Renault Z.E.

Promoting the use

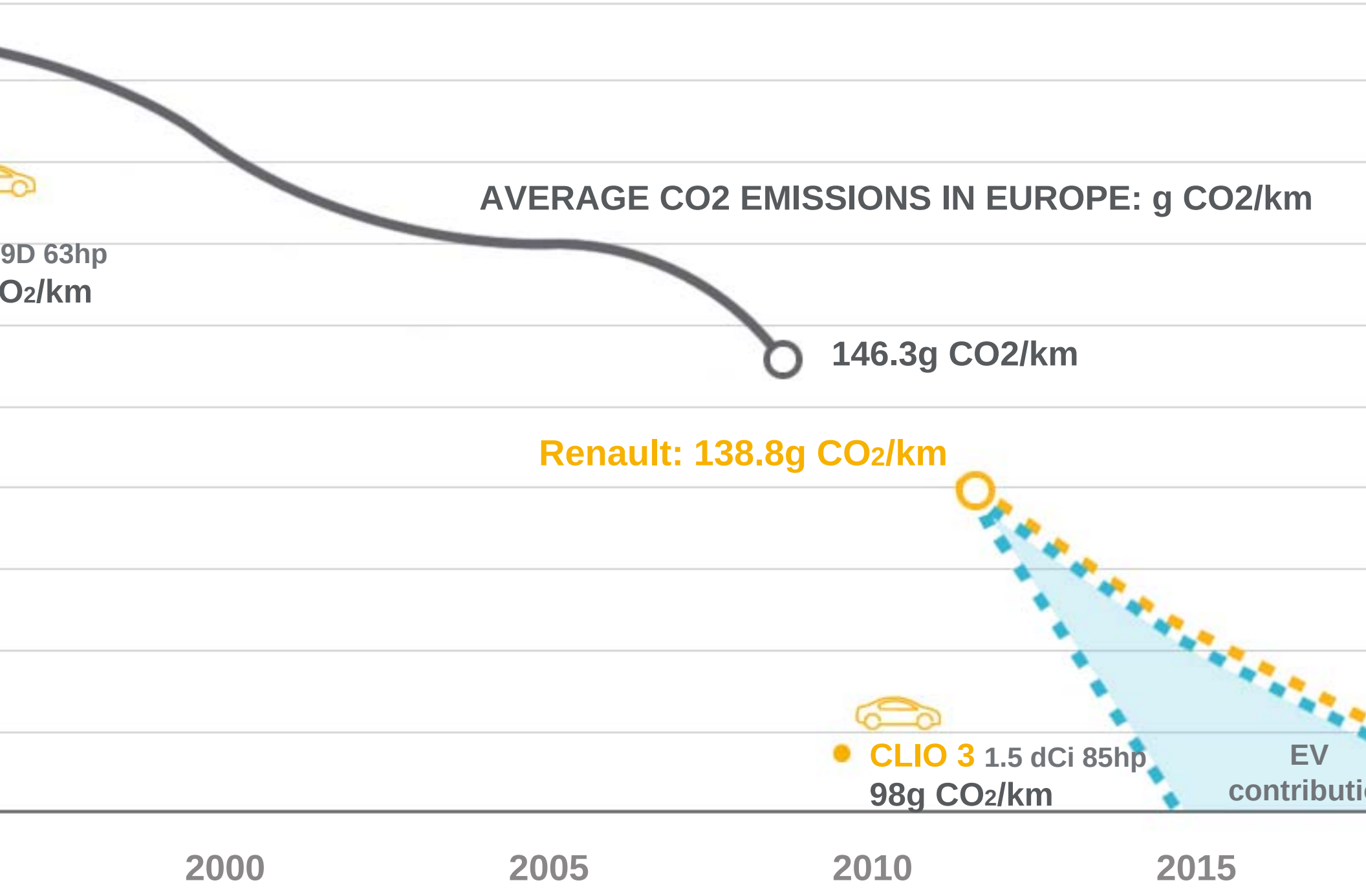
5th Decem

Agenda

1. The Big Picture
2. The Renault Z.E. ran
3. The Big Questions

01 The big picture

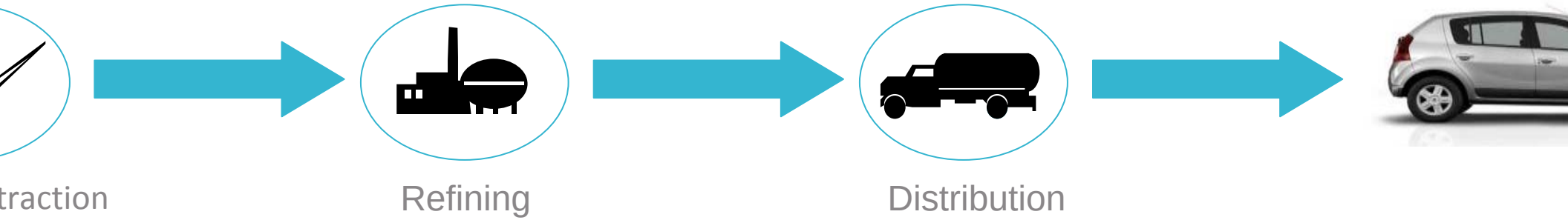
ons Reduction targets

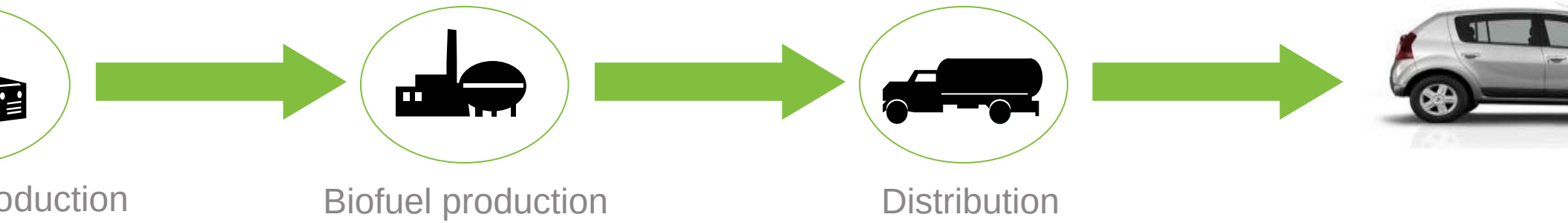


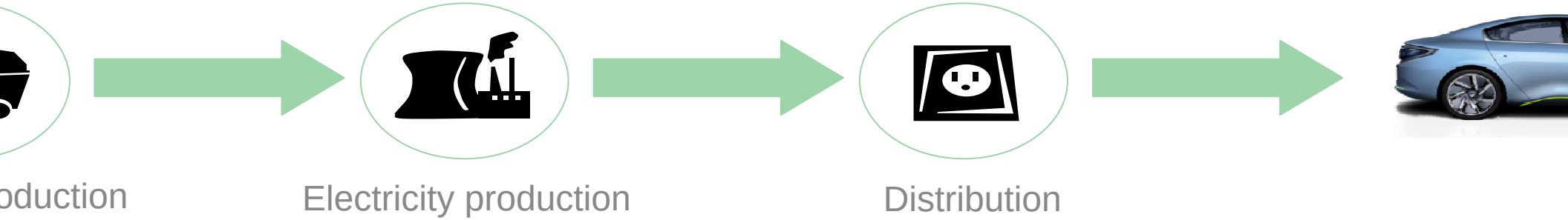
CO2: concepts

WELL TO TANK

TANK TO WH

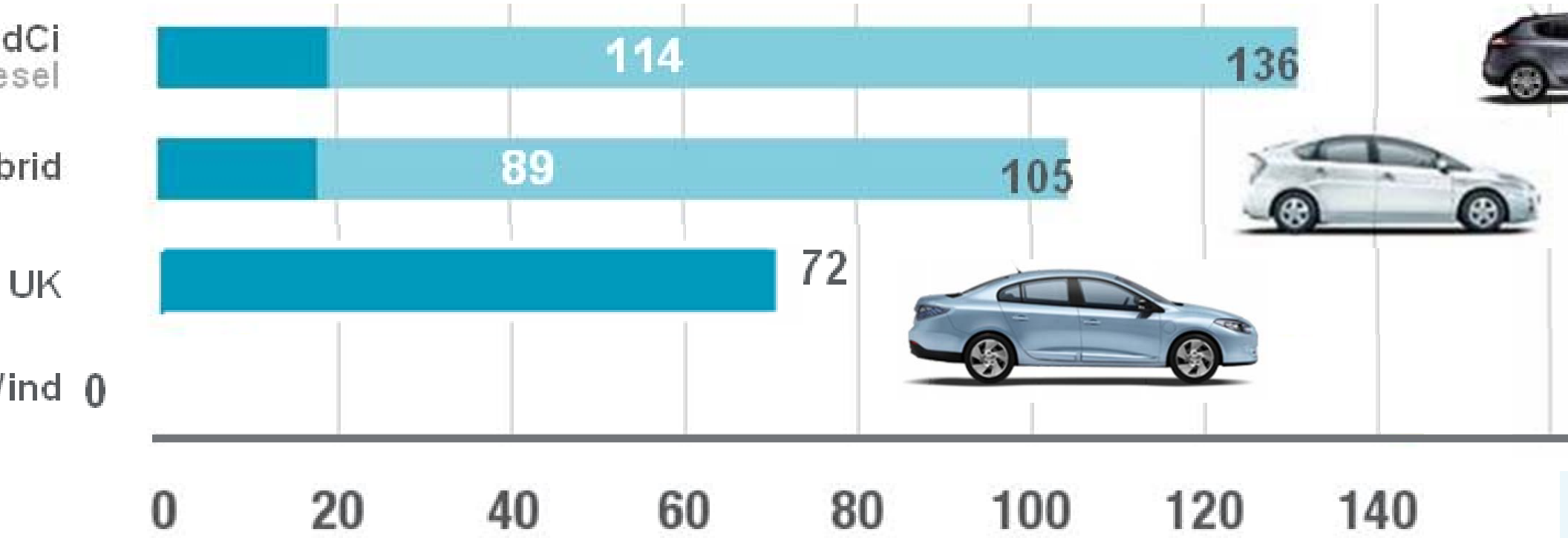






hicles and CO_2

owest 'well to wheel' CO_2 emissions

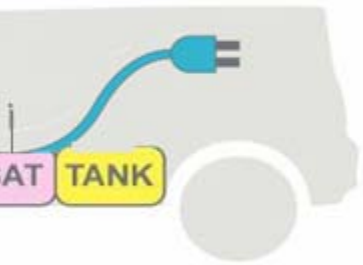
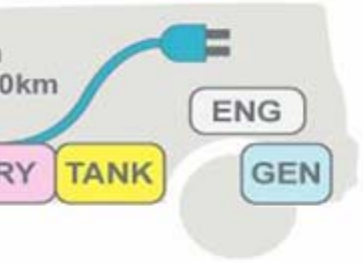
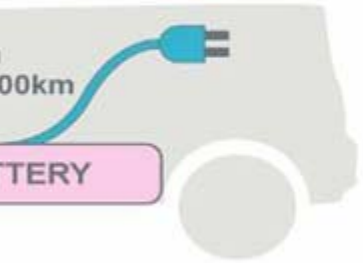


o local pollution (Air quality issue)

No tailpipe emissions

No noise

HEV, Range Extender ?

		+	
ID	 • The IC engine and/or Electric motor turns the wheels • The IC engine can recharge the battery	• No autonomy anxiety • Normal use = same as ICE car	•
ER	 • The IC engine or Fuel cell feeds the Electric motor • Only the Electric motor turns the wheels • The IC engine recharges the battery	• No range anxiety • Normal use = same as ICE car	•
	 • The Battery feeds the Electric motor • The Electric motor turns the wheels	• 100% electric = Zero CO^2 • Low running cost • No queues at fuel stations • Less maintenance • Torque	•

m for each of these technologies in the future, according
uit heat, as well as for improved thermic engine

market for vehicles with 100 mile range !

