

RENAULT'S EV STRATEGY

Th Koskas 26 / 3 / 2009

PROGRAMME
VEHICULE ELECTRIQUE



AGENDA

1. Why EV today

2. The Market

3. Renault's strategy

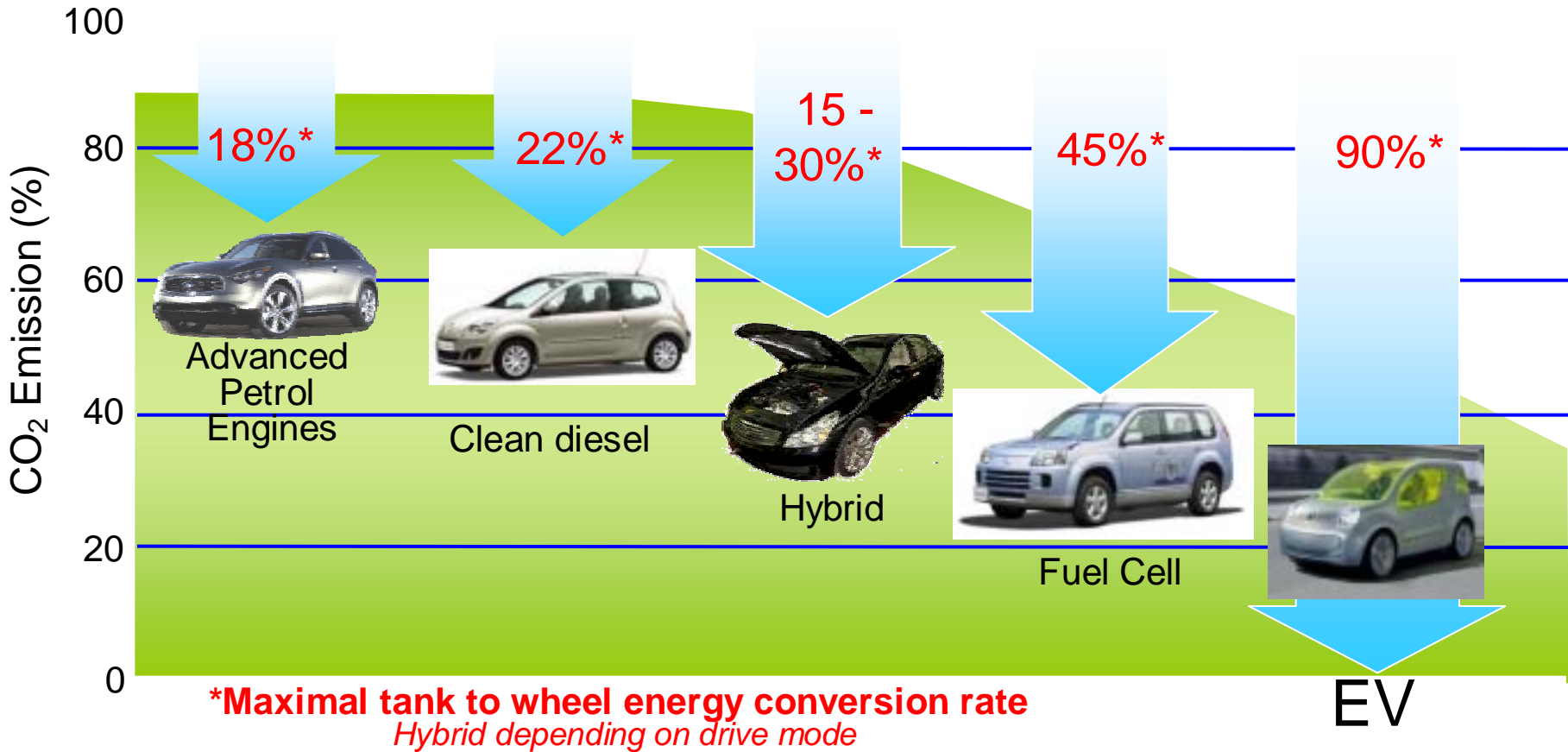
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① CO2 efficiency



