SHIFT 2009

Enabling Zero Emission Mobility

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Talk given at Shift Conference, run by

Cambridge Investment Research

www.hvm-uk.com

1. Why is Nissan developing Electric Vehicles today?

2. Where is Nissan today in achieving its strategic vision for Zero Emission Mobility?

3. What is the approach for EV launch in Europe?

The Global Challenges

Today

Population
6.7 Billion

Car Park
600 million

2050

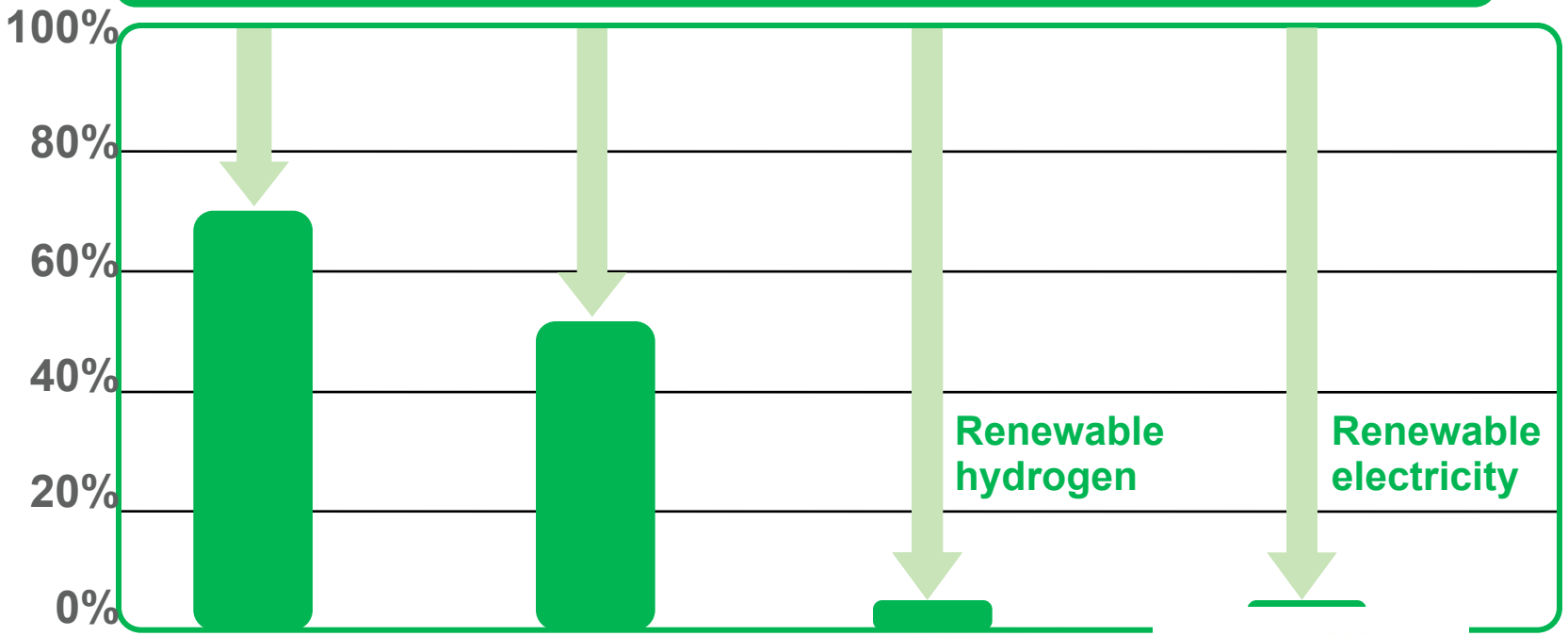
Population
9 Billion

Car Park
2.5 billion

CO2 Reduction

