



European  
Automobile  
Manufacturers  
Association

# The Future of Electric Cars - The Automotive Industry Perspective

Informal Competitiveness Council  
San Sebastian, 9 February 2010

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*President ACEA, CEO Daimler*



ACEA

- Your Excellencies,  
ladies and gentlemen,
- I am honoured by the invitation of the Spanish presidency of the EU council. Speaking on behalf of ACEA, I very much appreciate the opportunity to address this influential audience.
- My job this morning is to give you the auto industry's perspective on the future of electric cars.
- As I was preparing my remarks, I recalled an old story I first heard when I was studying engineering.
- The story went something like this: When Albert Einstein was a professor in Zurich, his students had to take a test every week.


- During one of those tests, a student said to Einstein:  
*“Professor, you must be mistaken. These are exactly the same questions you gave us in last week’s test.”*
- Einstein simply replied:  
*“Yes. But the answers are different this time.”*
- I think he makes a good point that we have to consider today as well: There are no ready-made solutions.  
The answers must always be right for the times.
- That’s especially true when it comes to the fundamental questions regarding the future of sustainable mobility. And in my presentation today, I’d like to provide some background from the automotive industry’s perspective to help answer two key questions:
  - First, do electric cars offer substantial opportunities for Europe?
  - And, second – if yes – what should be the strategy to accelerate the adoption of electric vehicles in the EU?



## 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

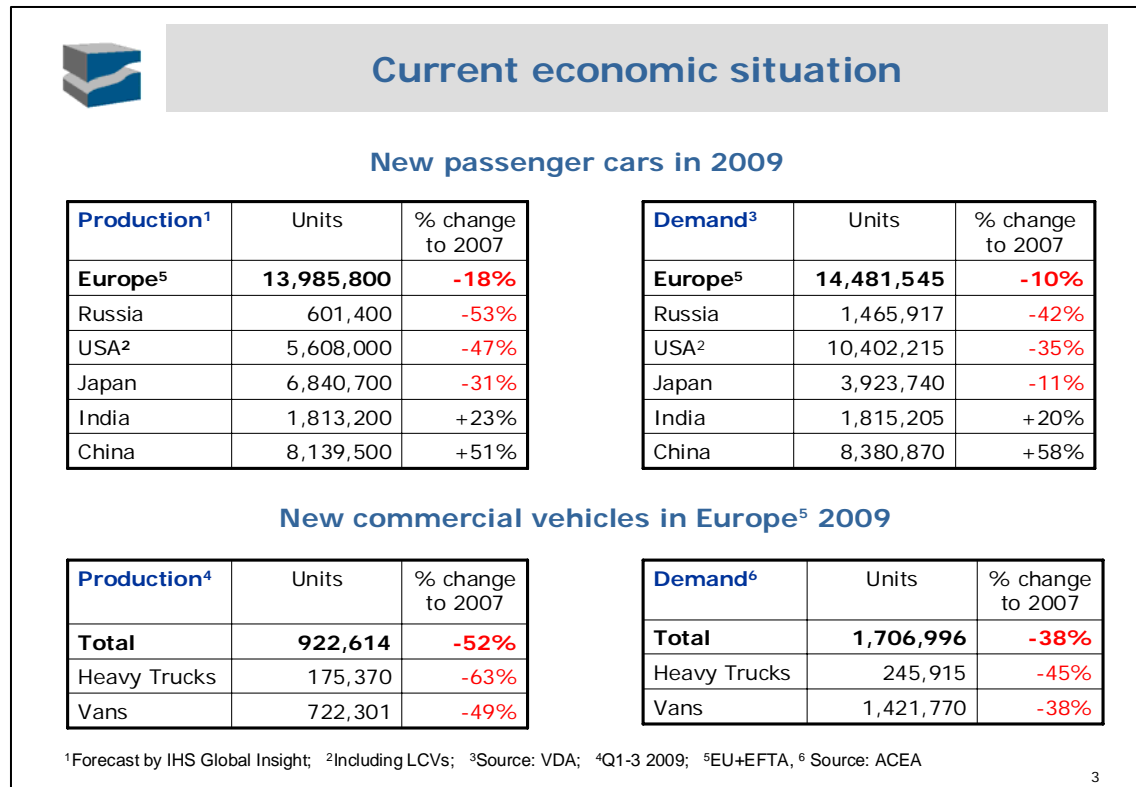
€ 378 billion of tax revenues

**... and employment**


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



- Before we come to the solutions for tomorrow, let’s begin by looking at where the European auto industry is today.
- Long ago, Peter Drucker called the auto industry, “*The mother of all industries*”. And that was not an understatement, as shown by the key statistics here.
- I just want to highlight one fact:  
The auto industry invested 20 billion Euros in R&D last year – that’s more than any other industry in Europe.




