

Global efforts to deploy electric vehicles: a city based approach for the deployment of electromobility

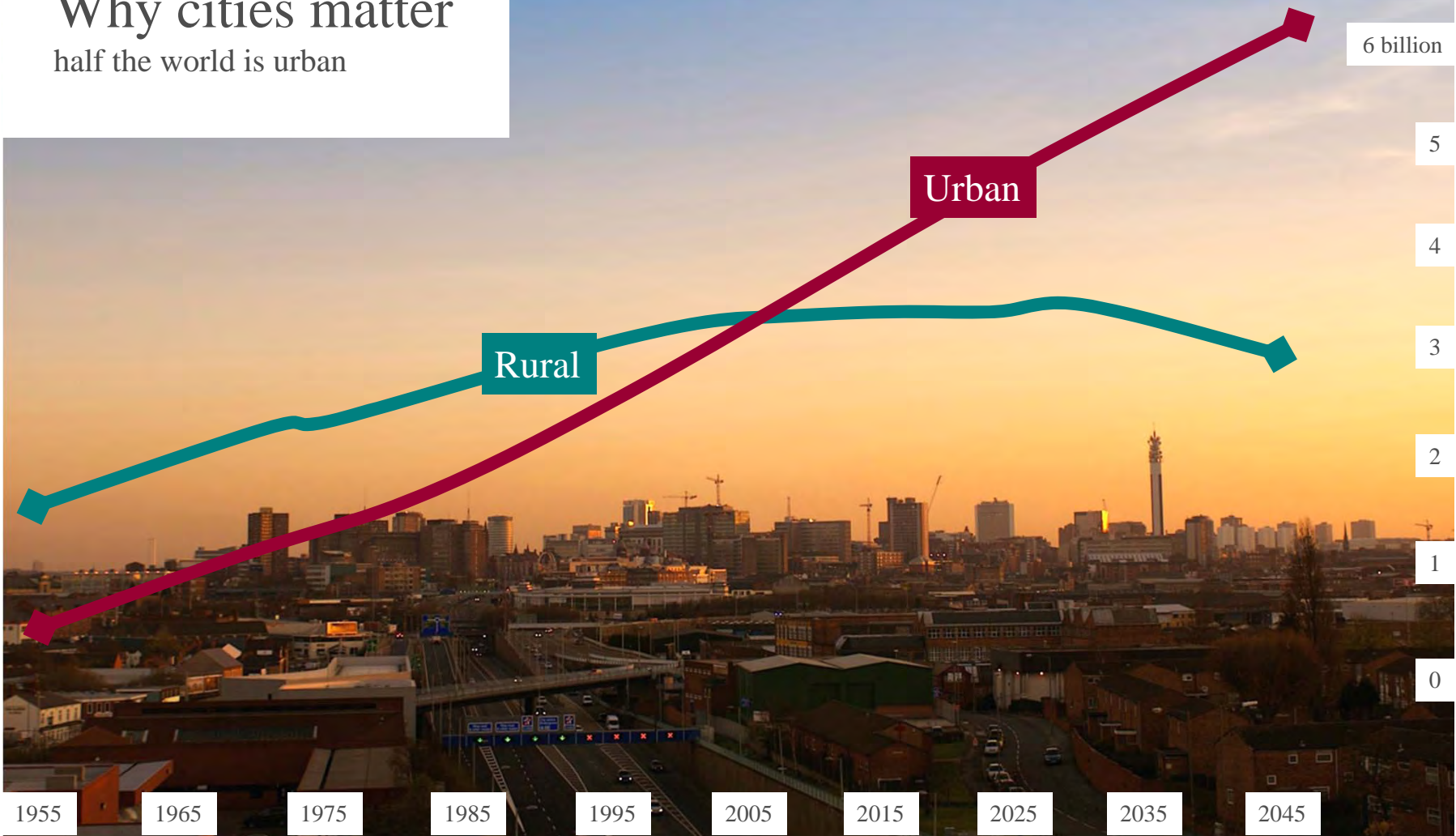
Susan Claris, 6 April 2011

Overview: Cities and Networks

- 1. Why cities?**
- 2. Networks:**
 - **UK**
 - **Europe**
 - **US**
 - **Global**
- 3. Closing thoughts**

Why cities matter

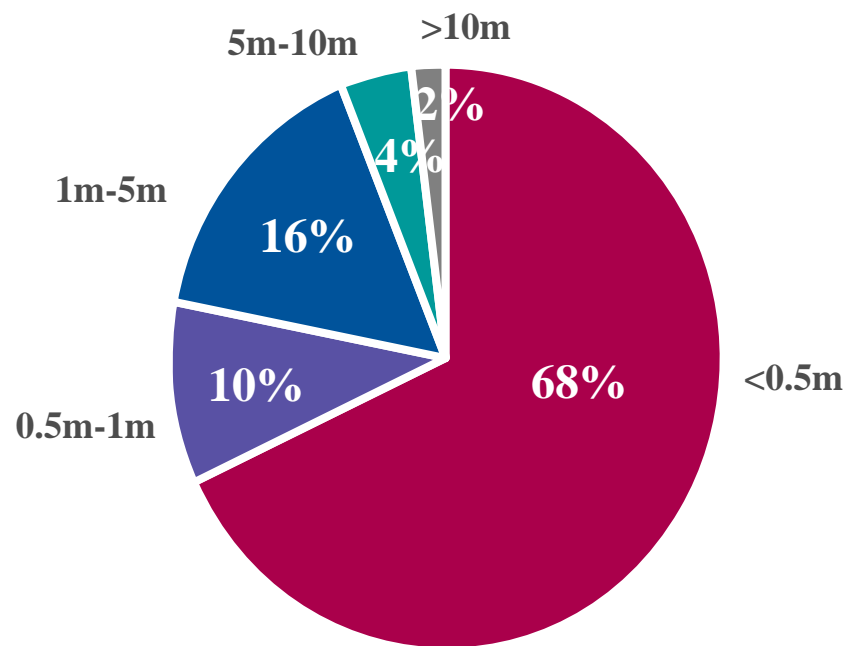
half the world is urban





City size

% urban population by settlement size in Europe



Why Cities?

