# eva+

## Launch event

*Thursday, January 19th, 2017 - Stanhope Hotel (Brussels)*

### Programme overview

| | |
|---|---|
| *10:00 - 10:35* | *Accreditation and welcome coffee* |
| 10:35 - 10:40 | Welcome - **Nicola Melchiotti,** Head of European Public Affairs and Regulation, Enel |
| 10:40 - 11:00 | Introduction - **Donata Susca**, Head of Global Network Development - Global Infrastructure & Networks, Enel<br>**Federico Caleno**, Head of New Technologies and Global I&N Innovation - Global Infrastructure & Networks, Enel |
| 11:00 - 11:15 | **Helmut Morsi**, Advisor, DG MOVE - Directorate B - European Mobility Network, European Commission |
| 11:15 - 11:30 | **Andreas Boschen**, Head of CEF Department, INEA |
| 11:30 - 11:40 | **Gerhard Gamperl**, Director Strategy, Corporate Development and Innovation, VERBUND AG |
| *11:40 - 12:00* | *Coffee break* |
| 12:00 - 12:10 | **Amaury Gailliez**, Director Operational Infrastructures, Renault SAS |
| 12:10 - 12:20 | **Mario De Martino**, Electric Mobility Section Manager, Nissan Italia |
| 12:20 - 12:30 | **Abayomi Otubushin**, Corporate and Governmental Affairs, Representative Office Brussels, BMW Group |
| 12:30 - 12:40 | **Giovanni Palazzo**, Head of E-Mobility Business - Group Strategy (K-GSN-E), Volkswagen AG |
| 12:40 - 13:00 | Q&A and Conclusion - **Donata Susca**, Head of Global Network Development - Global Infrastructure & Networks, Enel |
| *13:00 - 14:00* | *Light lunch* |

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# Enel introduction

Brussels, 19 January 2017

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# Enel today[1]
## Global diversified operator

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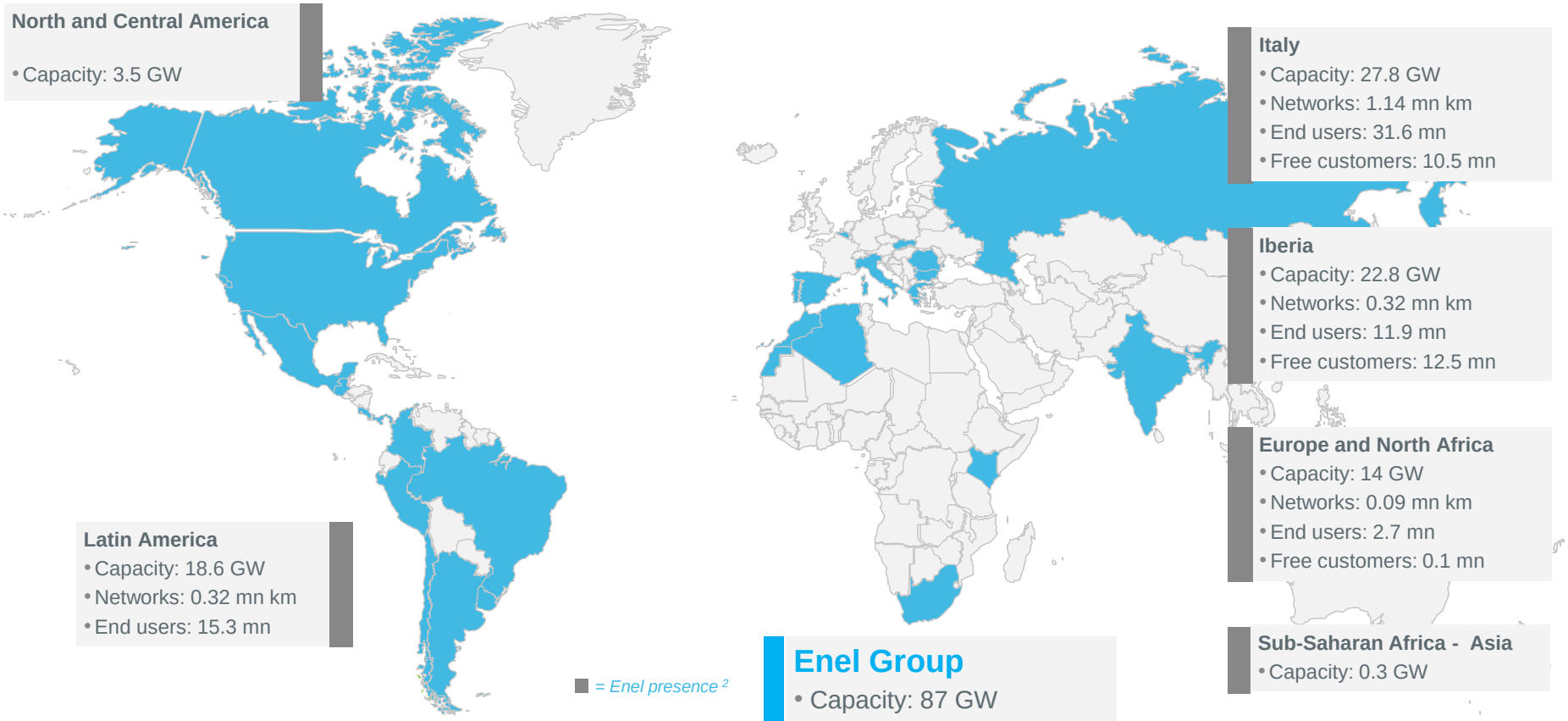

**North and Central America**
- Capacity: 3.5 GW

**Latin America**
- Capacity: 18.6 GW
- Networks: 0.32 mn km
- End users: 15.3 mn

= *Enel presence* [2]

**Italy**
- Capacity: 27.8 GW
- Networks: 1.14 mn km
- End users: 31.6 mn
- Free customers: 10.5 mn

**Iberia**
- Capacity: 22.8 GW
- Networks: 0.32 mn km
- End users: 11.9 mn
- Free customers: 12.5 mn

**Europe and North Africa**
- Capacity: 14 GW
- Networks: 0.09 mn km
- End users: 2.7 mn
- Free customers: 0.1 mn

**Sub-Saharan Africa - Asia**
- Capacity: 0.3 GW

**Enel Group**
- Capacity: 87 GW
- Networks: 1.9 mn km
- End users: 61.5 mn
- Free customers: 23.1 mn

1. *As of 30th June 2016*
2. *Presence with operating assets*

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# Research and Innovation at Enel

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## Conventional generation

Improvement of operational and environmental performance, reducing emissions

## Renewable energies

Performance improvement regarding all available technologies, integration of storage and research in new technologies

## Infrastructures and networks

Continuous development of smart grids to manage distributed generation, electric mobility and increase the electric system reliability


## New products, services and e-mobility

Development of new business models, to increase people's quality of life and to propose innovative solutions for companies, through the launch of new electricity-based products and services

# Digitalization of Distribution network

## Smart Grids

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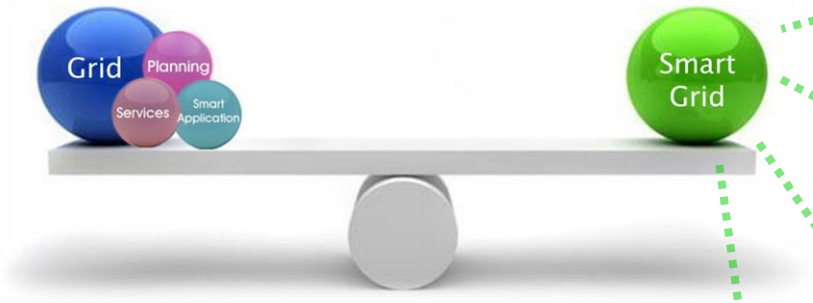


**Smart Metering**

**Secondary Substation Monitoring**

Temperature, humidity, ozone, water detection ...

**Smart Asset Management and Protection**

Alarms, Anti-intrustion, Anti-theft (indoor and outdoor), early incident detection ...

**Big Data**

Predictive Maintenance, Commercial Losses

**Cloud**

**MV and Street Lighting Poles Monitoring**

Slopes, Land movements, Dead lamps ...

**Network Automation support**

Grid sensors (load, over-load, fault detection, joints temp, etc. )

**Work Force Management**

**Augmented Reality**

**Charging infrastructure**

**Data management**

# Outlook of EVs Market

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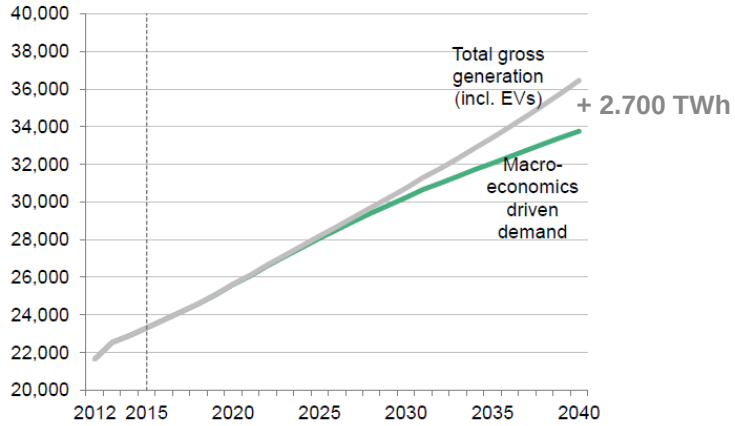
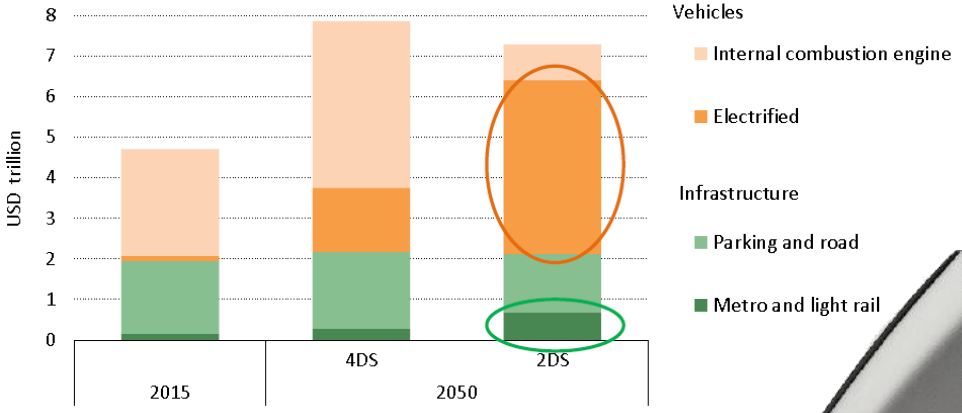
**Yearly electricity demand from EVs, 2015-2040 (TWh)**



