

Parking Ireland 2011 10th November 2011

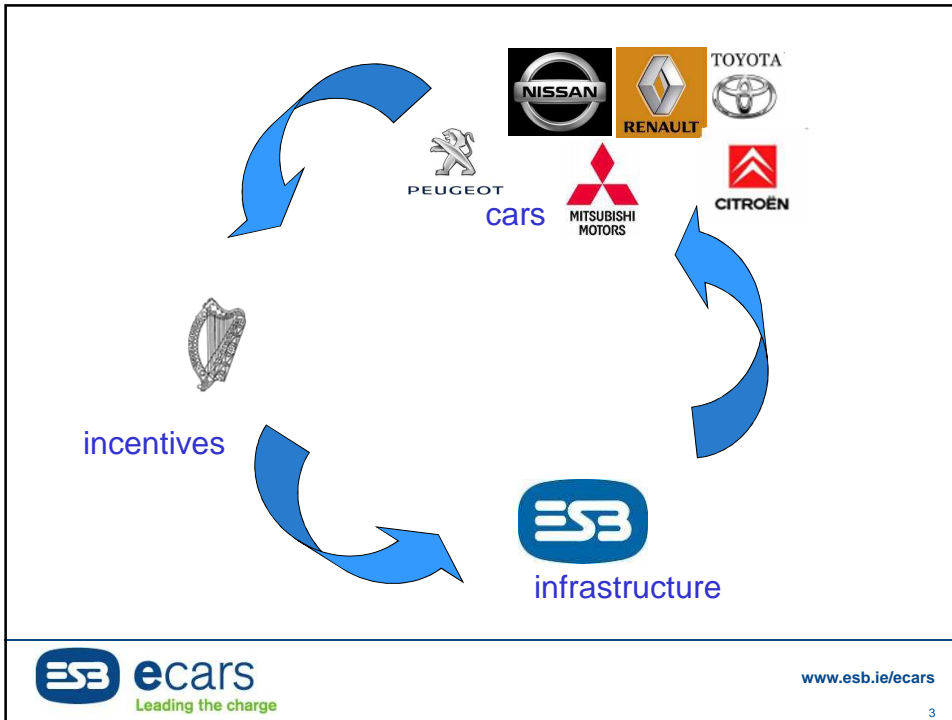


ESB ecars

Ecar Ireland Programme

- EV targets 2020:
 - 10% of all vehicles electric
 - 10% of all road energy transport will be renewable
- Supply of electric cars
 - MOU signed with Renault-Nissan
 - MOU signed with Mitsubishi
 - MOU signed with PSA
 - MOU signed with Toyota
 - Other MOUs in the pipeline
- Government incentives
 - €5000 grant
 - Zero VRT
 - Lowest road tax band
 - Accelerated Capital Allowance (Businesses)
- ESB is rolling out the infrastructure





All Major Car Manufacturers Have EV Programmes

TOYOTA

RENAULT

NISSAN

OPEL

MITSUBISHI

CHEVROLET

TESLA

Ford

CITROËN

HONDA

SUBARU

FIAT

REVA

BMW

Audi

ESB

ecars
Leading the charge

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EV Standards

Requires a national / international integrated approach!



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Ireland is an ideal country for EVs

- Single network company
- National roll-out
- High wind penetration
- Ireland has a unified vision
- Limited range between cities
- High Home ownership with dedicated parking
- Ideal climate for batteries
- Cars are selling now