The EV has the highest on-board fuel efficiency

② TECHNICAL BREAKTHROUGH: LITHIUM ION BATTERIES



NISSAN AND NEC JOINT VENTURE - AESC - STARTS OPERATIONS
80'000'000 €uro investment to mass produce advanced lithium-ion batteries

TOKYO (May 19, 2008) - Nissan Motor Co., Ltd., NEC Corporation, and its subsidiary NEC TOKIN Corporation, today announced that its joint-venture company - Automotive Energy Supply Corporation (AESC) - has begun full operations. AESC's start of operation follows the announcement of the joint-venture in April 2007.

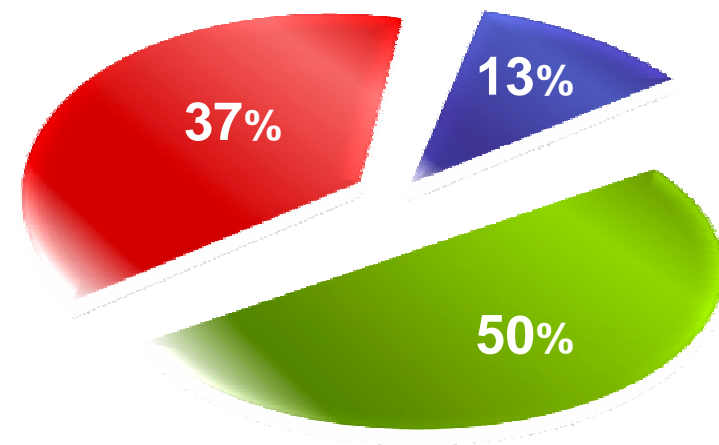
③ A MORE AND MORE URBAN WORLD

- An increasing fraction of the world population is living in cities

- 2006 : > 50%
- 2050 : > 70%

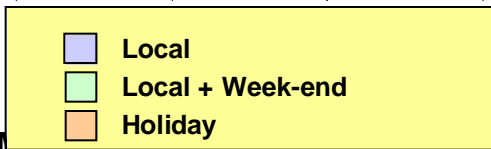
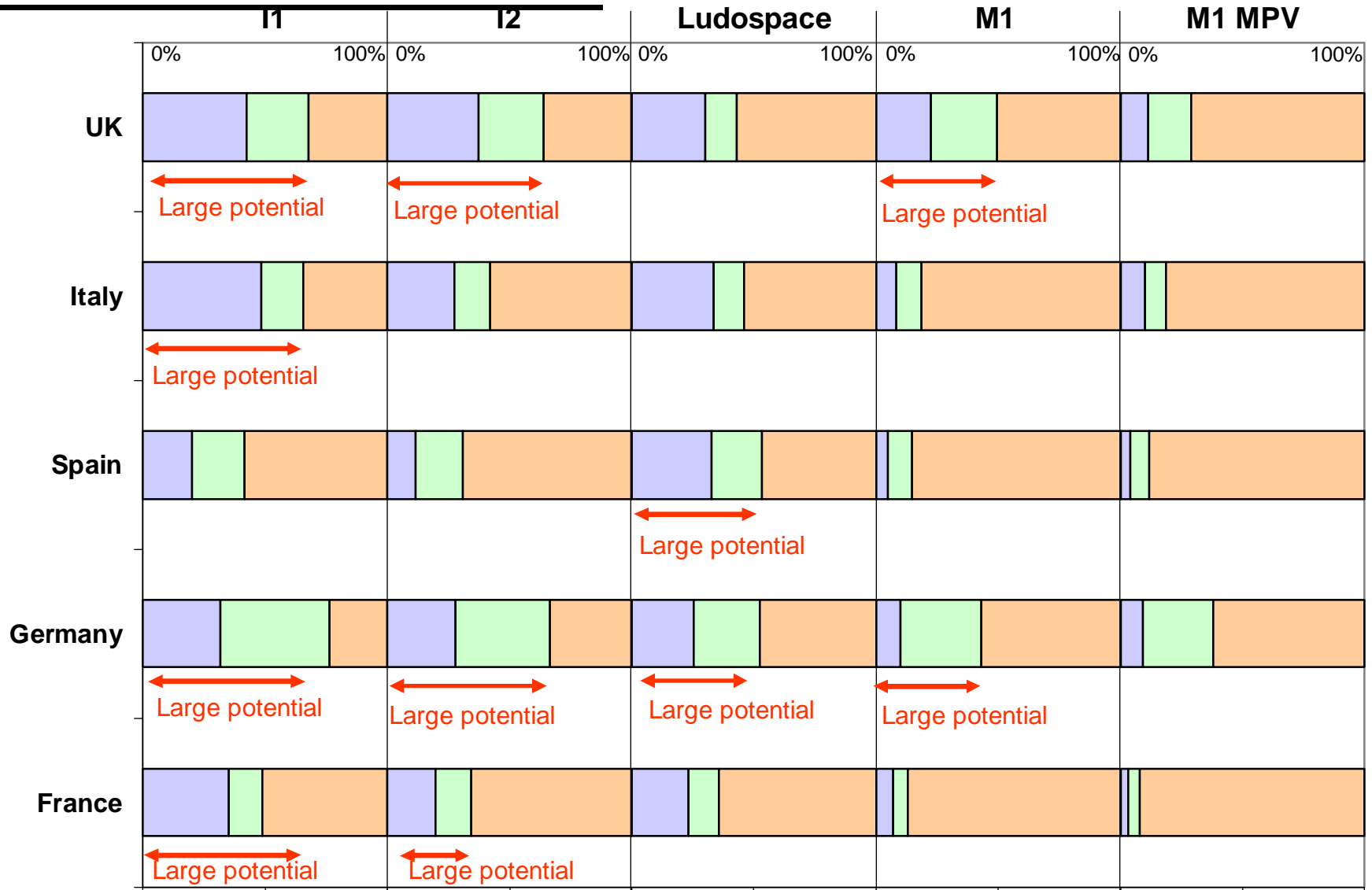
- Specific need of mobility in suburban areas

- Average distance covered daily by a suburban driver (*Ile de France*)