- Increasing urban population
- City size and urban travel patterns
- Air quality and noise pollution
- Governance and opportunities for change



Why City Networks?

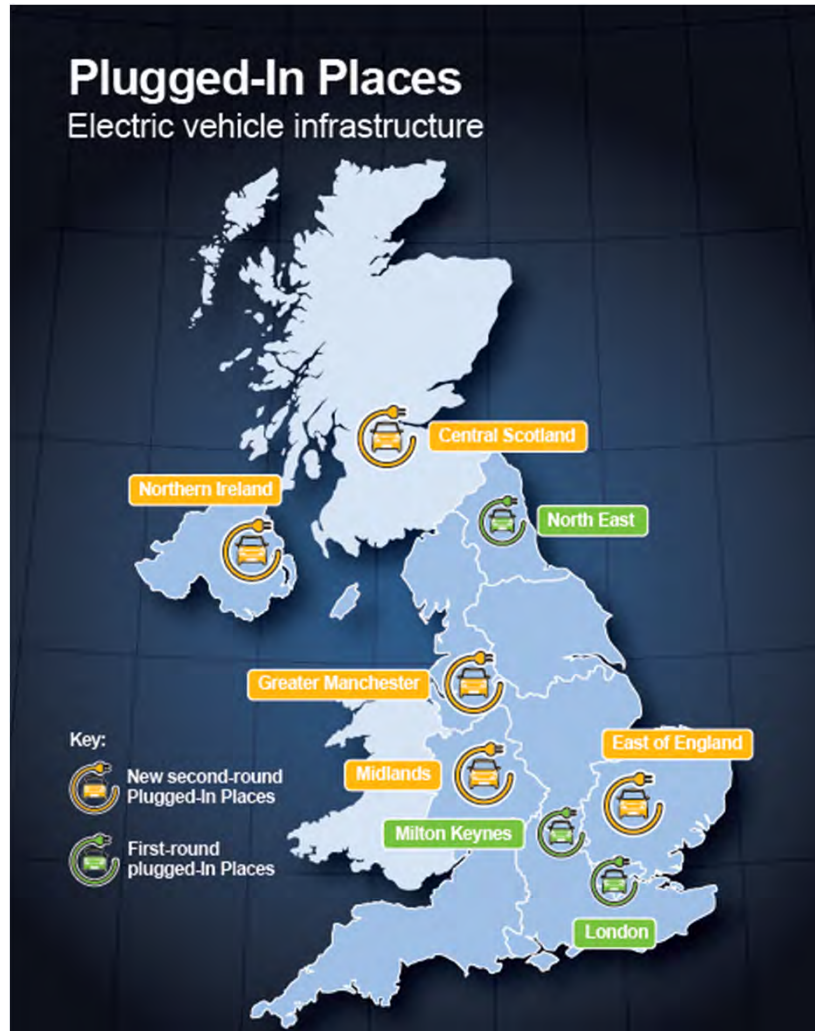


“We can all be pioneers, but we will get things done a lot quicker if we steal each others ideas!”

Ken Livingstone

UK Networks

OLEV Plugged-In Places



1st Wave

- London
- Milton Keynes
- North East

2nd Wave

- East of England
- Midlands
- Manchester
- Northern Ireland
- Scotland

Technology Strategy Board Trials

For example, CABLED (Coventry And Birmingham Low Emission Demonstrators)



Consortium of 13 organisations

- Arup as Project Managers
- 6 vehicle manufacturers
- Electricity supplier
- Birmingham City Council
- Coventry City Council
- 3 universities

£15m programme

- 50% funded by public bodies
- 50% funded by consortium



ETI's Plug-in Vehicle Economics & Infrastructure Project

Part 1: Research, analysis and modelling (£4.5m)

Part 2: Validation through extensive real-world trials with 'mass market' consumers

March 2010

June 2011



Charging Technologies,
Electricity Networks and
Integrating Systems

Vehicle Technology,
Performance and
Costs Analysis to 2050

Consumer Attitudes,
Behaviours and
Societal Acceptance

Long-term Economics,
Carbon Offset and Strategic
Options for Market Transition



European Networks

EVUE: Electric Vehicles in Urban Europe

- Support better **action planning** for **city wide transport policies** regarding **EVs**
- Speed up the **policy innovation processes**