ZERO EMISSION

Well-to-wheel CO_2 emission reductions



Internal Combustion Engine

Hybrid

Fuel-Cell Vehicle

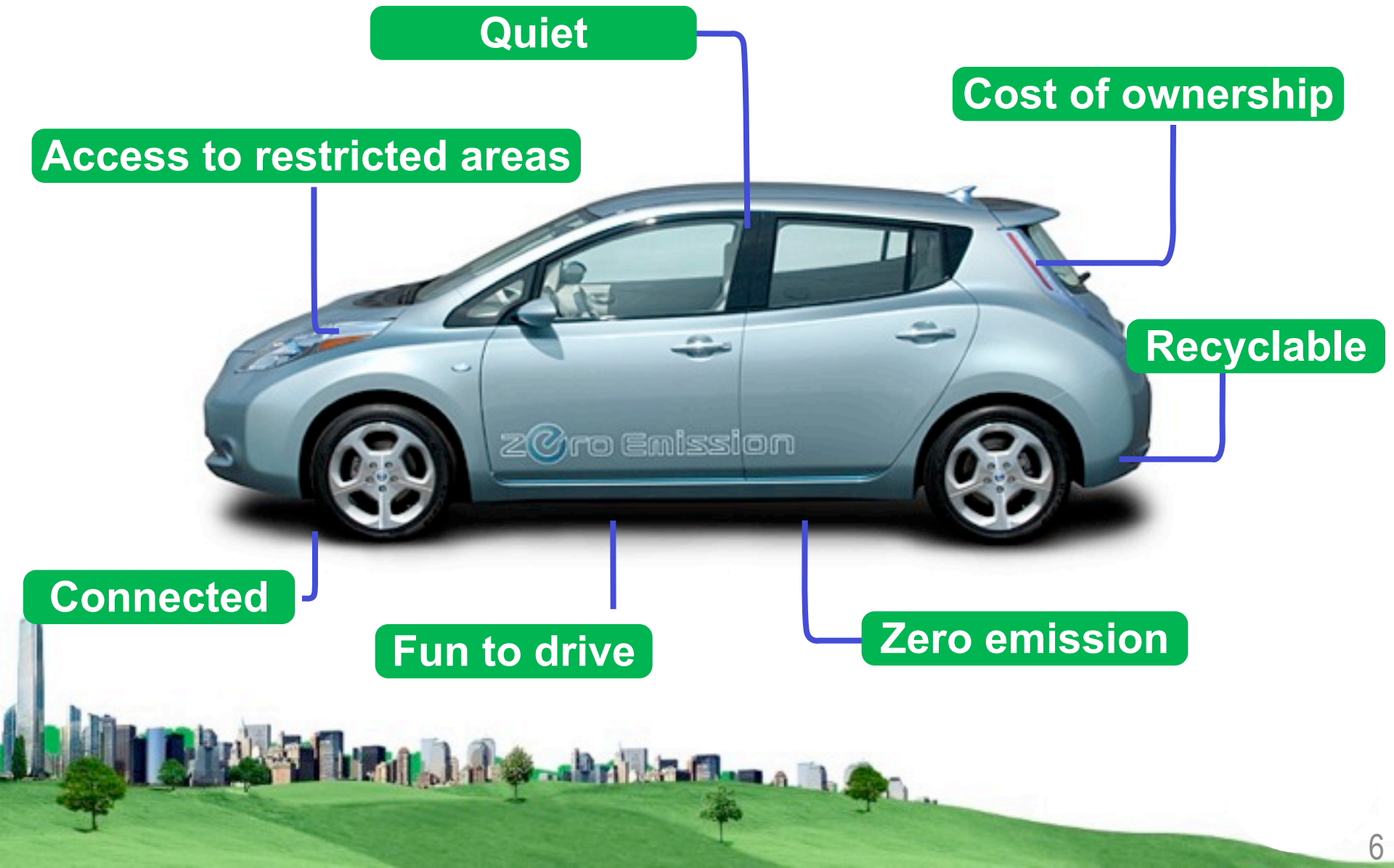
Electric Vehicle

Nissan EV

ZERO EMISSION

LEAF Benefits

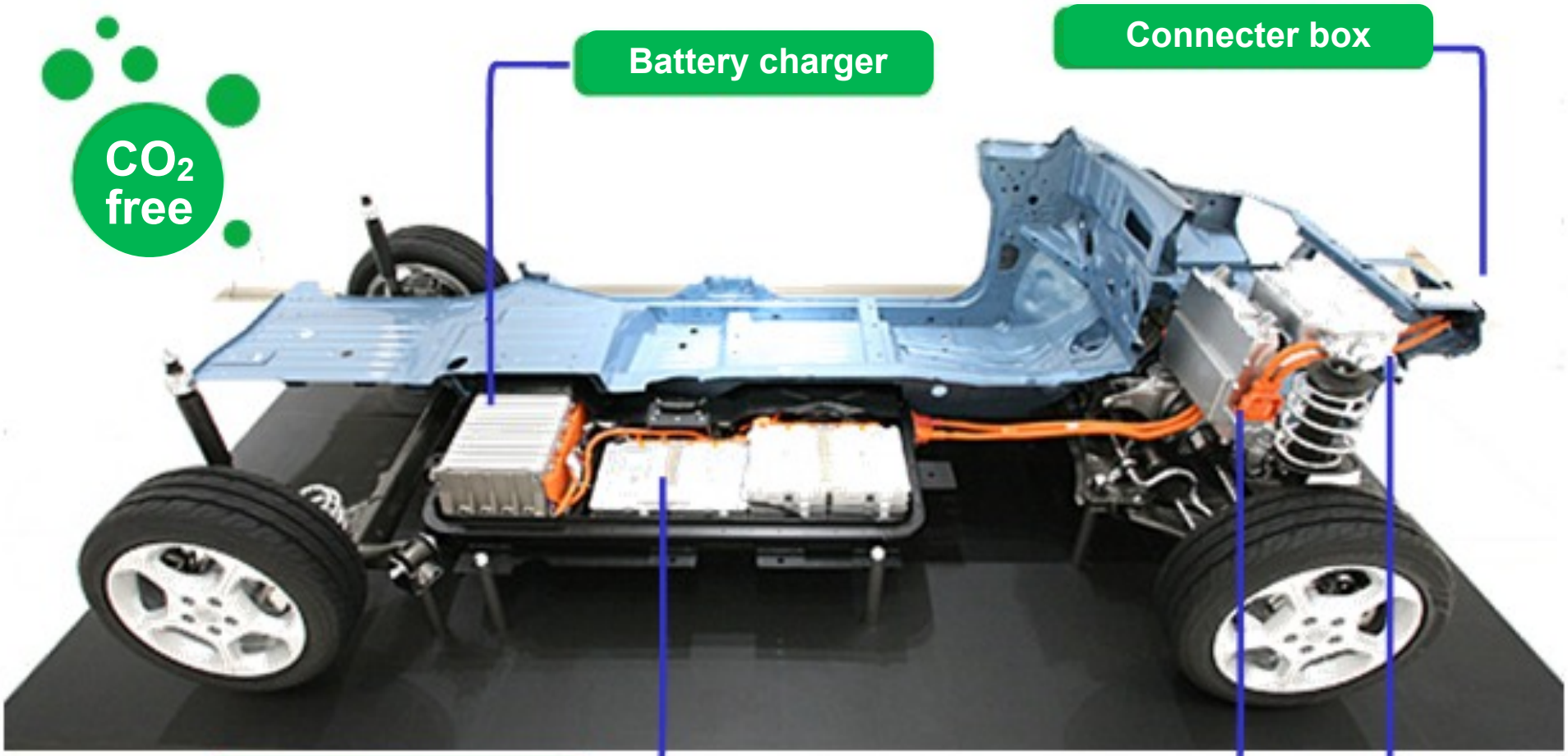
ZERO EMISSION



What is an EV?

