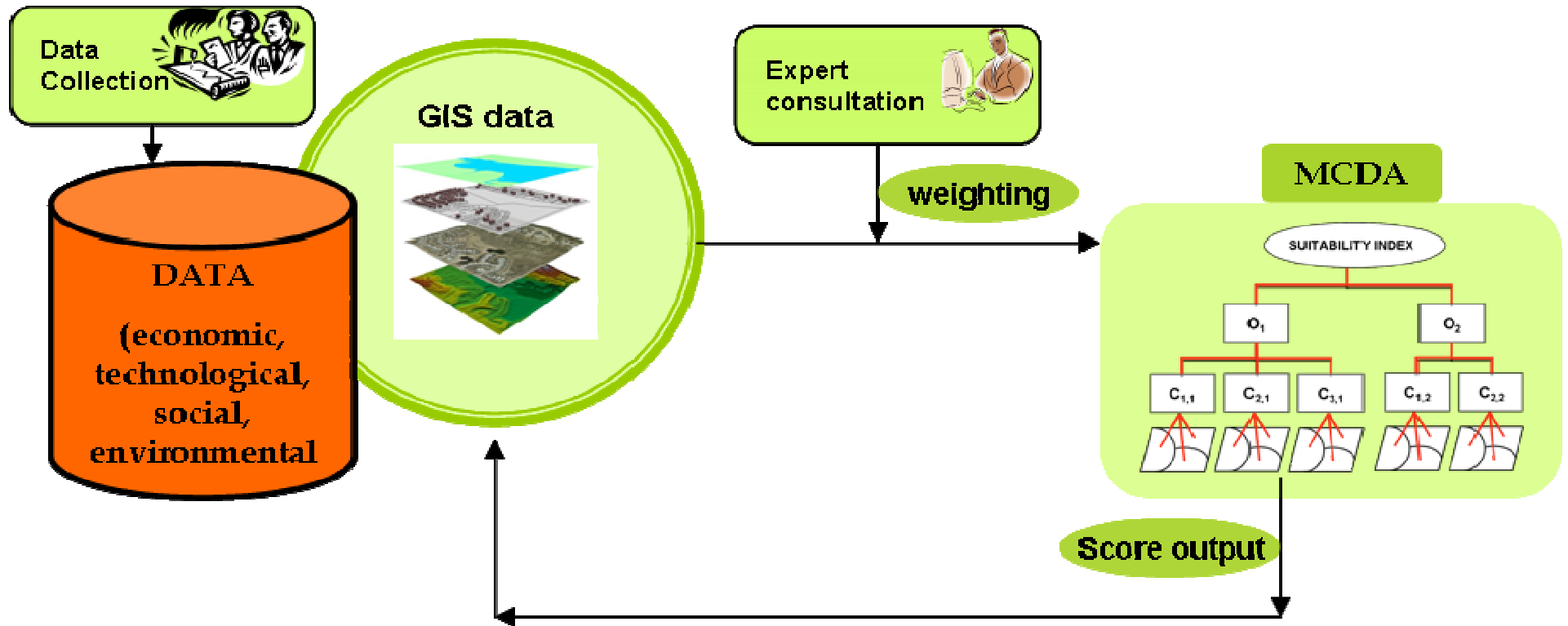
~ 300 M€/y budget

(+ 40 M€/y competitive income)