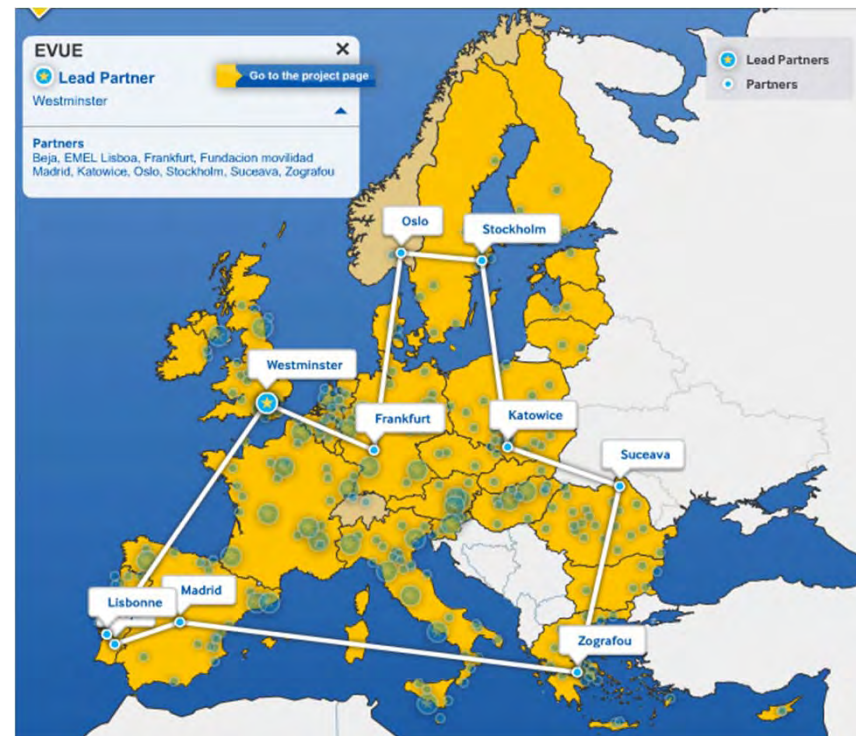
- EVUE Focus:

🌀 Business Models

🌀 Infrastructure

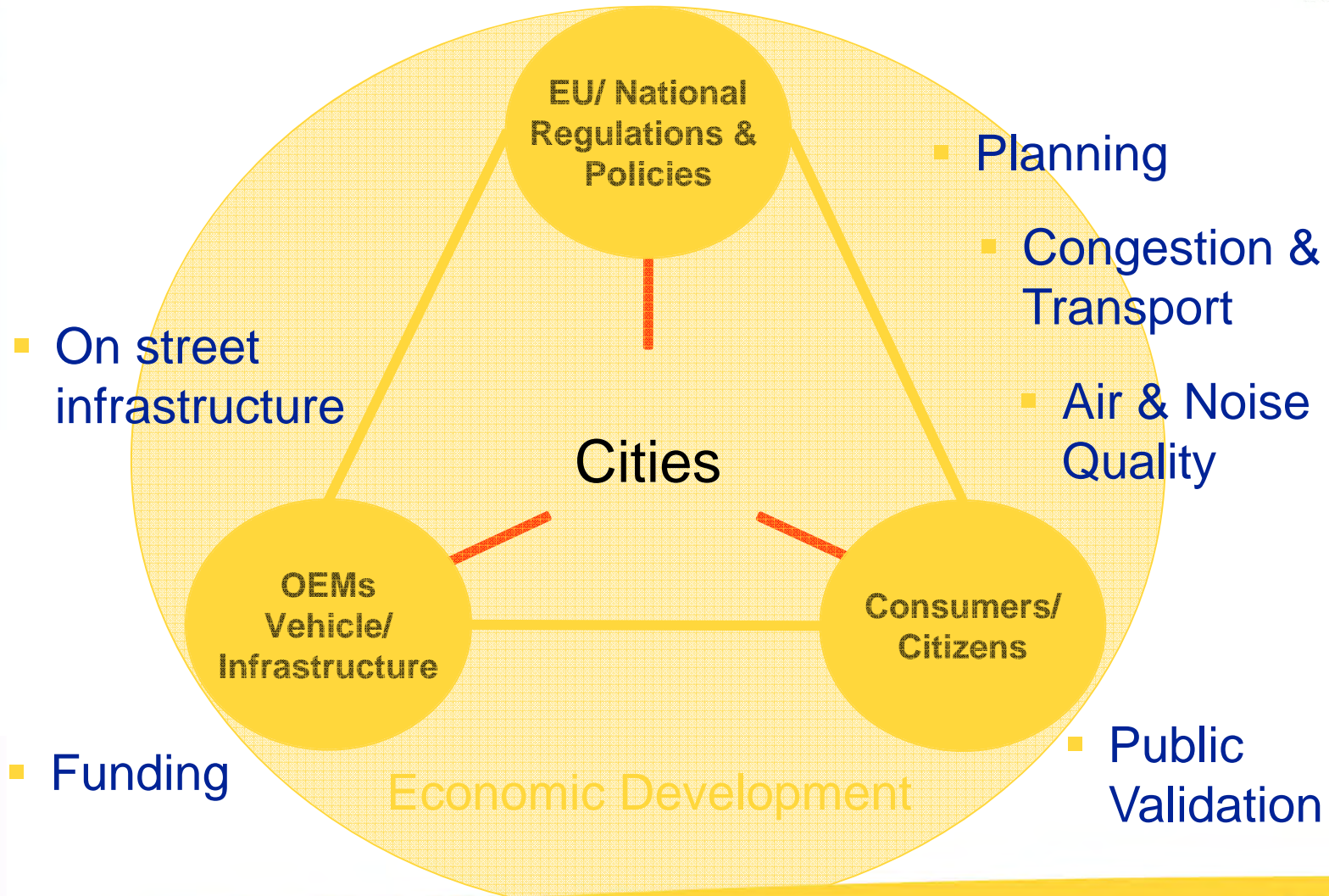
🌀 Procurement

🌀 Awareness Raising



The Role of Cities

URBACT II





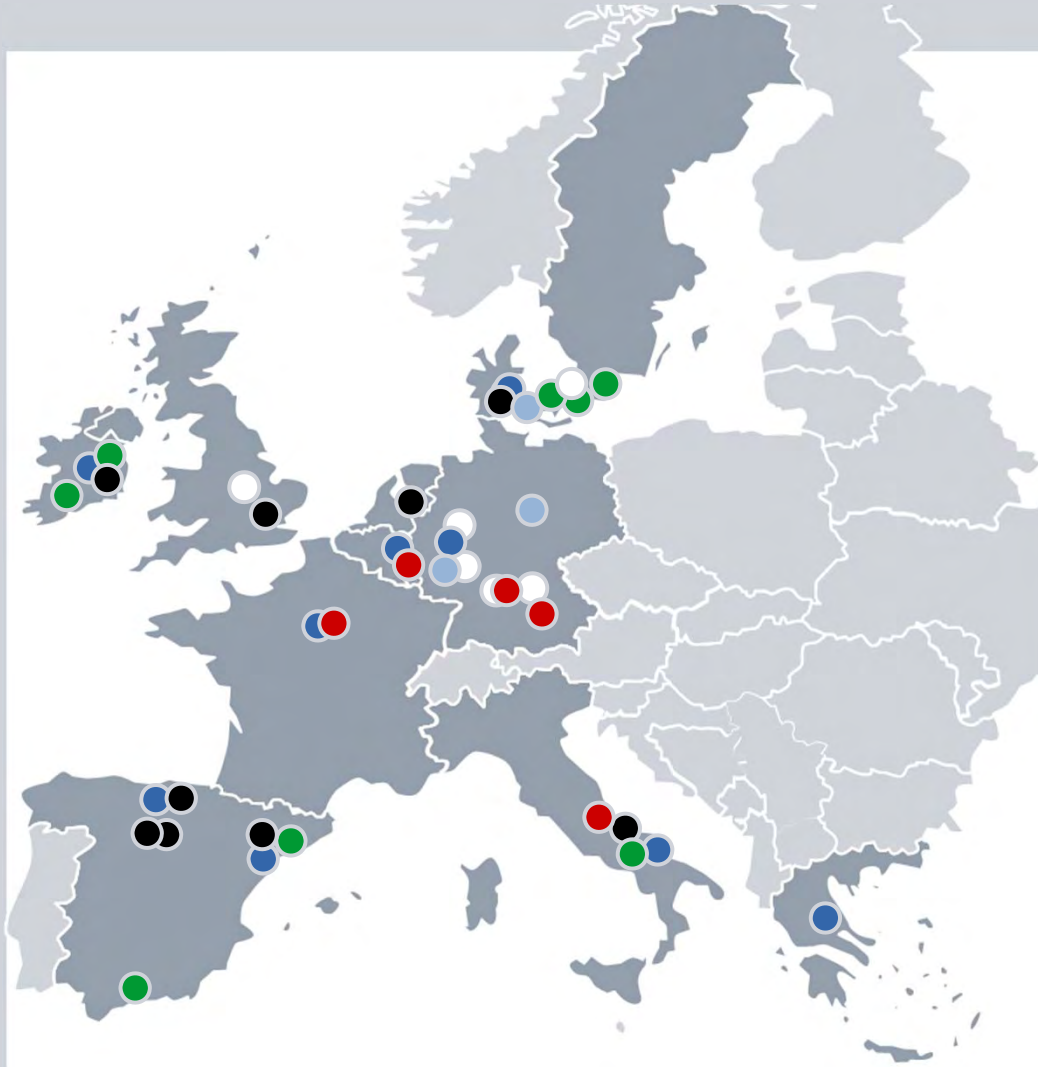
Development of an European Framework for Electromobility



