

RENAULT NISSAN

Low Carbon Vehicle Partnership The Electric Vehicle Journey: from Niche to Mainstream?

25th of March 2009



Zero-Emission-Mobility Program

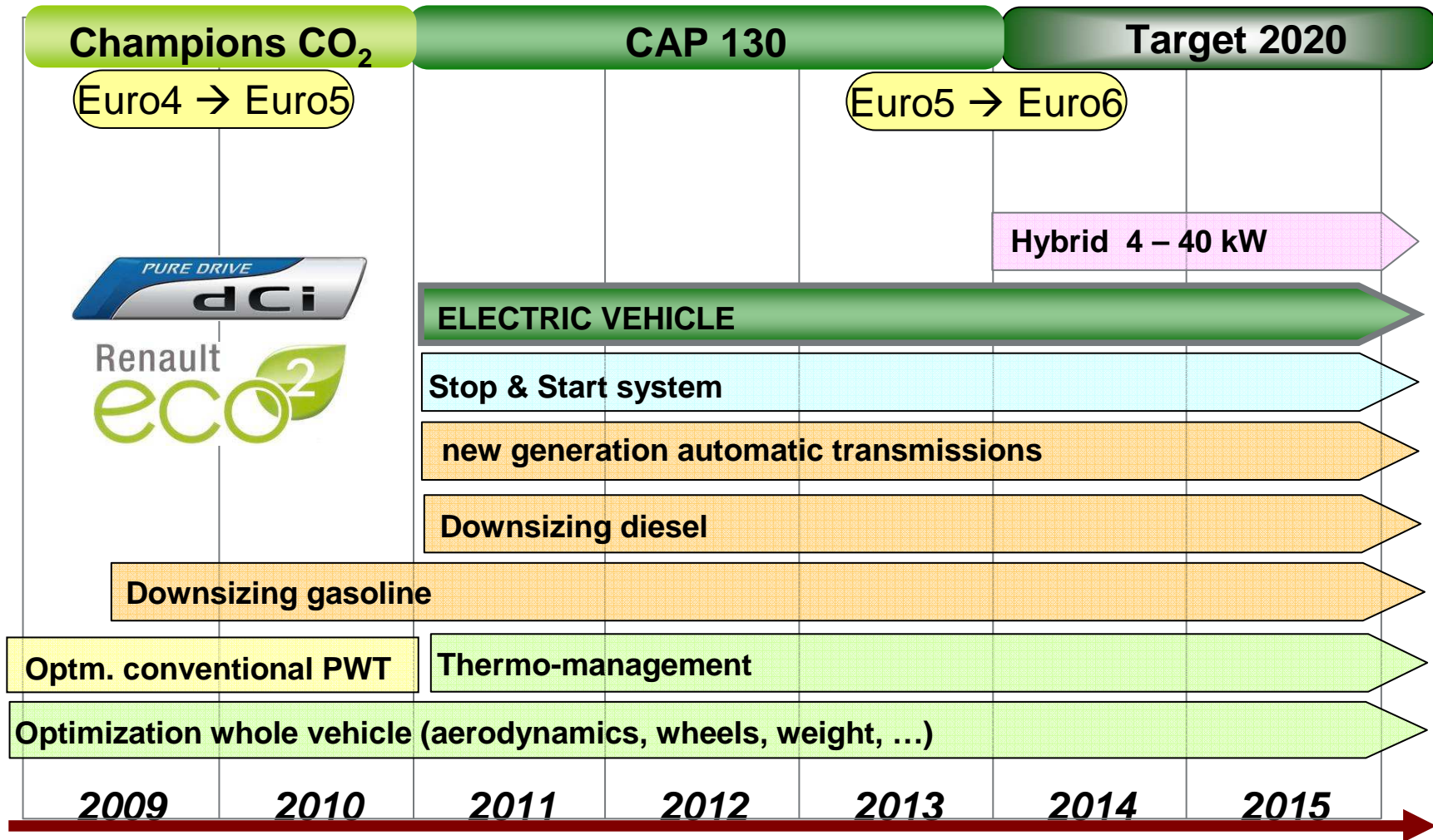
Automotive Industry reducing CO₂ emission

