EV-CONNECT
A Roadmap for the deployment of the Electric Vehicle Charging Infrastructure

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# Agenda

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   - 1.1 Project Partners
   - 1.2 Project Topics and Objectives
   - 1.3 Roadmap focus
   - 1.4 Needs and constraints
   - 1.5 Target Groups
   - 1.6 Project development overview

2. **Section 2** Methodology
   - 2.1 Stakeholders involvement
   - 2.2 Create a roadmap of demand-side policy actions

3. **Section 3** The results
   - 3.1 The definition of a roadmap of actions for the development of energy supply infrastructure and fostering the electric mobility diffusion
   - 3.2 Conclusion
EV-CONNECT Project Partners

ascamm technology centre

• **Experience:** Battery Lab, Mobility Projects, Business Modelling and R&D Projects.
• **Focus:** Socio-Economic Mobility and Exploitation
• **Main Tasks:** Project and Workshops Coordinator

ATA

• **Experience:** training activities, dissemination, Formula ATA Coordinator.
• **Focus:** Technology
• **Main Tasks:** state of the art, mapping and engaging potential stakeholders as well as networking.

Vrije Universiteit Brussel

• **Experience:** National EV Pilots, Range Anxiety, EV Value and Chain analysis.
• **Focus:** EU policies and National initiatives
• **Main Tasks:** Benchmarking and market evaluation, preliminary methodology to monitor progress.
Project Topics and Objectives

1. Shifting from the current random and isolated charging infrastructure to interconnected charging networks oriented to:

- market demand (holidays, business, public service, car sharing)

- in different operational positions (home, private installations, urban areas, motorways, parking facilities, rural locations)

- linked through ICT connection with vehicles/users and Mobility Management Operator

- Based on interoperable energy exchange technical facilities

- Design how Europe future charging network could be
Roadmap focus

Focused on 3 different regions... The geographic scope will then be extended

**Catalonia**
Area: 32,106.5 km²
Census: 7,539,618
GDP: €200.3 billion

**Piedmont**
Area: 25,402 km²
Census: 4,646,251
GDP: €127.0 billion

**Belgium**
Area: 32,106.5 km²
Census: 11,099,554
GDP: €353.6 billion
Target Groups (I)

Target Groups and Collaborators invited for the definition of the actions for the road map

Car Manufacturers and supply chain

1. **IVECO** is an Italian industrial vehicle and bus manufacturer based in Turin of CNH Industrial.
2. **LITHOP**: Italian battery component manufacturer
3. **FICOSA** is a multinational corporation (Tier 1) devoted to the research, development, production and commercialisation of systems and parts for the automobile, as well as for both commercial and industrial vehicles.
4. **SEAT** is a Spanish automobile manufacturer. Today it is a Volkswagen Group subsidiary.
5. **NISSAN**
6. **TOYOTA**
Target Groups (II)

Charging infrastructure and supply chain

ACS Servicios is a world leading company in building and construction of industrial and energy infrastructures and associated services.

Estebanell Energia: Regional Power Supplier

SIMON HOLDING (Electric components manufacturer)

ENEL (Italian Utility)

IREN: Italian Energy Supplier

Public bodies

ICAEN (Catalan Institute of Energy) - Spain

CUNA (Italian National Standardization Body)

ENEA (Italian Research Institution)

Universities

Università degli Studi di Napoli Federico II
University of Rome Niccolò Cusano
Politecnico di Torino
Methodology for Roadmap definition

• **Analysis of barriers** to the development of infrastructures and to the diffusion of Electric Vehicles

• **Definition of actions** to foster the development of infrastructures for energy supply to EVs and accelerate the diffusion of Electric Mobility

Analysis domains:
• Policies and National Initiatives
• Socio-Economic Mobility and Exploitation
• Technologies
• Safety
• Specific position of
  - Public Bodies, Regulators, Local Councils
  - Automotive Industry, Charging infrastructure Manufacturers
  - Utilities

Analysis conducted with
• Questionnaires and interviews with stakeholders
• Workshops in the three Regions (Torino, Barcelona, Brussels)
Final Roadmap Scheme synthesis

Definition of actions to be performed, with indication of:

• Stackholders categories to be considered specifically involved in the Roadmap deployment
• Terms of implementation in accordance to the priorities,
• Output indicators for monitoring the development,
• Data sources,
• Targets to monitor the development,
• Frequency of dissemination,
• Cost estimation of the Human Resources for the implementation
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<th>Action</th>
<th>Site</th>
<th>Actors</th>
<th>Priority</th>
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<tbody>
<tr>
<td>1. Create appropriate Governance Structures &amp; Strategies for Charging infrastructure deployment</td>
<td>1.1 Create the European EV Network as general contact for information and advise services on e-Mobility</td>
<td>European</td>
<td>• European Commission</td>
<td>Near term</td>
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<td>1.2 Programme for supporting regions for developing e-Mobility Plans</td>
<td>Piedmont</td>
<td>• Public Administrations</td>
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<td>1.3 New taxation scheme introduction</td>
<td>Catalonia</td>
<td>• Municipalities</td>
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<td>1.4 New systems for collecting information and analyzing charging behaviour</td>
<td>Belgium</td>
<td>• Transport &amp; Communication Entities</td>
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<td>2. Accelerating Deployment of Charging Infrastructure</td>
<td>2.1 Development of public accessible charging infrastructure</td>
<td>Catalonia</td>
<td>• Public territorial Administrations</td>
<td>Mid term</td>
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<td>2.2 Development of private accessible charging infrastructure</td>
<td>Piedmont</td>
<td>• Municipal Authorities</td>
<td>Near term</td>
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<td>2.2.3 Adapting building codes to require all construction to be EV ready</td>
<td></td>
<td>• EVSE Operator</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>• OEMs</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>• Transport &amp; Communication Entities</td>
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## Results: Final Roadmap General Scheme (2/5)