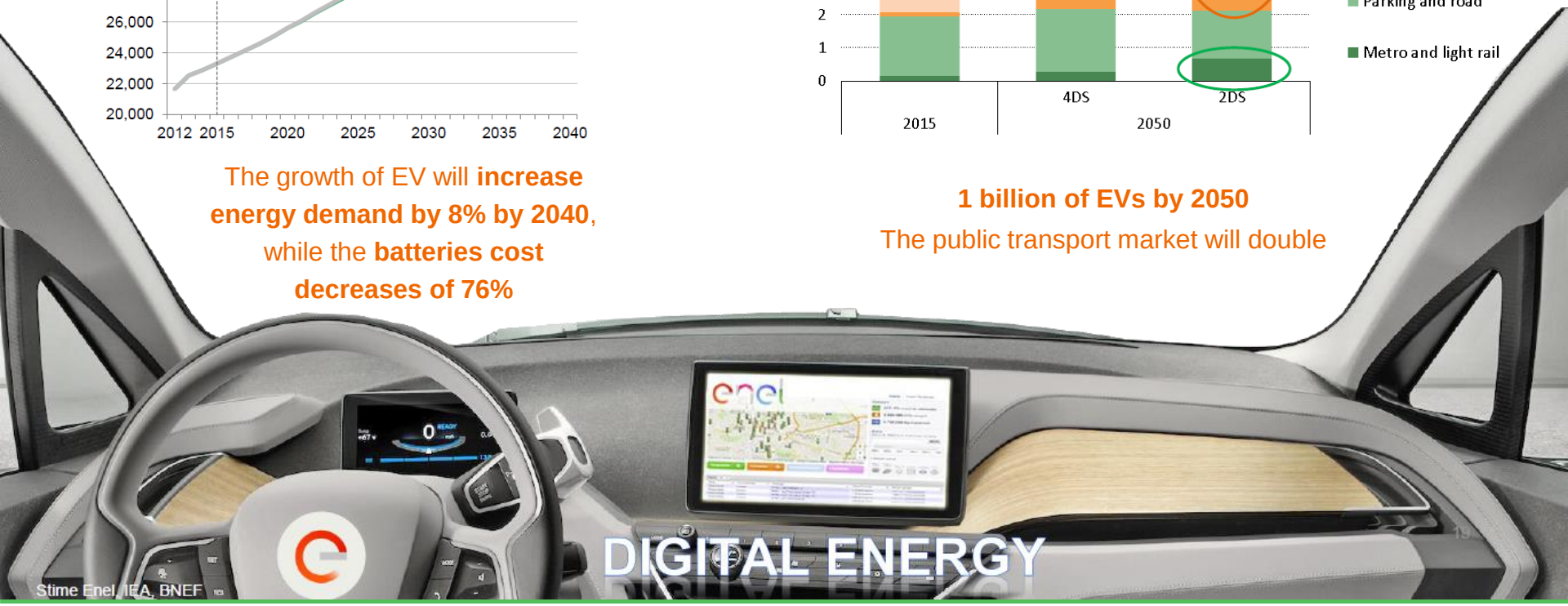

The growth of EV will **increase energy demand by 8% by 2040**, while the **batteries cost decreases of 76%**

**Urban Transport Investments 2050 (USD trillion)**




**1 billion of EVs by 2050**

The public transport market will double




Stime Enel, IEA, BNEF

# Growth of e-mobility

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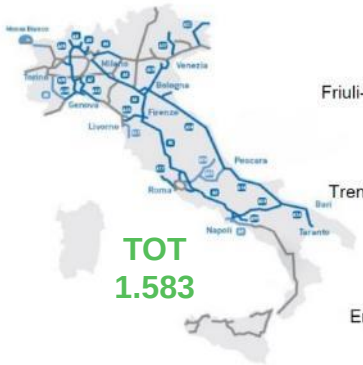
## Public charging infrastructure in Italy: national developement plan

### Localization and dimensioning

**Rural model**




**Urban model**

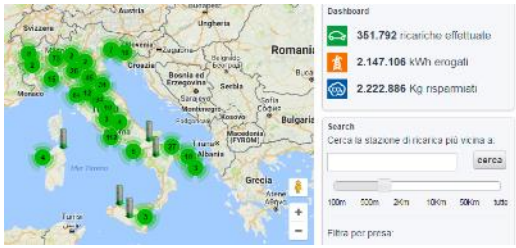

## Vehicle to Grid


## Pilot commercial projects

- **40 charging points in Denmark**: started the 2Q2016
- **New planning initiatives** in Europe: more than 100 charging points in DE, UK, NL
- **Commercial value** per client up to 2.000 €/year

## Smart charging

Development of smart management of EV charging to minimize the investments on LV network (**€ 1B for Mln. EVS1**) and **enable new products** (PV integration and storage)




## 2.700 ENEL CHARGING STATIONS INSTALLED IN EUROPE

# Enel experience on e-mobility

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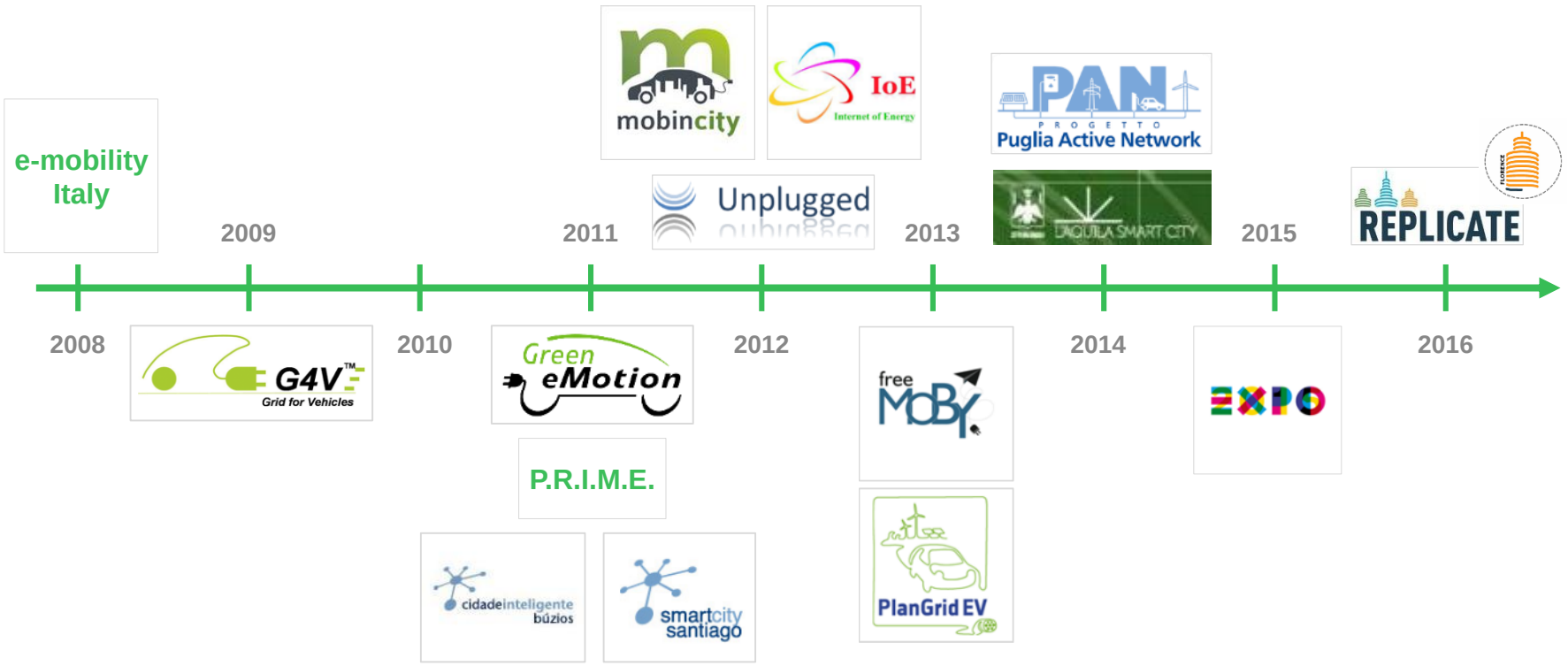


To encourage the spread of electric mobility in Italy, **Enel signs agreements** with major **car makers**, **local authorities**, and other Italian **DSOs** and **companies**

# Enel E-Mobility

## Funded innovation: FP7 H2020, CEF

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**10 M+ portfolio of projects**

Delivering the key technology to make EVs the **trigger application of Smart Grids**.

