NISSAN MOTOR COMPANY

Deployment of EV multi-standard Quick Charging Networks

Chongqing, China,
October 18th 2014

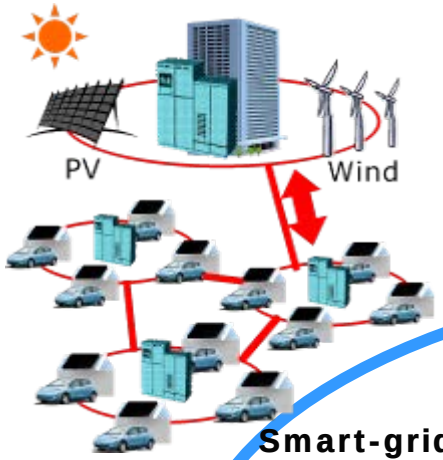
Olivier PATURET
GM, Zero Emission Strategy
Nissan Europe

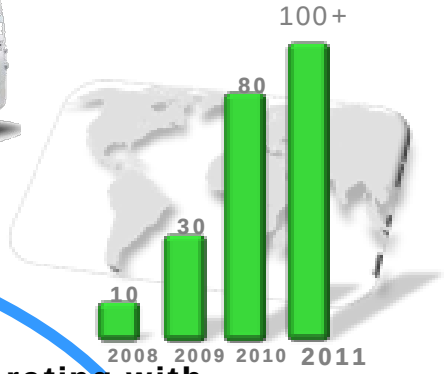
www.nissan-global.com

Agenda

1. **European EV market**
2. **Infrastructure deployment:** **The case for Quick Charging Networks.**
3. **UK Rapid Charging Network:** **a practical example**
4. **Conclusion**

NISSAN's global approach to Zero Emission Mobility





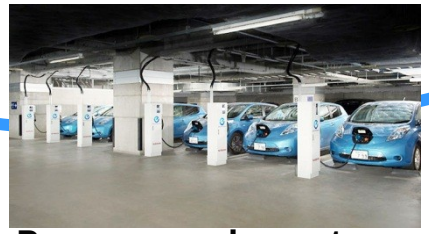
Zero-Emission vehicle engineering & manufacturing

Smart-grid research, Charging network

Collaborating with Governments / Cities

New mobility proposal

Battery second life



Power supply system Vehicle to Home / Building

Quick Charging technologies

Cells, modules and battery pack engineering & manufacturing

Agenda

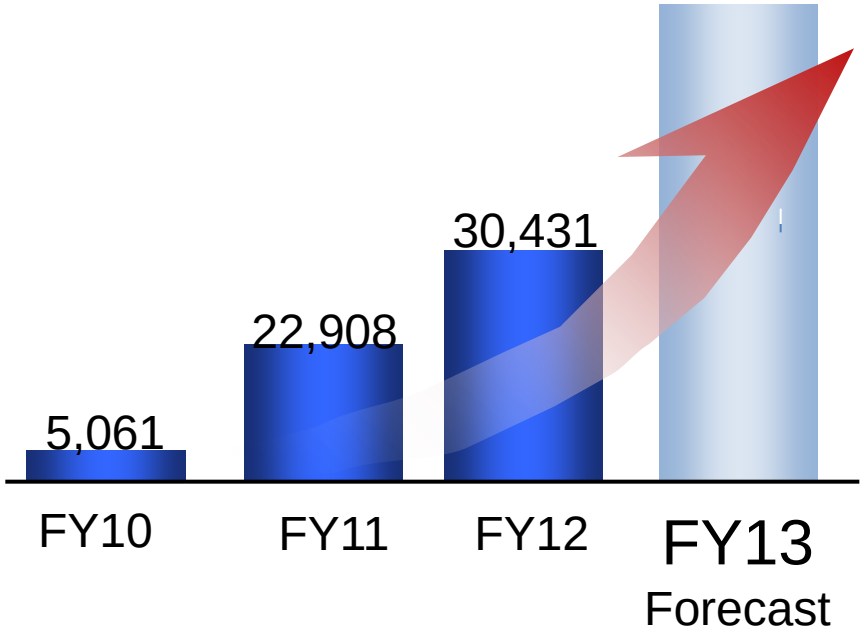
1. **European EV market**
2. **Infrastructure deployment:** The case for Quick Charging Networks.
3. **UK Rapid Charging Network:** a practical example
4. **Conclusion**

EUROPE: 120,000 units (Aug 2014)