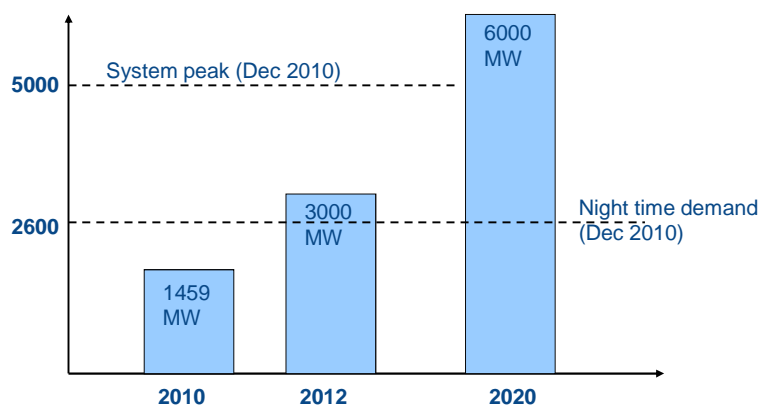


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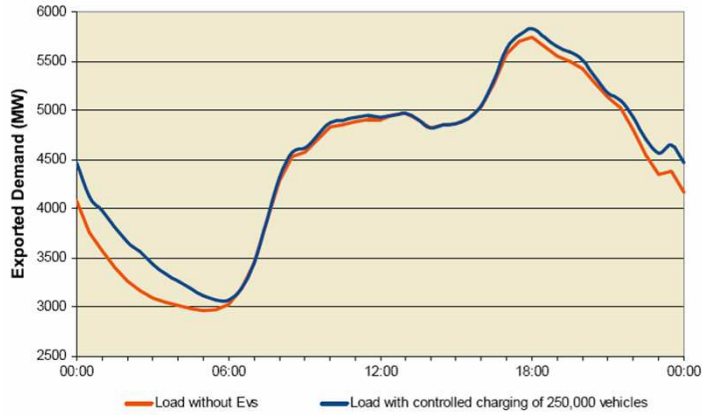
Environmental

Ireland Investment in Wind



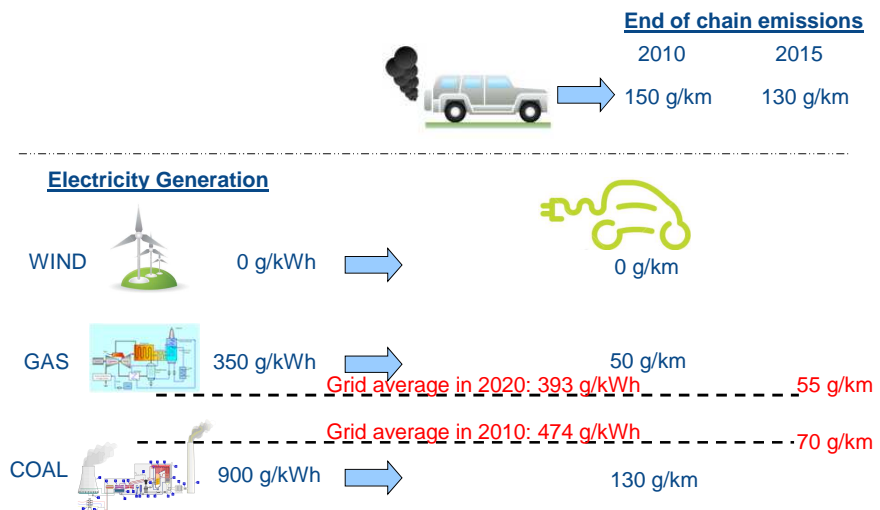
- EVs expected to charge largely at night time – excess wind
- EVs to be charged by renewable generation