The Project Consortium *

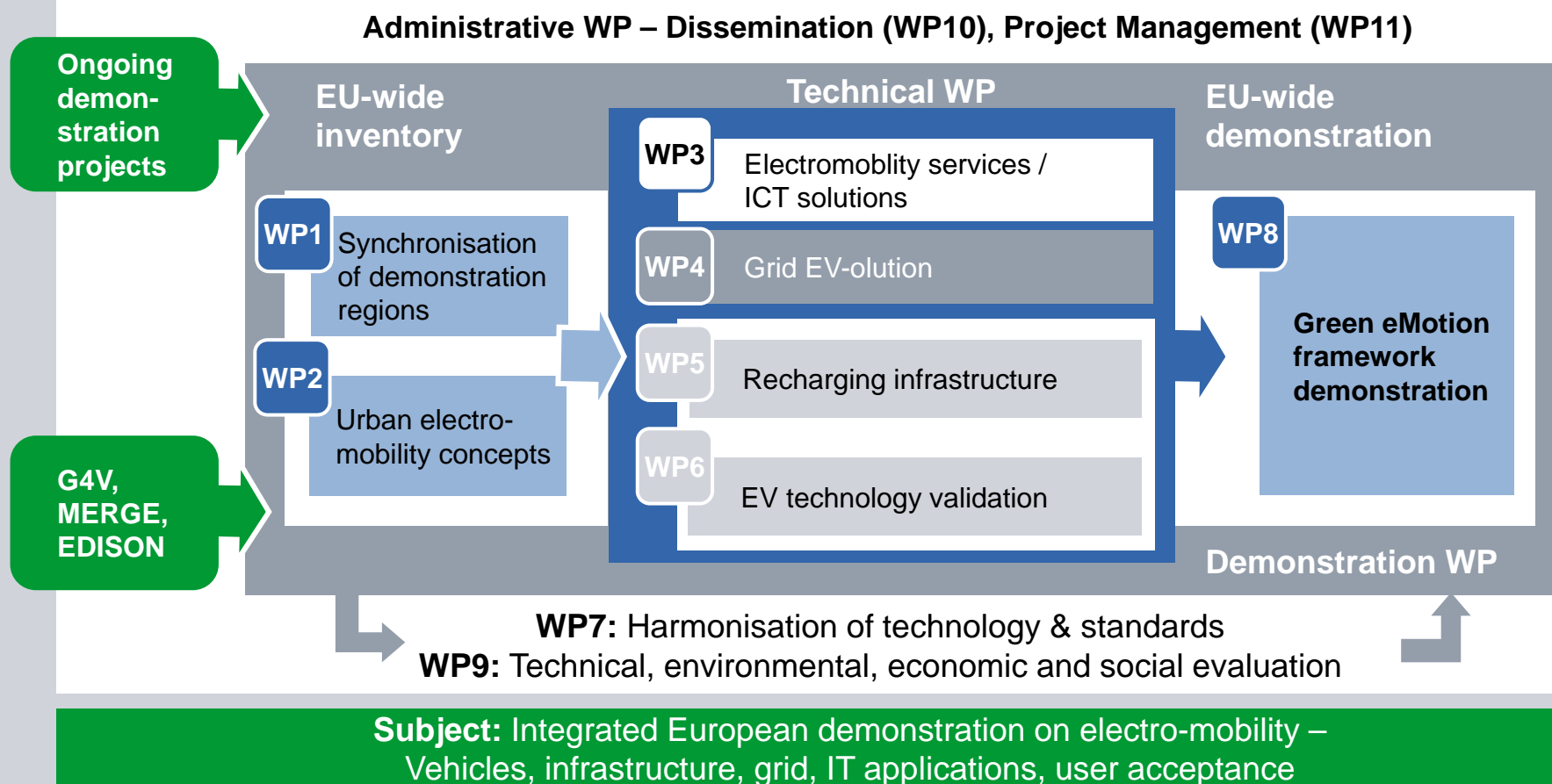
FP7 call TRANSPORT – 2010 TREN-1: 23 Mio. € EC funding, 40 partners, project start January 2011

**status October 2010*



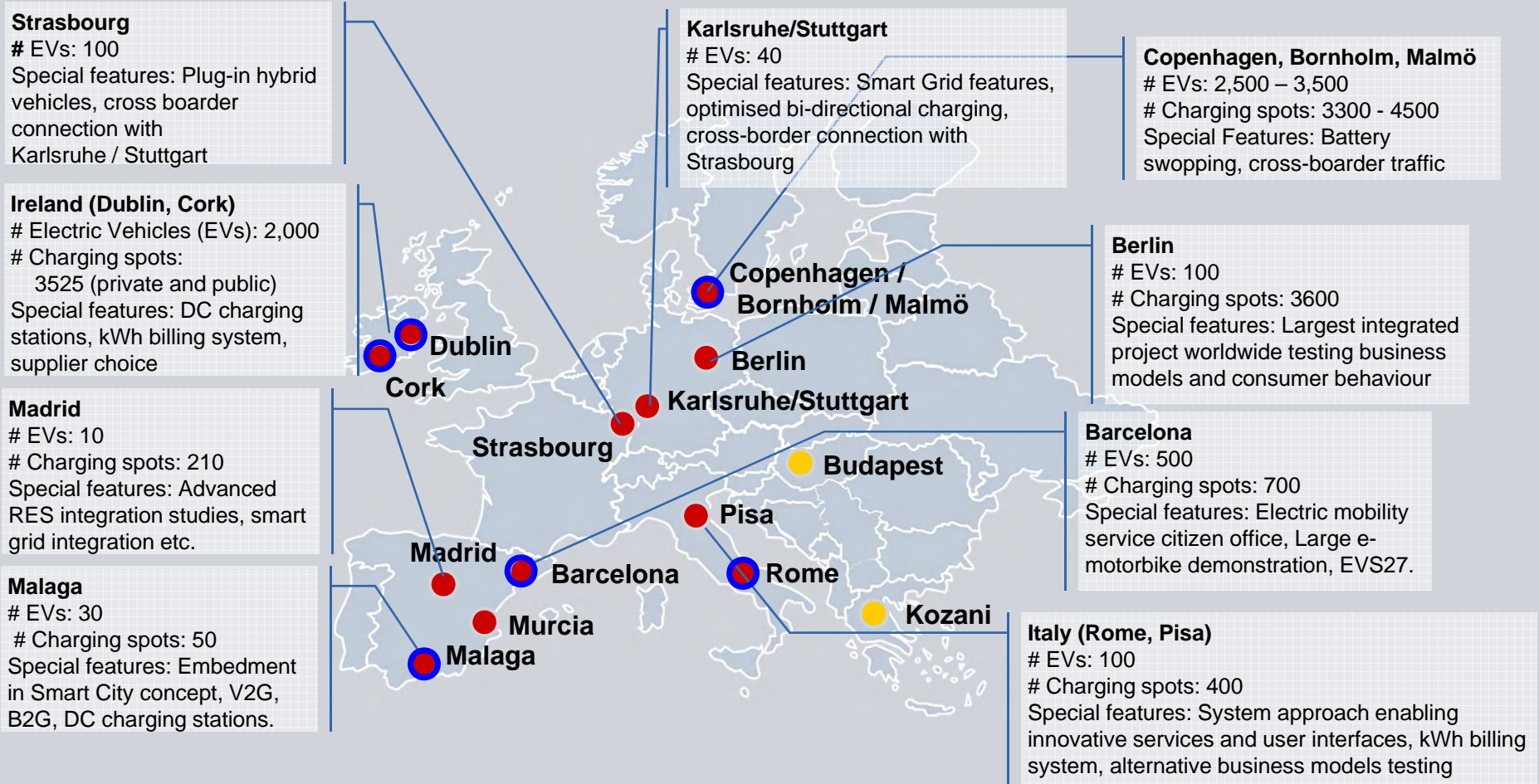
- **Industries:** AREVA T&D, Better Place, Bosch, IBM, SAP, Siemens
- **Utilities:** Dansk Energy, EDF, Endesa, Enel, ESB, Eurelectric, Iberdrola, RWE, PPC
- **Electric Vehicle Manufacturers:** BMW, Daimler, Micro-Vett, Nissan, Renault
- **Municipalities:** Barcelona, Bornholm, Copenhagen, Cork, Dublin,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