	VW Golf	Bluecar	Fluence ZE	BMW I3	VW e-Up	iMiev	Ion	C-Zero	Fortwo	Model S	Zoe	Kangoo ZE	Leaf	Grand Total
France	66	3,352	714	203	240	110	2,604	2,200	910	236	8,238	9,451	3,017	34,981
Norway	925		8	1,536	2,710	2,392	859	1,137	6	5,414	142	124	10,653	26,959
Germany	800		288	1,402	1,409	947	546	960	3,693	711	1,682	1,520	1,823	16,788
GB	39		78	410	78	233	413	222	290		669	617	5,264	9,010
Holland	11		134	328	52	126	266	172	398	1,862	658	491	1,361	6,271
Switzerland	16		80	343	94	376	122	158	332	513	593	267	344	3,586
Austria	16		146	246	190	257	119	331	175	142	590	438	241	3,218
Italy			104	123	20	52	216	308	449	53	297	431	659	3,104
Belgium-Lux	19		149	164	49	68	219	137	238	498	227	363	494	2,901
Spain	4		241	145	5	193	204	147	89	15	276	341	665	2,738
Denmark			295	50	118	121	227	202	6	388	154	186	574	2,607
Sweden				63	208	98	39	71	2	164	90	630	678	2,283
Israel			1,181											1,181
Estonie				2	4	544	2	3		15	10		286	881
Portugal	1		47	49	6	36	98	11	83		42	55	183	616
Ireland			72	9		1	1	1			5	64	328	492
Grand Total	1,897	3,352	3,759	5,110	5,218	5,641	6,064	6,152	6,699	10,111	13,705	15,014	26,874	118,886

LEAF Global sales: 130,000 units (Sept 2014)