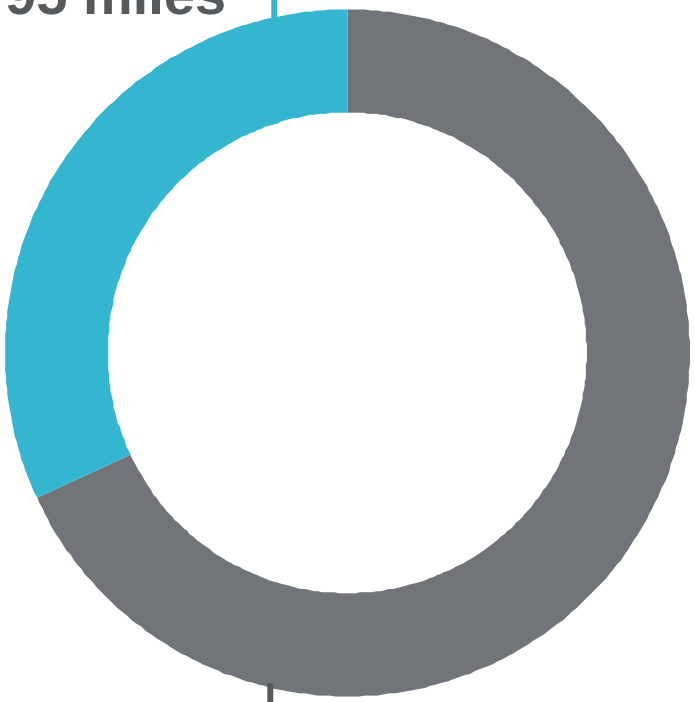
PS (Europe)

%
ay

13%
> 37 miles / day

B-SEGMENT CARS (Europe)

32%
Never make journeys
of more than 95 miles*



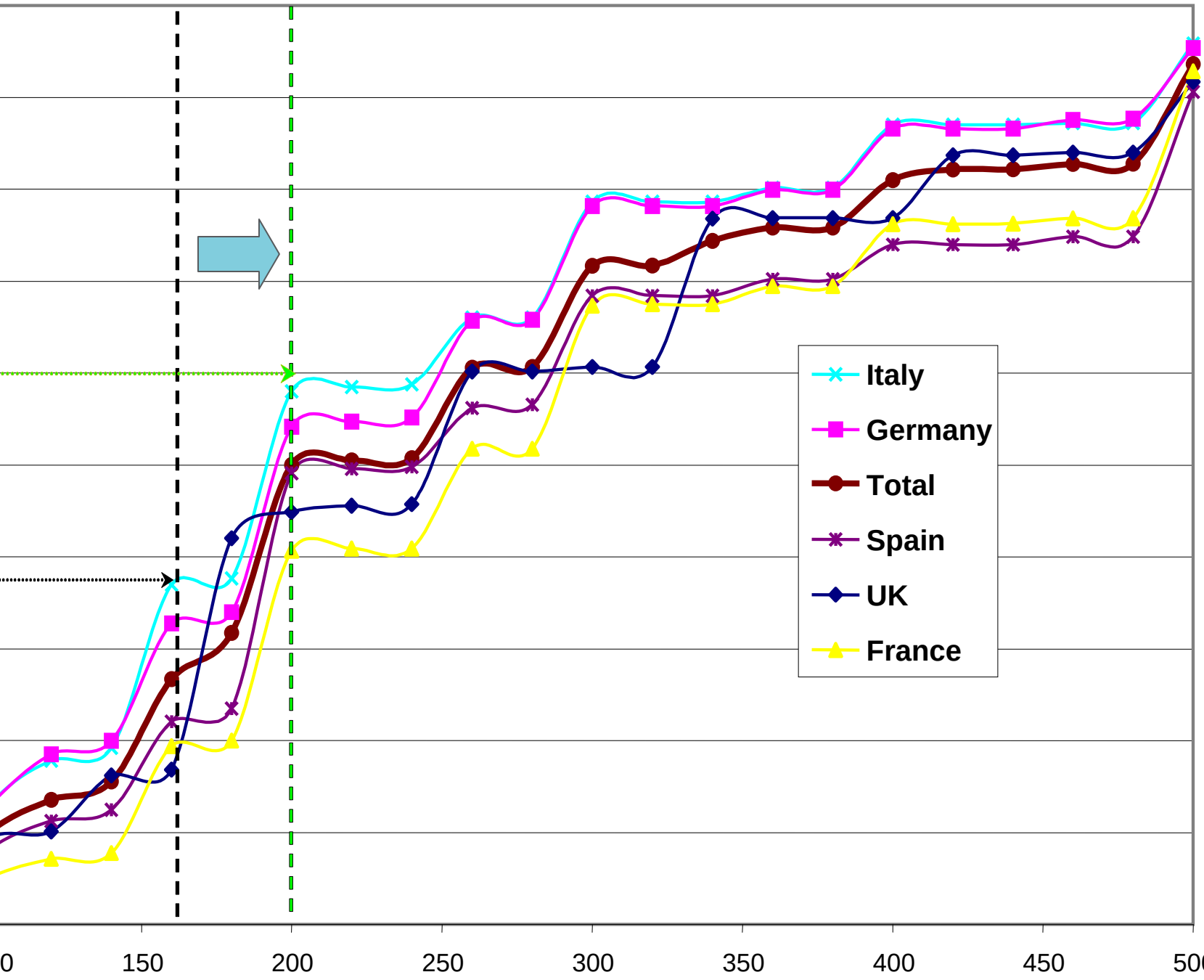
68%
Often / Sometimes

ALL TRIPS

90%
Less than 10 miles

arket for vehicles with 100 mile range ?

EV range demand



- G5 (n = 3164). Q18. What would you consider as the minimum acceptable driving range for a Battery electric
mber of kilometres you would be able to make before having to recharge the batteries?

- Gap betwe perceived r
- Still, alread of potential
- …to be inc customer ‘e
- …and by p technical in

cts

Rising ecological awareness
Urbanisation
Resources supply security

EV today and

Regulatory pressure
on CO2 emissions
Govt. / local incentives

OEMs competition driving innovation
EV affordability
Partnerships with infrastructure/utilities