 < 20 km/day  20 - 60  > 60

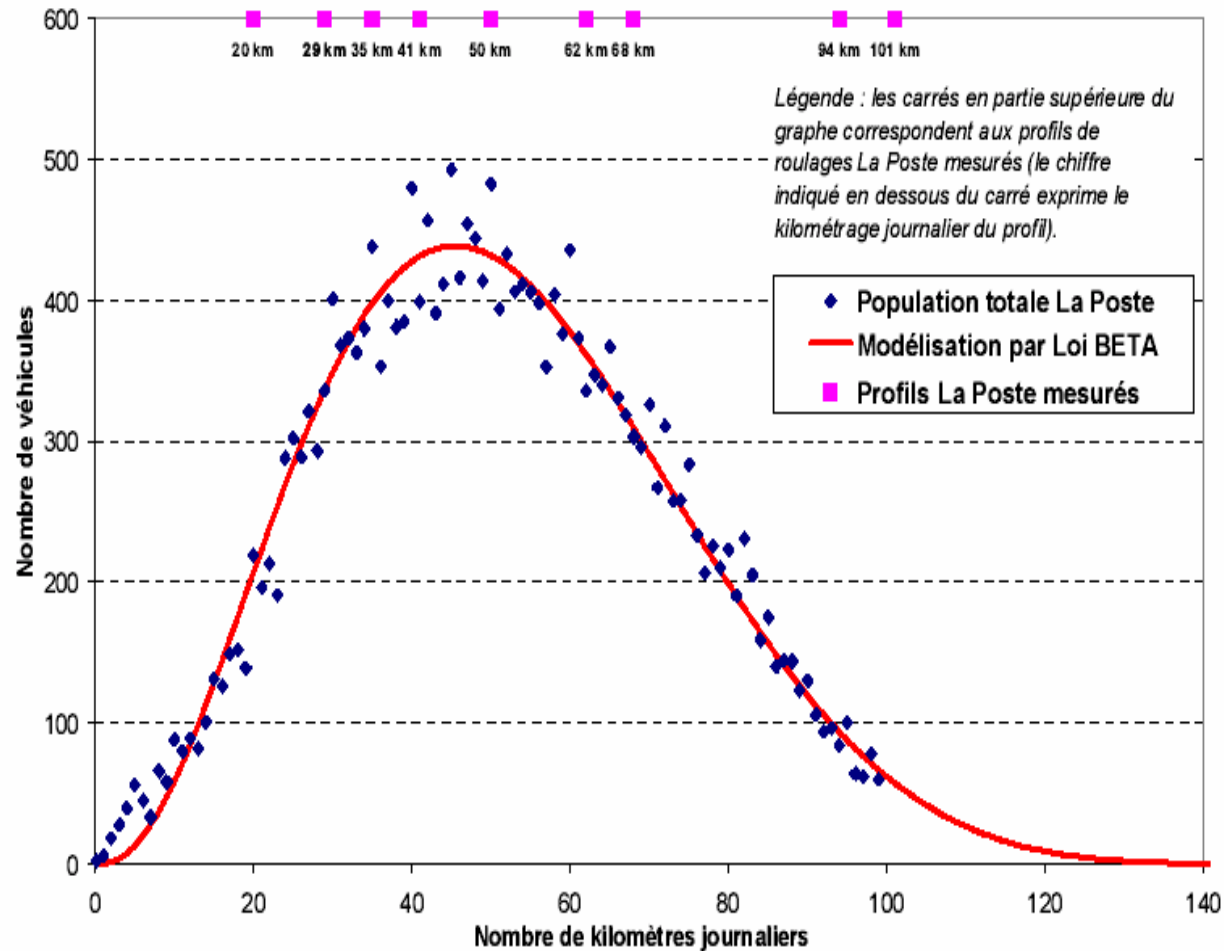
DETAIL PER COUNTRY



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PROFESSIONAL USAGES ARE WELL ADAPTED TO EV

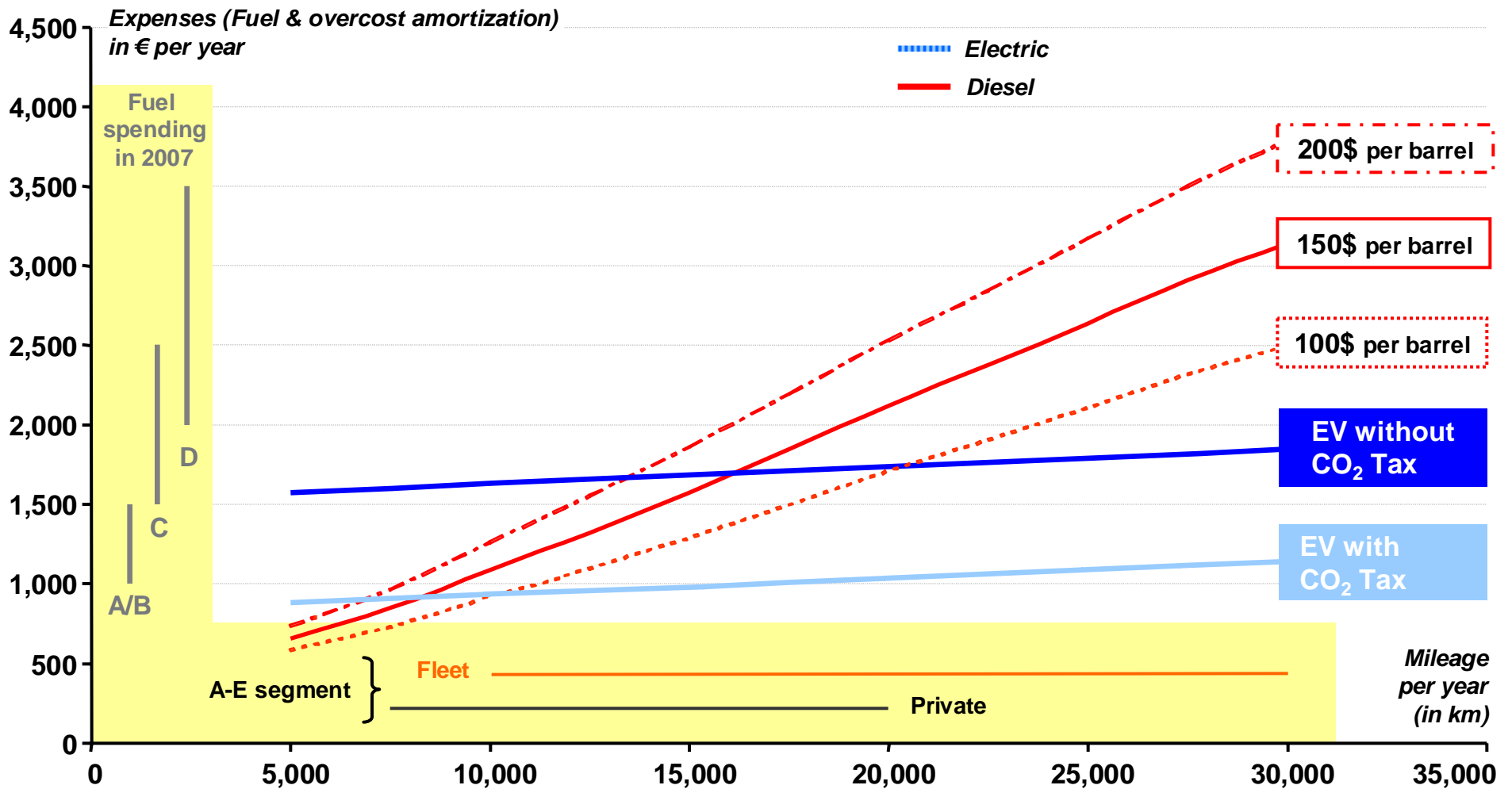


EXEMPLE OF FRENCH POSTAL SERVICES

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④ IT STARTS TO MAKE SENSE ECONOMICALLY, WHEN SUBSIDIZED



Source: Auto mag
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EV MARKET IN CURRENT CONDITIONS

X 1000 UNITS	2010	2011	2012	2013	2014	2015	2016
Adoption Ratio	5%	5%	9%	16%	29%	48%	72%
US/CAN	79k	81k	145k	258k	468k	775k	1,163k
JPN	83k	82k	147k	84k	146k	235k	343k
EUR	80k	81k	147k	172k	315k	527k	799k
PRC	31k	34k	64k	120k	240k	426k	684k
TTL	273k	277k	503k	634k	1,168k	1,963k	2,990k

- With batteries that enable a 300 km autonomy, potential market could go up to 10 million units

