

NISSAN MOTOR COMPANY



Recent Development and Future Trends

Takashi Shirakawa

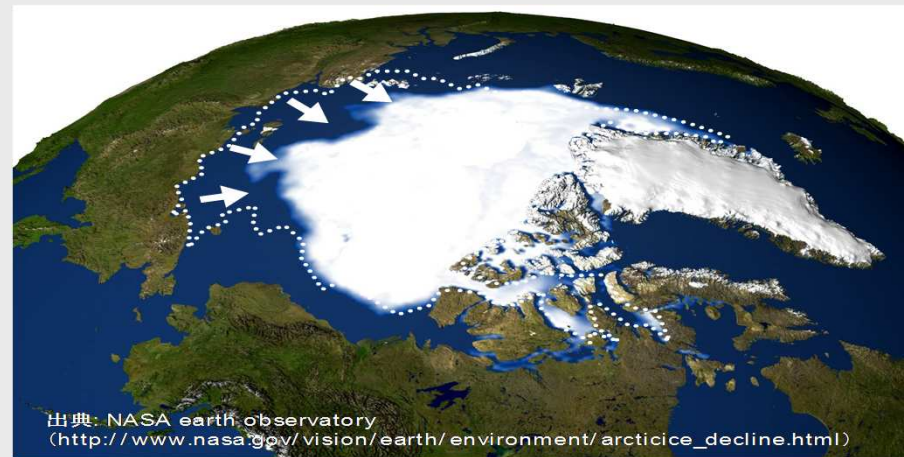
Vice President
Nissan Technical Center Europe
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Four Issues for Sustainability

Energy



Global Warming



Congestion



Traffic Accident



Four Issues for Sustainability

Energy

Global warming

Toward Zero Emission

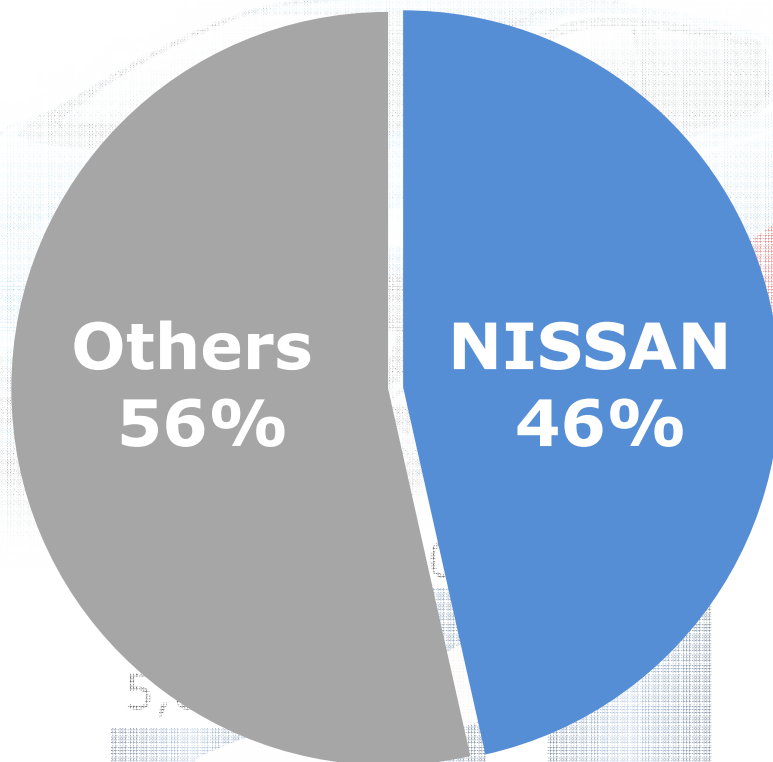
Co

dent

Toward Zero Fatality

Nissan LEAF is the Best-Selling EV

■ More than 83,000 sold (Sep 2013)