on car market in the UK
e to Plugged-In Car Grant

ev

Nissan Leaf
March 2011

Tata Vista
Mar 2011

Va

Chevrol
Early

Renault Z.E.
mid- 2012

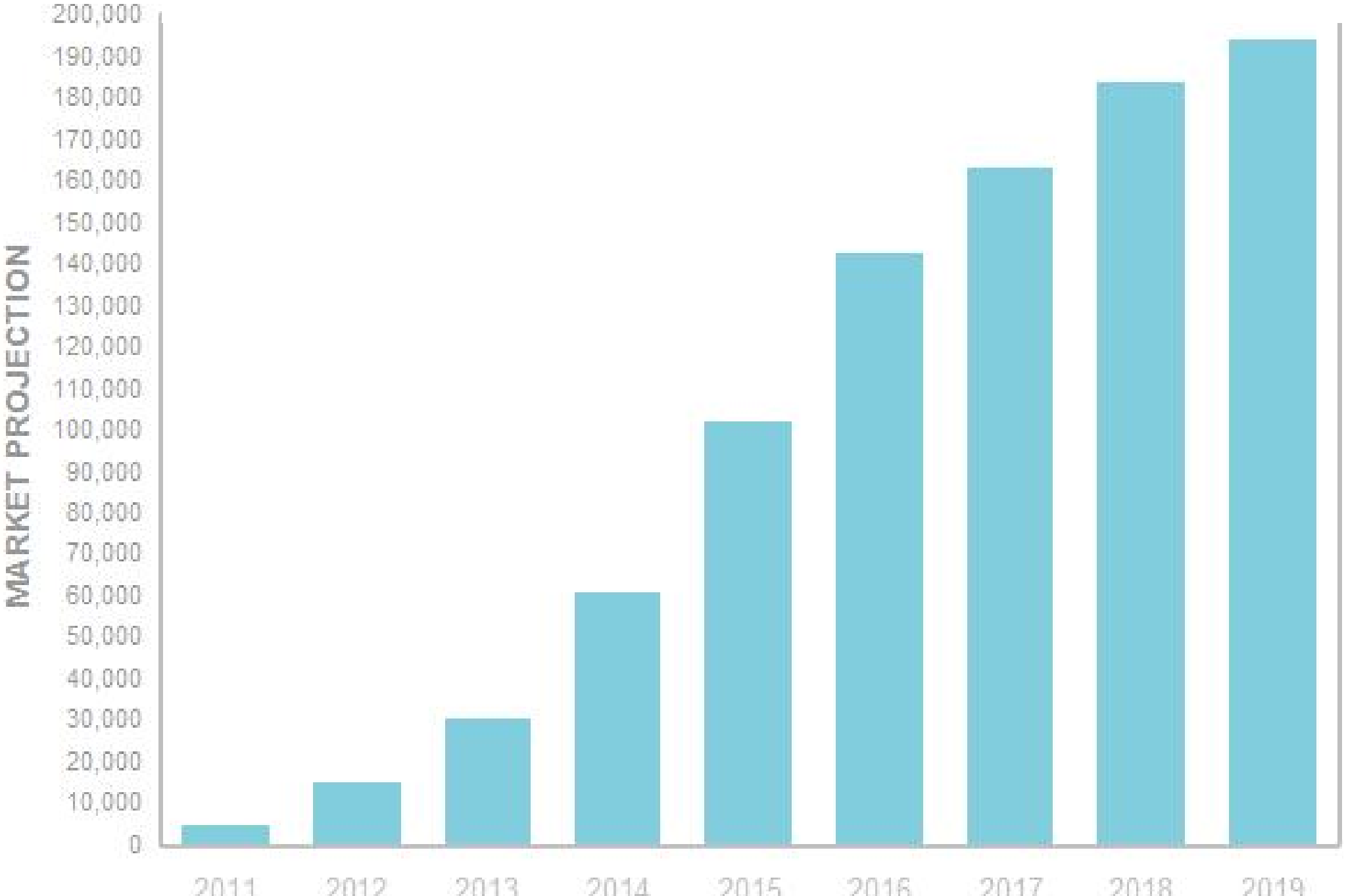
Smart fortwo electric drive

Citroen CZero

Toyota Prius
mid

ket – a rapidly growing segment

Renault projection = **10% of market by 2020**



are we today?

D PiCG eligible registrations

ood news : an increase of 1009.8%

t-so-good news : a total of 910 car

02 The Renault Z.E. range

2012

April

Twizy

£6,690

Mid-year

Fluence Z.E.

£17,850
after gov grant

ZOE

Vehicles : Van

Design

Technical Sp

Range (NEDC combined):

Max. Engine Power:

Length:

Height:

Gross Weight:

Payload:

Load Capacity:

Torque:

Maximum Speed:

Battery technology:
(AESC sourcing)

Additional

Engine Type: Electric

Transmission Type: Direc
forward/reverse inverter

Battery placement: Under

Charging devices: Standa

Charging time: 6–8hr

Production Location: M.C
Automobile, France)

Vehicles: a family saloon

Design

Technical Sp

Range (NEDC combined):
Max. Engine Power:
Length:
Width:
Height:
Standard tyres:
Gross weight:
Carrying capacity:
Torque:
Maximum Speed:
Battery technology:
(AESC sourcing)

Additional

Engine Type: Electric
Transmission Type: Direct
forward / reverse inverter
Battery Location: behind r
Charging devices: standar
Charging time: 6–8hr
Production location: Burs

Vehicles: a 2 seat city car

Design

Technical Sp

Range:
Max. Engine Power:
Length:
Wide:
Height:
Torque :
Maximum Speed :
Battery technology:
Weight (inc. battery):

