



Green Cars

Infoday on Research PPPs
Objective GC-ICT-2011.6.8
ICT for Fully Electric Vehicles

Brussels, 9 July 2010

Thomas Reibe

European Commission
Directorate-General Information Society and Media
Unit G2 Microsystems

thomas.reibe@ec.europa.eu



Objective 6.8: Green Car: ICT for the Fully Electric Vehicle

Where do we stand?

- EV Gen1: conventional cars with electric drive kit = very low energy efficiency + CO2 emissions higher than optimised ICE cars

- limited driving range, extended charging time of the battery, reliability, proprietary solutions, high cost and overall limited efficiency

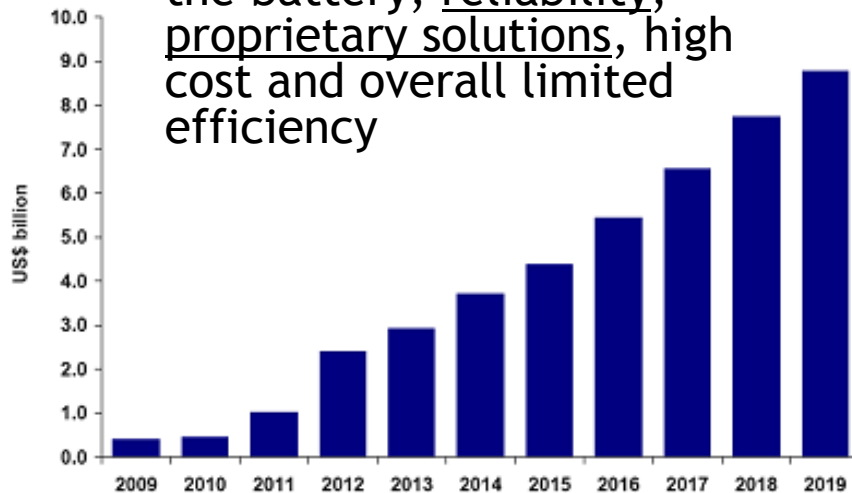


Figure 6 Global pure electric car sales 2009-2019

Source IDTechEx

Where do we want to go and why?

- Primary energy savings and GHG emissions cut
- Strengthened global competitiveness of the European automobile sector
- European standard reference platforms for EV design: architectures, models, methods, and tools
- Integration of the EV into energy and transport infrastructures
- Enhanced quality and reliability of European power electronics
- Reinforced coordination of the research activities on FEV across Europe

European Commission
Information Society and Media





Closed 3 Nov 09
Budget 20 M€

Results from the last call

ICT-2010-10.3

ICT for the Fully Electric Vehicle

Funding scheme	# received	# above threshold	# retained / reserve
STREP	12	6 (50%)	6 / 0
CSA	3	1 (33%)	1 / 0
Total	15	7 (47%)	7 / 0

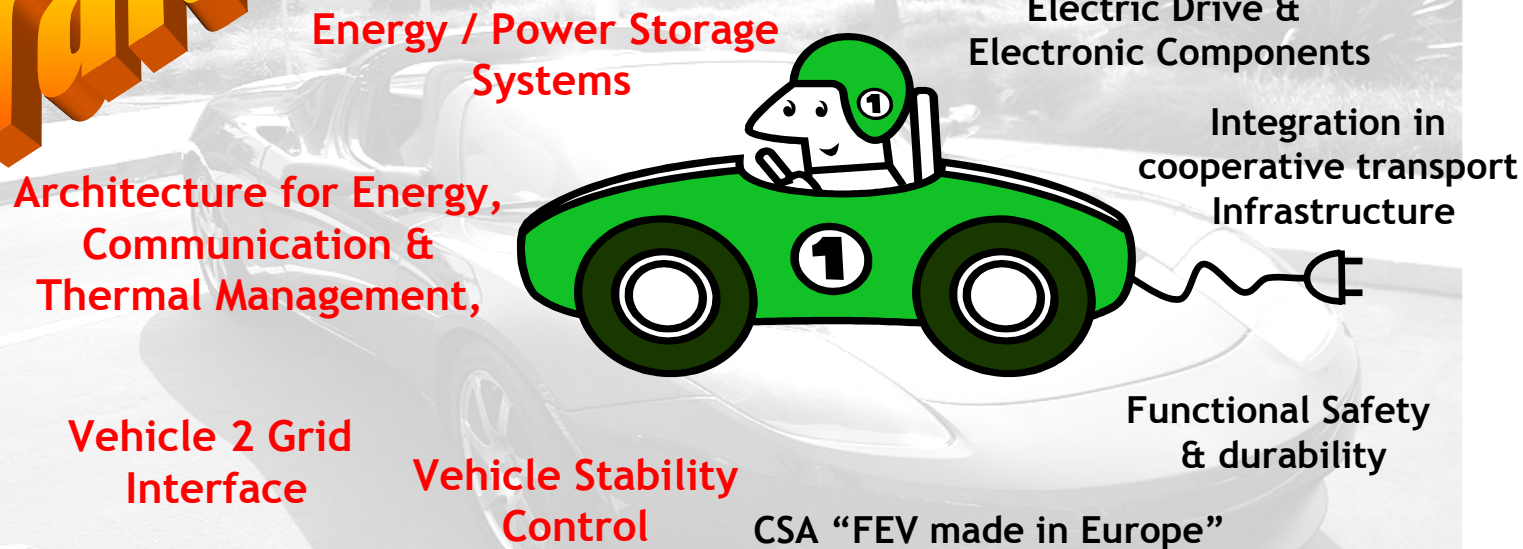
- Success rate: 1:2 (in terms of number of proposals & budget)
- Participations in retained proposals: 66% from industry (18% SMEs)