Global EV share 2004-2012*

* MarkLines Automotive Information



EUR



Switch EV Project in UK



US



Nissan LEAF Owner's event in San Francisco



JPN

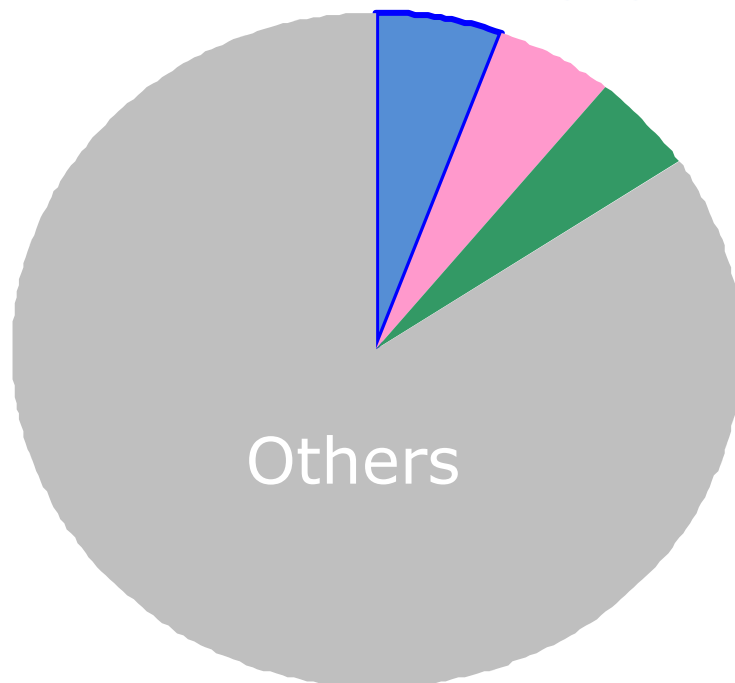


EV introduction ceremony in Kanagawa

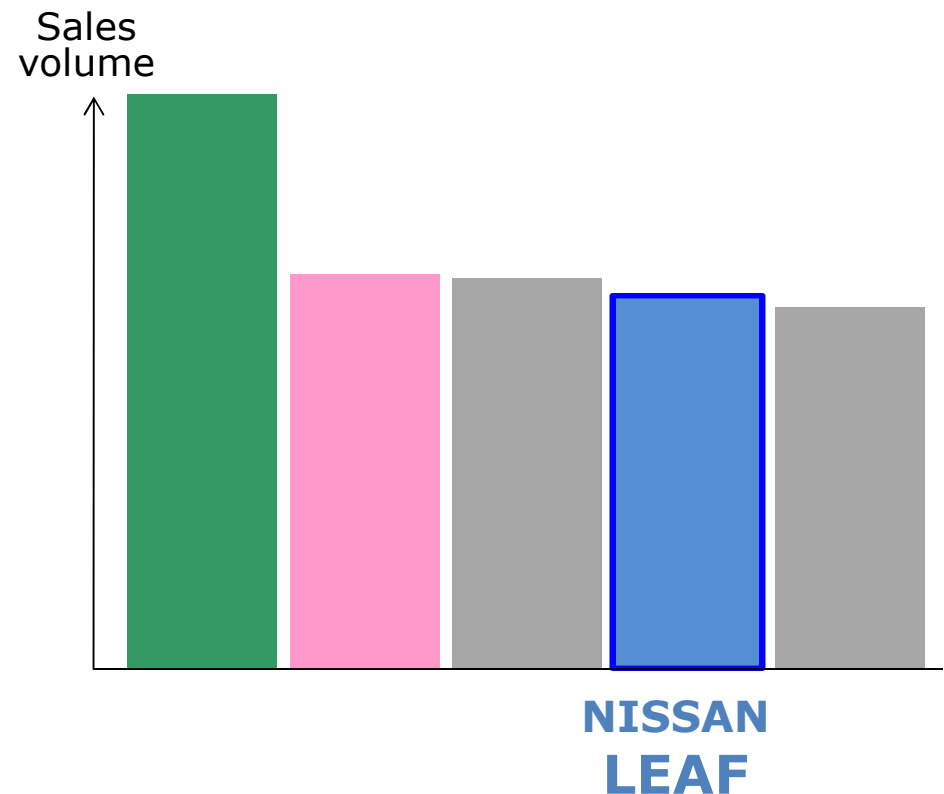
"Real" EV market

- Nissan LEAF tops Norway Oct. car sales
- Over the last 10 months, the Nissan LEAF has been Norway's 4th best-selling car

NISSAN LEAF 5.5 %



Car sales share*
(Norway Oct.2013)