Additional

4 wheels – 2 seats or carg
Charging devices: standar
Production location: Valla

Vehicles: a compact 5 door hatch

Near Final Design

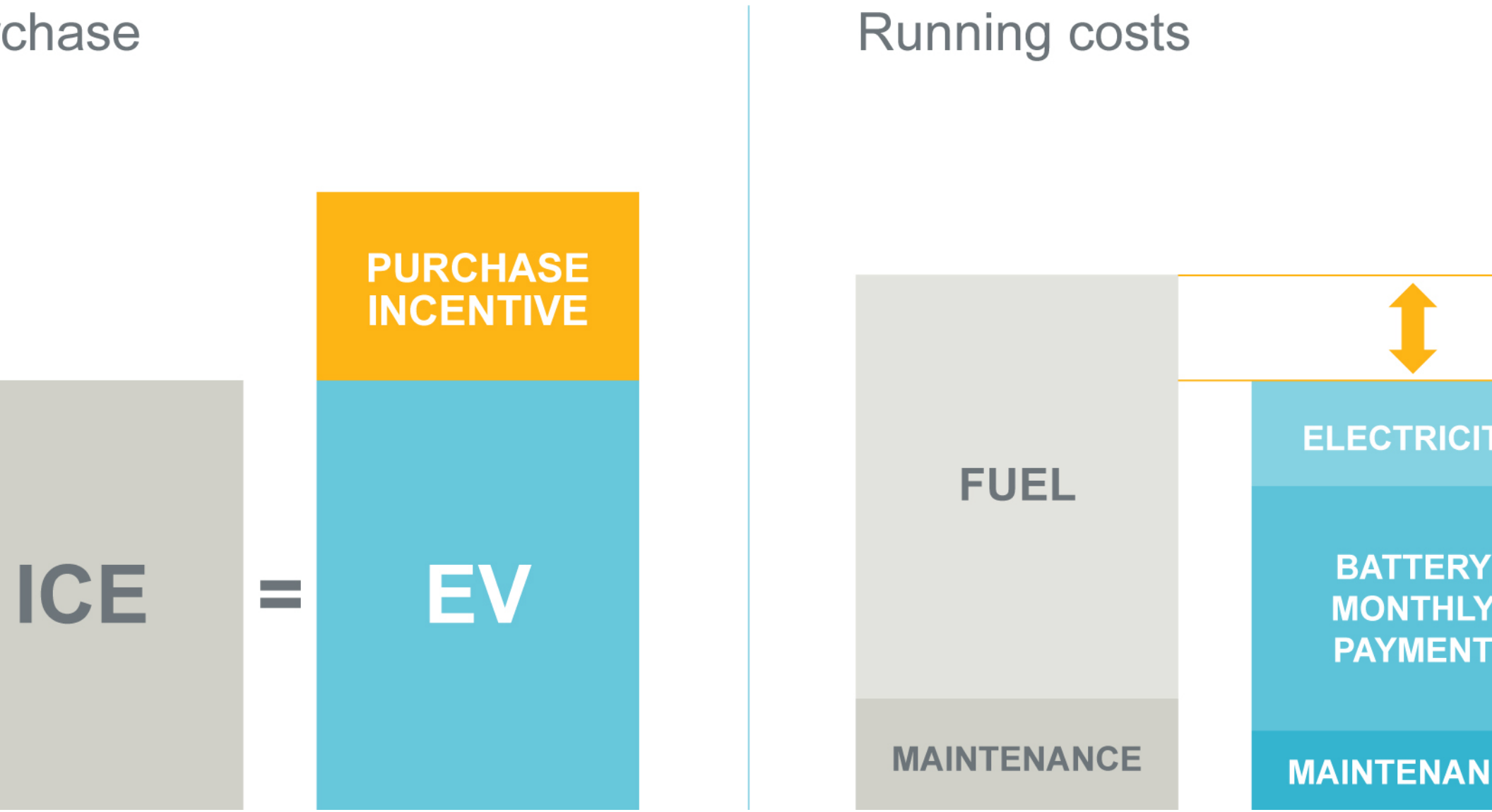
Technical Sp

Range:
Max. Engine Power:
Length:
Wide:
Height:
Tyres (Michelin):
Kerb weight:
Load capacity:
Torque :
Maximum Speed :
Acceleratiom (0-62mph):
Battery technology:
(AESCsourcing),

Additional

Charging devices: standar
Production location: Flins

models. Example: Renault



market: UK example

	Car (M1)	Van (N1)	
grant rice)	✓ Max £5K	✗	Until end of conditions t
lown vs. year 1	✓	✓	
-kind pay)	✓	✓	For next
ad tax)	✓	✓	
gestion xempt	✓	✓	Until at l

cles are the at the meeting point of several indu

WALL BOX Installation at home

Contract

Insurance

Services

Buy

Rent

Battery rental monthly fee

One stop shopping in the Renault network

trategy: local sourcing

nessee

NISSAN LEAF

UK

Sunderland

Maubeuge

Flins

France

KANGOO Z.E.

ZOE Z.E. CONCEPT

Valladolid

Spain

Cacia

Portugal

TWIZY Z.E. CONCEPT

ult Samsung Motors)

Nissan plants

03 The big questions

n and infrastructure

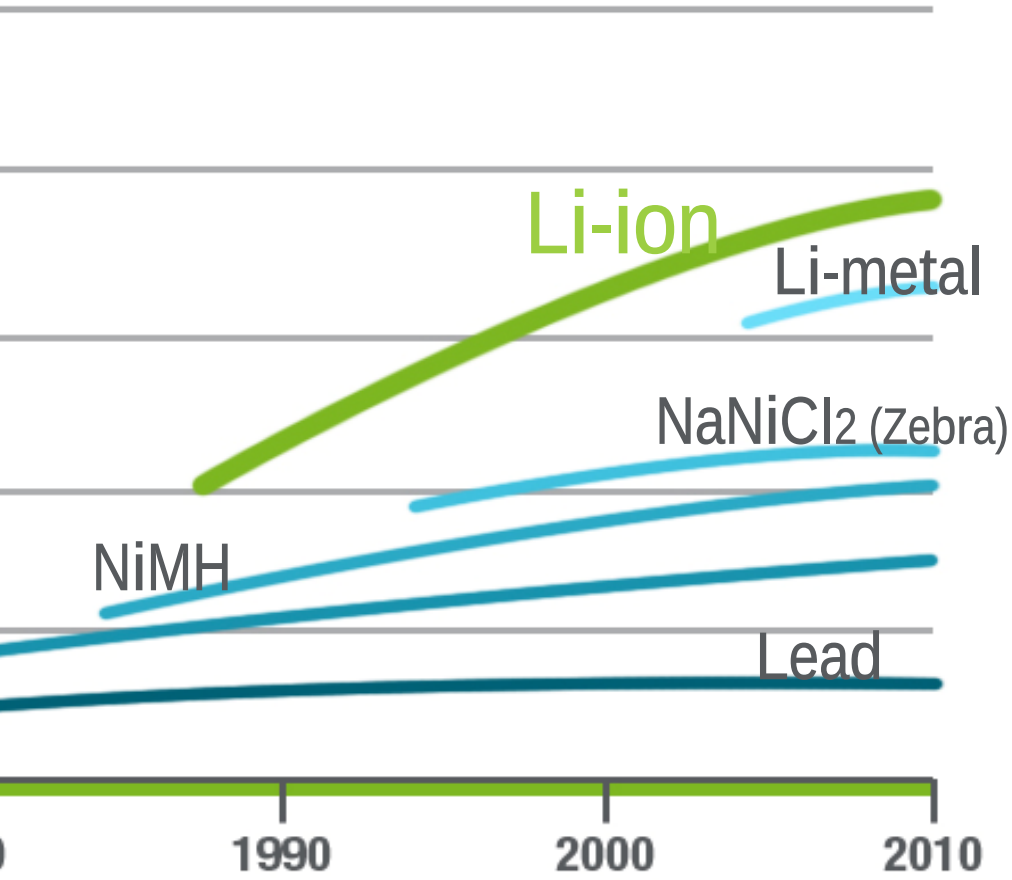
car grant ?