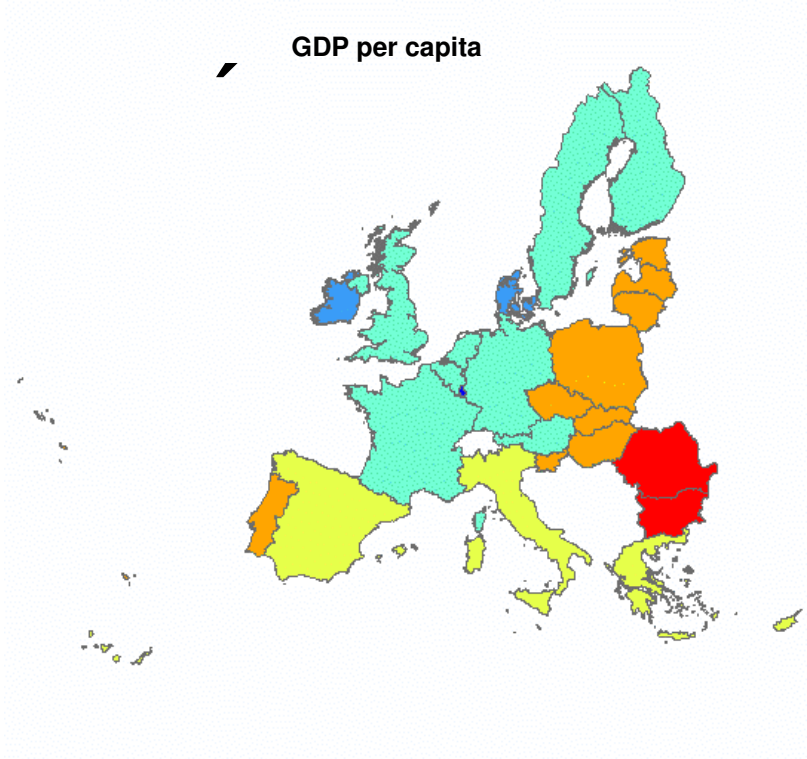
- Decision-support tool regarding electric vehicle lead markets in the context of the transport and energy systems.
- Based on an expert consultation, criteria for the prioritization are developed.
- They are subsequently incorporated into a GIS-based multicriteria tool with fuzzy operators, enabling an assessment at different spatial and temporal scales under different EV market penetration scenarios.

Process Diagram



2020

GDP per capita

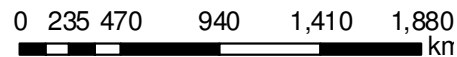
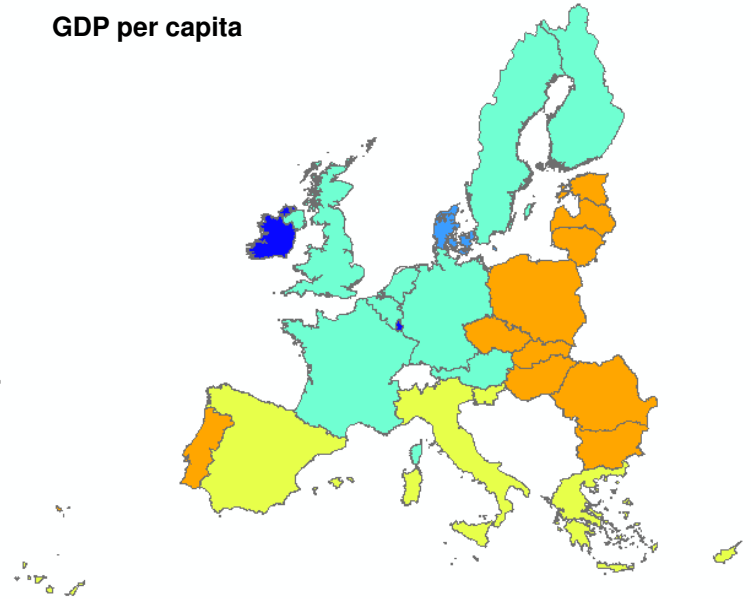
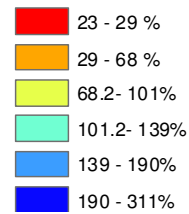


Source:Primes,2007

2030

GDP per capita

Legend



Source:Primes,2007

Spatial distribution of drivers for EV uptake

2020

BEV fuel costs savings compared to gasoline (€/100km)



Source:Primes,2007

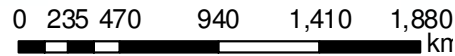
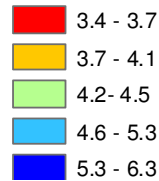
2030

BEV fuel costs savings compared to gasoline (€/100km)



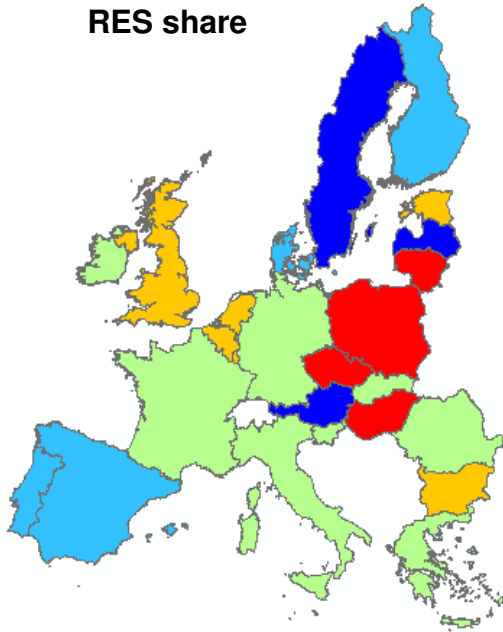
Source:Primes,2007

Legend

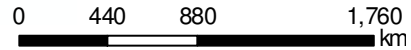
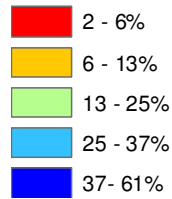