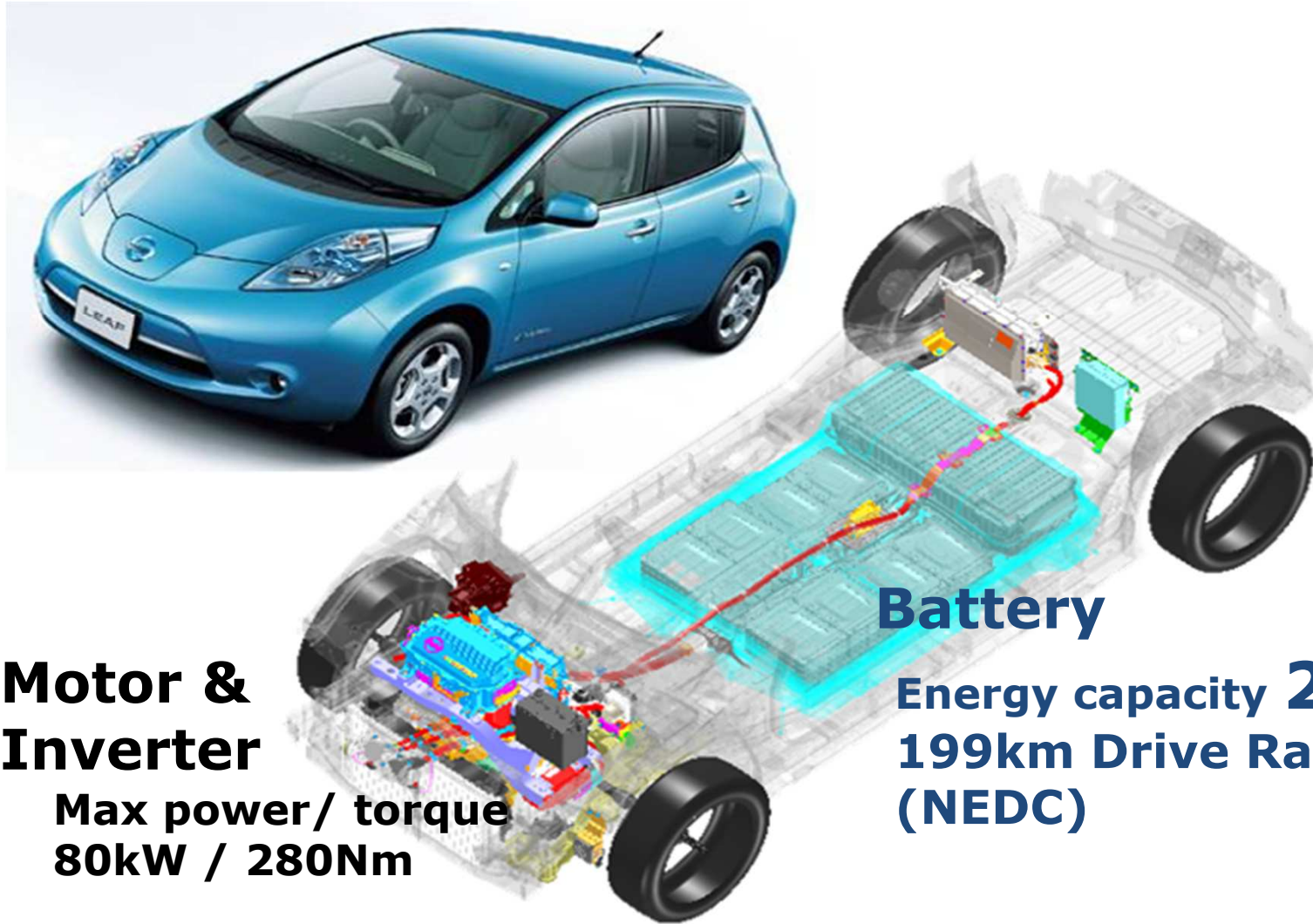


Car sales Volume*
(Norway YTD 2013)

* JATO Automotive data

"Leaf" Vehicle Platform Outline

■ EV Tailored Platform



Motor & Inverter

Max power/ torque
80kW / 280Nm

Battery

Energy capacity **24kWh**
199km Drive Range
(NEDC)

What is 24kWh?

- Energy necessary to travel 199km (NEDC) is equivalent to 2.7L gasoline

Paella



20 plates = 24kWh

1 Plate = 1030kcal \Rightarrow 1.20kWh

Fat



2.95 kg = 24kWh

1kg = 7000kcal \Rightarrow 8.12kWh

Gasoline



2kg (2.7L) = 24kWh

1kg=44MJ \Rightarrow 12.2kWh

Nissan LEAF in Numbers

A light blue world map with a halftone dot pattern serves as the background for the infographic. The map shows the continents of North America, South America, Europe, Africa, Asia, and Australia.