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<tr>
<td>3. Implementing Measures to overcome Range Anxiety</td>
<td>3.1 Creating an Open Dynamic registry of public accessible charging points 3.1.3 Standardize information provided per charging point, type of connection, EVSP, payment option and availability 3.1.5 Integrating charging stations with mapping systems</td>
<td>European</td>
<td>• Municipal Authorities  • EVSE Providers  • End Users</td>
<td>Near term</td>
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<td>4. Facilitating deployment of new Business Models for exploitation of charging infrastructures</td>
<td>4.1 Developing a TOOLKIT for supporting new business models around the charging infrastructure 4.2 Business models for increasing usage of charging infrastructure 4.2.3 Promoting measures to stimulate e-Car sharing initiative 4.3 Create a unified billing system for all public accessible charging infrastructure (slow &amp; fast)</td>
<td>European  Catalonia  European</td>
<td>Venture capitalists  Consultants  Entrepreneurs  Public administratives  Transport &amp; Communication Entities  Municipalities  Car sharing companies</td>
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# Results: Final Roadmap General Scheme (3/5)

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| 5.    | Learning new electromobility concepts                                  | Belgium| • Professional Schools  
       |                                                                         |        | • EVSE Manufacturers  
       |                                                                         |        | • EVSE and EV Associations  
       |                                                                         |        | • EV Charging providers  
       |                                                                         |        | • Public Administrations  
       | 5.1  | Developing tailored workforce training programs/courses               |        | • Universities  
       |     | 5.1.1 Development of EV Infrastructure Training Program and European  |        | • High School and Technical institutes  
       |     | Certification for electricians installing EV Supply Equipment          |        | • OEM vehicle, Systems and Component Manufacturers  
       |     | 5.1.2 Development and promotion of a European Open Massif Online       |        | • Electric Vehicle Associations  
       |     | Program for Public Mobility Managers                                  |        | • Standardization Bodies  
       | 5.2  | Enhance participation of University Teams to Formula Electric         | Piedmont| • Universities  
       |     | 5.2.1 Promoting and organizing demonstration events for University    |        | • High School and Technical institutes  
       |     | and High School students                                              |        | • OEM vehicle, Systems and Component Manufacturers  
       |     | 5.2.3 Dissemination and making value of results of the demonstration    |        | • Electric Vehicle Associations  
       |     | competitive events (e.g. Formula Electric Italy)                     |        | • Standardization Bodies  
       |     | 5.2.4 Increasing the participation of University teams                |        |                      |

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<td>5. Learning new electromobility concepts</td>
<td>5.3 Developing an Educative platform on electric vehicle technology at both primary and secondary schools 5.3.1 Engaging editorials, primary school teachers, educators and representatives from EV Industry with the educative platform project 5.3.2 Developing a Learning Management Platform, a software application that manages educational systems containing digital content 5.3.3 developing the digital content for teachers on the concepts of e-mobility</td>
<td>Catalonia</td>
<td>• Professional Schools  • EVSE Manufacturers  • EVSE and EV Associations  • EV service providers  • Public Administration representative</td>
<td>Near term</td>
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<td>6. Raising awareness of E-Mobility</td>
<td>6.1 Promotion of Green Tourism 6.1.2 Selection of areas with cultural historical and ecological interest and elaborate a plan for introduction of EV 6.1.3 Developing a plan for solar charging station in selected areas 6.1.4 Developing a financial program to support regional governments for introduction of EVs in selected areas</td>
<td>Piedmont</td>
<td>• EVSE Manufacturers  • Public Administration representative  • Regional governments  • Environmentalists</td>
<td>Near term</td>
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<td>6. Raising awareness of E-Mobility</td>
<td>6.2 Introduction of the Advanced Air Quality Monitoring Systems&lt;br&gt;6.2.1 Benchmarking on devices and sensors for measuring air pollution&lt;br&gt;6.2.2 Developing an app for collecting real time information about contamination levels&lt;br&gt;6.2.3 Developing a platform for disseminating all the information and integration with map systems&lt;br&gt;6.2.4 Engaging new contributors by subsidizing partly the cost of the sensors</td>
<td>Belgium</td>
<td>• Instrument Makers&lt;br&gt;• Educators and community leaders&lt;br&gt;• Open source coders&lt;br&gt;• Citizen Scientists&lt;br&gt;• Public representative</td>
<td>Near term</td>
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<td>Prepared as a synthesis of the Final Report of the Project «Building and Implementing Strategic Roadmaps of Demand – side Policy Measures to boost Demand for Industrial Innovations»</td>
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Interconnecting Electric Vehicle Infrastructures Roadmap
Conclusion

The strategically established infrastructure network for energy transfer grid to vehicle, supported by an information-communication system is a basic requisite for the e-Mobility development.

EV CONNECT Project, with the involvement and effective support of stakeholders operating in the various field of Mobility has tackled this point and identified a roadmap of actions to be considered and actuated to foster and speed up the development of an infrastructure network of energy supply facilities to assure the mission fulfillment of electric vehicles of various classes and in various conditions and with user friendly interaction with the infrastructure.

In the various identified a recommended actions, emphasis is given to the education and dissemination of the culture of electric mobility system as regard to the technology, the interconnective communication and the professional formation for operators.
Thank you!

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