**Stakeholders B2B services, roaming & Interoperability**

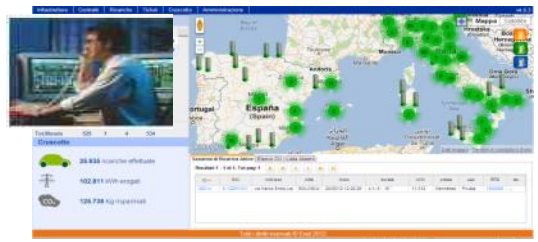
EMM Platform

Green eMotion

Green eMotion

**Smart-grid integration interfaces**

Grid Control System



**Smart charging algorithms**

mobincity

PlanGrid EV

**Smart-Grid integration planning rules**

IoE
Internet of Energy

**Modular and smarter charging station**

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**Deployment of 180 fast charging stations in Italy**

**unplugged**

**Inductive charging business model feasibility**

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# The eva+ project

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## eva+

electric vehicles arteries in Italy and Austria

## Objective

To boost the long-distance e-mobility travels in Italy and Austria, ensuring fast charging interoperability and roaming with other EU countries.

**3** years project duration

**8,5 M€**

Budget co-financed up to 50% by the EC through CEF Connecting Europe Facility

Installation of

**200**

multi-standard fast charge stations in Italy and Austria


## Project consortium:

- Enel *(Coordinator)*
- VERBUND
- Renault sas
- Nissan Italia
- BMW Italia
- Volkswagen Group Italia

# The eva+ project details

eva+

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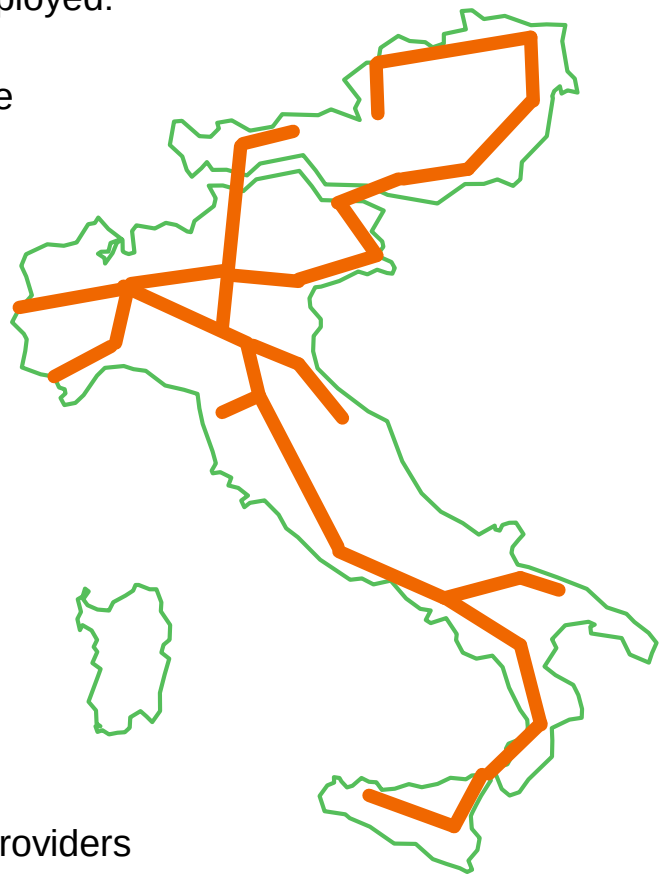
Connecting Europe Facility

A cross-border, **multi standard fast charging network** will be deployed:

- **180 Fast Recharge Plus** columns will be installed along all the main highways **in Italy by Enel**
  (technology entirely developed by Enel enabling 2 vehicles to be charged simultaneously in 20 minutes)
- **20 Fast charging station** will be installed **in Austria by VERBUND's** subsidiary SMATRICS



Each charging station will be capable of **offering all up-to-date fast charging standards** (CSS Combo 2, CHAdeMO or AC charging)

A **real life trial** with customers, charging point operators, electric utilities, highway operators and electric mobility service providers will be conducted to establish services, and test business cases

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# Enel Smart Mobility

## EV Charging Infrastructures

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**Slow-Quick Charge for public premises**

3/22 kW AC
> 1 hour

**Fast Charge for public premises**
43 kW AC
30 mins

**Slow Charge for domestic premises**

3.7 kW AC
6 hours

Enel Smart Meter is integrated in all the infrastructures in order to **enable a "smart charging"**

**Multistandard Charge**

43 kW AC, 50 kW DC, 22 kW AC
20 mins

**V2G Charge**

10 kW DC
bidirectional

EMM Platform

## Value added services

- smart charging
- real time control
- remote station SW update
- contract management

## Multi-vendor management

## Direct payment

# Enel E-Mobility
## Smart Charging

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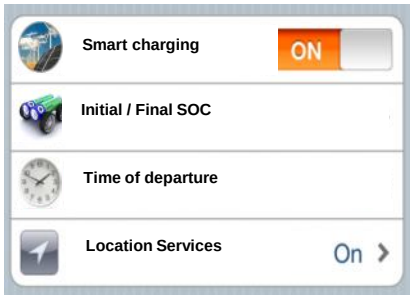
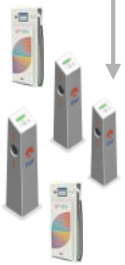



***Maximize Renewables***

*Using Evs to* ***provide DSO regulation services*** *and* ***on peak / off peak charging allocation, PV integration***

*Satisfy Customer Preferences and* ***Generate Customer Revenues***

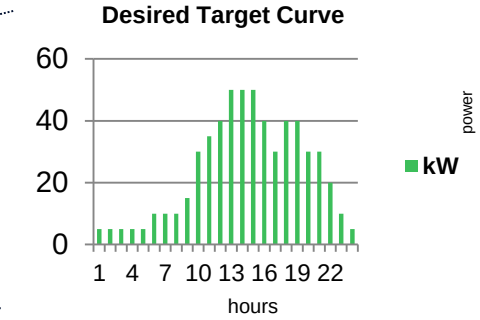
**Asset Operator**
**EMM Platform**

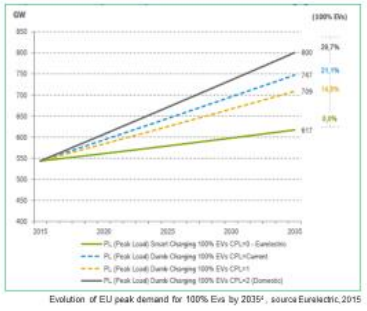


***G2V***

***V2G***

***Minimize LV/MV grid reinforcements***



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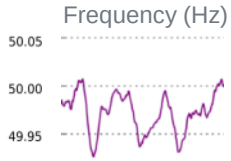
# Ancillary services through V2G

**Aggregator**

*V2G aggregator monitors and controls EV as a VPP*


EVs can be charged or discharged through specific commands sent by the aggregator to the V2G stations

**TSO**




Il TSO ensure the grid stability paying to real or virtual plants flexibility in generation and consumption.

**Customer**

EV customer receives incentives if the EV is connected to the V2G charger and contributes to the aggregator requests

# Enel Smart Mobility

## Where is next

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## High Power Charging

**> 75kWh capacity – 150 kW to 350kW power charging EVs** are coming from 2018 and beyond, with forecast of 500+ HPC stations in Europe by 2020

Network Rollout will require **financial backup** from national and international authorities in the market uptake phase and **cooperation between OEMs and Utilities industries** on a long-term sustainable business model.

## Smart Charging & V2G

+

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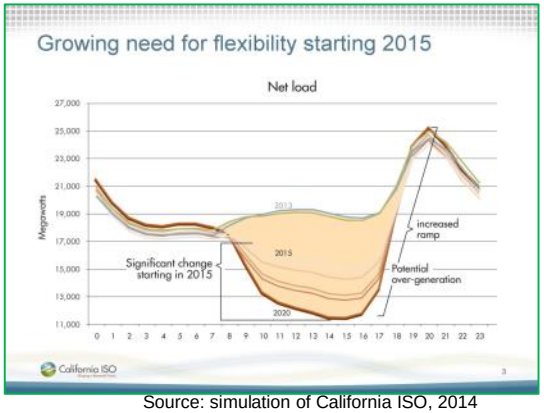


Source: simulation of California ISO, 2014

**EVs** as predictable load to foster **renewables integration** and **sharp peak management** for DSOs unlocking new revenue streams to **improve EV customer's TCO**