Number of Cars

83,000

@ Sep 2013

Battery capacity

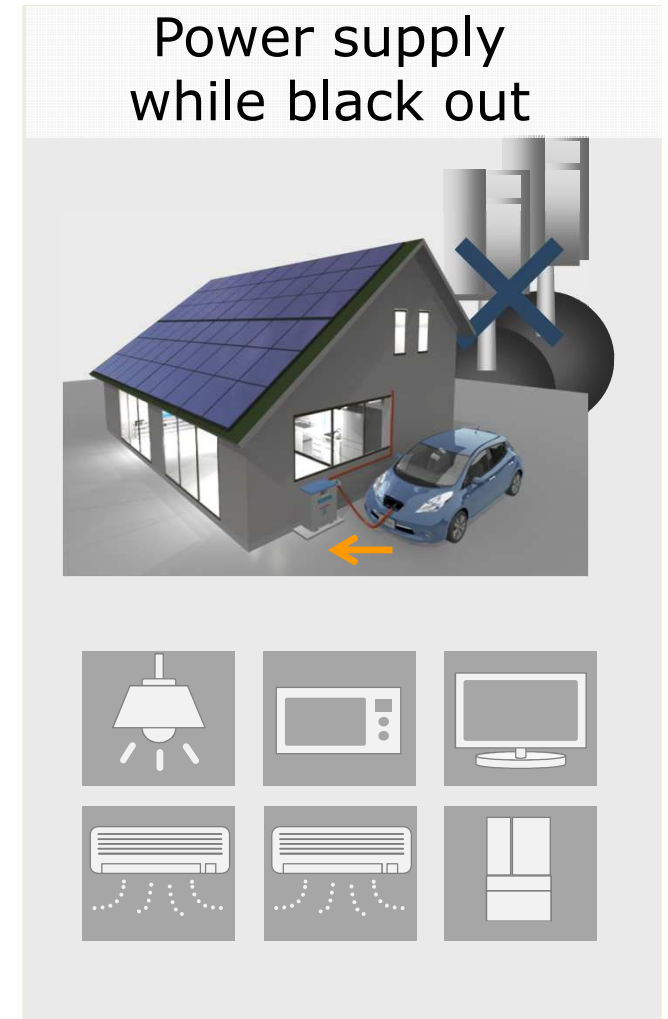
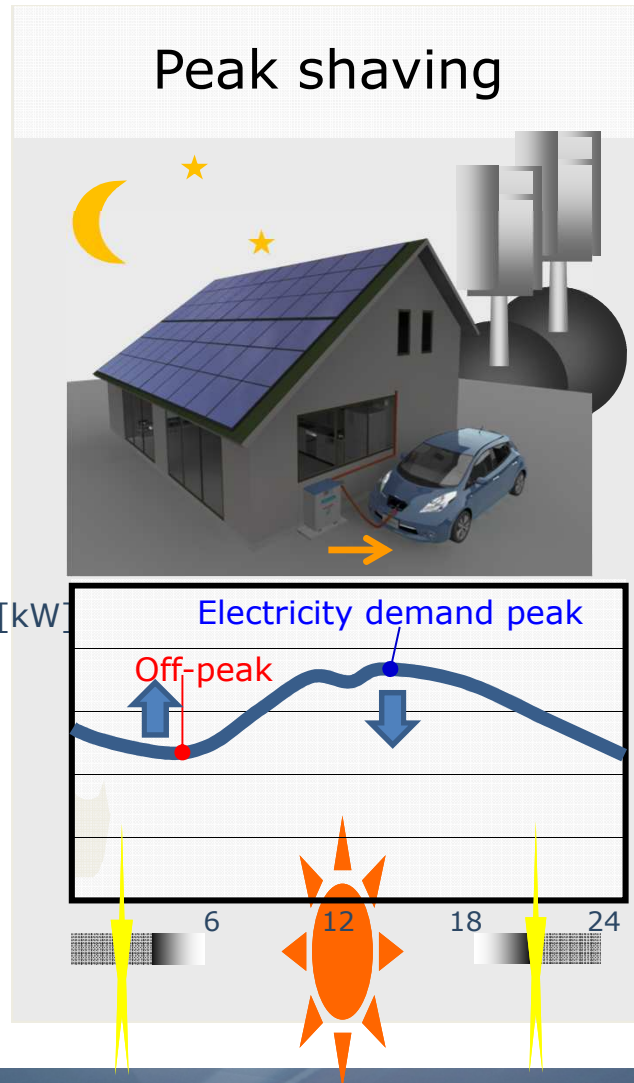
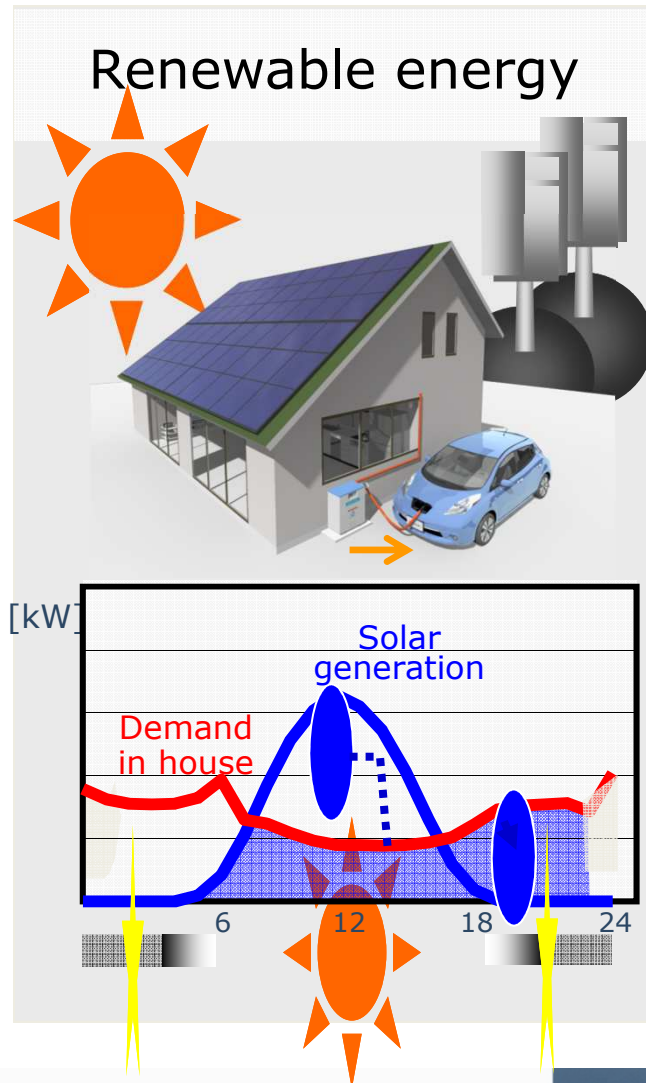
1,992,000kWh

More than 134 games of Camp Nou Stadium*

* During evening matches , the stadium consumes 14,860kWh in five hours. (FC Barcelona HP)