Demand Forecast

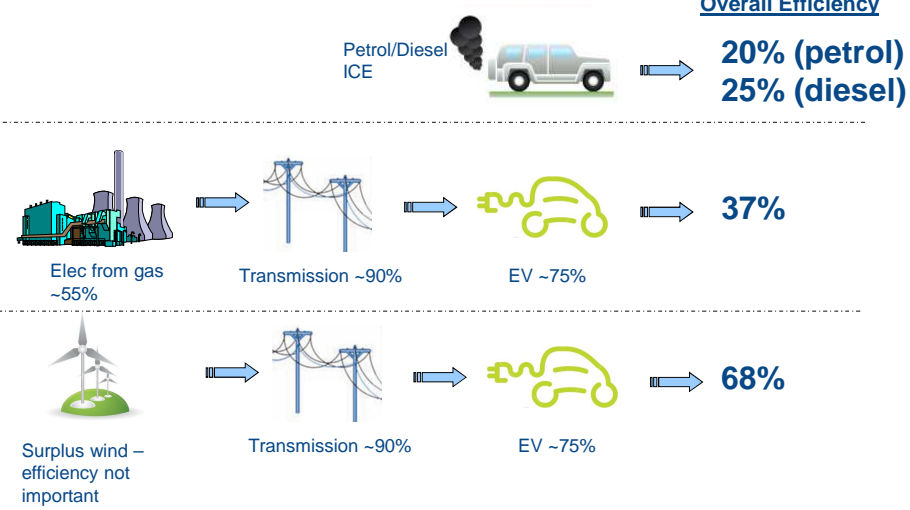


- Make generation more efficient by filling 'night valley'
- No major increase in peak demand