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# The project website

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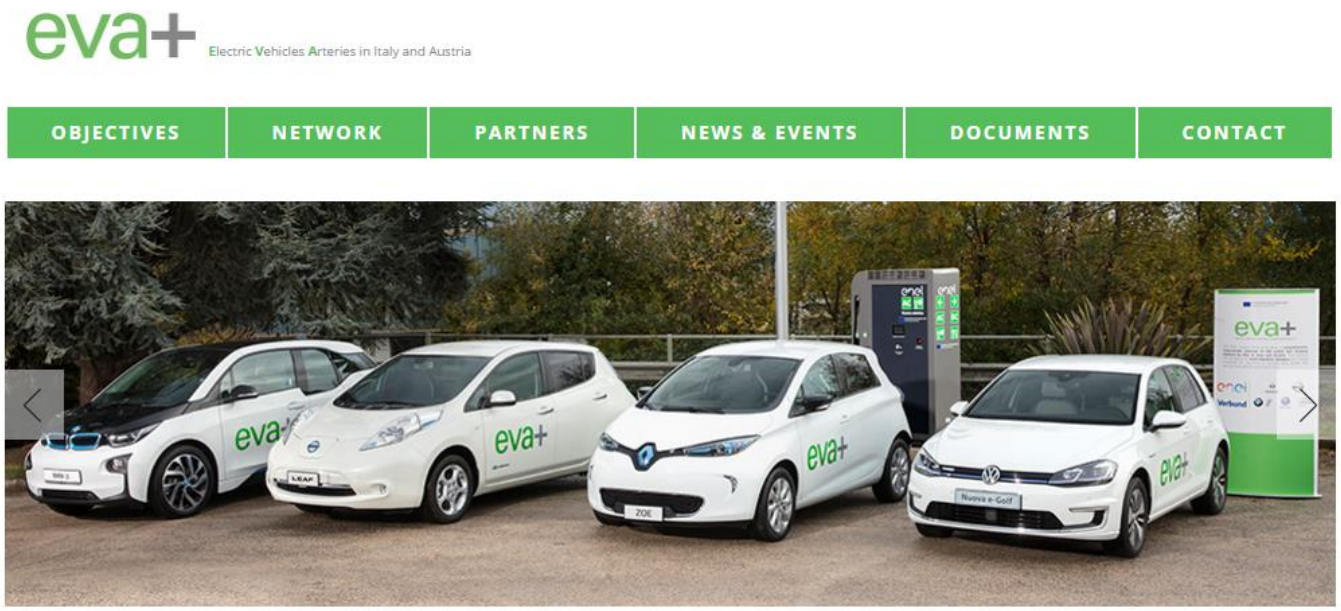


**www.evaplus.eu**

# Contact


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# Trans-European Networks (TEN)

- **A Converging Strategy for Innovation**
- **The European Dimension of EVA+**

**EVA+ Launch Event**

***EVA+ Consortium,***
***Stanhope Hotel, Brussels***
***18 January 2017***

*Helmut Morsi, Adviser to the Director*
European Commission, DG MOVE
Directorate B – Investment, Innovative & Sustainable Transport

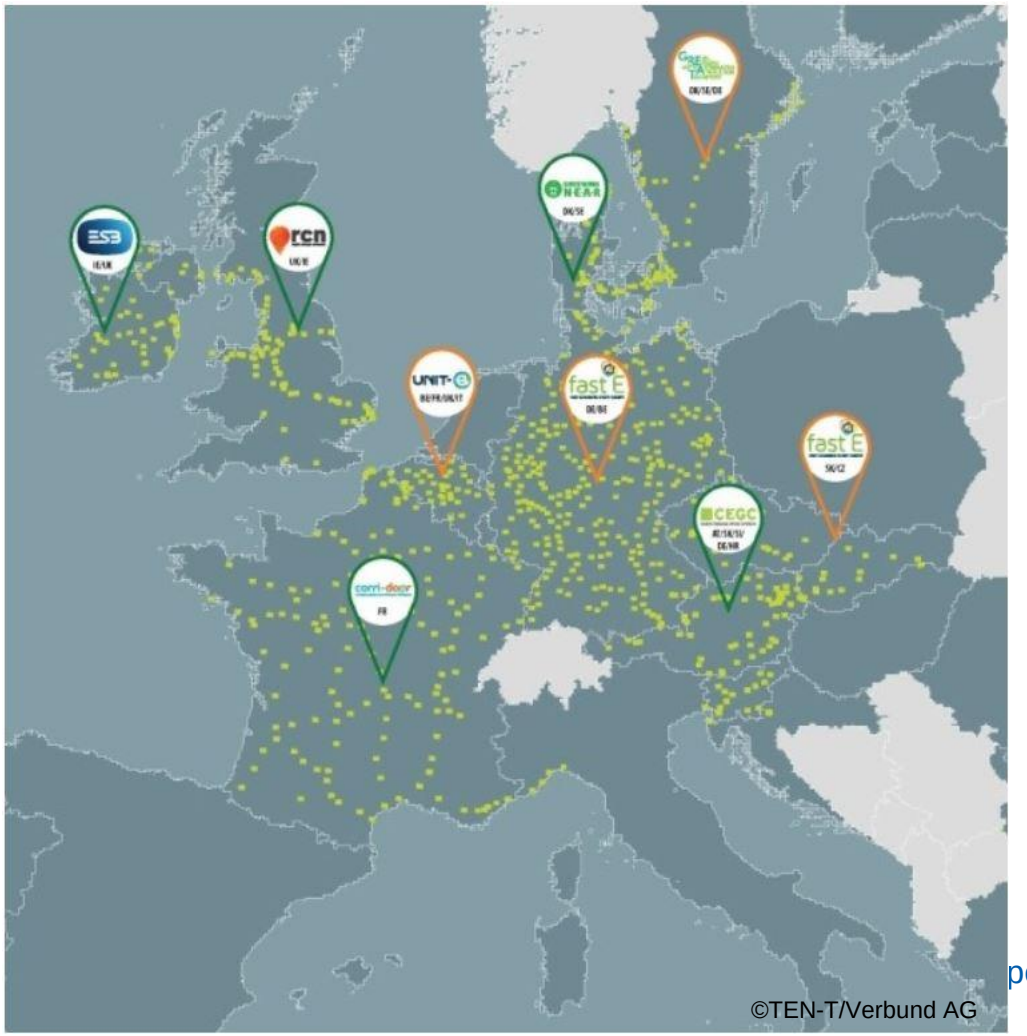
# The Separate Elements of the Strategy

- TEN-T/CEF-T Innovation Deployment
  - Green Paper 2009: A new concept – market sided innovation
  - Piloting Scheme under previous legal base: 2010-13
  - New legal base TEN-T Guidelines Art.33 & CEF: 2014ff
- RTD: FP7 / H2020 funding of research & demos (mainly)
- Alternative Fuels Infrastructure Directive 2014: Standards & Roll-out Plan for End 2016
- CEF->EFSI (Juncker) Facilitating private investments 2015
- European Strategy for Low-emission Mobility 7/2016
- CEF Synergy Call (transport & energy): 9/2016
- CEF Blending – grant & loan in one application 1/2017

# The Strategy : Converging the separate elements

- Convergence 1: Topic : TEN-T/CEF-T Deployment complementing RTD / FP7 / H2020
  - Creation of specific project pipelines research-demos-trials-rollouts for transport bringing together H2020 & CEF
  - Examples: BEV & FCH & Gas
- Convergence 2: Finance : Real-life trials preparing business plans for roll-outs by EFSI / Juncker / private investment / new: blending call
  - Concept of Market-sided innovation perfectly matching EFSI et al
  - Examples: FCH buses, Green Shipping Scheme
- Convergence 3: Planning : Roll-out plans of alt. Fuels Directive encourage alignment of national planning with already funded alt.fuel infrastructure
- Convergence 4: Impact : CEF Funding prioritising Core Network Corridors achieving benefits of particular high EU added value for citizens
- Convergence 5: Sectors : Ultra-charging promote transport & energy networks joining in *synergetic* way