Electric Vehicle

Market Environment

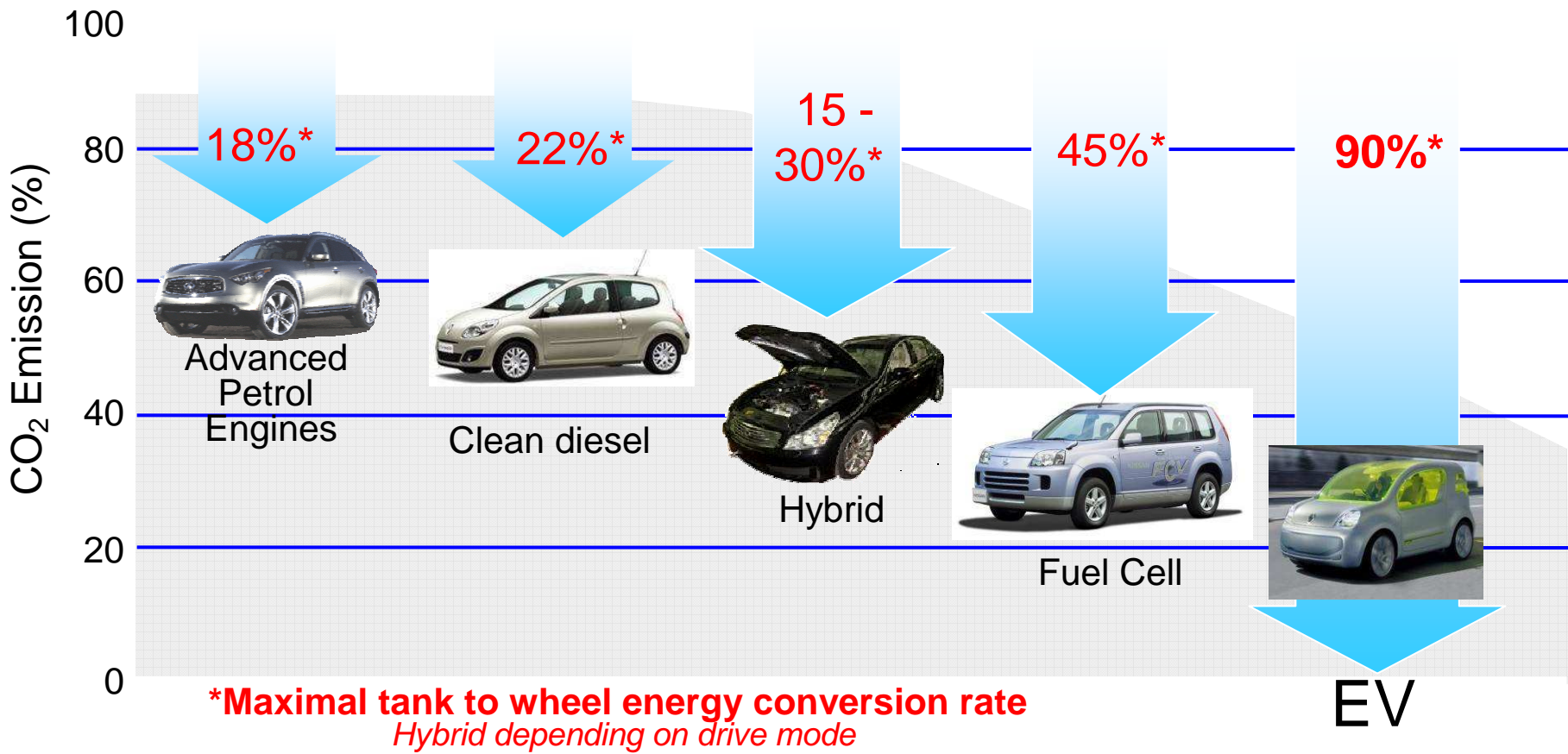
Partnership for Zero-Emission-Mobility