ZERO EMISSION

CO_2 free

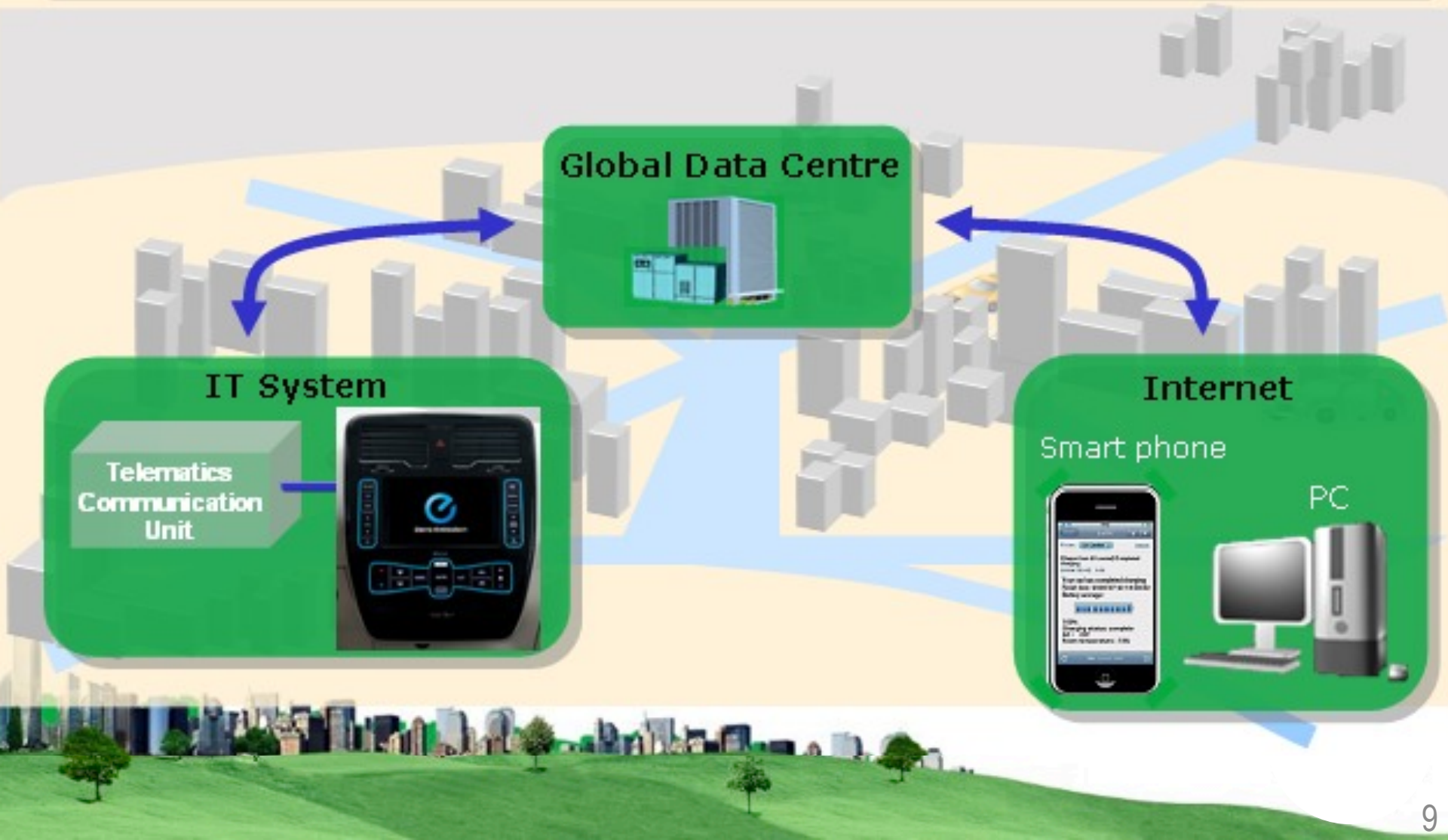


Nissan **LEAF**

zero Emission

IT & telematics system for EV

Enhancing the EV ownership experience with telematics



IT & telematics system for EV

Driving range Anxiety

With just one touch of the steering switch, you can get charging locations around the vehicle or around the destination

Around Current Location

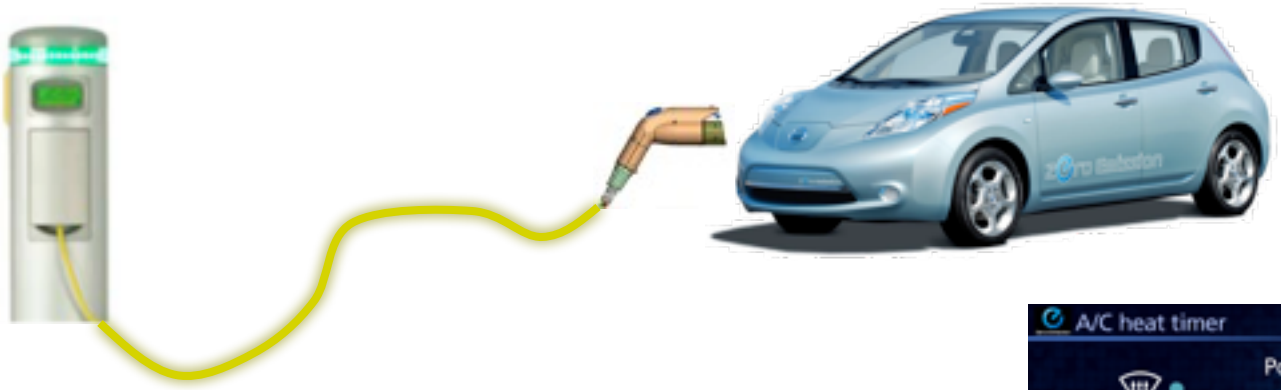
- Type of charging station can be displayed
- Location data is updated regularly when new charging posts are added

