Green Cars

NCP Infoday - Objective GC-ICT-2011.6.8
ICT for Fully Electric Vehicles

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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

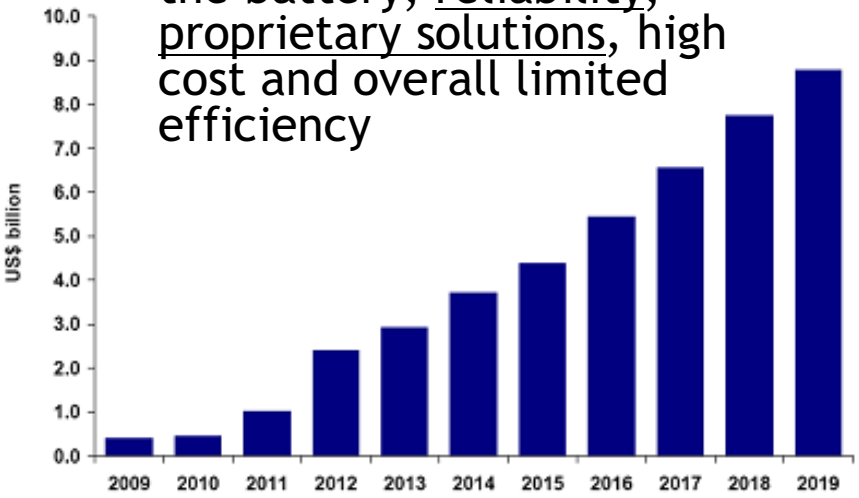

Figure 6 Global pure electric car sales 2009-2019

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

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Results from the last call

ICT-2010-10.3
ICT for the Fully Electric Vehicle

Closed 3 Nov 09

Budget 20 M€

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)

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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 ...

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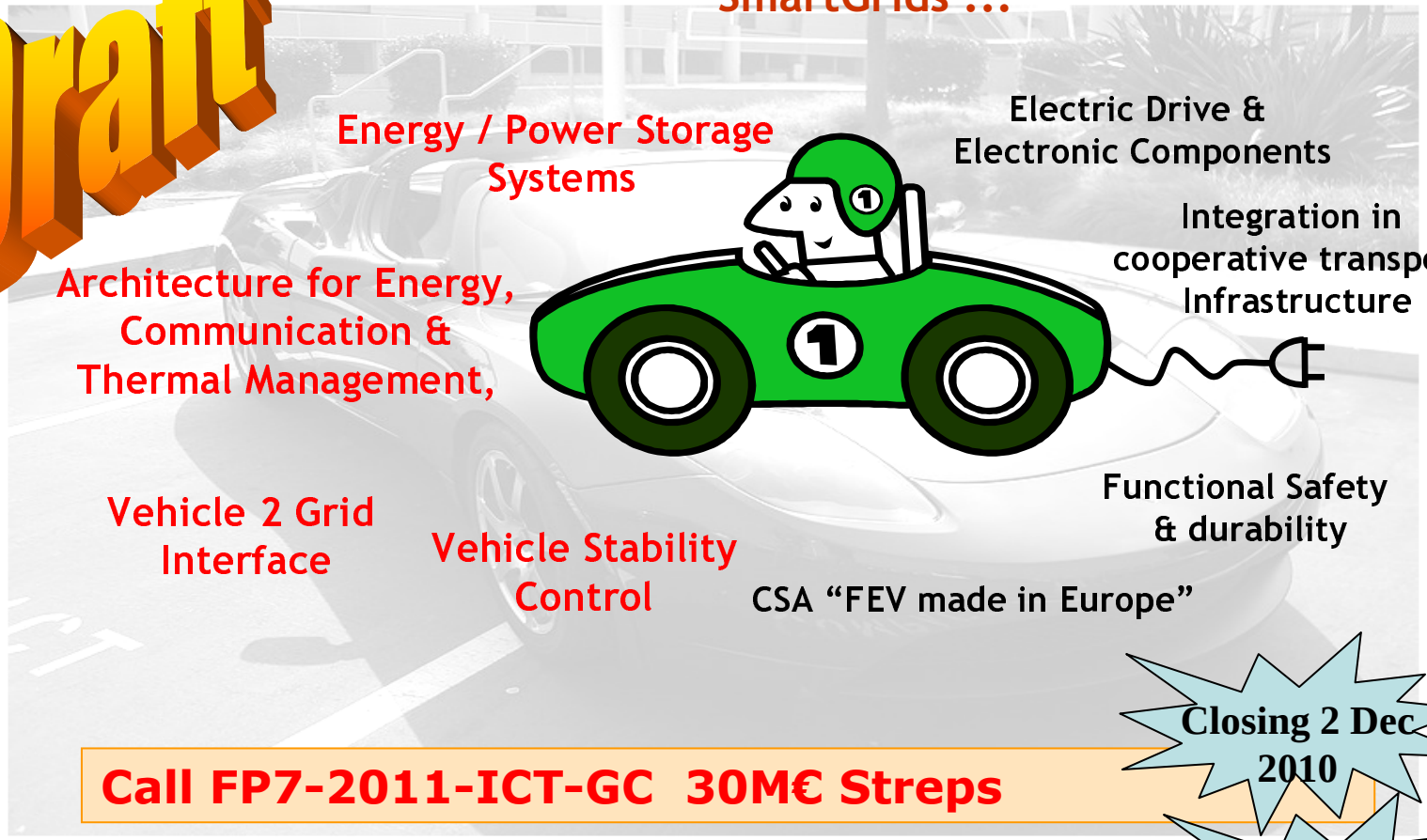

Call FP7-2011-ICT-GC 30M€ Streps

Closing 2 Dec 2010

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

Closing 2 Dec 2011

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a) Energy/Power Storage Systems

- 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

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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

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c) Vehicle-to-grid Interface (V2G)

- **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.

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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 breaking**
- **System faults** like maximum torque / oscillating torque at a single wheel / two wheels
- Controlled **shut-down procedures** in case of a crash

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Expected Impact

- Improved **energy efficiency** and extended **driving range**
- **Reduced costs** of the electronic components and the overall FEV
- **Mitigated constrains** 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

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Future events

- INFODAY EV in the UK 28 June
- INFODAY PPP 9 July in Brussels
- ICT 2010. BXL. 27 – 29 September. Presentation of the new WP 2011-2013.

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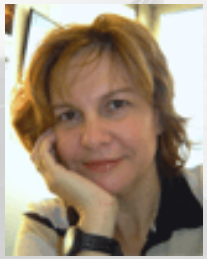

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