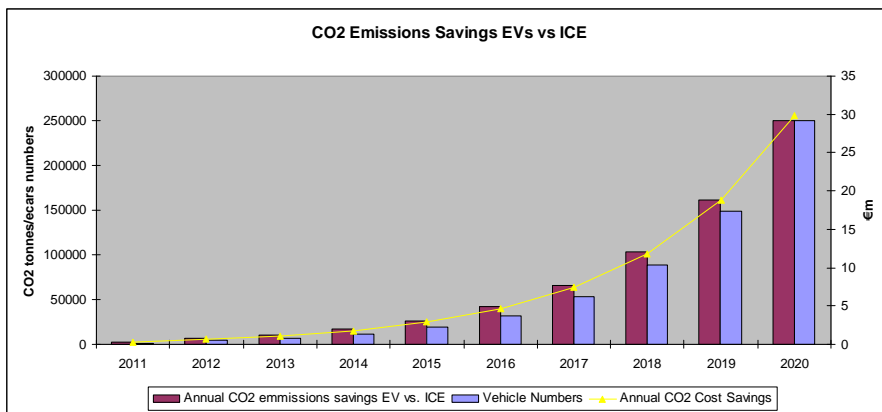
Fuel Chain Car Emissions



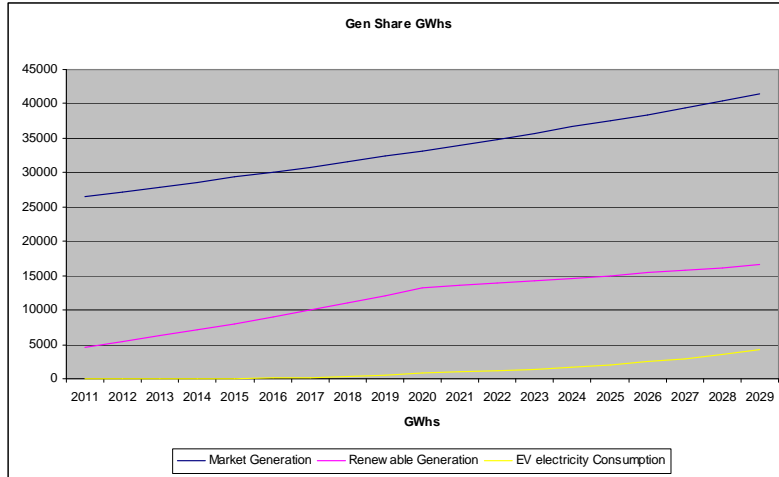
Cycle Efficiency



CO2 Emissions Savings EVs vs ICE



Generation Share GWh



Charging Infrastructure

Hardware



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Charging Infrastructure

HOME / WORK



6 – 8 hours
AC 1Φ 16A Mode 3
Type 2/ fixed cable

PUBLIC



1 - 6 hours*
AC 3Φ 32A Mode 3
Type 2

FAST



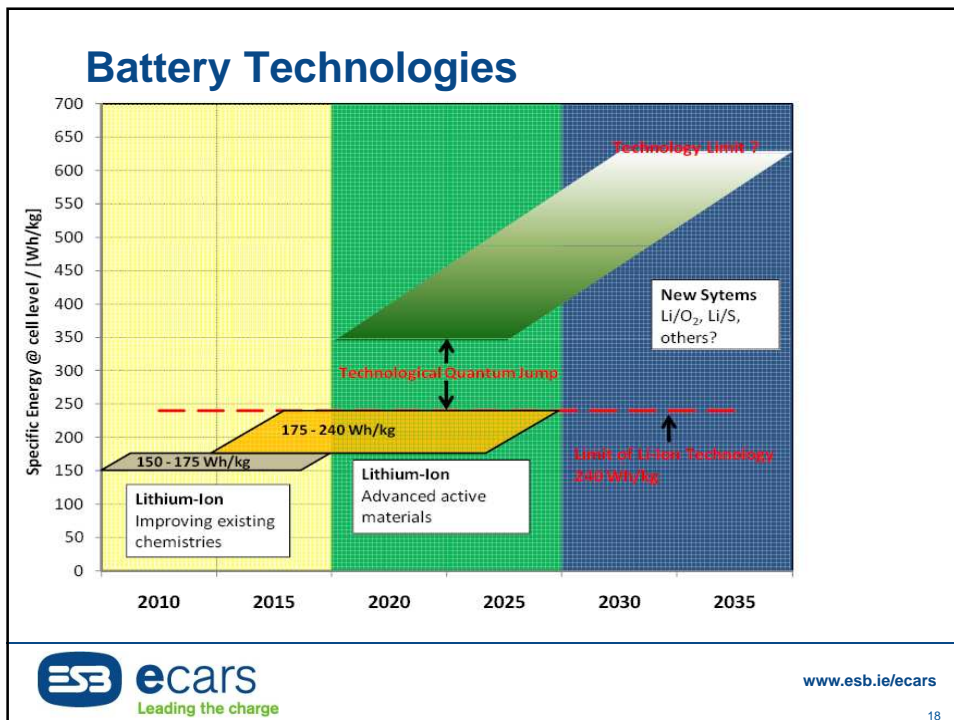
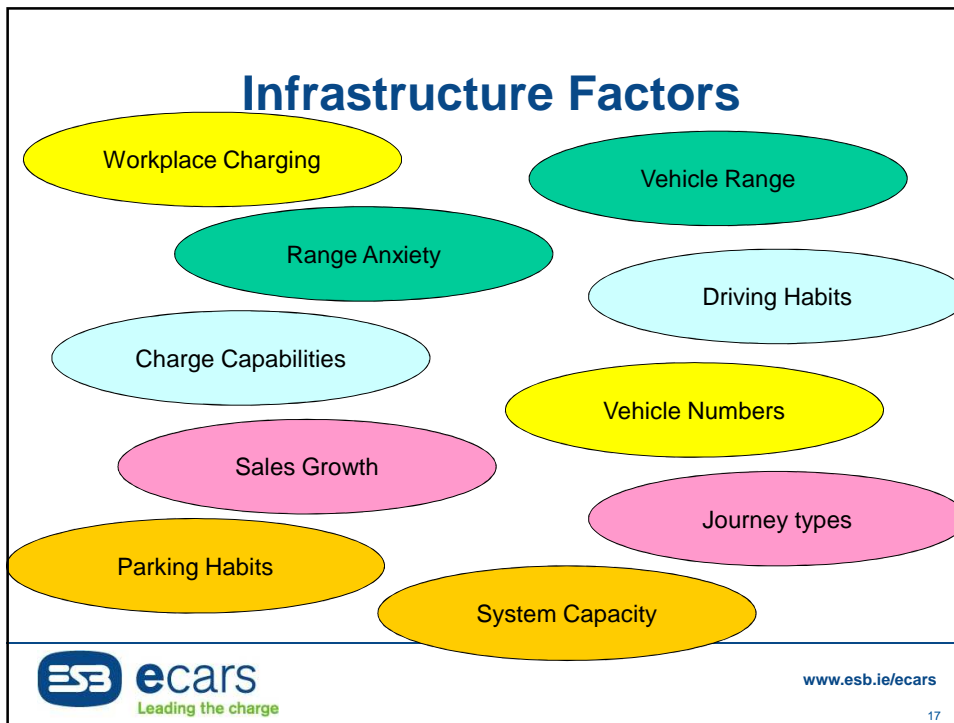
80% in 20-25 minutes
DC 50kW
AC 3Φ 63A Mode 3
fixed cable (Future)



