

European
Automobile
Manufacturers
Association

The Future of Electric Cars - The Automotive Industry Perspective

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The "Engine of Europe"

ACEA represents the whole European auto industry

- 15 major international companies & 29 associated national organizations



An industry crucial for economy...

Over 18.4 million vehicles produced in 2008

€ 20 billion in R&D spending, largest private investor

€ 42.8 billion of net trade contribution

€ 378 billion of tax revenues

... and employment

- 35% of EU manufacturing employment
- 2.2 million direct jobs
- Indirect employment for another 9.8 million families





Current economic situation

New passenger cars in 2009

Production¹	Units	% change to 2007
Europe⁵	13,985,800	-18%
Russia	601,400	-53%
USA ²	5,608,000	-47%
Japan	6,840,700	-31%
India	1,813,200	+23%
China	8,139,500	+51%

Demand³	Units	% change to 2007
Europe⁵	14,481,545	-10%
Russia	1,465,917	-42%
USA ²	10,402,215	-35%
Japan	3,923,740	-11%
India	1,815,205	+20%
China	8,380,870	+58%

New commercial vehicles in Europe⁵ 2009

Production⁴	Units	% change to 2007
Total	922,614	-52%
Heavy Trucks	175,370	-63%
Vans	722,301	-49%

Demand⁶	Units	% change to 2007
Total	1,706,996	-38%
Heavy Trucks	245,915	-45%
Vans	1,421,770	-38%

¹Forecast by IHS Global Insight; ²Including LCVs; ³Source: VDA; ⁴Q1-3 2009; ⁵EU+EFTA, ⁶ Source: ACEA



Low emission vehicles: What comes next?

Internal combustion engine

- Still potential for further improvement
- Primary powertrain in the 2020 timeframe
- Drastic reductions of regulated emissions
- Important contribution to overall CO2 reductions possible



Alternative fuels

- Need for sufficient fuel infrastructure to reap full CO2 reduction potential of biofuels, CNG and LPG



The next steps

- Electrification (incl. fuel cells)
- Hydrogen





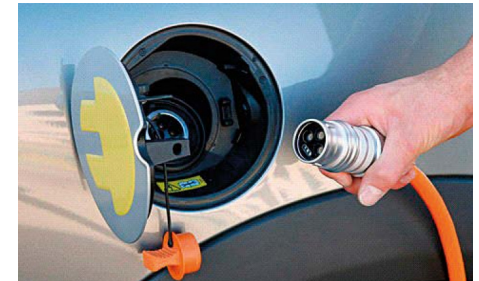
Electrification: Part of the solution

No 'silver bullet' towards sustainable mobility

- Diverse transportation needs

Electrically Chargeable Vehicles

- Range of electrical technologies in development
- Applications include hybrids, plug-in hybrid electric vehicles, extended-range electric vehicles (incl. fuel cells), battery electric vehicles
- Low or zero emissions at the tailpipe



Low-carbon energy key to realise CO2 savings potential



Key pillars for success (1)

Policy environment

- Market incentives (EU, national governments)
- Collaboration and coordination



Market readiness

- Recharging infrastructure
- Customer acceptance, market demand



Standardisation

- Common interfaces (e.g. vehicle-infrastructure)
- Global standards

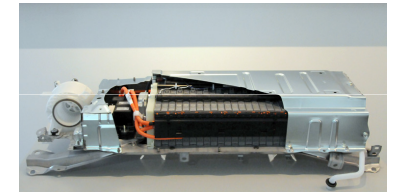




Key pillars for success (2)

Technology ability

- Vehicles for variety of customer needs
- Costs
 - Battery costs can add 6,000 – 16,000 Euro/car*
 - Additional costs for power electrics, wiring, etc.
- Need for further R&D (particularly battery development)



Well-to-Wheel consideration

- Low carbon energy production

* Typical driving range for ECV will be up to 150km, up to 20kWh electric energy consumption (small/compact car)



Market potential of electrically chargeable vehicles*

Customer expectation:	e-vehicles today:
Same driving range	150 km
Same refuelling time	3 hours
Same cost	EUR 10,000+

A new vehicle market share in the range of 3-10% in 2020-25 is possible

Market penetration depends on the coordinated collaboration of all key players

* including battery electric vehicles, extended-range electric vehicles and plug-in hybrid electric vehicles



EU leadership will make a difference

Significant & simultaneous investment required by multiple players

- Difficult economic situation
- Limited access to financing
- Risk that investments and thus market penetration are capped

Intensive policy support in the US, China and Japan

- Activities are well coordinated
- Joint US/China initiative on promotion of E-Mobility
- First mover advantage?



EU competitiveness at stake

- New competences & engineering opportunities
- Positive impact on EU employment





Roadmap for EU-leadership in e-mobility

Defining a supportive long-term policy environment

Building up a recharging infrastructure

Coordinating national strategies

Increasing consumer awareness, information

Ensuring access to finance

Enabling quick progress on standardisation





Conclusions

Mobility is an enabler of economic growth and social development

- Vision: truly sustainable mobility

The automotive industry is part of the solution

- Difficult economic circumstances, but robust in the long term
- Continued investment in technology leadership

The regulatory framework matters:

- Defend and strengthen Europe's manufacturing base
- Boost global competitiveness by better regulation and impact assessments

Electrically chargeable vehicles require a joint effort

- Establish roadmap for EU-leadership on E-mobility
- Success depends on coordinated collaboration of all key players