Around Destination

IT & telematics system for EV

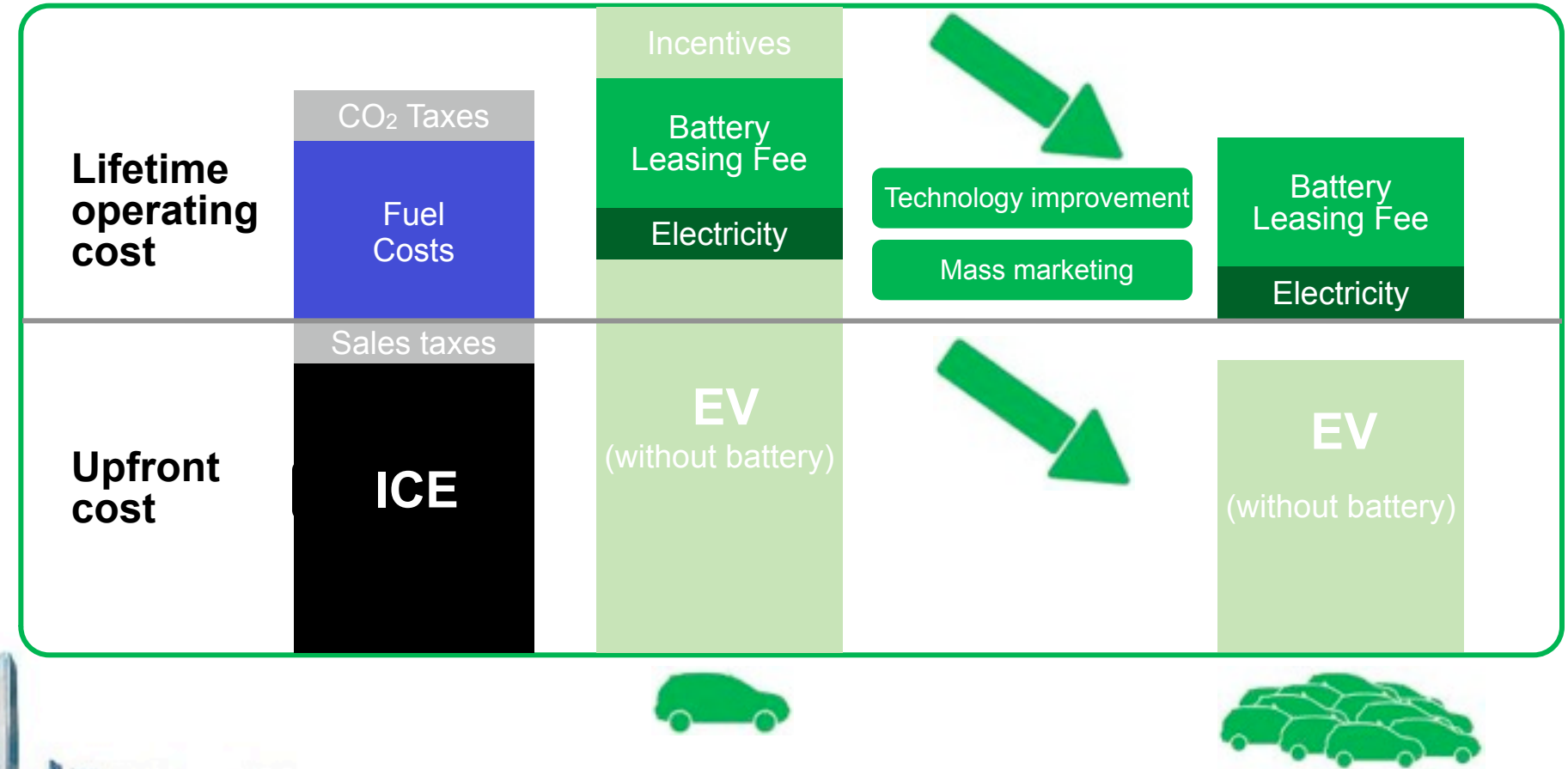
Remote charging, Air conditioning & Heater