- All in all, I guess it's fair to say that when the auto industry catches a cold, the economy gets sick.  
However, in the past 18 months we've learned:  
It also works the other way around!
- The numbers in red show just how hard the passenger vehicle sector was hit by the global recession. Meanwhile, the commercial vehicle sector just about fell off the cliff!
- But even against this most difficult economic backdrop, the auto industry is still stepping up to its responsibility in terms of climate change.



## 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



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- Our philosophy is simple:

Cars and trucks are not the problem. Emissions are.

The European auto industry will be part of the solution – with:


- optimized combustion engines,
- drive-trains for alternative fuels and
- zero-emission electric vehicles.

- Just consider the recent advancements in gas engines:

Your modern car takes you more than 60 percent farther than a car from 1970 with the same amount of gas.

And altogether, it takes 100 of today's cars to match the average regulated emissions of one car built in the 1970s.

- It's important that we continue down this path, as combustion engines will likely remain the predominant powertrain into the 2020 timeframe.
- Of course, one of the fastest ways to clean up combustion is to clean up fuels. That's why we're also pushing the development of advanced biofuels and the requisite infrastructures to make them readily available to customers.
- In the long run, however, we remain firmly committed to the zero-emission vehicle – with advanced batteries and fuel cell technology.




## 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**

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- Truth is that, so far, electric cars are not exactly a success story.

- The technology is nearly as old as the automobile itself. And in the past 100 years we've seen numerous attempts to crack the monopoly of the combustion engine with an electric car.
- But in the end, they all had one thing in common: They failed – due to their high cost, low range and poor infrastructure.
- These issues are still far from being solved. And electric cars are not the “silver bullet” solution that some people might be waiting for. That said, we are now at a point where electric propulsion is finally becoming a viable alternative:
  - As oil gets more expensive, the alternatives become more attractive. And customer awareness for “green” vehicles has never been higher than today.
  - We're making progress with transition technologies like full-, mild- and plug-in hybrids. For instance, as a plug in-hybrid even a three-liter S-Class is already possible.
  - We're improving electrical power storage with advanced lithium-ion batteries. And for batteries alone, we can expect a multi-billion Euro market in ten to fifteen years.

- And we're now capable of delivering fuel-cell vehicles that offer our customers all the comfort, safety and usability of a conventional car – but without the emissions. At Daimler, we've started a low volume series production of fuel cell passenger cars already last year.
- So, coming back to my first question:  
“Do electric cars offer substantial opportunities for Europe?”  
My answer on behalf of ACEA is: absolutely yes.
- The ecological benefits of emission-free electric mobility are obvious. But now we are finally in a position where we can reap the economic potential of this technology as well.
- And that brings me to question number two: What should be the strategy for electric vehicles in Europe?




## 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

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- From an auto industry perspective, a winning effort to make these technologies commercially successful and widely adopted will be built on these key pillars:
- First of all, we need a sound policy environment to address the fact that advanced technologies initially come at a high cost. Market incentives can help to “prime the pump” with consumers – if the timing is right.
- The next key pillar is market readiness: With battery-electric vehicles and the necessary infrastructure we see the classic “chicken or the egg” dilemma. The only way out is to start creating recharging infrastructures now in order to build customer acceptance and market demand.


- When it comes to electric mobility, we also need global standards with common interfaces between e-vehicles and the infrastructure to recharge or refuel them.