We look into all technologies to meet the high standards



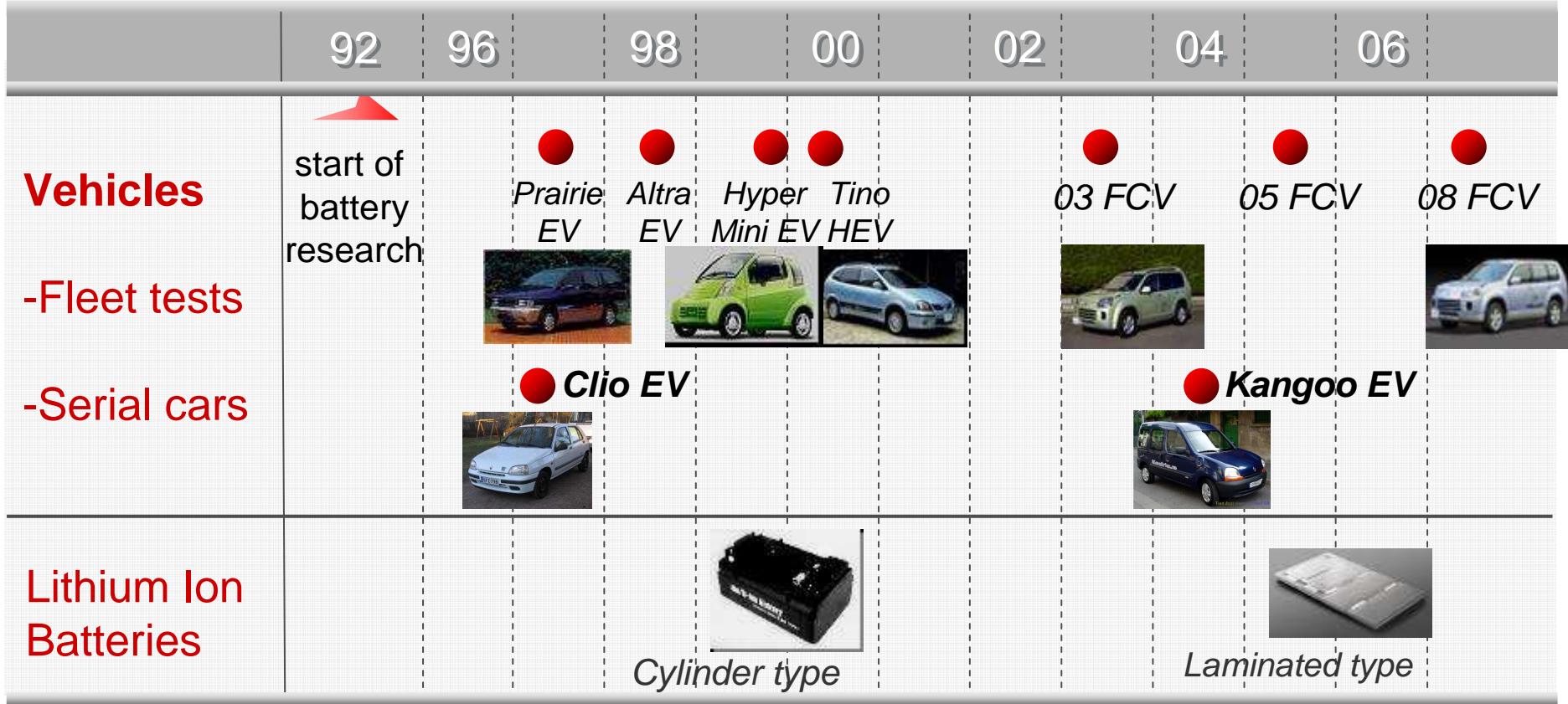
The pure EV is part of the global roadmap