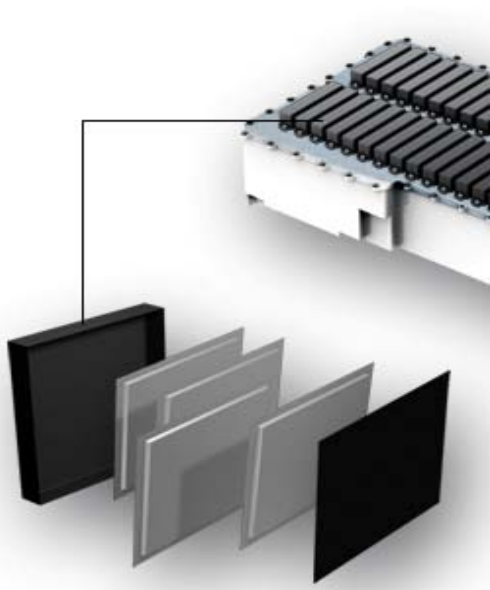
£X

~~£1~~

£1

t, made by AESC (Nissan-NEC)
hault and Nissan plants
Wh
ect → charge anytime

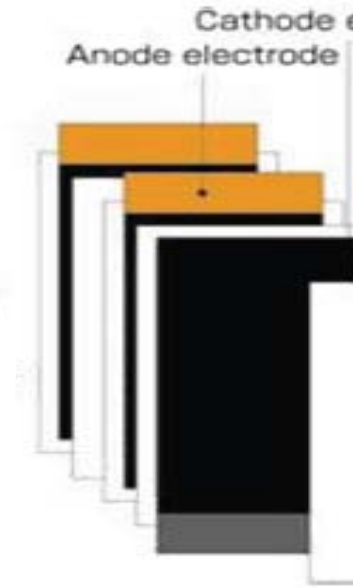




ucture

x33

Cells

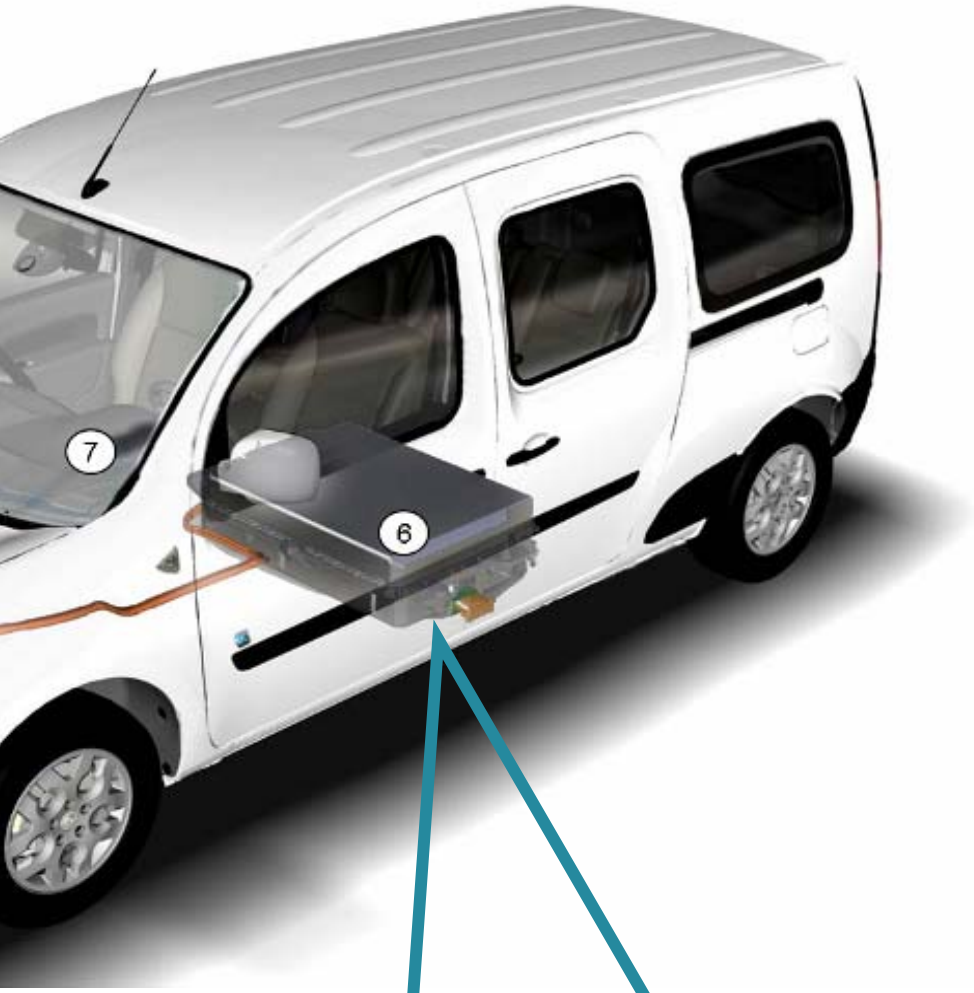


Electro

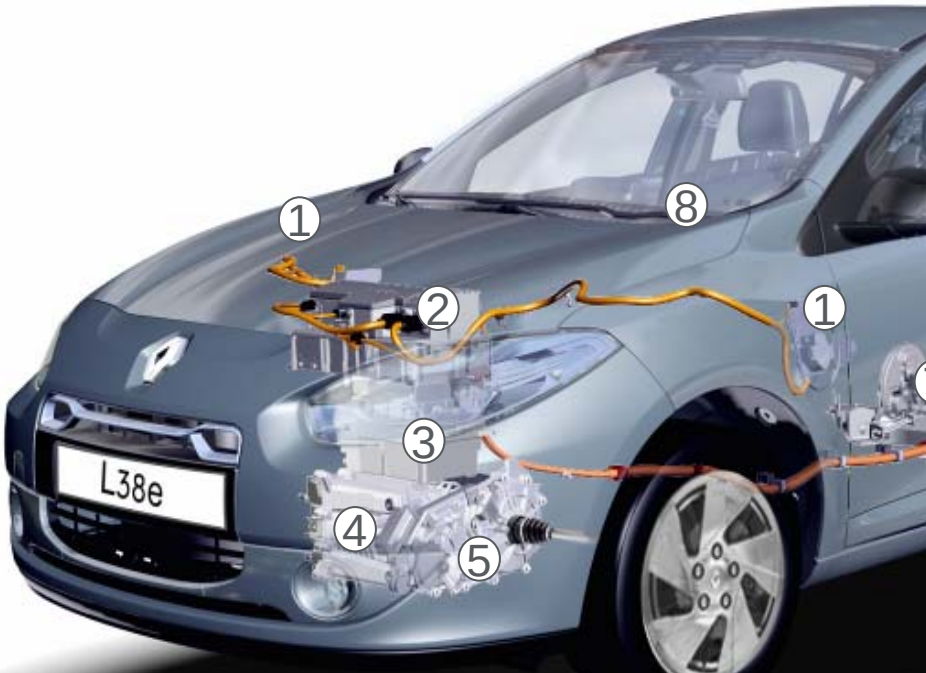
Modules

x48

Pack



on a Kangoo ZE .....