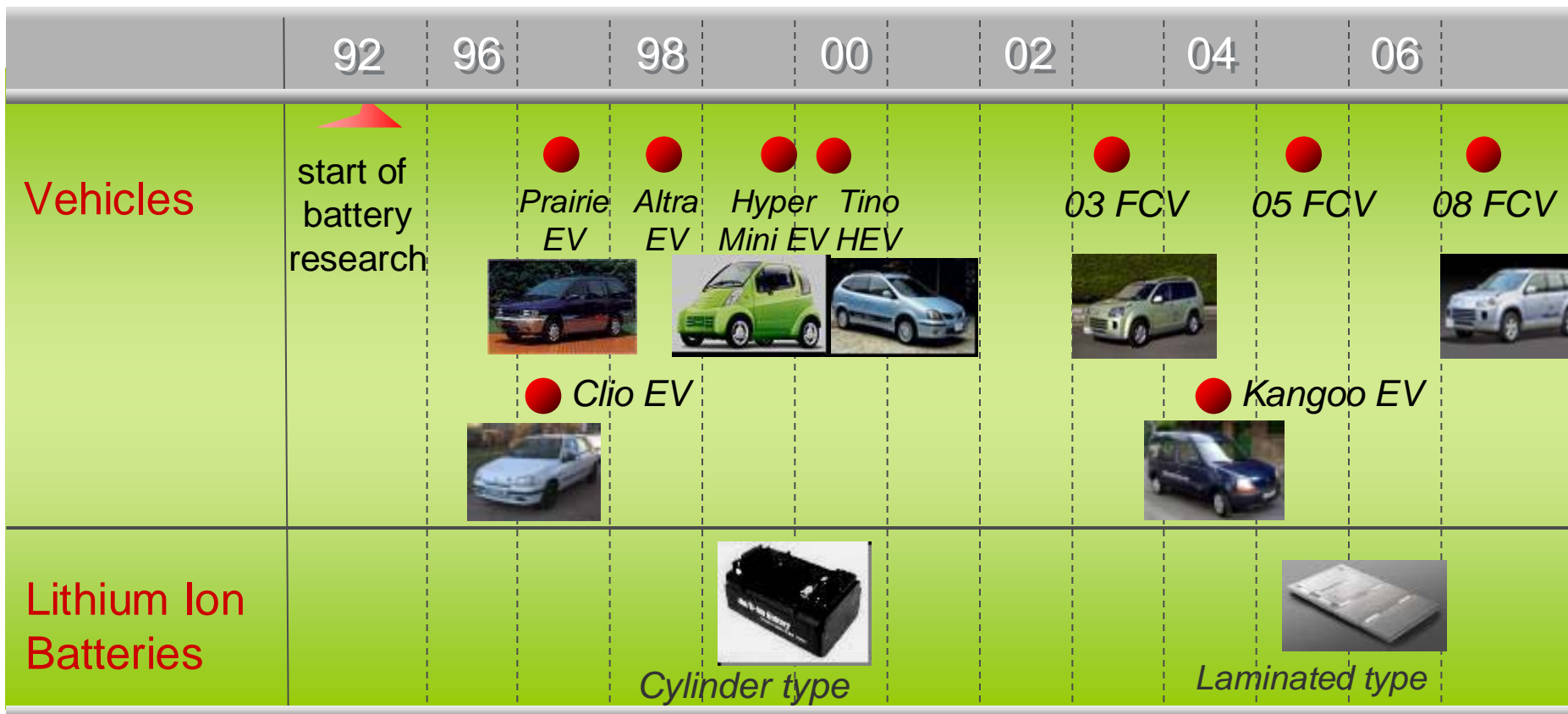
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SOME PREVIOUS EXPERIMENTS



THE OVERALL STRATEGY

- **This is an Alliance strategy**
- **Renault and Nissan wish to be leading brands for zero emission vehicles.**
- **The strategy is based on « popular EV »**
 - **EV : zero emission vehicles make more sense both on economical and ecological sides**
 - **Popular : mass product, not « niche »**
- **For this purpose, Renault and Nissan develop a full line up of EVs that will hit the market from end 2010**