## Collaboration Milestone: 9 CEF Innovation projects on fast recharging stations teaming up (TEN-T Days June 2016)

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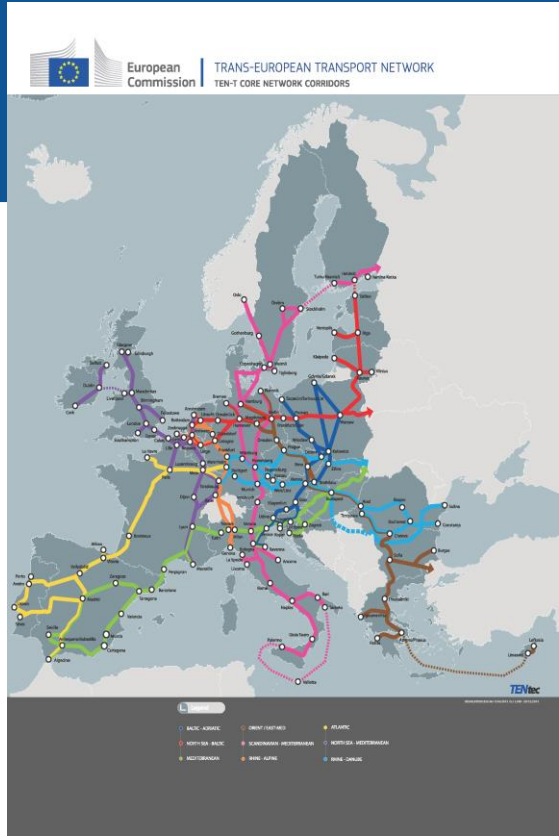
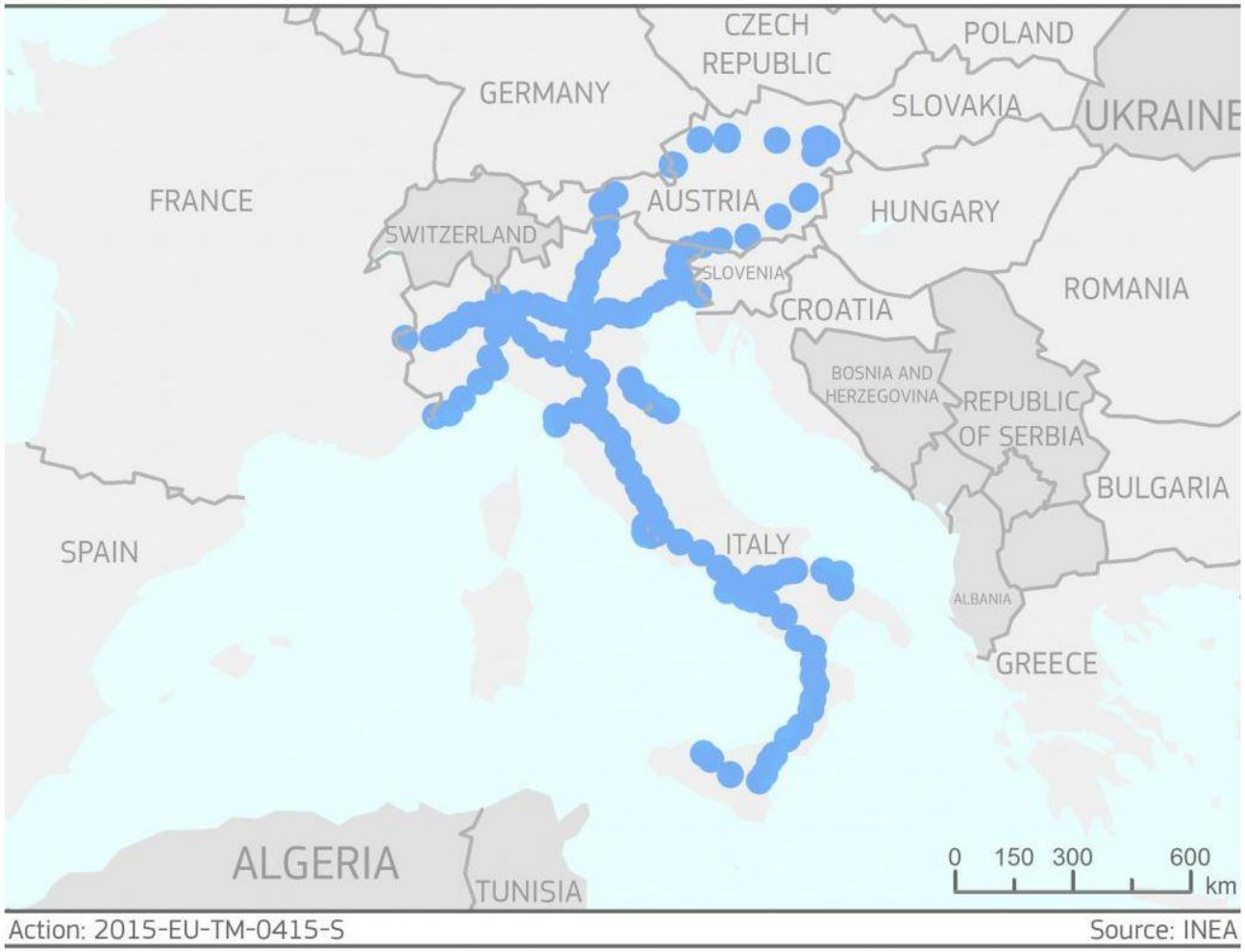
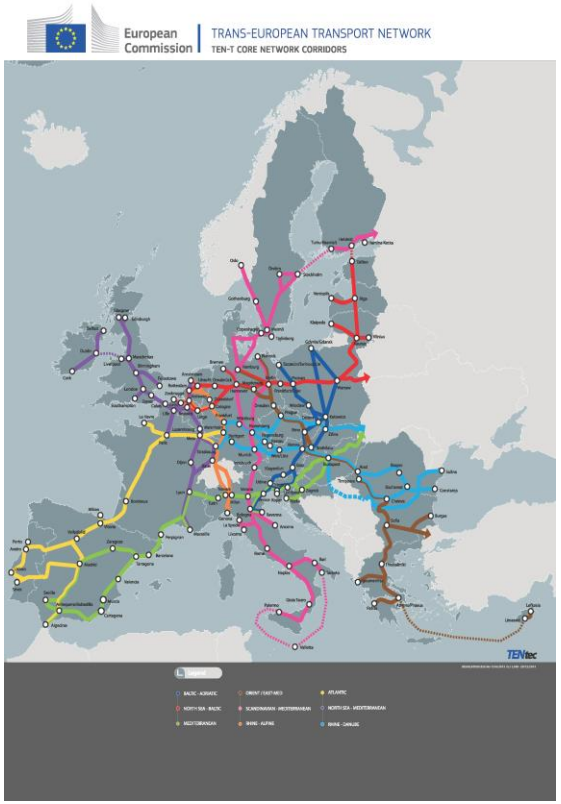



- Roaming
- Interoperability
- European standards
- Further countries and operators joining end'16
- National Plans for EU28 expected end'16 Directive 2014/94 (10 received until 16/1/17)

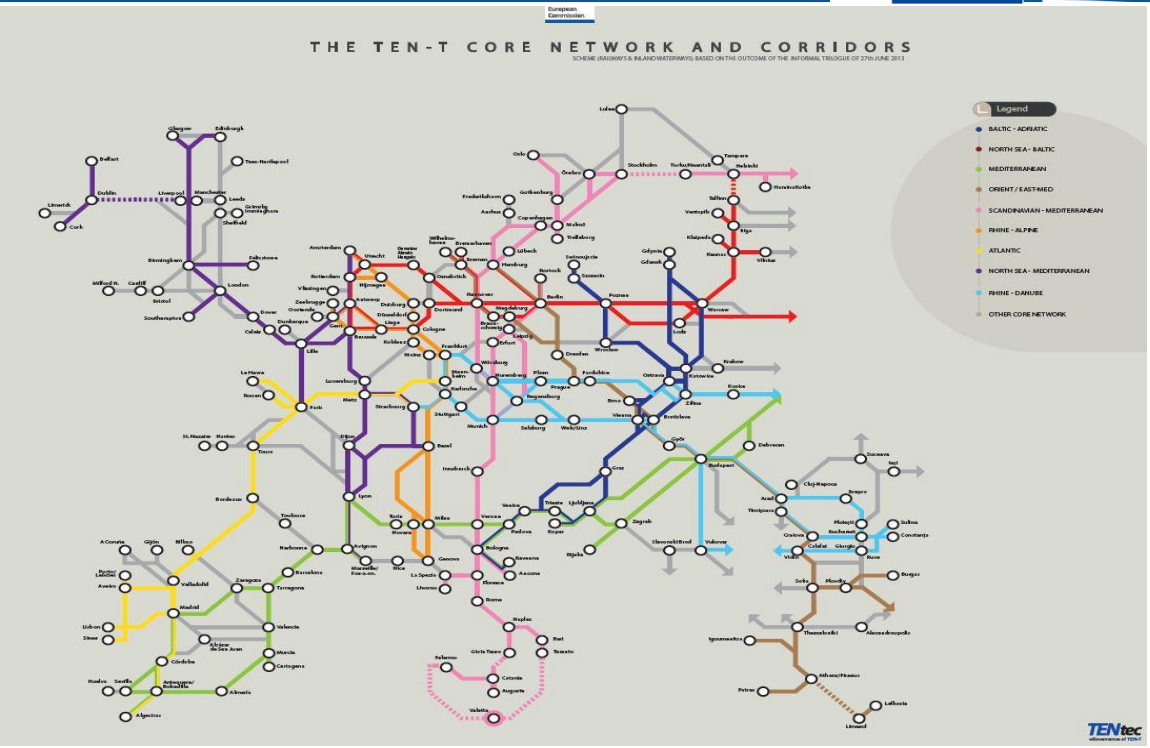
# European Dimension of EVA+:

*- Closing the gap with 200 fast chargers for BEV in IT & AT along 4 TEN-T corridors*




*Next steps? Roll-outs?*
*Ultra chargers?*




# THANK YOU FOR YOUR ATTENTION!

Helmut Morsi
DG MOVE
Adviser to Director MOVE B “Investment, Innovative & Sustainable Transport”
Coordinator for "Innovation & New Technologies (incl. IT/TENtec)”

# Green electricity for innovative services – VERBUND's activities in e-mobility

Brussels, 19th January 2017

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# Innovative e-mobility solutions

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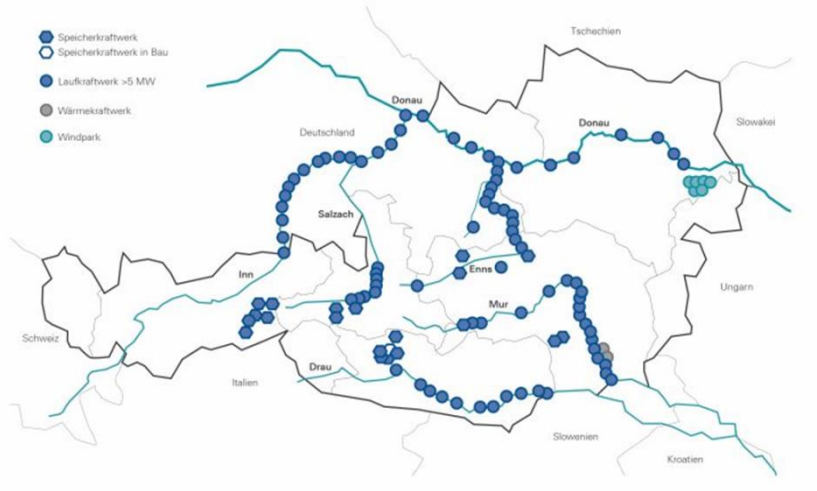
VERBUND is Austria‘s leading electric utility and one of the largest hydroelectricity producers in Europe. Since 2010, VERBUND is active in developing and deploying innovative e-mobility services, together with it‘s dedicated subsidiary SMATRICS.




Hydropower: 90% of total electricity generation (126 hydropower plants, ~28,000 GWh generation)

Wind/Solar: 3% of total electricity generation (21 wind & pv farms, ~2,300 GWh generation)

# SMATRICS

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- SMATRICS is a joint venture of VERBUND and Siemens responsible for Services for EV-Drivers in Austria.
- SMATRICS operates a nationwide network of fast charging stations, and provides access and information for all EV drivers.
- SMATRICS provides white-label solutions for charge point operators and service providers from installation to billing.