Objective 6.8: Green Car: ICT for the Fully Electric Vehicle

Target outcomes:

stakeholders like EGCI Ad-hoc Advisory Group, ERTRAC, EPoSS, eSafety Forum, SmartGrids ...

Draft



Call FP7-2011-ICT-GC 30M€ Streps

Call FP7-2012-ICT-GC 30M€ Streps / CSA

Closing 2 Dec
2010

Closing 2 Dec
2011



a) Energy/Power Storage Systems

Draft

- Control system solutions for batteries and/or super-capacitors
 - Electronic **architectures** for managing optimal charging and discharging rates
 - **Sensors and networking capabilities** for monitoring and controlling the energy/power storage system's efficiency, lifetime, reliability and safety, including monitoring and early warning of fault conditions environmental monitoring, temperature conditioning and shock protection/spark avoidance
 - high voltage **switches and interconnects** and system interfaces



Draft

b) Architectures for Energy, Communication and Thermal Management

- Optimised distribution for **multiple voltage systems** for:
 - power-train, bilateral grid connection, on-board energy harvesting, heating and cooling conditioning systems, vehicle stability and comfort, lighting, driving assistance sensors, on board information and entertainment and other auxiliaries.
- **Real-time and fail-safe** standard communication systems



c) Vehicle-to-grid Interface (V2G)

Draft

- **Controlled flow of energy**
 - safe, secure, energy efficient and convenient transfer of electricity and data
 - E/M compatibility, robustness, reliability, safety, security and impact on health and grid stability
- **Platform-independent solutions** based on pan-European consensus and conform to interface standards for Smart Grids.



Draft

d) Vehicle Stability Control

- Stability control **architectures with 2, 3 or 4 electrical motors**
- Vehicle **dynamics** simulation
- **E/M compatibility**
- **Bus-based solutions**
 - standardised, safe and redundant
- **Regenerative braking**
- **System faults** like maximum torque / oscillating torque at a single wheel / two wheels
- Controlled **shut-down procedures** in case of a crash





Expected Impact

- Improved **energy efficiency** and extended **driving range**
- **Reduced costs** of the electronic components and the overall FEV
- **Mitigated constraints** for the user of the FEV versus the ICE vehicle
- **Seamless integration** of the FEV into the smart grids and the existing infrastructure
- Significant improvement in terms of **safety, comfort** and new information and comfort **services** for FEV users
- Strengthened global **competitiveness** of the European automobile, ICT and battery sectors



Contacts

- Evaluation functional mailbox:
- INFISO-GREEN-CAR@ec.europa.eu
- http://cordis.europa.eu/fp7/ict/micro-nanosystems/ict-for-green-cars_en.html

• INFISO G2:

- Thomas.Reibe@ec.europa.eu 
- Marc.Bouckerche@ec.europa.eu 
- Cosmin.Codrea@ec.europa.eu 
- Pedro.Pieres@ec.europa.eu 

• INFISO G4:

- Myriam.Coulon-Cantuer@ec.europa.eu 
- Francisco.Ferreira@ec.europa.eu 