## 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)



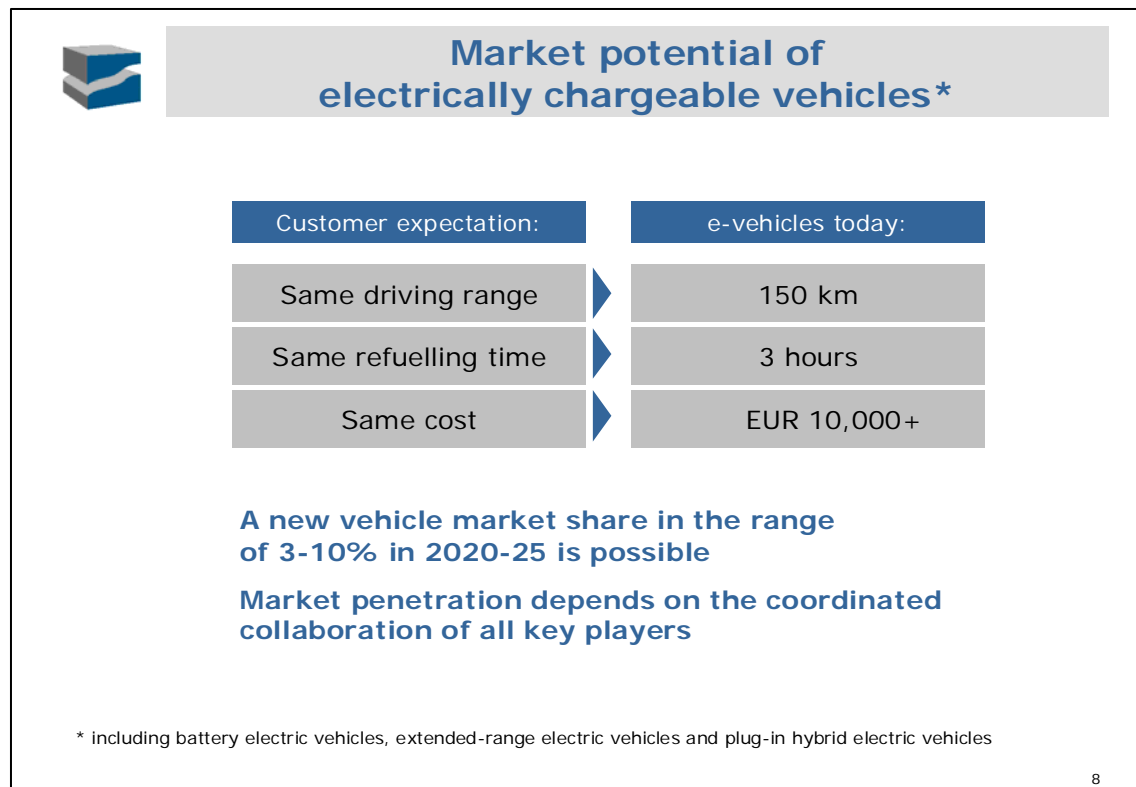
### Well-to-Wheel consideration

- Low carbon energy production

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

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- Another key pillar is technology. Investing in “green” technologies is hard when your bottom line is in the red. So, especially now, as we are still in the crisis, building and expanding industry and government partnerships would give us a huge leg up.
- And last but certainly not least: We need a Well-to-Wheel consideration. After all, power must still be generated somewhere. If we just clean up the cars and not the power generation source, then we’ve only “kicked the can further down the road.”



- Meanwhile, we have to be realistic in our expectations for the high-volume adoption of battery-electric, extended-range electric and plug-in hybrid vehicles. Our estimate is a 3 to 10 percent market share by the mid-2020s.
- That may not sound thrilling. But make no mistake: The question is no longer *if* diesel and gasoline will be replaced by electricity and hydrogen as the dominant means to fuel a car. It's just a question of when.
- And Europe can either drive that change – or be driven by it.
- Either way – that race has already begun.