# Innovative e-mobility solutions

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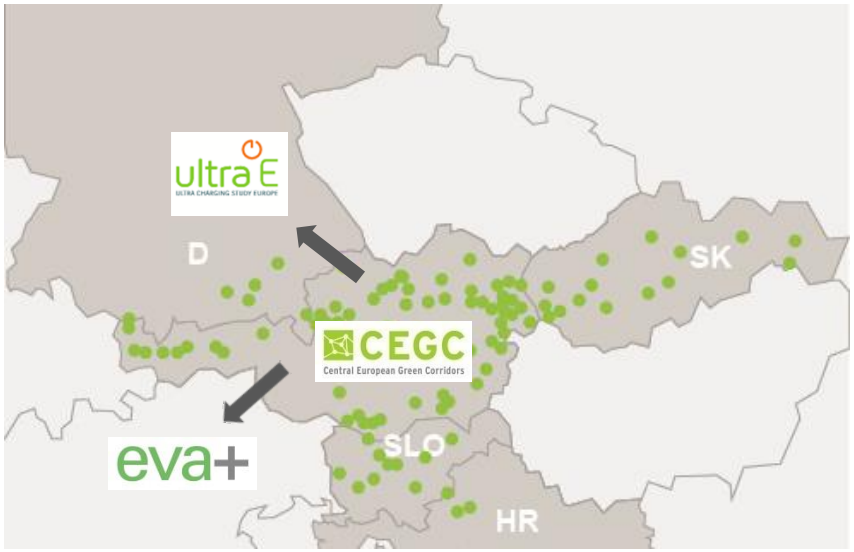
CEF-funded E-mobility projects are a leverage to develop cross border services for B2B and B2C customers and deploy state-of-the-art charging infrastructure together with strategic partners.




Projects with participation of VERBUND

**CEGC** (115 fast chargers in AT, D, SK, SI, HR)

**ULTRA E** (25 ultra fast chargers in AT, D, BE, NL) funded by European Commission (TEN T/CEF)

**EVA+** (200 fast chargers in IT and AT)

# Greening Europe‘s mobility sector

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| challenge | solution |
| --- | --- |
| Rapid **technological development** within the last few years (3,7-22-50-150-300 kW charging) | Secure **compatibility for EV models in the market** & provide charging infrastructure for all new vehicle types |
| Increasing charging capacity leads to **strong grid connections** at each location | Deploy **local storage and energy management** solutions. Batteries could be used for grid services |
| E-mobility services require **cross country & cross sectoral approach** in development and implementation | **Strategic cooperation** of energy utilities, OEMs, location partners, service providers is crucial to provide integrated, high-quality e-mobility services to customers |
| Fast and high power charging and services (ICT) requires **significant investments** | Overcome the „valley of death“ between non-refundable grants and **innovative financing options** |

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# EVA+ is an enabler for…

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… creating a high-level, cross border e-mobility service area by providing charging infrastructure and services to EV customers.


- 20 multi-standard fast charging stations on TEN T corridors in Austria
- Interoperability with Italian charging network
- Provide state-of-the-art services for customers
- Continue / deepen cooperation with strategic partners

# The next steps

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1. Increase European added value by spreading and disseminating the results of ongoing CEF projects to rest of Europe.
   - Joint proposal for 2016 CEF Transport Call Study aiming to prepare the roll-out of Ultra Fast Charging in EU
2. Create viable business model for charge point operators to start necessary roll-out by blending utility investments, grants and innovative EIB financial instruments.
   - Reducing costs and creation of new revenue streams from integration of local storage in energy system (SYNERG-E)
   - Securing steady cash flows and reducing traffic risks by new business relationships between CPO and vehicle manufacturers.
   - Increasing cooperation of operators to reduce costs.

# Contact

**Gerhard Gamperl**

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# Renault and the electric mobility

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# Demand outburst (BEV market YTD Oct. 2016)

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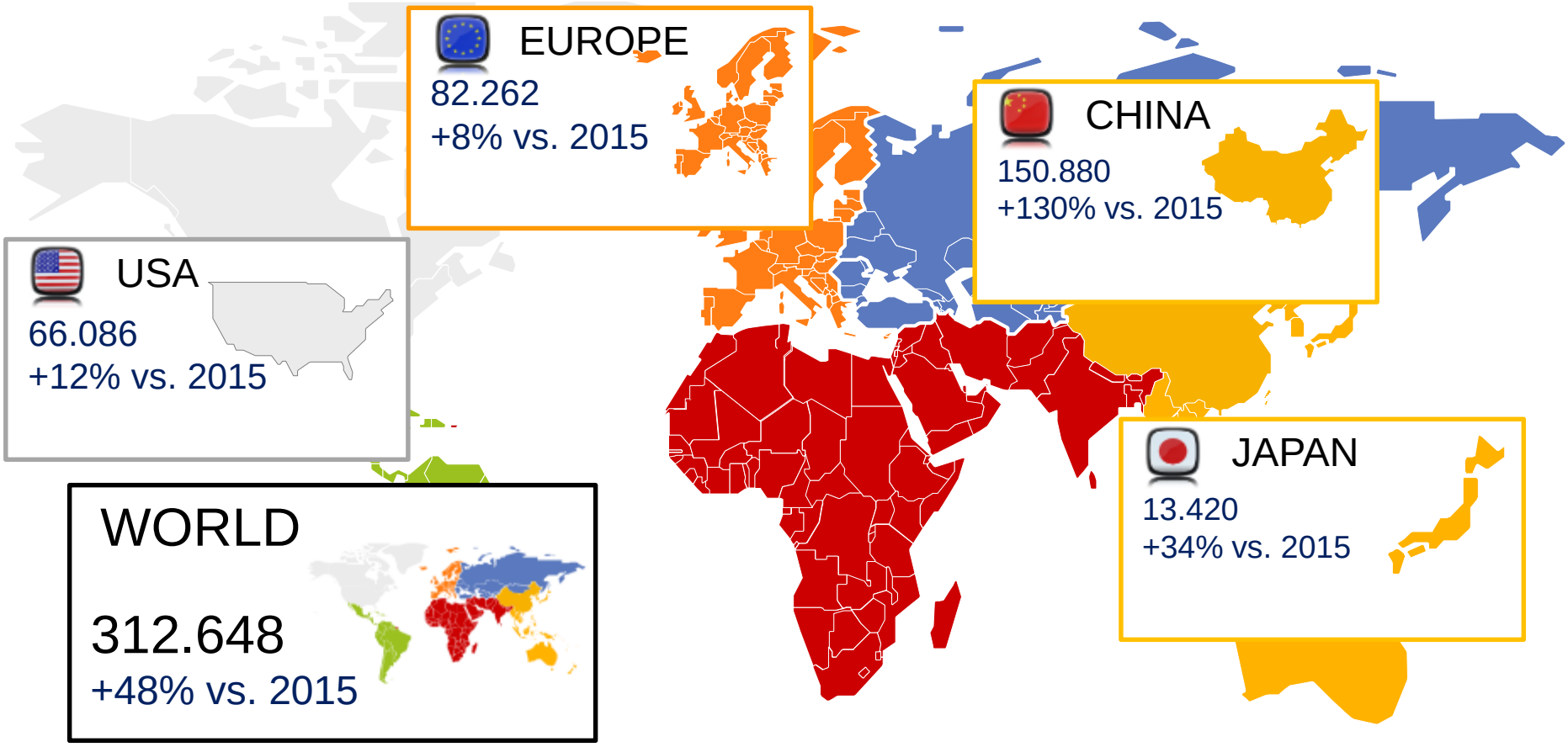


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# More than 100 000 Renault Z.E. sold in more than 35 countries

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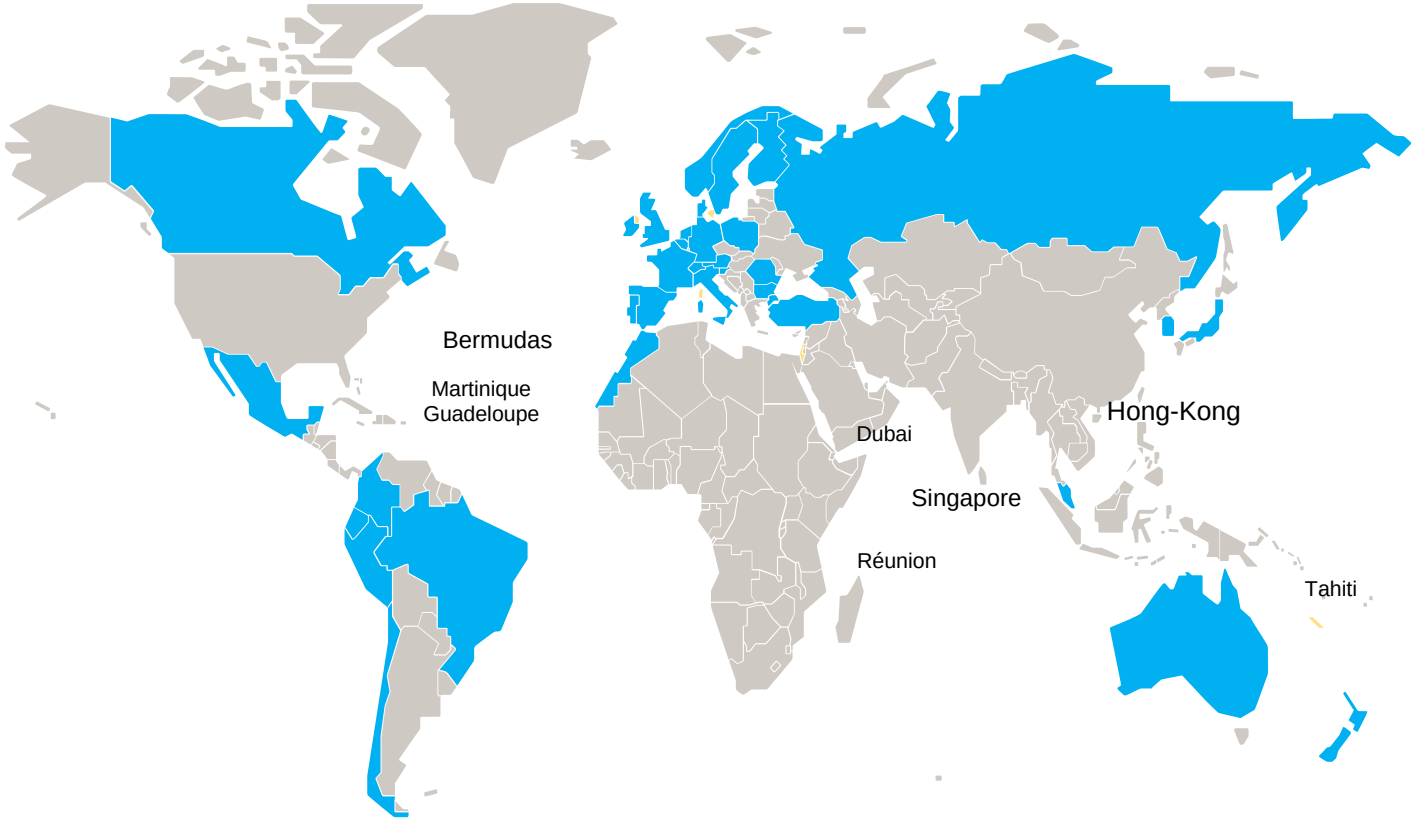