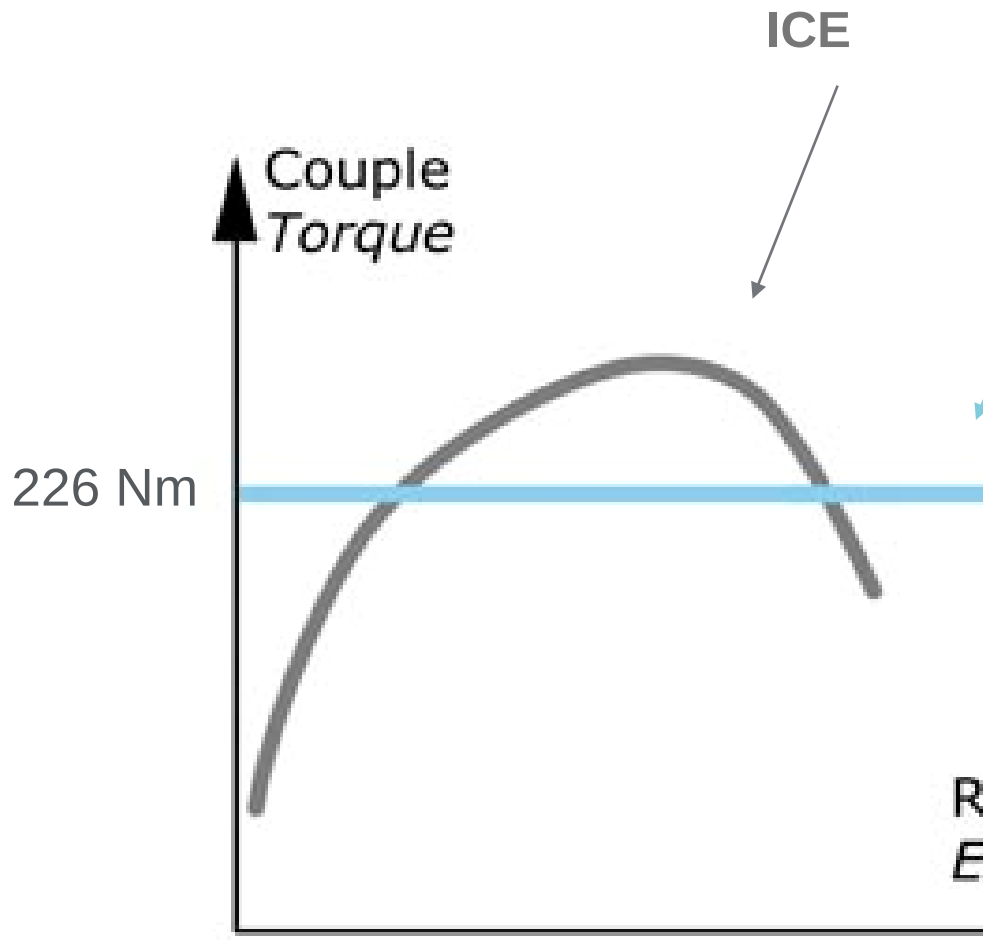
.... and here on a F

ance

ailable at low speeds

e time upon acceleration request
ss in urban and suburban traffic

	0 -> 50 km/h	0 -> 100 km/h
	4,1 s	**13,4 s**
	5,9 s	13,9 s
	+ 31%	+ 4%



devices - Regenerative Braking System

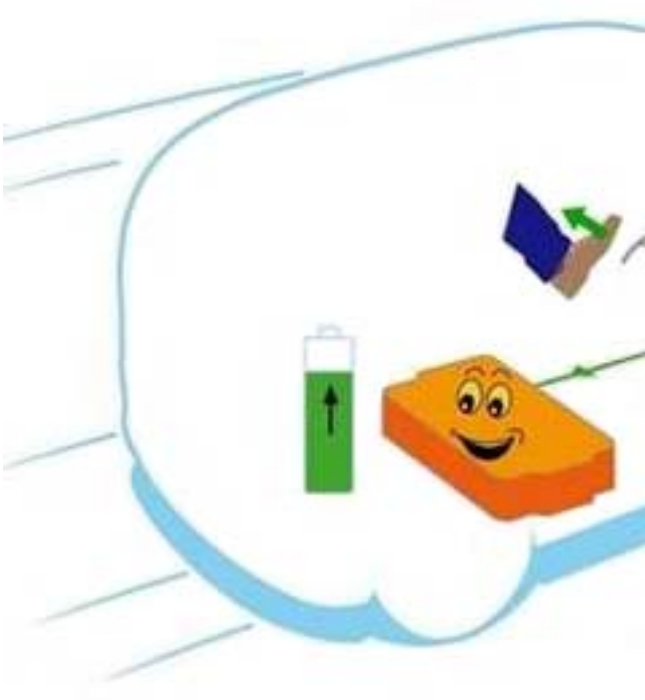
n uses the motor reversibility

off accelerator

ergy recovered by electric engine

urrent returned to re-load the battery

in up to 32%



ed version starting with Zoe

dal decoupled of the brakes

‘by-wire’ braking : distribution of braking effort between
l brake disks

s the energy recuperation

in up to 48%

nisation through technical advances

es

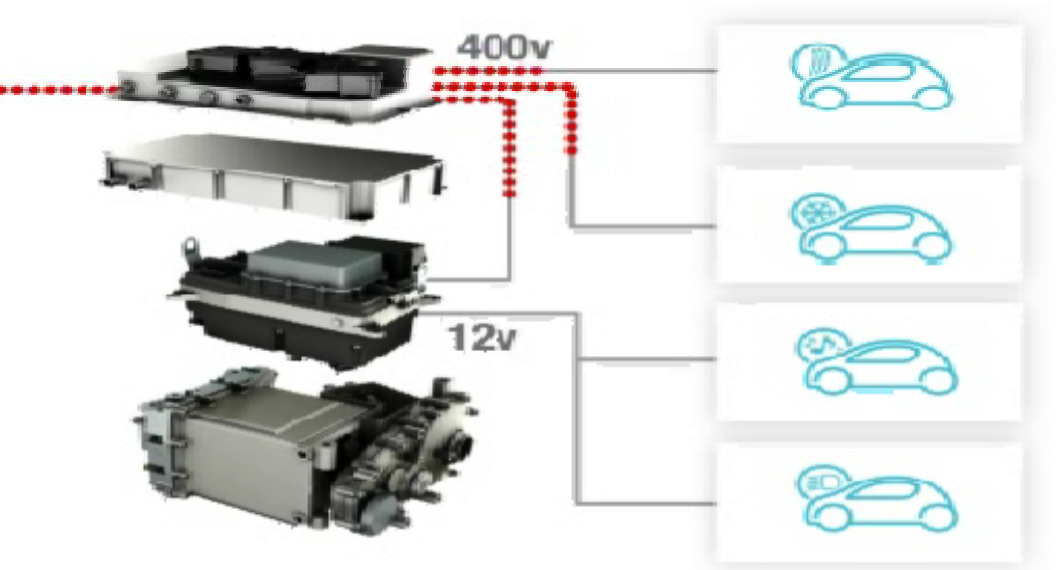
versible Air Conditioning (up to 30% gain)