## 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**

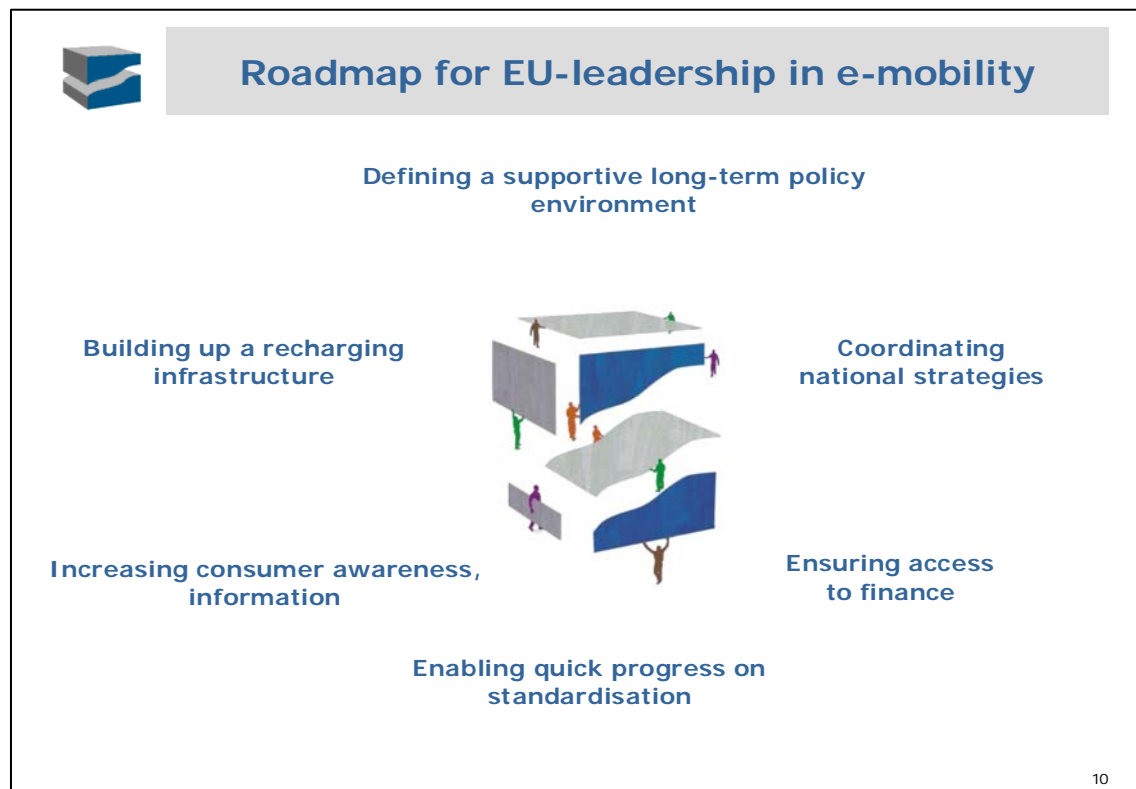
- New competences & engineering opportunities
- Positive impact on EU employment



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- As you all know, access to funding is a crucial factor now. As an industry, we have to re-invent the automobile now -- during the worst recession of our generation.
- The U.S., China, Japan, Australia, Israel and a number of other nations offer examples of how well coordinated activities to encourage R&D investment during the crisis can work.
- China and the U.S. are even pursuing a joint initiative on e-mobility.
- And I think we all agree that the EU can't afford to be left behind. There's simply too much at stake.

- Now don't get me wrong: E-mobility cannot be pushed by a decree from Brussels, of course. The market is where we need to deliver and the best way to do that is bottom up.
- So, let me explain what kind of support we exactly ask for.



- To answer the question: “What should be the strategy to promote electric vehicles in Europe?”, we propose a basic six-point roadmap for EU leadership in e-mobility:
- First, define a supportive long-term policy environment for electric vehicles in Europe. Let me just give you two concrete examples: providing a fair taxation for e-car customers and securing access to raw materials like lithium.

- Second, we need to coordinate national strategies.  
Various member states from Poland to Portugal are implementing supporting actions. That's a good start. But we need to avoid creating a counterproductive "patchwork quilt" of competing initiatives across the EU.
- Third, we need to ensure access to financing.  
Plain and simple: Money is the lifeblood of R&D!
- Fourth, we need to move fast toward standardization.  
Remember, if we don't set the standards, someone else will.
- Fifth, we need more visibility for e-mobility to build customer awareness. France and Germany are already well under way here. And one local example is the agreement between the Basque regional government and Mercedes-Benz to promote the construction of our battery-electric vans here in Spain.
- And sixth: As soon as we standardize, we need to start building out a low-carbon infrastructure for battery-electric and fuel cell cars across the EU.



## 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

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- Ladies and gentlemen, your schedule is tight today, so let me conclude by briefly going back to that Albert Einstein story I mentioned at the beginning of my talk.
- The European automotive industry is also facing a test right now. And like those students of Einstein, we have to find some new answers, because conditions in our industry are changing.
- The post-oil era has begun. And the question is: Who has the best solution to win the race for electric mobility?
- Passing this test will determine the future of our industry – as well as that of the twelve million families in Europe whose income depends directly or indirectly on us.

- But I have no doubt: If all of the key players -- from the automotive industry to the policy makers -- join forces in a coordinated effort, we can make sure that the electric vehicles of the future will have one thing in common with the conventional vehicles of today:

The best of them will be “Made in Europe”.

- I assure you on behalf of ACEA: We will do whatever we can to make that happen. And we ask you to join us in that mission.

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