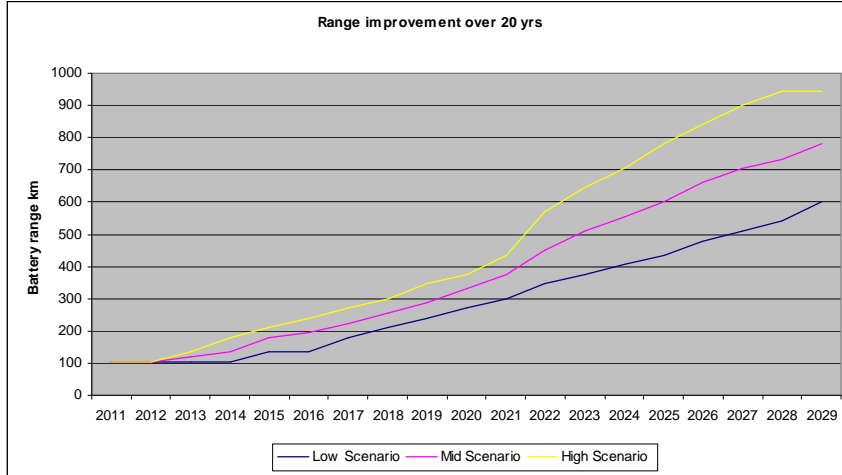
*Depending on car

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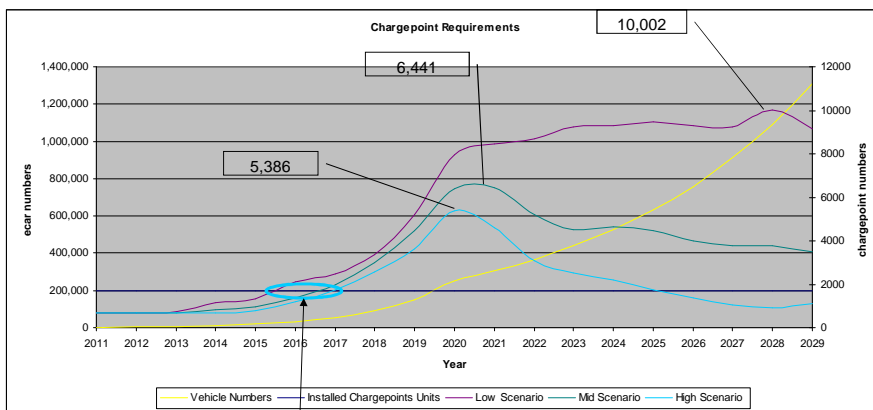
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EV Range increase



Chargepoint Requirements



Additional Infrastructure Required

Charge Points

1,500 Public Charge Points

- Dublin & County 500
- Cork 135
- Limerick 45
- Galway 45
- Waterford 45

At least one charging point for every town > 1,500 population

2,000 Home Chargers

30+ DC Fast Chargers



Parking locations and time

Rank	Segment	Spaces '000s	Typical Dwell Time Hours
1	Residential Parking	1,945	12-14
2	Workplace Staff Parking	1,188	8-9
3	Sundry Other	439	1-4
4	Cultural & Religious Centres	344	1-2
5	Recreational Centres	307	1-2
6	Retail Centres incl. MSCP	305	0-4
7	Travel & Transport Centres	270	1-4
8	On-Street Parking in Towns	130	1-2
9	Tourism Accommodation	100	12-14
10	Off-street Car Parks	65	0-4
11	Healthcare	61	1-2
12	Education	35	4-8
	Total	5,127	