The Electric Vehicle has a clear advantage in efficiency



Because EV has the highest on-board **fuel efficiency**

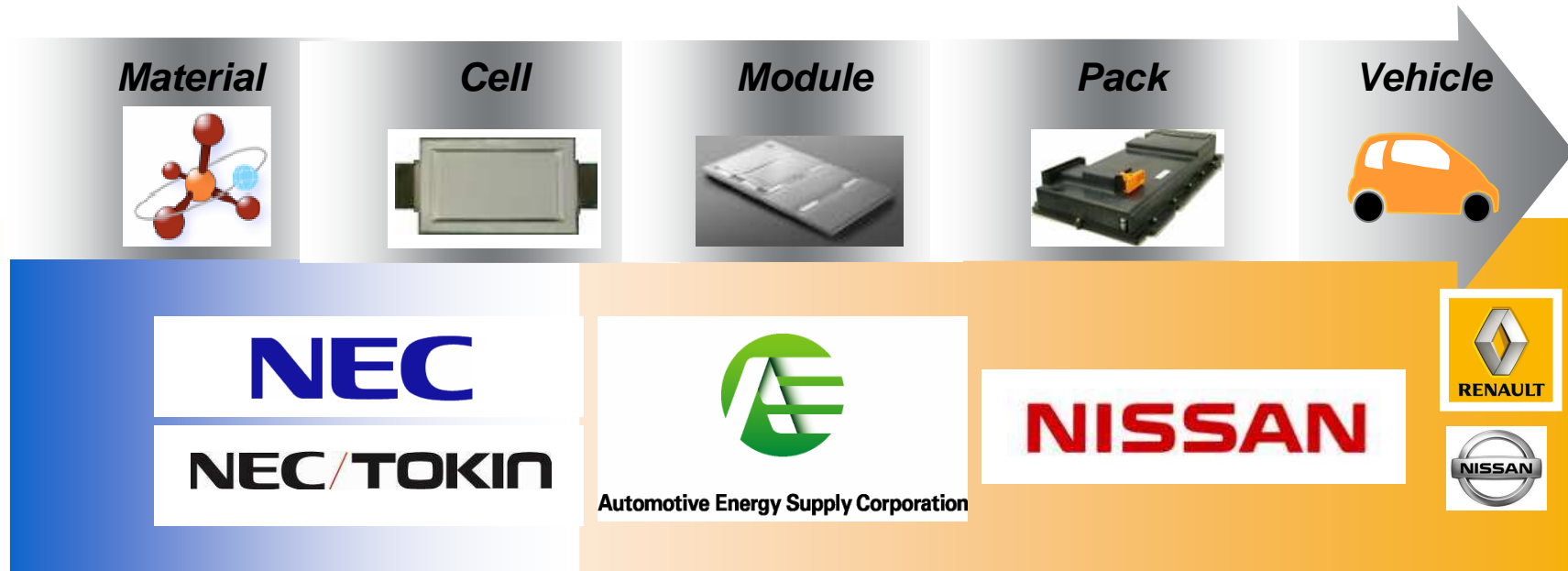
Nissan and Renault have vast experience in electric mobility



Battery focused research **since 1992**. - Fleet test delivered **practical experience**.

→ **Ownership** of competitive EV know-how.

Therefore we have taken major investments in battery technology



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

The covering and the common use of the whole chain – from the cell production up to the recycling – help the alliance to decrease costs significantly

Massive deployment of electric cars during the next decade could be expected for 3 main reasons:

■ **Key breakthrough for technology & costs of batteries**

- High knowledge in the Alliance further to Nissan longstanding R&D activities
- Advanced lightweight Li-ion batteries allow range autonomy ≥ 100 km
- High volumes production possible
- Performance, safety, recyclability to be compatible with massive dissemination