nce tyres (up to 7% gain)

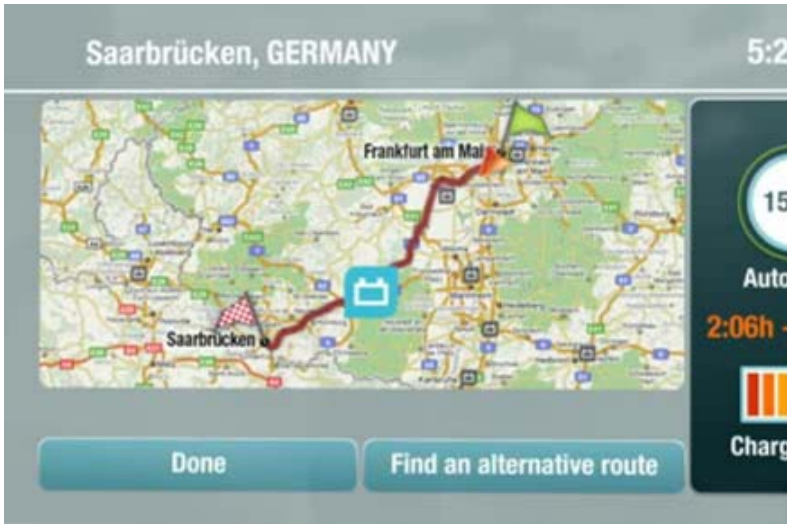
up to 10%)

ptimisation

sation (up to 4%)



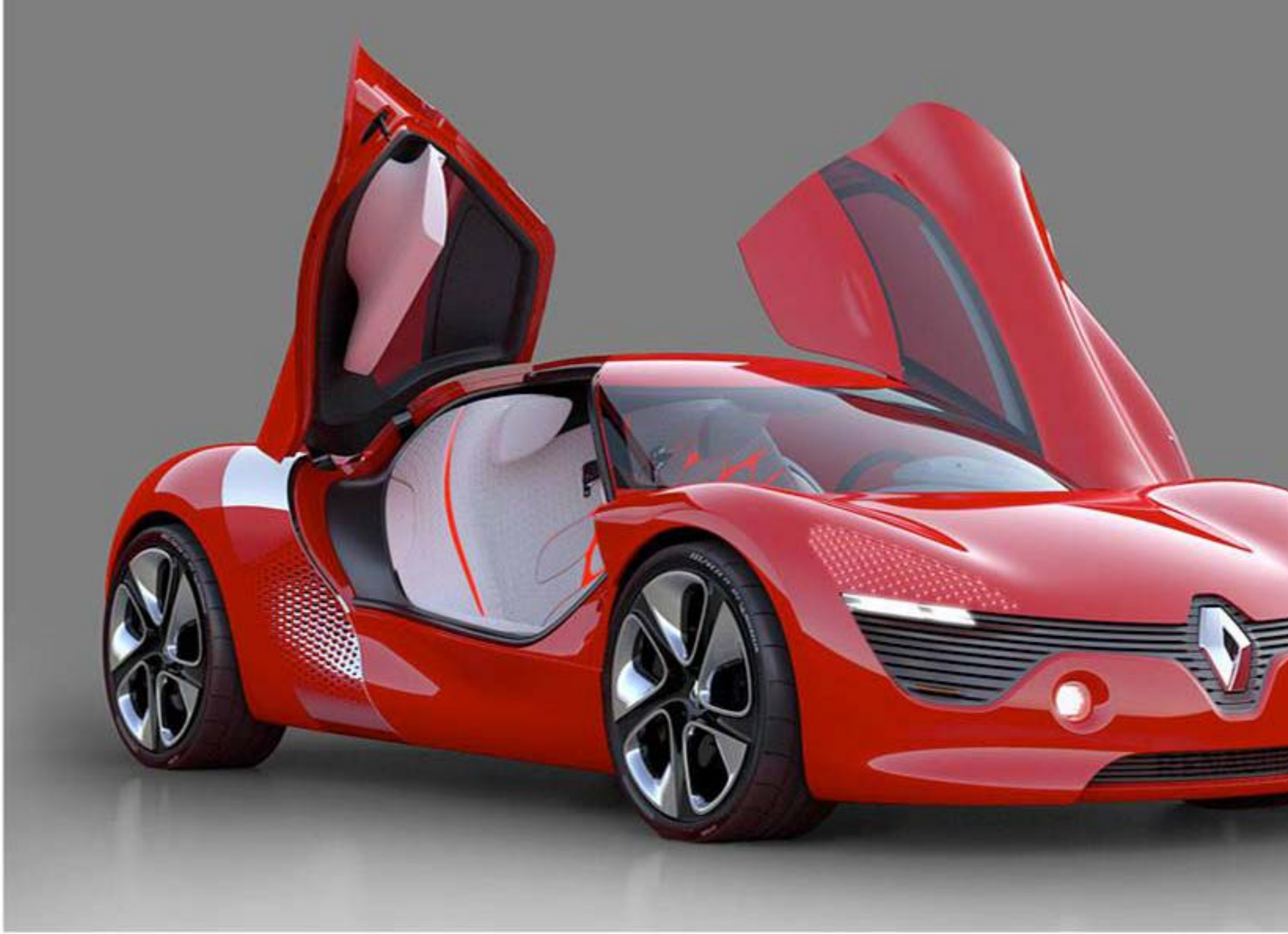
Smart navigation



Eco Mode & Coaching

=>Up to 55%, aver

Range optimisation
educational issue



DEZIR