Development and demonstration of a unique and user-friendly framework for green electro-mobility



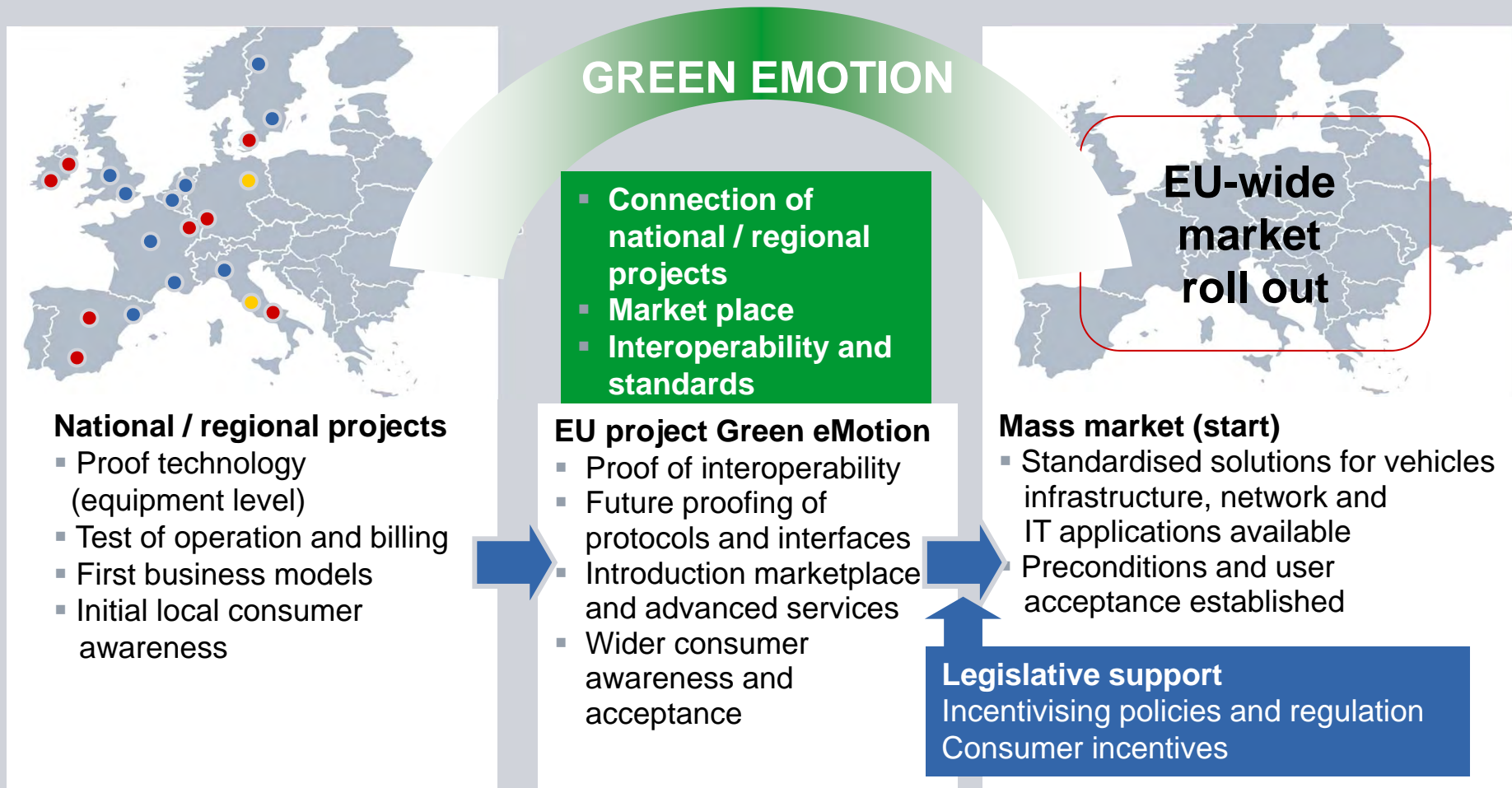
Demonstration Regions (in 2011)

EU-wide demonstration features:
Consumer label / EU clearing House / Standards and interoperability / Cross-boarder rally



● Existing demonstration region ● Potential replication region ● Municipalities involved in Green eMotion

The Concept of Green eMotion



US Networks

US Department of Energy: Clean Cities

Transportation (\$2.85 billion): Investing in a new generation of advanced fuels and vehicle technologies to reduce dependence on foreign oil, revitalize domestic manufacturing and create demand for new organisms and forms of fuel

\$400 million in grants to:

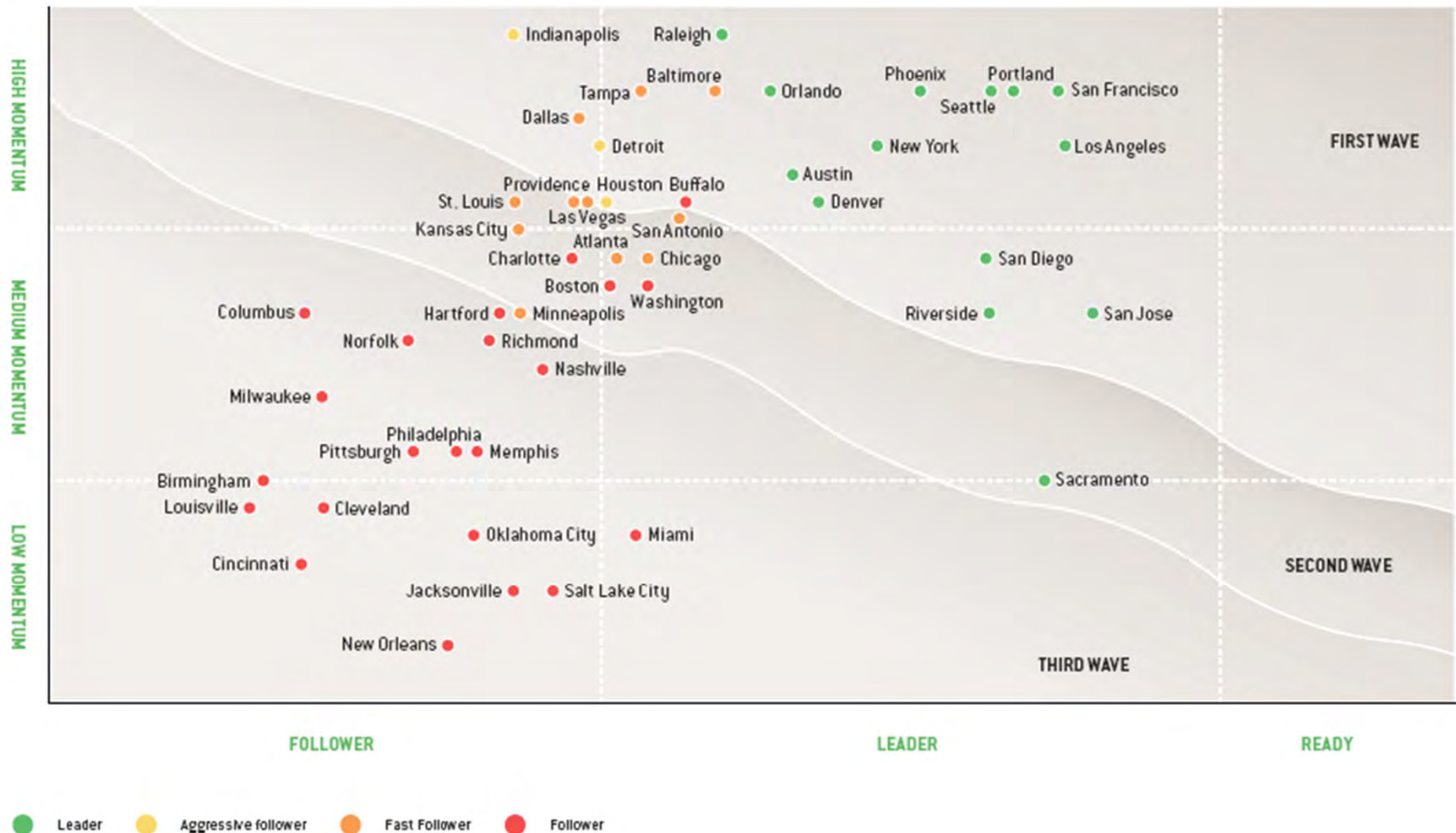
- purchase thousands of plug-in hybrid and all-electric vehicles for test demonstrations in several dozen locations
- deploy them and evaluate their performance
- install electric charging infrastructure
- provide education and workforce training to support the transition to advanced electric transportation systems

Rocky Mountain Institute's Project Get Ready



- Create a prioritized menu of strategies that sooth key pain points in the transition to electrified mobility - these strategies will be for several stakeholders including policy makers, local employers and citizens
- Find 20 “seed” cities and help them implement the menu of strategies

EV Readiness Study: West Coast Cities Lead Efforts, But Several Others Closing the Gap With Focused Local Groups



Global Networks

Electric Vehicle Initiative (EVI)

- A forum for high-level government dialogue on the development and deployment of vehicles that diversify the fuel mix in the transportation sector to improve energy security while reducing pollution
- The initiative will be implemented and coordinated through an Advisory Group
- EVI will explore opportunities to build upon existing international initiatives

Electric Vehicle Initiative (EVI)

- EVI commenced at the Clean Energy Ministerial in Washington, D.C. Participating countries pledged to continue discussions through high-level roundtables organized by the IEA during the Paris Motor Show in 2010 and the Shanghai Motor Show in 2011
- Participating governments include China, France, Germany, Japan, South Africa, Spain, Sweden & the US
- Other initial partners include the IEA