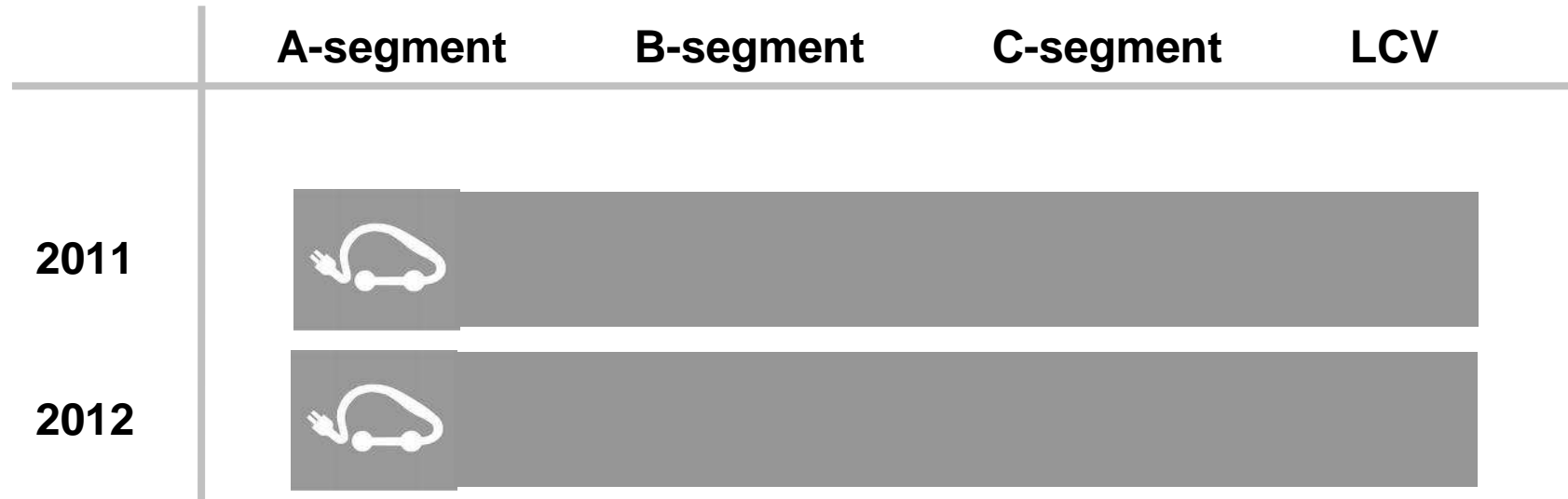
■ **Sociology & Market push the need of a new mobility approach**

- > 50 % of world population in cities in 2006 and > 70% in 2050
- Suburban drivers: 87 % less than 60 km/day !
- Early initiatives in progress to come up with new mobility concepts

■ **Regulations & Incentives**

- Car ban or restriction due to inner city fees
- CO₂ taxes on cars
- TCO more competitive than ICE Car with significant level of incentives

Our EVs are real cars and form a whole and complementary “Zero Emission” portfolio



As an alliance we cover the market space early on

Overall, EV market take-off and development requires dedicated, long term committed supports and policies

■ Ensure visibility on tax benefits and energy cost

- Consistency with high environmental benefits linked to ZEV & > 100 km range
- Passenger cars and Light duty vehicles (a key market for EV at the start)
- Ensure no charge on EV energy up to a sufficient market share and fleet

■ Electric grid for EV recharging

- Consider 3 potential locations for recharging : home, office, public curb sides