Storage Batteries on Wheels

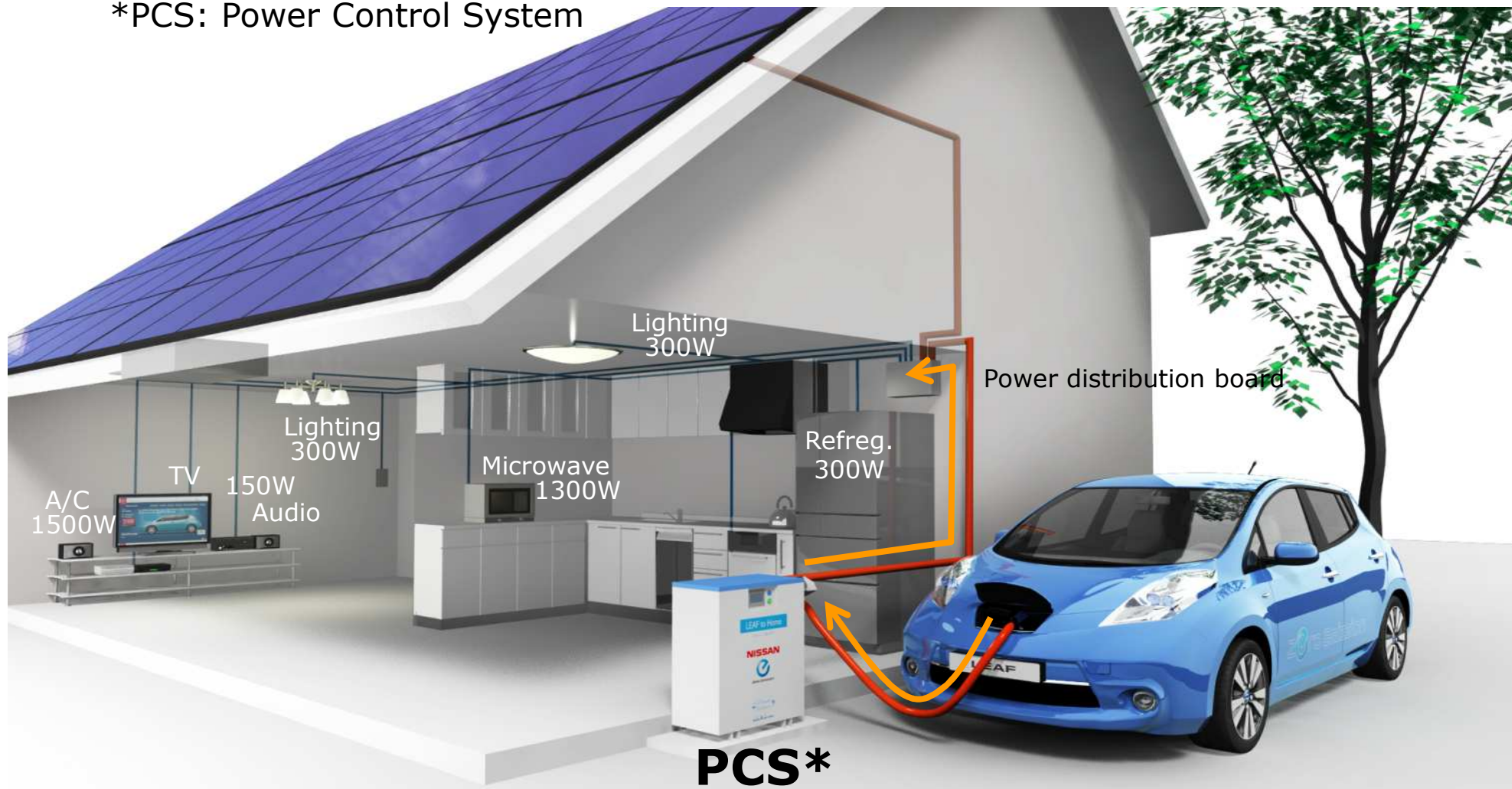
- Nissan LEAF supplies electricity to home