ev ECOSYSTEMS

World cities preparing
for mass adoption of
electric vehicles



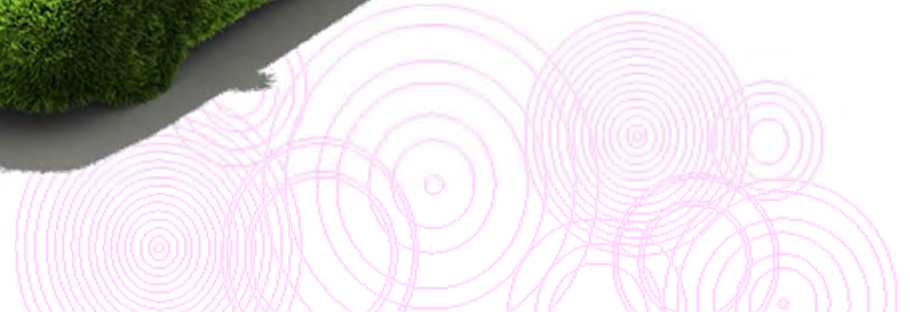
Copyright © 2011, EV Ecosystems

© ev ecosystems

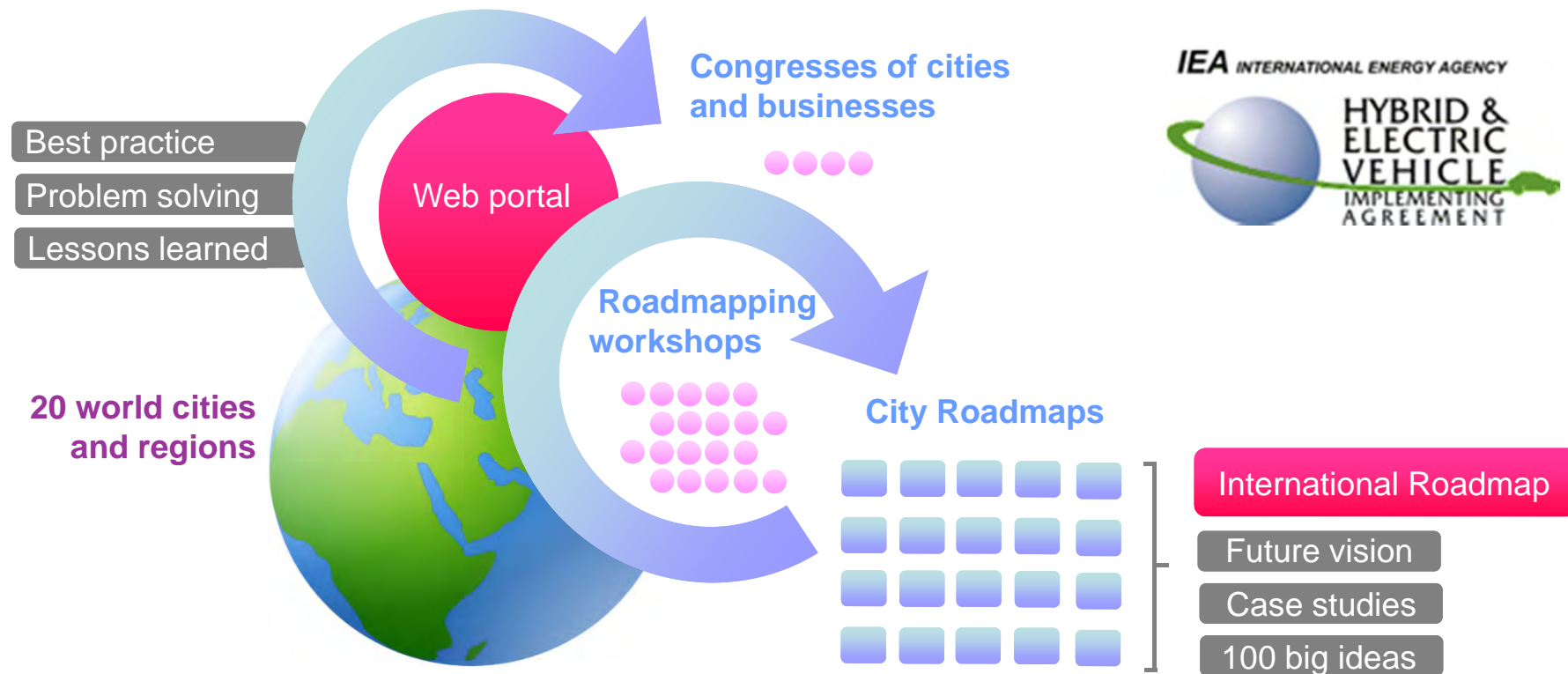


Dr David Beeton

david.beeton@evecosystems.com



International Roadmap for EV Ecosystems



- **Roadmapping workshops** in 20 pioneering world cities, assembling experts from municipalities, regional authorities, governments and industry
- **International Roadmap** will establish a blueprint for development of EV Ecosystems
- **A global community of pioneering cities** for policy exchange and problem solving

In December 2009, the Clinton Climate Initiative (CCI) brought together 17 of the world's largest cities to form the 'C40 Electric Vehicle Network'.



CLINTON
CLIMATE
INITIATIVE

Aim: Help make the cities more electric vehicle friendly, in collaboration with leading vehicle manufacturers.



With support from CCI's network of City Directors, cities in the C40 Electric Vehicle Network are:

- Facilitating planning and deployment of public **charging infrastructure**
- Coordinating monetary and non-monetary **incentives** for purchasers of EVs
- Developing and publishing plans to **mobilise demand** in public- and private-sector fleets for electric cars and light commercial vehicles
- Investigating the possible deployment of electric city buses
- **Sharing knowledge** on projects – learning and experience - across the Network

City examples:

Hong Kong

Cooperating with the Environment Bureau on a fleets electrification project with participation by multi-national and local fleet proprietors

London

Working with Transport for London (TfL) to encourage companies to electrify fleets and install charge points for employees

Chicago

Working with Department of Environment to design and implement an initial “test bed” deployment of public charging infrastructure and EVs

Some closing thoughts



susan.claris@arup.com