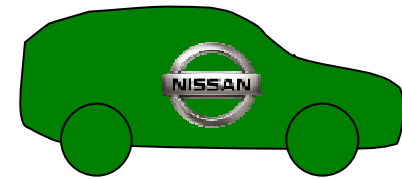
RENAULT NISSAN EV LINE UP



Hatchback 2010



City Car 2012



Crossover



Sedan 2011



Urban EV 2012



Kangoo 2011



LCV 2012

THE INFRASTRUCTURE NETWORK



Standard Charge

3-6 kW



Quick charge

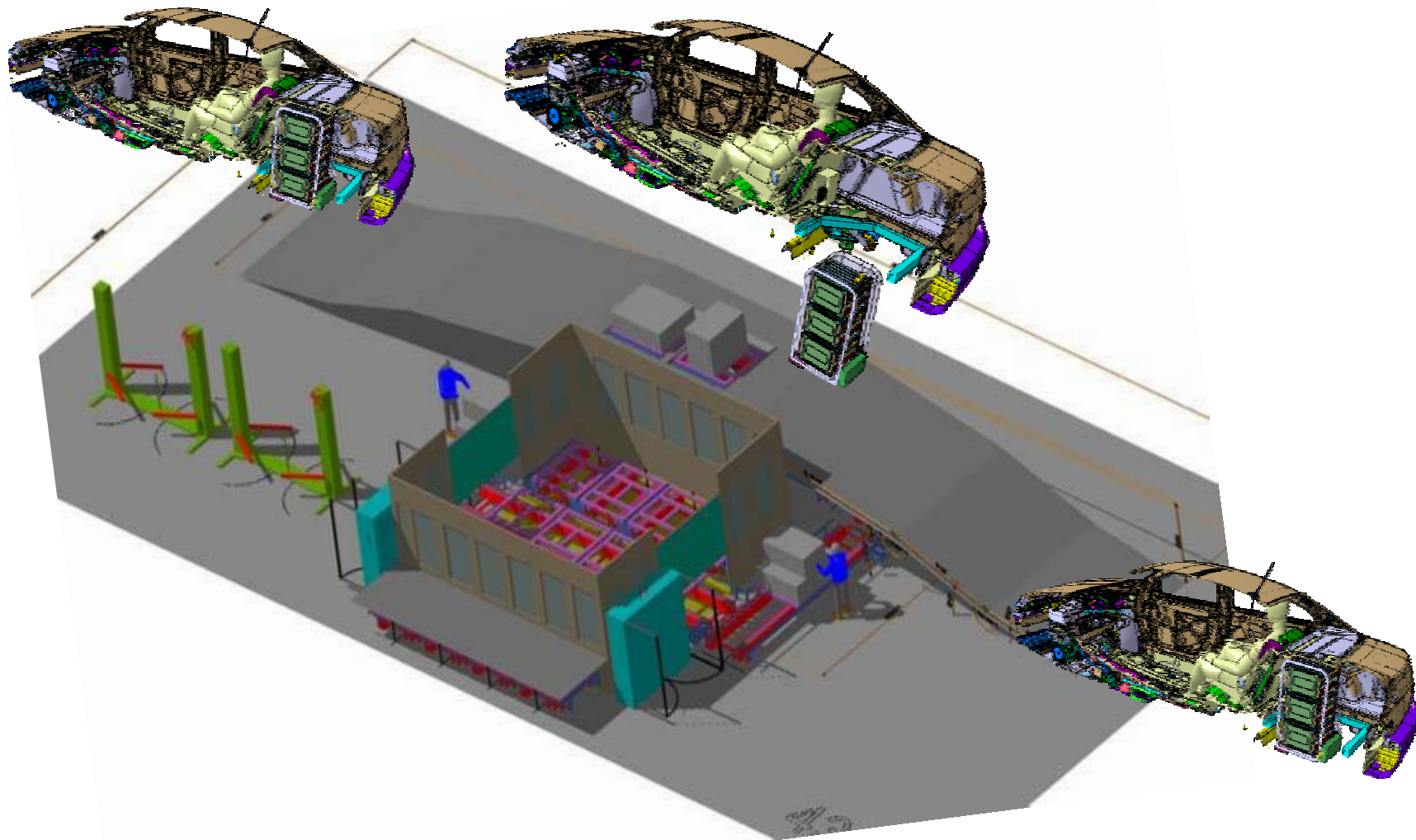
43 to 100 kW

+ NEED FOR SMART NAVIGATION TO LOCATE SPOTS, BOOK THEM AND MANAGE AUTONOMY



Swap stations

SWAP STATION



PRC
VEHICULE ELECTRIQUE



SWAP STATION PROTOTYPE

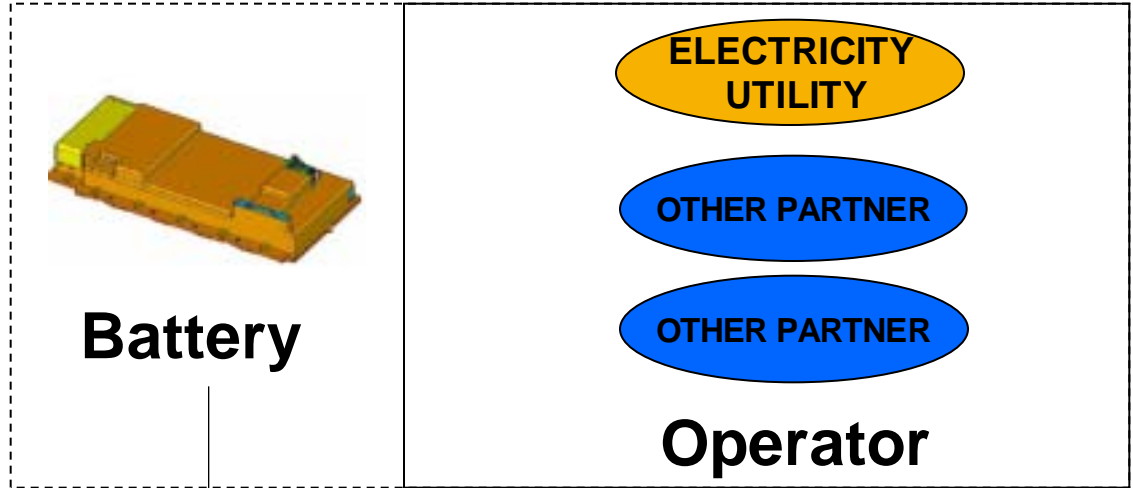


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A NEW WAY TO SELL CARS



Car



Battery

**ELECTRICITY
UTILITY**

OTHER PARTNER

OTHER PARTNER

Operator

**BOUGHT AND
MAINTAINED IN
THE NETWORK**

**BATTERY
LEASED BY
CUSTOMER**

**CONTRACT FOR ENERGY
SUPPLY**

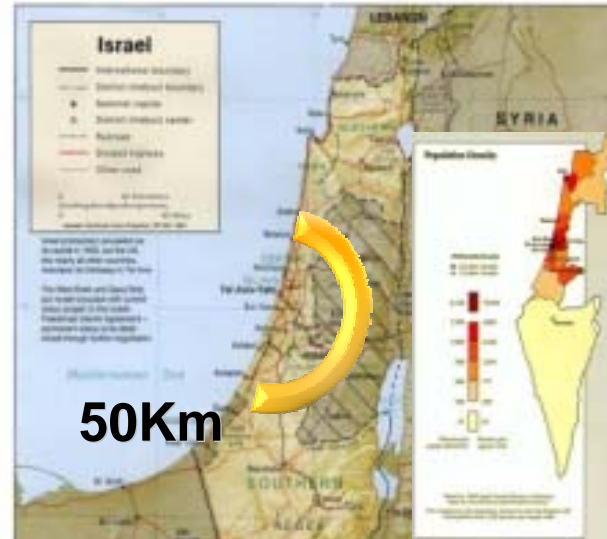
Customer

MOBILITY OPERATOR CONCEPT

- **Mobility operator monitoring electricity recharge grid + contracts with customers**
- **Possibly managing Batteries as well**
- **Customer offers : from Car+Battery lease+Electricity per kWh to full « all inclusive » package**
- **4 types of operators, depending the country**
 - **Newcomer**
 - **Operator built around main electricity company**
 - **Consortium**
 - **Local operators with technical compatibility**

THE EXAMPLE OF ISRAEL

- Geography
 - High population density
 - short distances
 - huge potential of CO₂-free solar-produced electricity



- Political will and regulations
 - reduction of dependence on fossil fuels and commitment to solar energy
 - “green transportation” law :

ICE cars bear 62% more taxes than EV



- Partnership and business model



CONCLUSION

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- **A huge challenge for the automotive industry**
- **Renault and Nissan consider EV as a top priority**
- **Our vision : EV for all**
- **4 models from 2011**