LEAF to Home

- PCS* enables bi-directional electricity management

*PCS: Power Control System



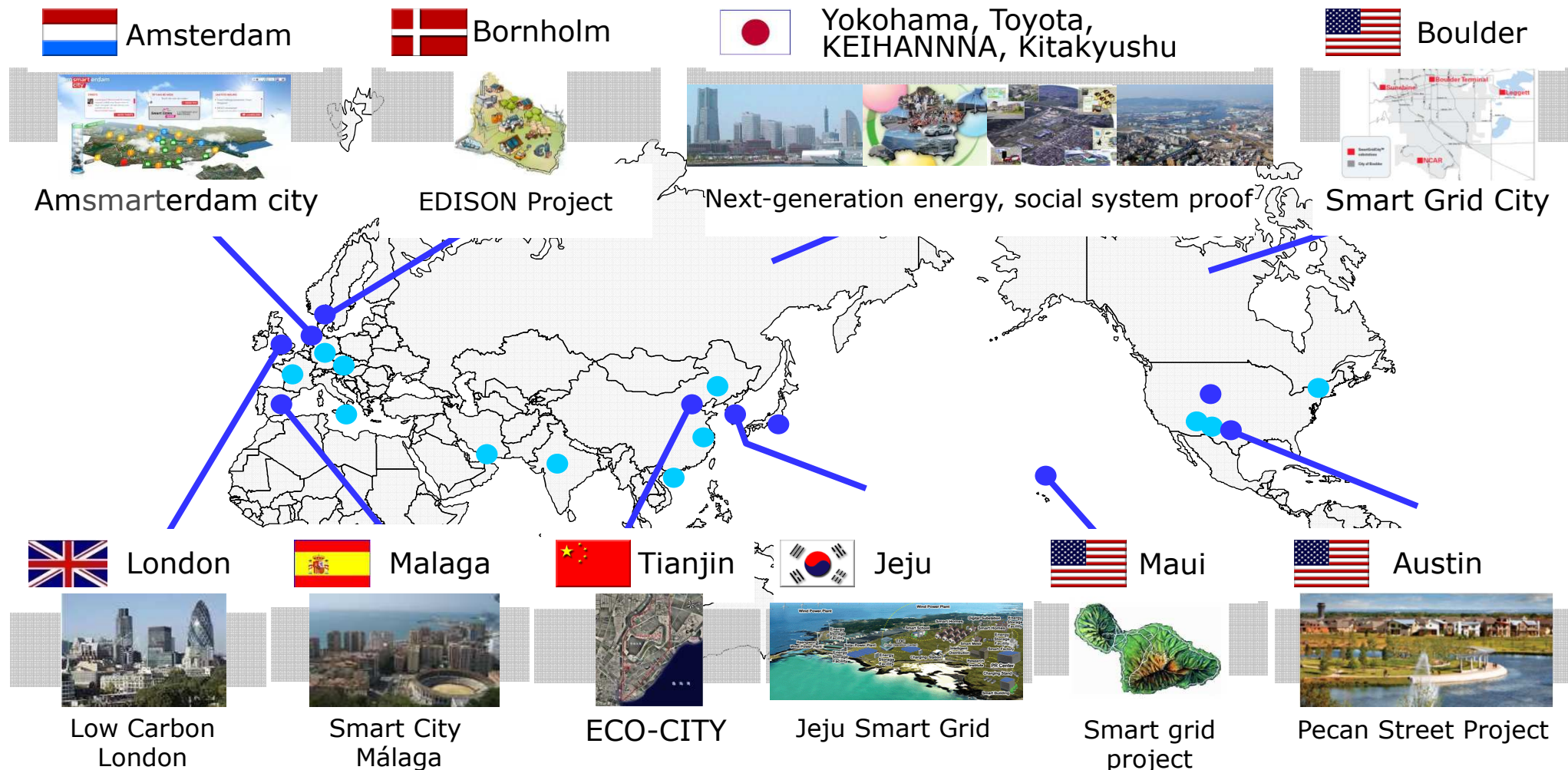
“LEAF to Home” is Well Received in Japan

■ “LEAF to Home” passes 2000 units sales in Japan



Toward to Zero Emission World

- Large-scale field tests have begun all over the world



Expansion of EV and Battery Production

- NISSAN MOTOR IBÉRICA (Barcelona) will be home to Nissan's second all-electric vehicle



Sunderland, UK
EV & Battery



Zama, Japan
Battery



Smyrna, USA
EV & Battery



Barcelona, Spain
EV



Oppama, Japan
EV

e-NV200 is in the Final Development Phase

- e-NV200 is scheduled to launch in 2014
- Positive feedback has been received from fleet customers;
it is **quiet and comfortable** with **generous carrying capacity**



NISSAN e-NV200 Electric Barcelona Taxi



Summary

- Nissan Leaf is the first step for achieving sustainable and electric support mobility in social energy infrastructure
- We all need to increase awareness with the public that EVs are here and a real alternative for us and our lives
- People in Barcelona will be able to experience the eNV200 taxi in 2014



Enjoy your ride soon!