- Majority of charging will take place at home
- Charging at work will be significant
 - 50% of the Irish workforce drive to work
- Public chargeposts are being installed according to parking habits
 - On-street (important for visibility)
 - Retail outlets
 - Travel links
 - Private car-parks
 - Service stations
 - Etc.

Commercial Hosting Locations

- Service Stations
 - Topaz
 - Maxol
 - Gulf Oil
 - Great Gas 24
 - Texaco
- Retailers
 - Centra
 - Supervalu
 - Tesco
- Retail Parks
- Park and Ride
- Business Parks
- Commuter Stations



Projects

ecar Initial Trails (8 Mitsubishi iMiev)

- Spread throughout the country
- Male/ female and Age mix
- Pre-driving Survey to understand expectations and fears
- Data loggers fitted gathering GPRS data and Vehicle data from Canbus



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Map **Report** Alerts (3)

ESB Ecar

Vehicles

10D23266

Report

Summary

Calendar

begin 2010 13 Sep

end 2010 13 Sep

[View Report](#)

Summary Report Export:

Date	First Start Time	Last Stop Time	Shift Time	No. Journeys	Travel Time	Distance (kms)	Idling Time	View Route
10D23266								
Mon 13th Sep 10	08:33	09:07	0:34	1	0:34	6.84	0:09	
Total			0:34	1	0:34	6.84		
Fleet Totals			0:34	1	0:34	6.84		

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Map Report Alerts (3)

ESB Ecar

Vehicles: 10D23266

Report: Summary

Calendar: begin 2010 13 Sep, end 2010 13 Sep

[View Report](#)

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eTaxi Project

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Other Project Partnerships

- EPRI Smart Grids
 - EV on Distribution Network
- Northern Ireland Plugged-in-Places
- Intel & ESB MoU
 - Smart charging
- Green eMotion
- Enevate
- Mobie Europe
- Plus others

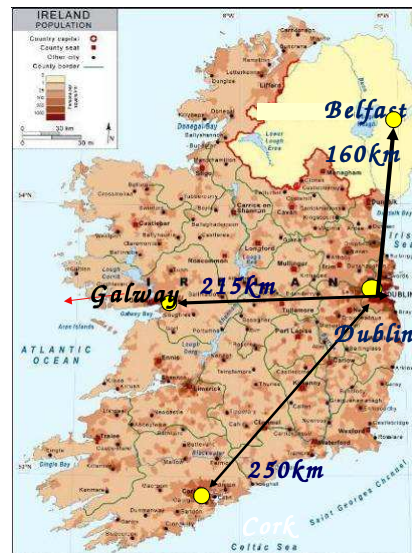
Spark plug: e-car power point goes live as Intel and ESB collaborate on dec



Intel's William Manning gets set to power up an electric car at Intel's Leixlip plant, as Intel and ESB launch an electric vehicle charge point at the processor-maker's campus in Kildare. This week, the ESB's e-cars unit and Intel's Sustainability and Enterprise Services Lab agreed to collaborate on joint research programmes to integrate electric vehicles into the electricity grid. To seal the deal, ESB e-cars launched a charge point at the Intel campus. Photograph: Marc O'Sullivan

NI PIP All-Island Integration

- NI Plugged in Places approved for funding by UK
 - 2 Departments & 6 Local Authorities
 - NIE (T&D and Energy)
 - SAP, Intel, ESB
- Charging posts to be compatible on both sides of the border
- “Electric Highways” linking Cork Dublin Belfast & other cities
- Cross Border Roaming systems with 2 separate currencies