A mobile phone or PC can be used to communicate with the car to start charging or turn on the heater or AC



Charge vehicle using off-peak electricity
Heat the car up before you get in to drive

Total Cost of Ownership



ICE : Internal Combustion Engine

EV Launch Strategy

zero Emission

TECHNOLOGY

PARTNERSHIPS

EDUCATION

Partnerships

Zero Emission

Government

IT

Standards

Network

Fleet

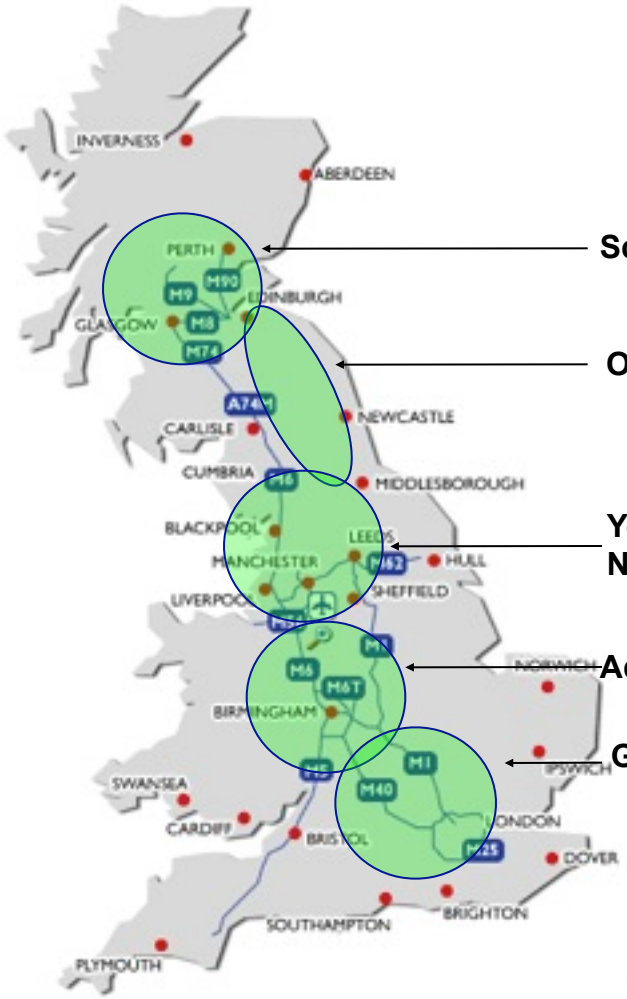
Utilities

Technology

Global Partnerships

UK Demonstration

Technology Strategy Board
Driving Innovation



Scottish Enterprise

One NorthEast

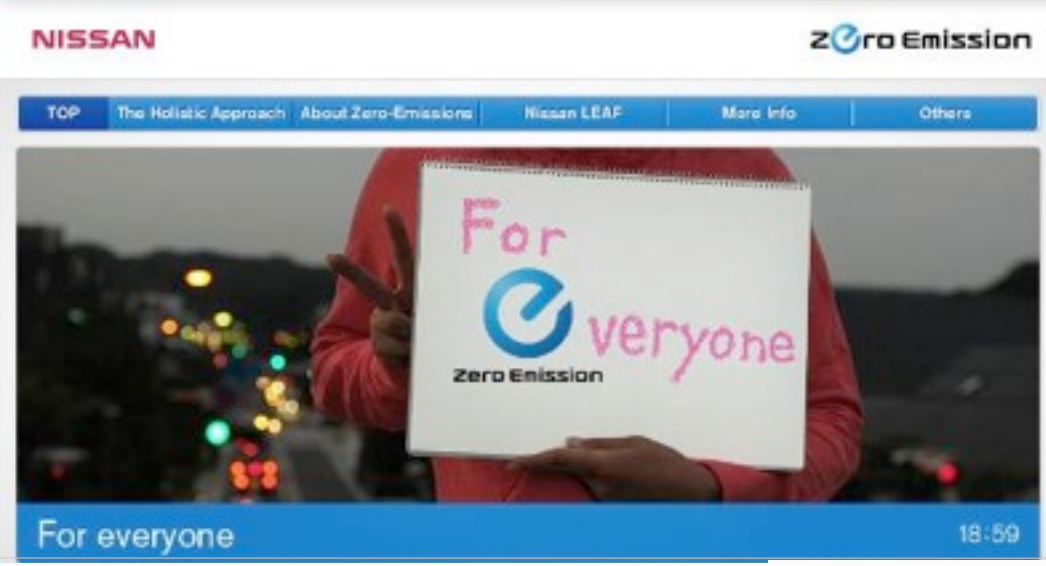
Yorkshire Forward
North West Development Agency