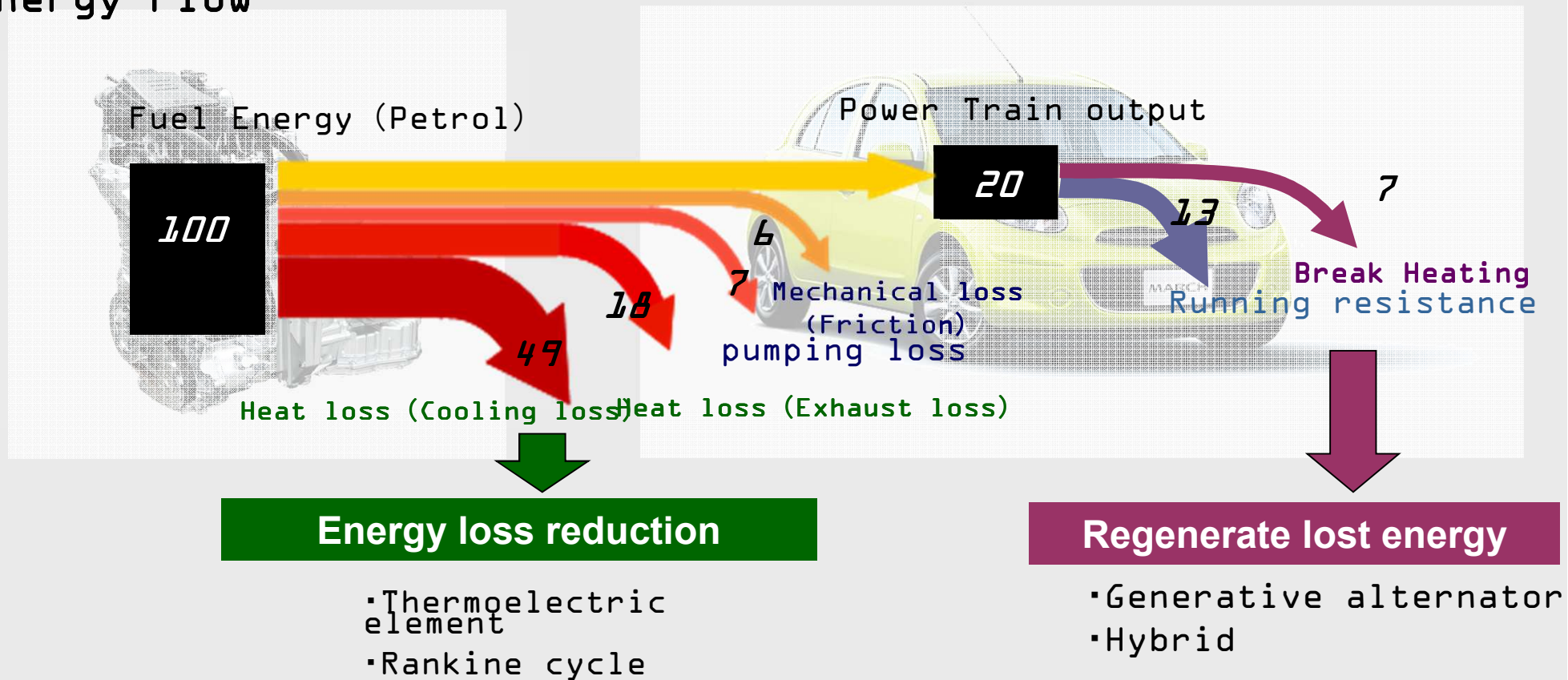


Appendix

Energy Balance of Powertrain & Vehicles

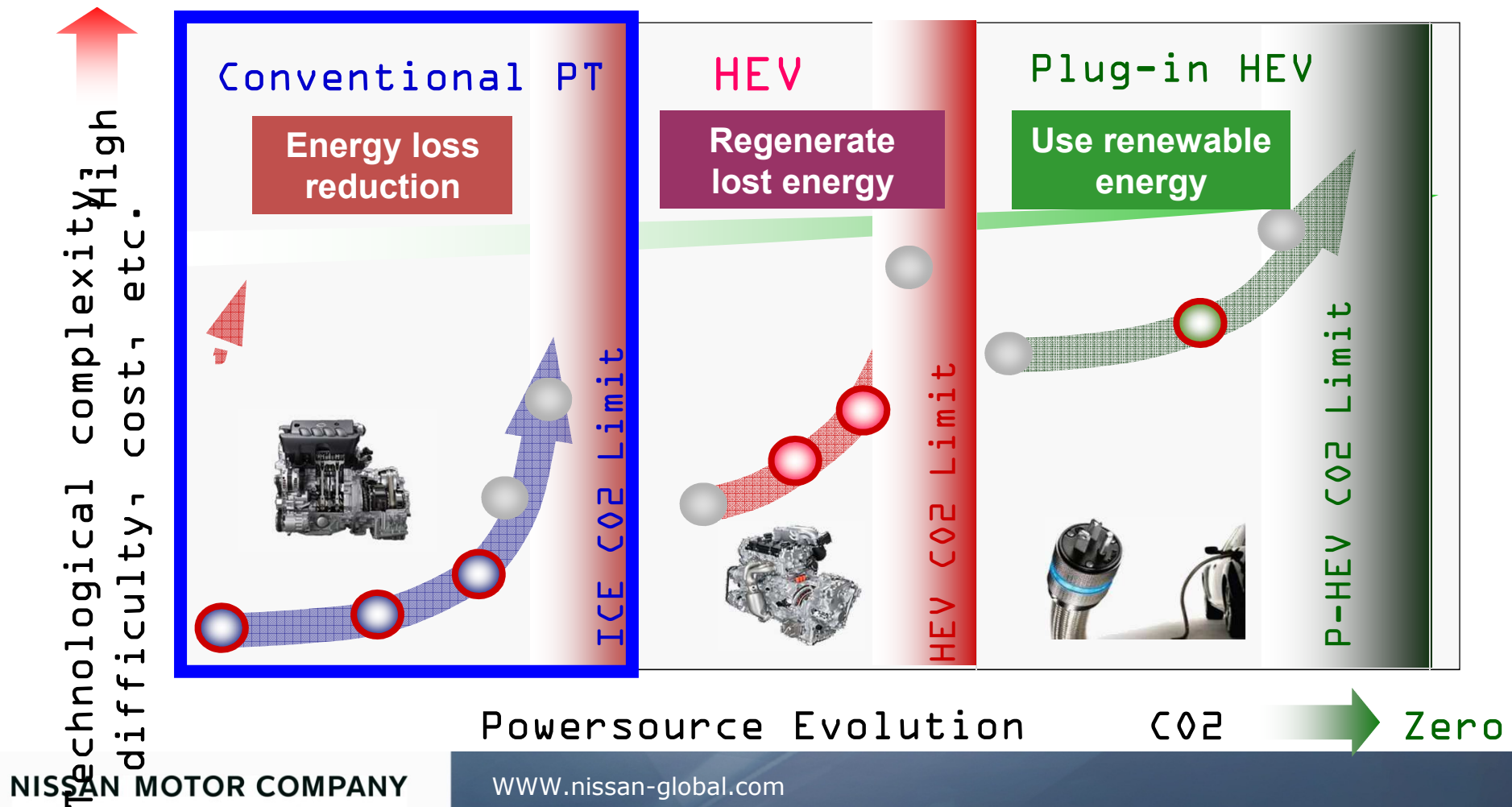
- Numerous energy losses before putting a vehicle in motion
- To improve CO₂ (fuel consumption),
1. Minimize the energy loss and **2. Regenerate lost energy**