Memorandum of Understanding



- Participate in Collaborative national, EU and international research programs
- EV integration into the Grid (link to wind)
- Data Analysis and charging algorithms for EV penetration within communities
- Integration of EV, Smart Home Management Systems & Intel's Personal Energy Management System Research Program

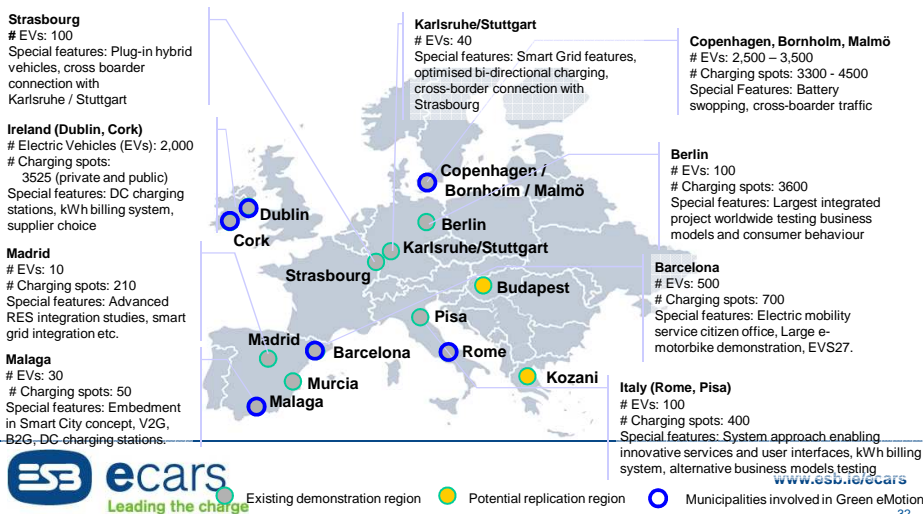


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Green emotion Demonstration Regions (in 2011)

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



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Mobie Europe

- Portugal
 - Intelli
 - Critical Software
 - CEIIA
- Ireland
 - ESB
 - Intel
 - Limerick City Council
- Spain
 - Automation Galicia
 - Welgood Solutions
 - Intermunicipal fr Vigo
- Netherlands
 - City of Amsterdam
 - Alliander
- France
 - Renault



- IT to improve access to charging
- Integration with transport system
- Open interfaces between Systems
- Mgt interface with EV infrastructure and Grid
- Assessment of Energy Sources and Carbon footprint



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Accelerating E-Mobility



Objective

To enable cooperation and collaboration to accelerate the introduction and growth of the market for EV's across the NWE region.

Duration

36 months

ERDF Grant

€2.5 million (€200k allocated to ESB / DIT)

5 Work Packages

- WP1 – Electric Vehicle Technology
- WP2 – Sustainable Energy Supply Infrastructure
- WP3 – Market Drivers and Mobility Concepts
- WP4 – Pilots
- WP5 – Enable Innovation Acceleration

15 Partners

- Automotive Technology Centre
- Narec
- Bayern Innovativ
- Forschungszentrum Jülich
- Regionalmanagement Nordhessen
- Coventry & Warwickshire Chamber of Commerce
- Pôle Véhicule du Futur
- Campus Automobile de Francorchamps
- ESB (DIT)
- European Automotive Strategy Network
- Future Transport Systems
- Vito
- Inno Germany AG
- Cardiff University
- Irseam



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IT

ESB ecars online

Online Videos

News & Events



ecar
Milestones

Charge
Point Map
Ezine
sign up

ESB ecars facebook site



- Q&A service
- News channel
- Build a fan base
- Reward fan base
- Understand community's views
- Build brand awareness

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ESB ecars Mobile Apps



- Using "PhoneGap" Technology
- Initially Targetting iPhone and Android Markets
- Release 1, Locations and Newsfeed
- Release 2 Account Management and dynamic XML status feed



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Cannonball Run (Sept 2011)