# Renault in Europe

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## RENAULT EV LEADER IN EUROPE

**25% of market share**

- ZOE best-selling EV
- Kangoo Z.E. e-LCV leader

# Renault range: more and more complete

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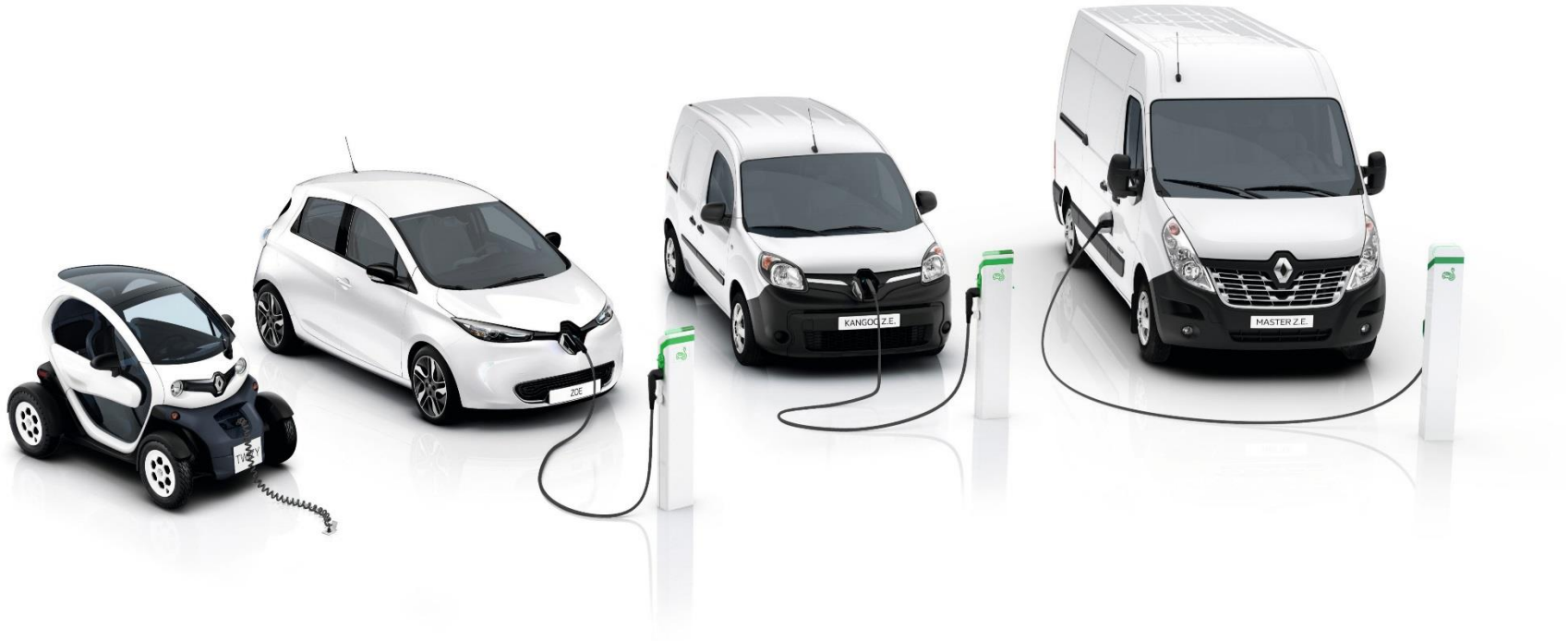

# Quick charge highway corridors

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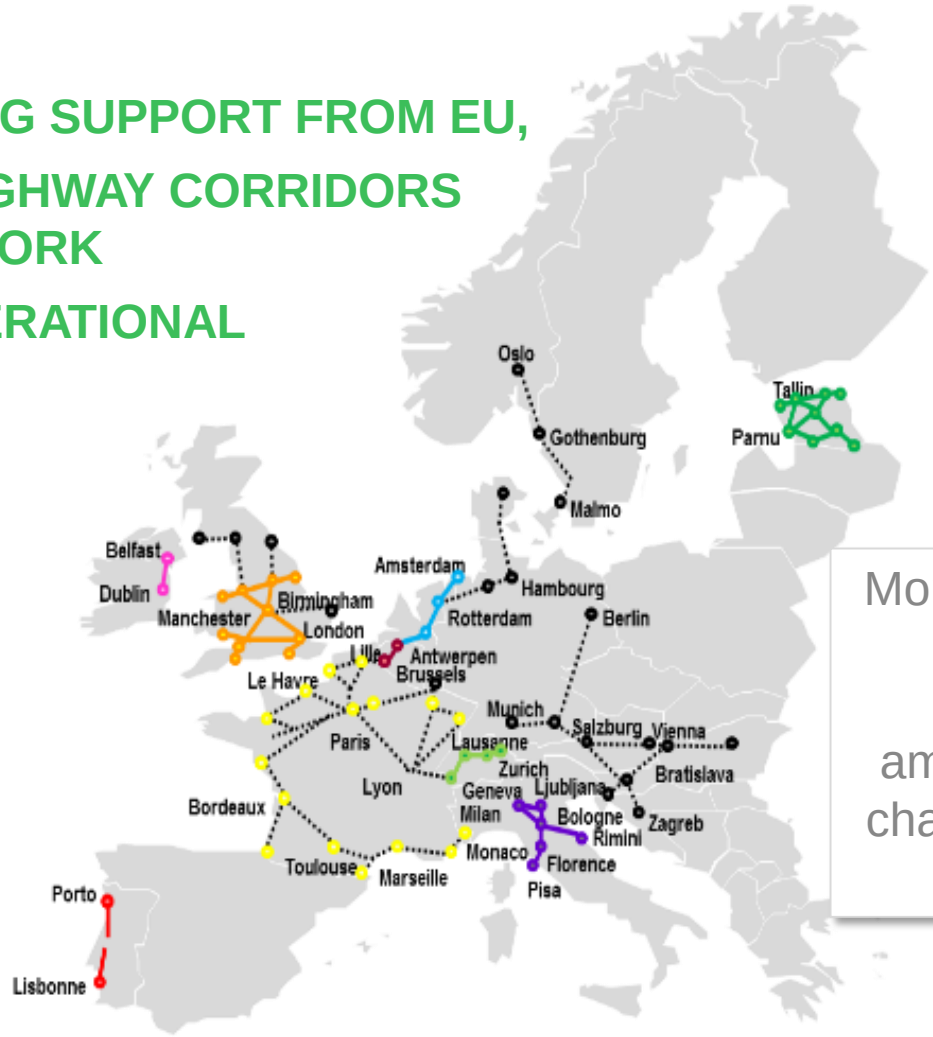
**THANKS TO THE STRONG SUPPORT FROM EU,**

**A QUICK CHARGE HIGHWAY CORRIDORS NETWORK**

**IS NOW OPERATIONAL**




in place

More than 15 EU countries implement ambitious quick charge highways corridors

enel Verbund RENAULT NISSAN BMW i Volkswagen Audi

# Renault vision on the infrastructure

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## RENAULT PRIORITY IS TO REMOVE BARRIERS FOR END CUSTOMER

Batteries capacities has increased and will continue…
…That technology breakthrough will stretch the EV limits



Charging infrastructures need to adapt to this evolution…

…charging stations line- up need to enlarge…

… and remain :

- Safe
- Reliable
- Affordable
- Interoperable
- Connected

enel Verbund RENAULT NISSAN BMW i Volkswagen Audi

# Contact

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Renault Director Operations Charge & Battery

Renault sas

amaury.gailliez@renault.com

# #Electrify_Europe

Bruxelles, 19 January 2017

Co-financed by the European Union
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# Electrify the Europe

