Electric Vehicles:
Opportunities and Threats for the Aftermarket

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Why Electric Vehicles?

EVs dominated the car market till 1920. Attempts to revive them in the 1990’s failed. Why would EVs succeed today?

Because new concerns are ruling the world:

- **Climate change**
  Reducing CO2 emissions is a top priority.

- **Energy dependence**
  The consensus is that cheap oil is over.
  Petrol dependence is risky.

- **Environmental protection**
  Governments and citizens keep wanting less pollution and noise.

➔ Vehicular must become cleaner, more energy-efficient and less petrol dependent.
Electric Vehicles are the best solution

Compared to conventional vehicles of same power and weight:

Å EVs use about 33% less primary energy
  ï An electric car charged with petrol-generated electricity uses about 33% less petrol than an ICV... Same for biofuels!

Å EVs cause 60% less CO₂ with the EU average electricity mix
  ï Even less CO₂ as electricity generation gets cleaner ï which is happening.
  ï Over 10 times less CO₂ in Norway, Sweden, France...
  ï Same CO₂ in the worse case (coal fired power plants).

Å EVs are silent and cause zero urban pollution
  ï It is easier to reduce pollution from a few power plants than from millions of cars.
  ï Reducing urban pollution saves health and building cleaning costs.

Å EVs reduce energy dependence
  ï About 50% of world’s petrol is used in road transport.
  ï Electricity generation uses a variety of energies (including renewable) and little petrol.

Å EVs have a sustainable life cycle
  ï EVs, batteries and fuel cells are very recyclable
Car market: Basic facts

- **80% of car mileage: 1 person, < 60km/day, mainly in slow traffic**
  - Ultra-small and Ultra-narrow Battery Electric Vehicles (BEVs) are ideal for this usage.
  - They are cleaner and reduce traffic and parking congestion.

- **EVs are only TEMPORARILY more expensive than ICVs**
  - Once produced in high volumes, they will become cheaper.
  - Batteries are temporarily expensive, but so are engines and transmissions.

- **About 30% of EU15 families own two cars; about 50% use a private garage**
  - About 10% of EU15 families would NOW buy a BEV if (and only if):
    - Attractive BEVs were available... coming soon!
    - Attractive incentives were temporarily available.
  - Another 15% would buy a BEV as soon as a charging point is available next to their home.

- **Extended Range EVs (EREVs) are currently best for long trips and mixed usage**
  - It is a simple technology that could spread fast if cars and incentives were available.

- **Fuel Cell Vehicles (FCVs) and/or ultrafast charging BEVs should replace EREVs**
  - But they are not commercially ready yet.

**TODAY, BEV & EREV technologies could cover 100% of the car markets.**
25 years ago, mobile phones weighted 800 g and cost 4000 $.

They weight, size and cost plummeted rapidly with mass production of their batteries and electronic components (= 3/4 of EV cost).

They spread because they brought a unique benefit to customers.

Worldwide infrastructure was completed in 15 years.
How fast will EVs spread?

- **EVs are in a chicken and egg situation:**
  - EVs are expensive ➔ little buyers ➔ limited supply & small production volumes ➔ EVs are expensive

- **It is the duty of public authorities to revert this situation:**
  - *EVs bring advantages to society, not to EV owners.*

- **EVs will ONLY spread if EV buyers can temporarily benefit of:**
  - i) Non-financial incentives: use of bus lanes, free unlimited parking
    - *Most effective incentive because it gives a unique benefit over petrol cars…*
  - ii) Financial incentives (Tax/VAT reductions, subsidies): *Expensive and ineffective*
  - iii) Charging infrastructure: *first priority is slow-charging plugs where EV owners live!*

- **Initial EV spread is largely unpredictable:**
  - i) It depends essentially on public authorities, which are largely unpredictable
  - ii) It also depends on other elements such as the oil price.
Electric cars will replace petrol ones

Because:

- High production volumes and rising petrol prices will make cost of EV ownership advantageous.
- Cities will restrain petrol vehicles (health and building renovation costs)

Light Electric Vehicle sales predictions (including BEV, EREV & FCV)

Because: High production volumes and rising petrol prices will make cost of EV ownership advantageous.

Cities will restrain petrol vehicles (health and building renovation costs)
EV spread: Challenges for the aftermarket

**Major changes for car distributors**
- Less maintenance requires new business models
- Leasing? Renting?
- Buy an EV and occasionally get a petrol car?

**Major challenges for the aftermarket business**
- Less maintenance, less spare parts
- New skills: Mechanics → Electricity, electronics
- New entrants (such as elevator maintenance companies)?

**Many opportunities to explore**
- Remote diagnostics by 3G?
- Quick service?
- Maintenance at customer’s location?
- Battery swapping???

**Timing is critical**
- Invest too much too early → waste money
- Invest too little or too late → loose business
Conclusion

**EVs are arriving, together with challenges and opportunities.**

**But we have no choice:**
**EVs are arriving – with or without us.**

**Those who adapt at the right time will be winners!**
Thank you very much!

More info at www.going-electric.org