Nissan LEAF global sales



#1

NORWAY:
Best selling EV

93%

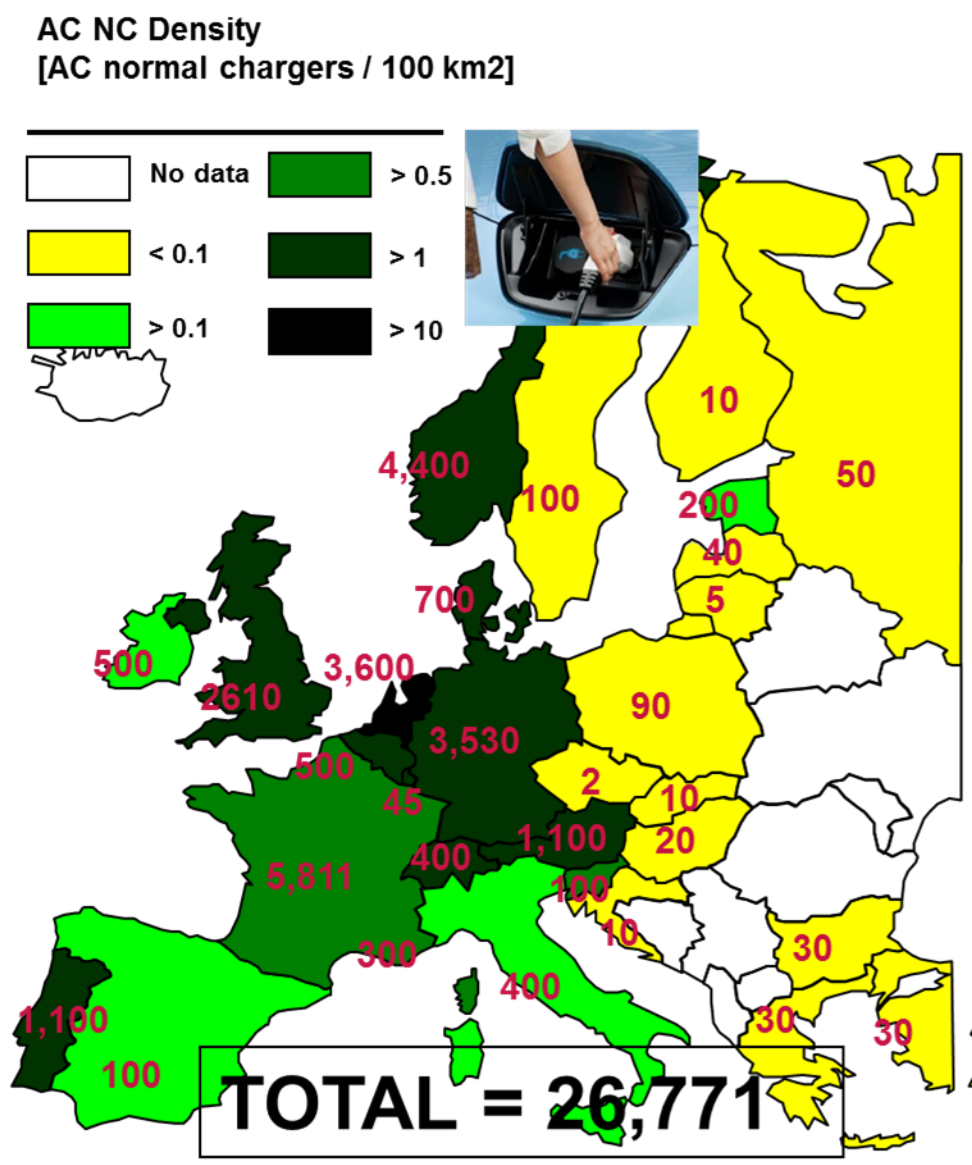
Customer satisfaction

Target 2020:10% of market in key markets

Agenda

1. **European EV market**
2. **Infrastructure deployment: The case for Quick Charging Networks.**
3. **UK Rapid Charging Network: a practical example**
4. **Conclusion**

Europe: EV Charging Infrastructure (July 2014)



Europe: EV Charging Infrastructure

Background:

1. Replacing ICE vehicle with BEV: QC networks are critical to extend range.
2. Lack of parking in urban environment,
3. Diversity of EV variants (Private, Taxi, Vans, car sharing) allows for wider adoption and speed of charging becomes critical for users.

Europe: EV Charging Infrastructure

Key Factors:

1. Recognition of similar issues by EV OEM,
2. Deployment of infrastructure by private investors was too slow,
3. Investors and site owners will not spare critical parking space for one charger per brand.
4. Partnership and cooperation has been game changer when multi-standard became available and co-funding schemes.

Europe: EV Charging Infrastructure

Electric Vehicle Market & Technologies

Chademo (44kW DC)

MITSUBISHI MOTORS · PEUGEOT · CITROËN · NISSAN

AC (43 kW)

DAIMLER · RENAULT

Combo2 (44kW DC)

DC Chademo 50kW

AC/ DC Type 2 Chademo 50kW

AC/ DC Type 2 Chademo/ Combo2 50kW

→ Multi-standard charger Type2/ Chademo/ Combo2 is supported by the 7 OEMs with EVs in the market by 2013.

rcn

Co-financed by the European Union
Trans-European Transport Network (TEN-T)

Agenda

1. **European EV market**
2. **Infrastructure deployment:** The case for Quick Charging Networks.
3. **UK Rapid Charging Network:** a practical example
4. **Conclusion**

Project aims

- Establish a pilot network of 74 multi-standard rapid chargers along the European Union's Priority Projects road axes 13 and 26.
- develop a comprehensive strategy with a detailed roadmap, appropriate guidelines and recommendations for the development of an interoperable EV rapid charge network to support other EU countries and cities to develop similar networks.
- test, operate and monitor the use of this pilot network of rapid charge points. This will explore cross-border solutions which meet the needs of both drivers and charge point operators, delivering valuable insights into the feasibility of similar transnational networks.
- disseminate the findings of the study widely locally, nationally and across Europe.

The RCN project is co-financed by the European Union's Ten-T programme.
Co-financed by the European Union
Trans-European Transport Network (TEN-T)

Helping EV drivers, drive further

EV owners in the UK and Ireland will be able to drive further, secure in the knowledge that they will never be far from a rapid charge point.

www.rapidchargenetwork.com

The RCN project is co-financed by the European Union's Ten-T programme.

Co-financed by the European Union
Trans-European Transport Network (TEN-T)

Timescales

October 2013
Project officially launched by European Union's *TEN-T Progran*

April 2014
First Rapid Charge Network poin

August 2014
Driver research begins

October 2014
50% of Rapid Charge Network po

December 2014
All Rapid Charge Network points

June 2015
Report and Strategy under devel

November 2015
Report and Strategy launched

The RCN project is co-financed by the European Union's Ten-T programme.
Co-financed by the European Union
Trans-European Transport Network (TEN-T)

Industry Partners

Supporting Partners

Zero Carbon Futures

Innovative Transport North East England

Newcastle University

www.rapidchargenetwork.com

The RCN project is co-financed by the European Union's Ten-T programme.

Co-financed by the European Union

Trans-European Transport Network (TEN-T)

Agenda

1. **European EV market**
2. **Infrastructure deployment:** The case for Quick Charging Networks.
3. **UK Rapid Charging Network:** a practical example
4. **Conclusion**