Energy Flow

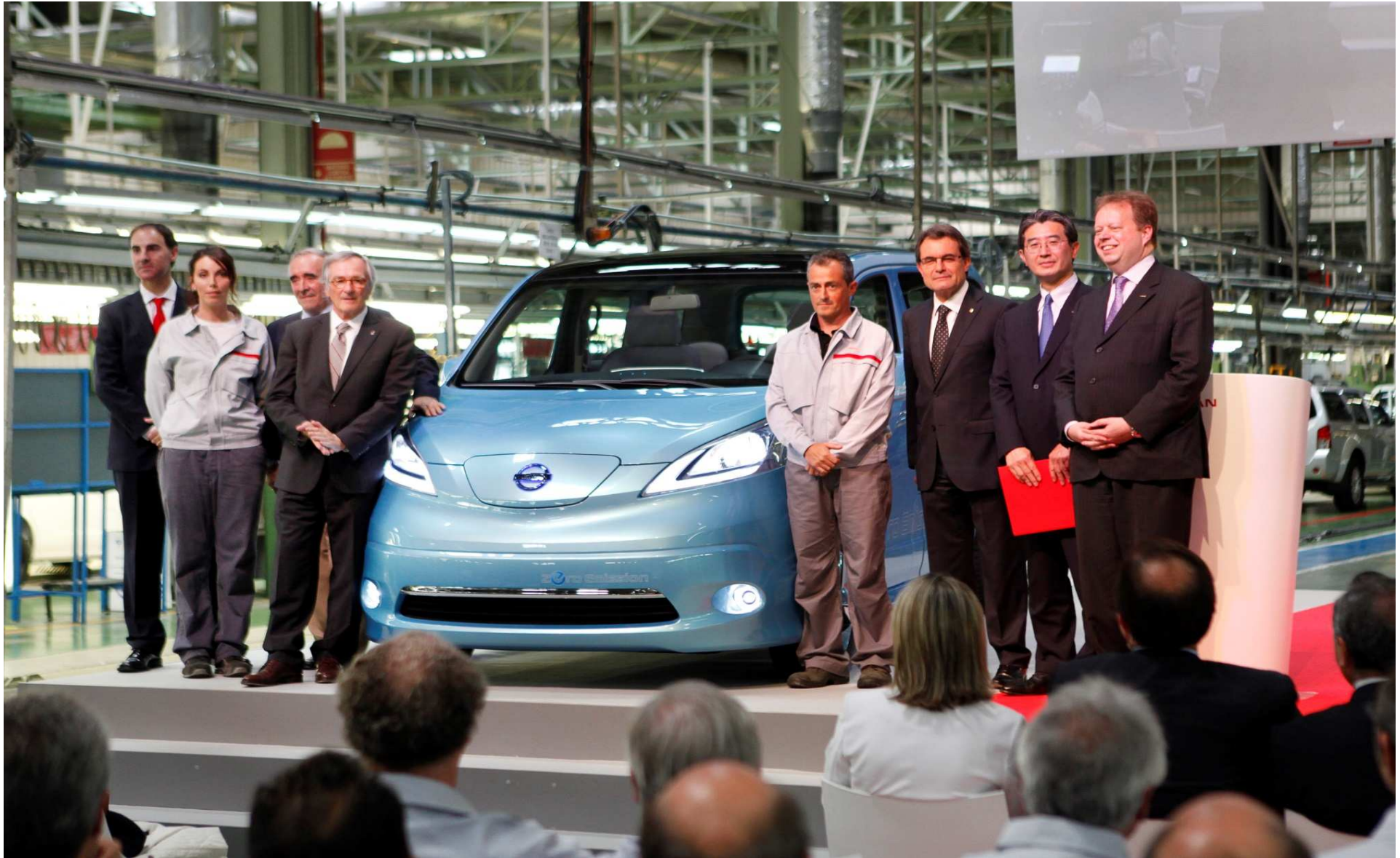


Technology arrangement

- Technologies have to be arranged to consider all stages under "Powertrain" and "Powersource Evolution" concept



NISSAN e-NV200 in Barcelona



New Nissan LEAF

Range: 199 km (NEDC)
Capacity: 5 passengers
Motor: 80 kW, 254 Nm
Battery: 24 kWh Li-ion
AC Charger: 3.3/6.6kW (option)
DC Charger: 50 kW (CHAdeMO)