■ Local transport policy visibility

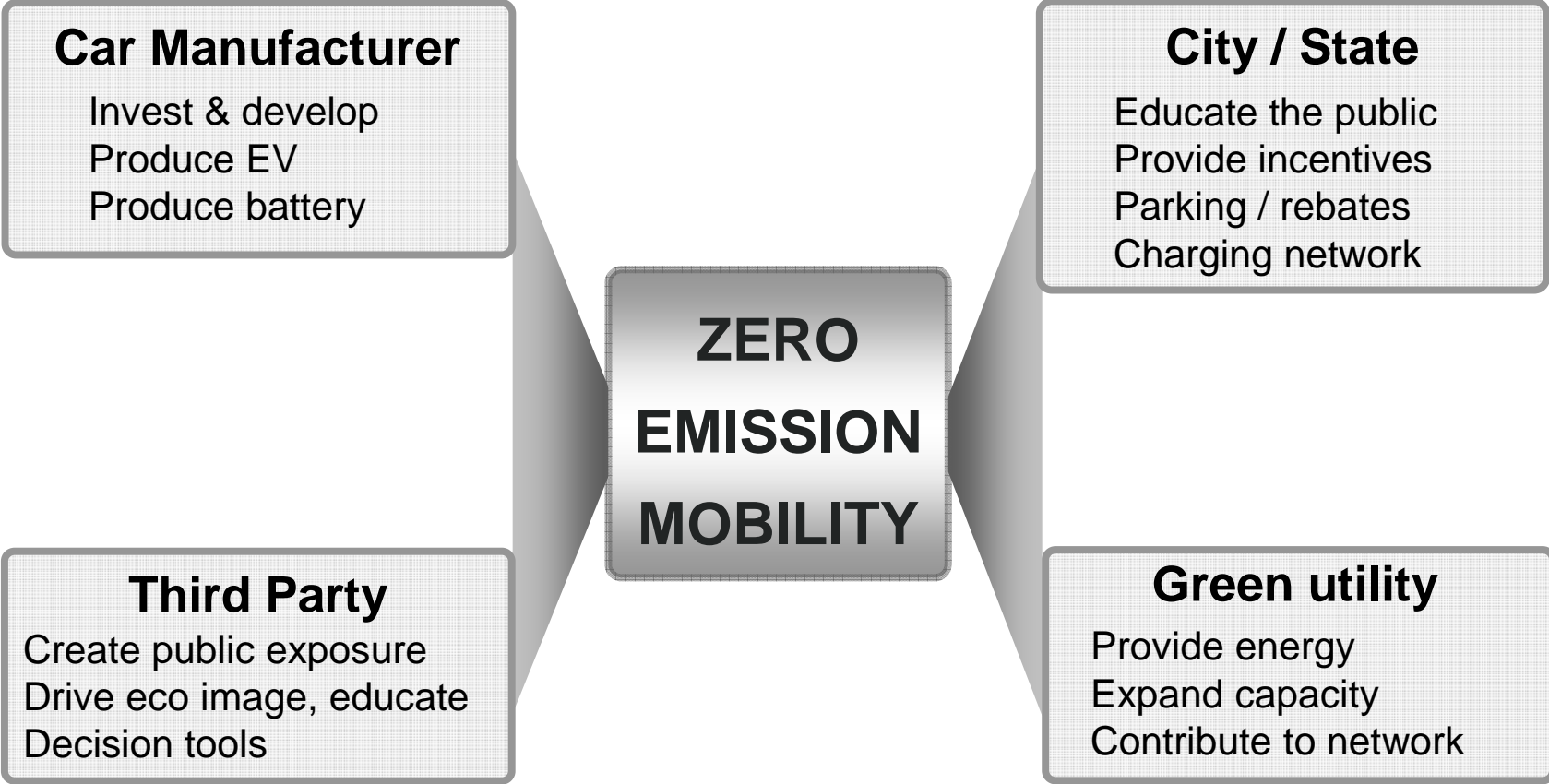
- Guidelines to support urban EV mobility for people, goods and services
- Access to urban centres, parking, recharging, distribution

■ EU-wide vision, policy and harmonization

- Initiate regulations and standards to avoid fragmented demand

Tight collaboration between different stakeholder will be required

The CO₂ global issue is **too large** to be tackled by one company only



Zero-Emission-Mobility has already signed with:

- **USA:** State of Oregon, State of Tennessee, Region of South California...
- **EMEA:** France, Portugal, Monaco, Denmark, Israel, Morocco, Swiss Regions
- **Asia:** Yokohama Prefecture, Kanagawa Prefecture...
- **....and many commercial partners**

Now we study how to enter the UK market