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## AGENDA

- Our Vision
- EV Market
- EU Law
- Nissan Strategy
- Our Purpose
- Contacts


# Our Vision

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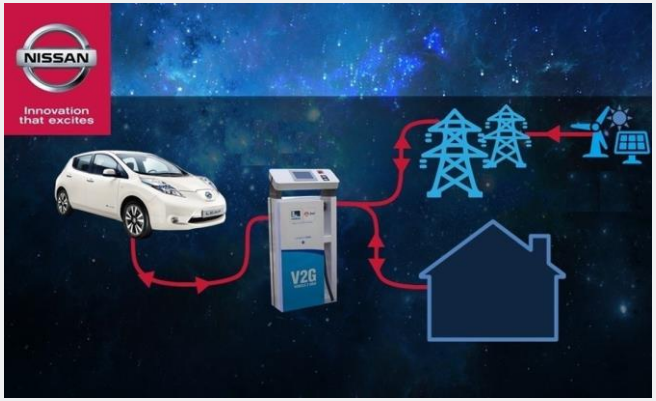
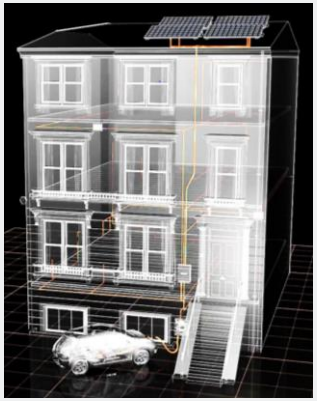
## Nissan Intelligent Mobility:

- Intelligent Driving
- Intelligent Power
- Intelligent Integration

Nissan has pioneered the development of electric vehicle technologies and we are excited to be able to put our know-how at the service of society the reworking of energy consumption.



Our contribute involves the creation of a sustainable ecosystem fostering cars interaction with people, cars and road infrastructure.

Integrating the electric vehicles in the distribution ensures a more sustainable, efficient and economical energy supply.

# EV Market

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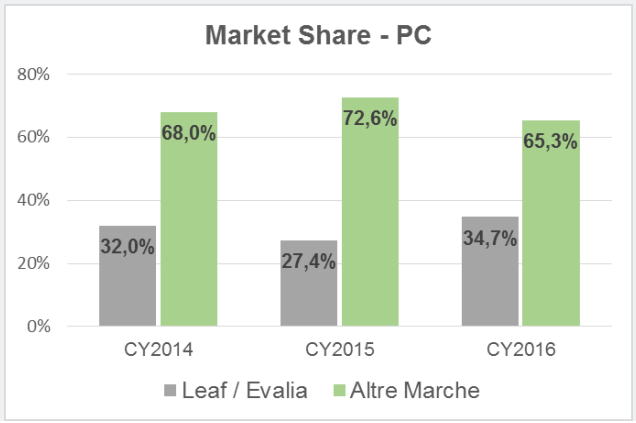
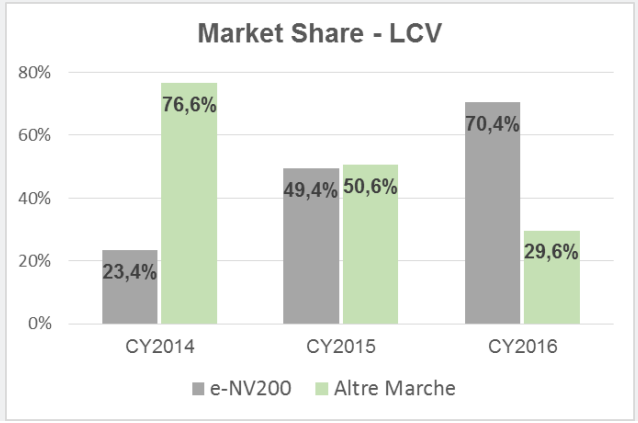
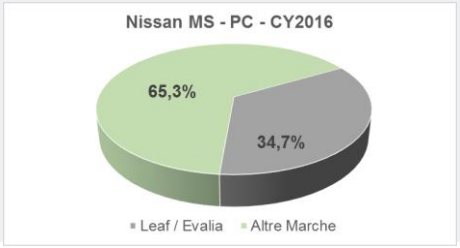
## Italian EV Market *

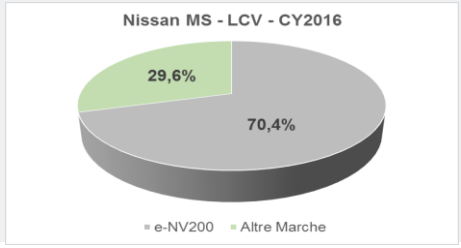
| 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| 481 | 354 | 500 | 896 | 1.068 | 1.433 | 1.931 | 1.863 |

## Nissan Market Share *




* UNRAE

# European Union Law

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## DIRECTIVE 2014/94/EU - Deployment of Alternative Fuels Infrastructure

Annex II – Technical Specification for recharging points

*"… Direct current (DC) high power recharging points for electric vehicles shall be equipped, for interoperability purposes, at least with connectors of the combined charging system 'Combo 2' as described in standard EN 62196-3."*

CHAdeMO

# Nissan strategy

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«Our **JOB** is to sell Electric Vehicles, our **ROLE** is to encourage the sustainable mobility.»



**17** Nissan's Dealers are having a QC with CHAdeMO by March '17


**13** Multistandard QCs in Milan


**EV Taxi development**

# Our Purpose

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**Mandatory: On time, On highways/main urban knots, Easy.**

**«On time»** - The EV market is ready.

**«On highways»** - No one has to pay a double toll to charge the  EV.

**«On main urban knots»** - Best location for Taxi, Logistic couriers and Public Administration.

**«Easy»** - accessible h24 and affordable

Nissan Proposal:

**Discounted tolls for EV driver on highways**

# Contacts

Co-financed by the European Union
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# BMW Sustainability and EV Charging Infrastructure

Brussels, 19. January 2017

Co-financed by the European Union
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# Fields of Action of BMW Group's Sustainability Strategy.

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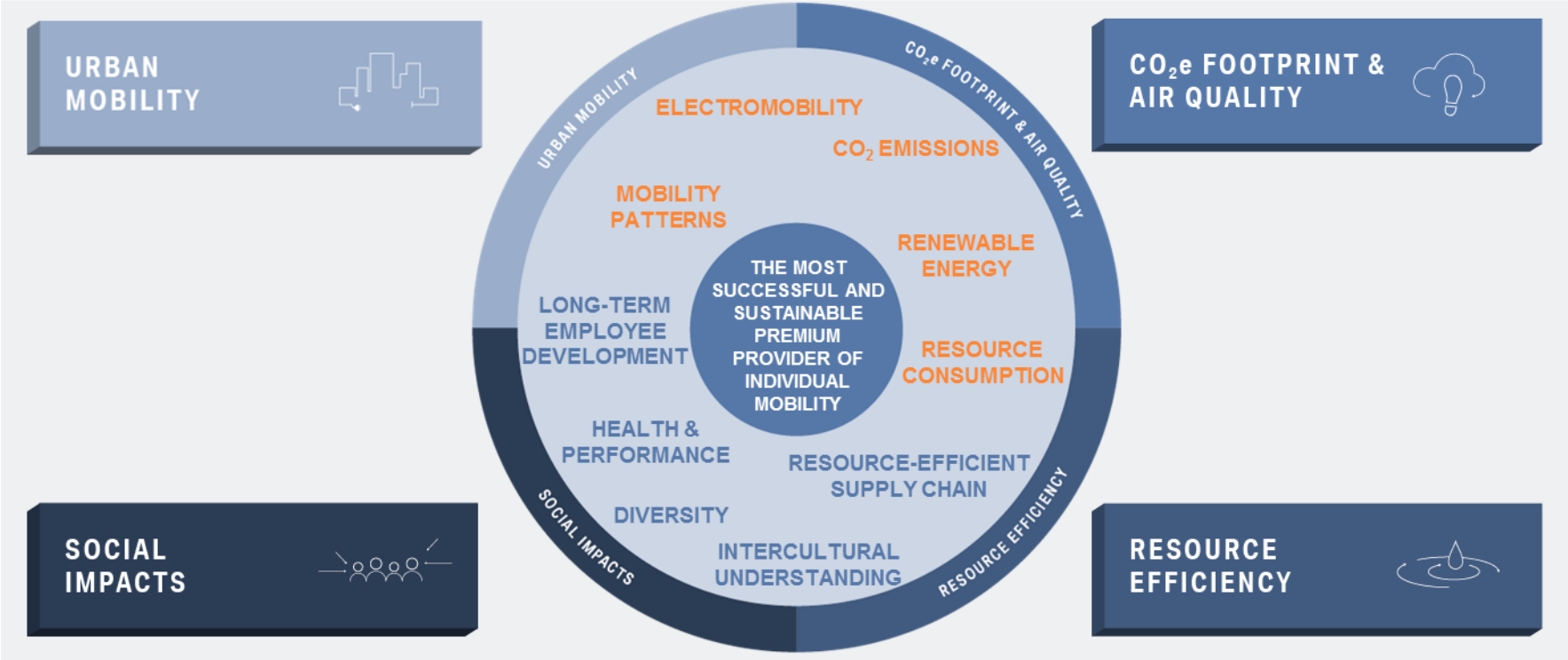

# Charging Infrastructure Projects supported by BMW

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BMW Group supports EU funded and non-EU funded charging infrastructure projects across Europe to ensure a consistent experience for the customer.

→ **Interoperability / eRoaming** is essential for a customer-friendly European Charging Network

EU support is key for cross-border and cross-industry Projects and to achieve a Europe wide standard for Charging Infrastructure.


EVA+ Project
TEN-T Projects
Other Projects

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# European Charging Network

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# Contact

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