Advantage West Midlands

GLA

Consumer Education

http://www.nissan-zeroemission.com



Thank You

RENAULT NISSAN

Committed to be a global leader in zero-emission mobility

Appendix

Manufacturing Reduction of CO 2

- NMUK now has 10 recycled wind turbines on site
- Wind farm produces around 8% of plant's energy needs each year
- Laser welding two different thickness of panels reduced steel usage by 20%
- Bodies are sprayed in colour batches to reduce paint wastage when cleaning pipes for colour change
- In recent years NMUK has reduced total energy usage by 9%, equal to 17% less CO2 produced per car built.

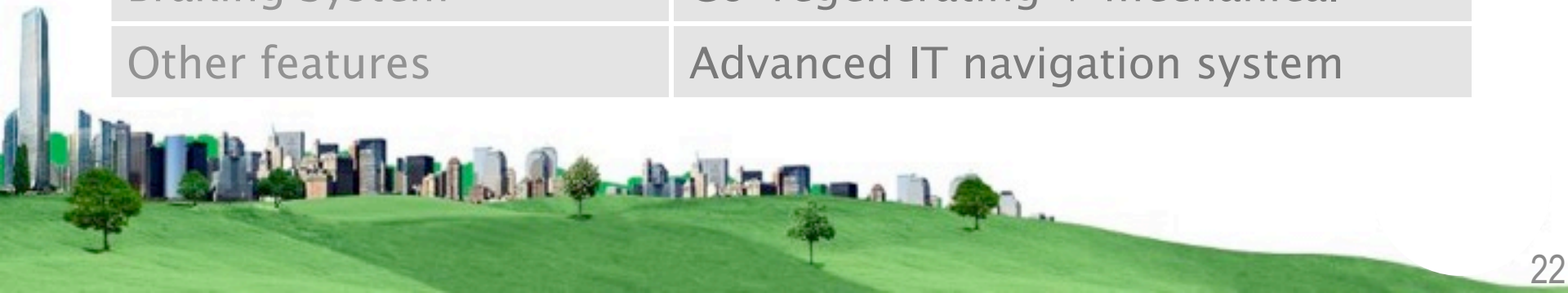
Battery Technology

- Current battery = laminated li-Ion, Spinel-structured manganate anode

Nissan **LEAF** Specification

ZERO EMISSION

Vehicle Dimension	L 4.45m x W 1.77m x H1.55m
Vehicle Weight	1,620kg
Seating Capacity	5 adults
Drive train layout	Front motor, front drive
Elec. motor (max/	Hi response AC type (80/50 kW)
Driving Range	105mile (LA4 mode, fresh battery without A/
Top Speed	>90mph
Battery	Laminated Li-ion
Battery Capacity	24 kWh
Braking System	Co-regenerating + mechanical
Other features	Advanced IT navigation system



Charging Technology

Zero Emission

Home charging

Overnight Charging

Medium distance

Home

Network charging

Destination Charging

Round trip

Office, shopping, Public Transit

Pathway Charging

Long distance

Along transportation corridors

Low Carbon Vehicles

ZERO EMISSION

Zero Emission

NISSAN FUEL CELL VEHICLE FCV

LEAF 2010

EV family

Leadership
Zero Emission

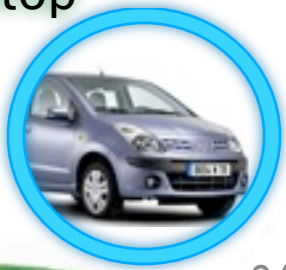
PURE DRIVE

10% CO_2 Reduction
< 140 g /km

Clean Diesel

HEV

Idle Stop



HOLISTIC APPROACH TO LOW CARBON VEHICLE

Internal Combustion Engine Optimization