2020

RES share



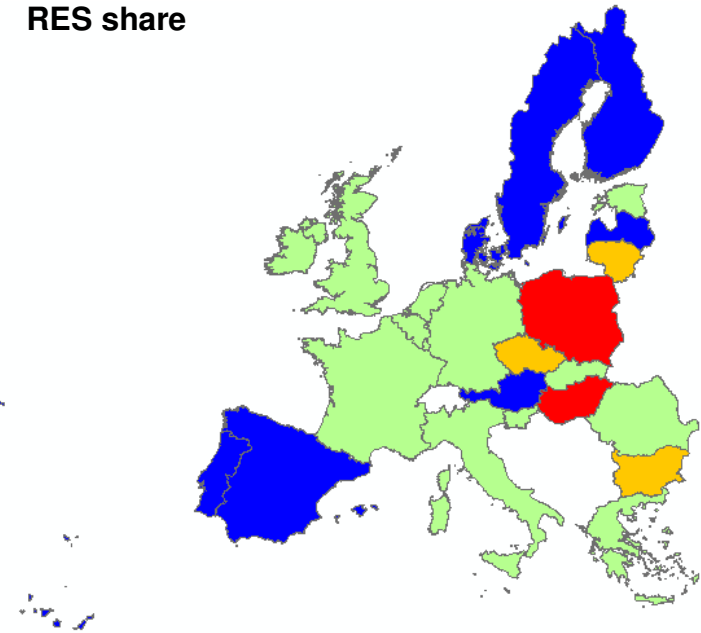
Legend



Source:Primes,2007

2030

RES share

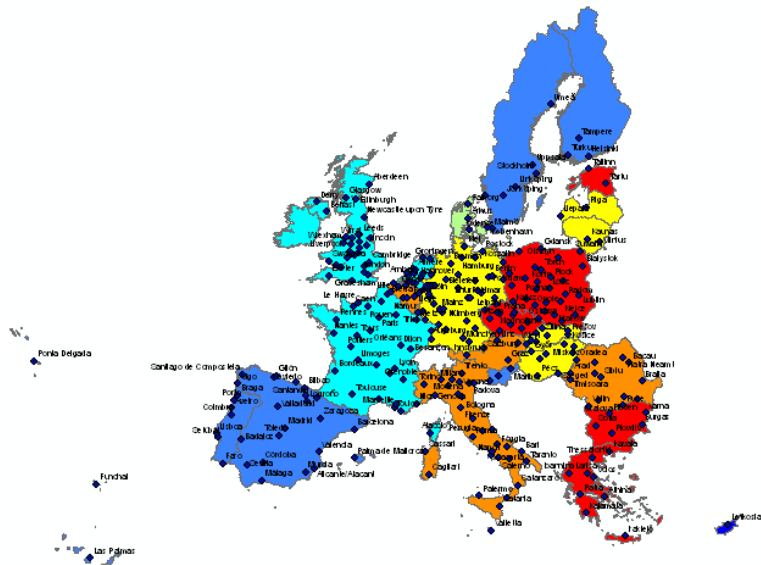


Source:Primes,2007

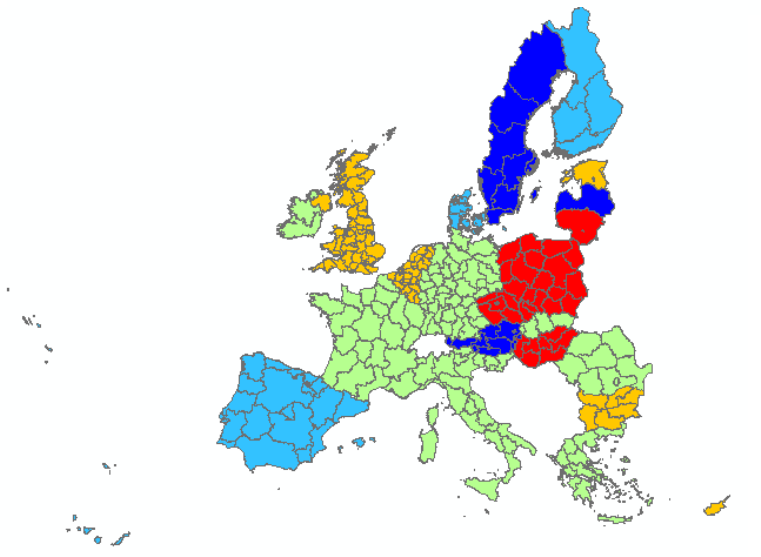
Outlook: urban drivers for EVs

October 14, 2010, Freiburg. Urban market introduction perspectives of E-mobility

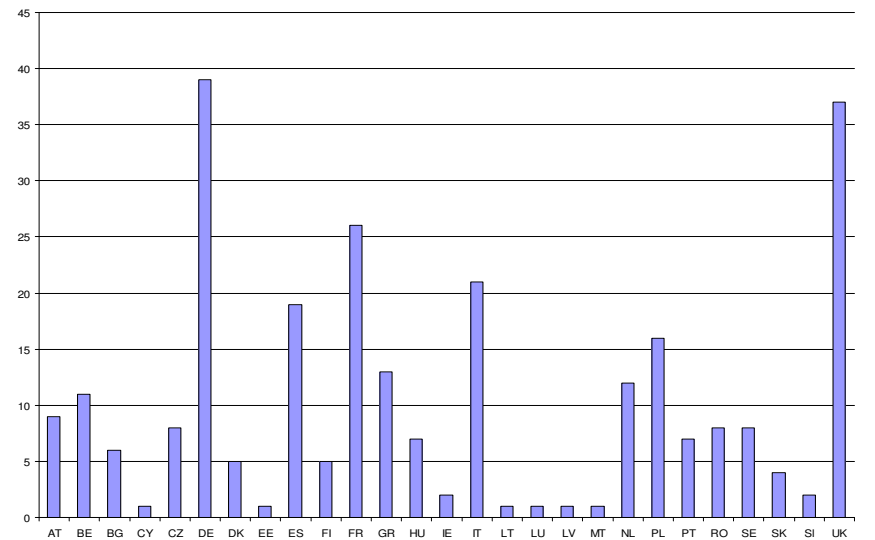
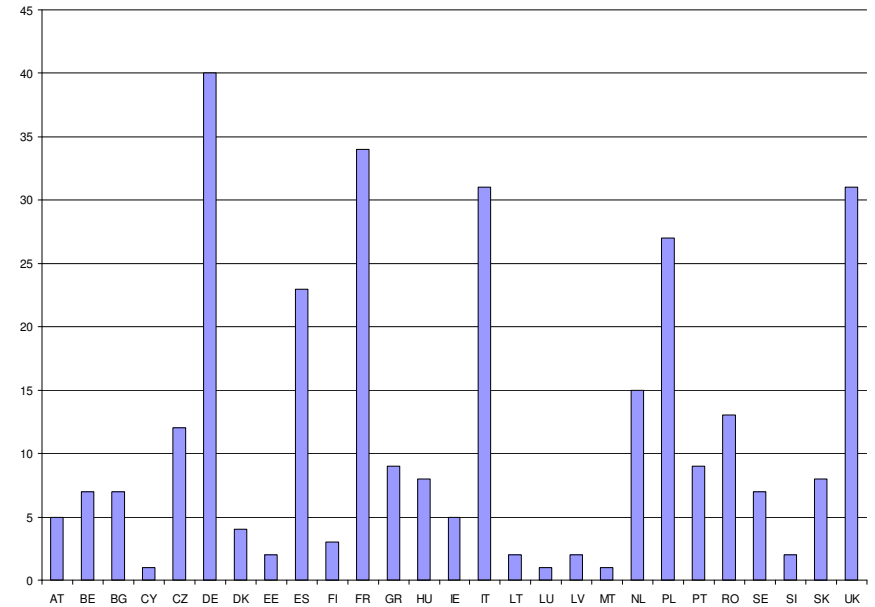
14



**309 core cities
as specified by
Eurostat**



**271 NUT2 region
as specified by
Eurostat**



- Electrification of road transport can play an important role to decarbonise Europe's energy system
 - if the required energy supply mix is nearly carbon-free
 - if supported by smart grid infrastructure set-up
- Many initiatives affect the future prospects of electric vehicles
- E-mobility starts on a regional level (urban and sub-urban areas)
- JRC project currently investigates identification of e-mobility lead markets in Europe