Green Cars

ICT NCP Meeting

Objective GC-ICT-2011.6.8

ICT for Fully Electric Vehicles

Target Outcomes e) to h)

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European Commission
Information Society and Media

European Green Car Initiative

ICT focus:

"Fully Electric Vehicle and its infrastructure" 2010-2013

M€	ICT	FP7
2010	20	105
2011	30	115
2012	30	140
2013	40	140
Total	120	500

- Package of 5 B€ : 4 B€ EIB loans, 1 B€ research grants
- Research Roadmap by ETPs: ERTRAC, EPoSS, SMARTGRID
- Benefits of the **fully electric vehicle**:
  - At least **40% energy saving**
  - Reduced fossil fuel **dependence** & environmental impact
  - Socio-economic impact:
    12 million jobs & international competitiveness
- Challenges:
  - From 1 combustion engine to 2 or 4 **in-wheel electric motors**
  - Energy recovery from braking
  - **Batteries:** cost & business model, driving range, lifetime, energy management
  - Power electronics and safety
  - EU-wide **standards** for chargers/plugs

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Results from the first 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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Results from the second call

ICT-2011-6.8

ICT for Fully Electric Vehicles

Closed 2 Dec 2010

Budget 30 M€

Funding scheme	# received	# above threshold	# retained / reserve
STREP	17	10 (59%)	8 / 0

- **SUCCESS RATE: 1:2 (in terms of number of proposals & budget)**
- **Participations in retained proposals: 67% from industry (28% SMEs)**

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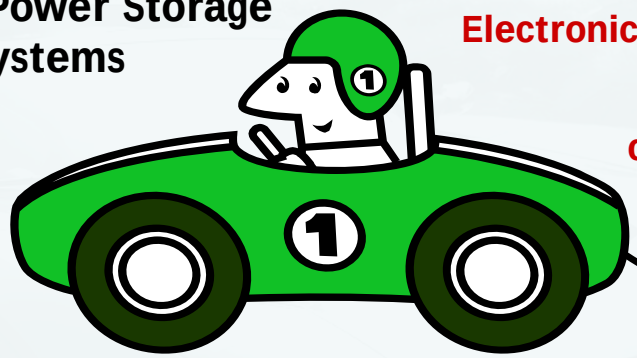
Objective 6.8:
Green Car: ICT for Fully Electric Vehicles

Target outcomes:



Energy / Power Storage Systems

Electric Drive & Electronic Components

Integration in cooperative transport Infrastructure

Architecture for Energy, Communication & Thermal Management,

Vehicle 2 Grid Interface

Vehicle Stability Control

Functional Safety & Durability

CSA "FEV made in Europe"

Call FP7-2011-ICT-GC 30M€ Streps

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

Closing 1 Dec 2011

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e) Electric Drive and Electronic Components

- **Power devices**, converters, inverters and electrical interconnects that **simplify**:
  - **packaging and cooling**
  - **EMI-EMC** designs
  - the management of **high voltages, currents and temperatures**
  - **hardware-in-the-loop technologies** for algorithm and component testing.
- Integration between the drive and the motor while **maximising the efficiency of the drive**
  - over a **wide range of operation** of the motor,
  - in relation to **temperature** excursions,
  - **voltage** variability and
  - **fail-safe tested** components.

f) Integration of the FEV in the cooperative transport infrastructure

- **ICT-based interaction** between the driver, the vehicle and the transport and energy infrastructures
- **Trip planning and optimization** including energy use and charging
- Gains in energy efficiency, charging strategies and route optimisation by **using traffic information**
- **Adaptive strategies**, algorithms and operation modes for the charge and discharge management
  - predict the range and adapt to the energy needs of the user in respect of the **properties of vehicle's battery and the grid**
- improving energy efficiency by **automated driving and driver training**

g) Functional Safety and Durability of the FEV

- **Requirements and standards** related to electromagnetic compatibility and health impacts of electromagnetic fields
- Improvements against **low frequency electromagnetic fields** as well as on **local sensing** of currents and electromagnetic fields
- Safe and robust **components and subsystems**
- **In-vehicle active safety**
- Integrated **driver - vehicle - infrastructure** safety
- Protection of **vulnerable road users**
- **Emergency handling procedures**
- **Test methods**

h) Coordination and Support Action "FEV made in Europe"

- **Strategic Research Agenda** for ICT, components and systems,
- **Clustering** of R&D projects
- **Training, education and dissemination** activities
- Investigate **new usages for the FEV**
  - last mile delivery and
  - mobility for the elderly and disabled
- **Standardisation** measures
- **Harmonisation** of national research policy measures and programmes
- Actions for **international collaboration**
- Involving **relevant** electrical vehicle **stakeholders**

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

Future event

- ICT Proposers' Day 19-20 May in Budapest

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