



# ICT for Energy Efficiency

## The Activities of the European Commission

The 10<sup>th</sup> eSafety Forum Plenary, 6 November 2008

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- **The role of ICTs in Energy Efficiency**
- **The Energy Efficiency Task Force**
- **International Cooperation**
- **Next Steps**

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## The Role ICTs in Energy Efficiency (1) The Policy Background

- Energy-efficiency Action Plan (October 2006), endorsed at the European Council in March 2007
  - with the objective of saving 20% of the EU's energy consumption compared with projections for 2020
- Commission Communication on "Addressing the challenge of energy efficiency through Information and Communication Technologies" (May 2008)
  - Recognising the potential of information and communications technologies (ICT) to provide a cost-effective means of improving energy efficiency across industry and broader civil society

## The Role ICTs in Energy Efficiency (2) ICTs are Part of the Problem...

- Energy use by ICT equipment and services represents about **8% of electrical power** in the EU, and about 2% of green-house gas emissions.
- However, energy use by ICT equipment and services **will continue to grow to over 10% of electrical power** consumption by 2020 unless additional measures are taken.



## The Role ICTs in Energy Efficiency (3)

...but also (part of) the solution

- Recent studies\* have identified opportunities for the ICT-sector and **ICT-based innovations to make a significant contribution to improving energy efficiency**
- ICT-enabled improvements could reduce energy-use and carbon emissions by five- to ten-times the carbon footprint of the ICT sector itself, **saving about 15% of total energy-use** by 2020.
- The greatest potential for savings has been identified in the heating and lighting of homes and other buildings, in electrical power grids, in **transport** and in manufacturing .

\*) [www.smart2020.org](http://www.smart2020.org) and Impacts of Information and Communication Technologies on Energy Efficiency – Bio Intelligence Services S.A.S, July 2008

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## The Role ICTs in Energy Efficiency (4)

Follow-up of the 1<sup>st</sup> Communication

- The Commission has set up **a consultation and partnership** to identify opportunities for the ICT-sector in reducing the energy and carbon footprint of the ICT sector itself and by accelerating the deployment of ICT and ICT-based services
- To help in the consultation process, **an Ad-Hoc Advisory Group** was created for the period June-Sept 2008.

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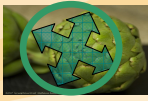
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## The Energy Efficiency Task Force (1) The Task Force and the Ad-Hoc Group

- The Task Force
  - Internal Group of different INFSO directorates/units
- The Ad-Hoc Advisory Group consists of Stakeholder Groups, with the overall aim to
  - identify and measure ways in which ICT can contribute to energy efficiency in their sector:
  - identify actions that the Commission and other stakeholders can take
  - to provide RTD roadmaps and priorities.
- The work should be based on existing groups and fora
  - **Transport: ICT for Clean and Efficient Mobility WG**



## The Energy Efficiency Task Force (2) The Ad-Hoc Group Report

- “Near Final” Report (status October 2008)
- The available reductions can be achieved through
  - ICT’s own footprint
  - Process efficiencies and change in other sectors
    - Smart Electrical Grids
    - Photonics and Lighting
    - Manufacturing Industry
    - Transport and Logistics
    - Buildings
  - “Restructuring” through innovation and behaviour change
- The Group has made recommendations for:
  - Support RTD in ICT for Energy Efficiency
  - Actions to support innovation in ICT for Energy Efficiency and to drive the process and behavioural changes

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## The Energy Efficiency Task Force (3) The Ad-Hoc Group: Transport

- Savings of 26% of transport energy use through the deployment of ICT
- Elements that can contribute to such CO2 savings include:
  - Improving driver efficiency.
  - Increasing fuel efficiency by making traffic flow more smoothly
  - Direct and control access to critical zones of high potential pollution by constantly measuring traffic density, structure of traffic and air quality
  - Smoother driving using safety systems such as adaptive cruise control (ACC), stop-and-go assistance, vehicle-to-X communication (e.g. interactive traffic control, local danger warning)

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## The Energy Efficiency Task Force (4) The Ad-Hoc Group: Transport

- EC and Member State action points:
  - Support deployment of such ICT technologies and services where saving potential has already been proven
  - Development and implementation of area traffic management strategies optimized for environmental criteria
  - Harmonization of the approach to environment-friendly and energy-efficient mobility in order to ensure interoperability and economies of scale
  - Optimization of traffic flow management & control to achieve less traffic delays and congestion
  - Promotion of individual use of dynamic navigation systems to save mileage
  - Work with industry to set up a cooperative infrastructure to allow vehicle-to-vehicle and vehicle-to-infrastructure communication
- Industry action points:
  - Develop products and services to improve traffic management, ADAS, intelligent infrastructure products (VMS, Traffic Light Synchronization, satellite based road user charging), digital maps with safety and eco information, eco-driving feedback systems and provide interconnection of different traffic modes
  - Management of multi-interfaces and security
  - Applying an integrated approach e.g. PPP and stakeholder co-operations

## The Energy Efficiency Task Force (5) The Draft Commission Recommendation




- Target date: Early 2009:
- Commission Recommendation on “Mobilising ICTs to facilitate the transition to an energy-efficient, low carbon society”
- Addressed to the Member States and Stakeholders
- Accompanied by an Impact Assessment
- Recommendation to the Council and the European Parliament

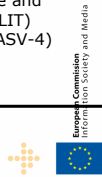
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## International Cooperation (1) The General Framework

			
<b>Initiative</b>	US DoT. RITA RTD Programmes	The Intelligent Car Initiative	The Green IT Initiative
<b>Political support</b>	Strong political support by Federal and State DOT's	Strong political support to initiatives at EU level Special push on ICTs for Energy Efficiency	Strong political support to realize the potential of IT on energy saving Specific targets for the transport sector
<b>Responsible bodies</b>	Research and Innovative Technology Administration of the United States Department of Transportation (USDOT/RITA), responsible for Vehicle Infrastructure Integration (VII)	EC DG INFSO (The Intelligent Car Initiative, RTD actions) EC DG TREN (Transport Policy Framework) (DG ENV, RTD, ENTR)	Ministry of Trade and Industry (METI), Energy Efficiency Ministry of Land, Infrastructure and Transport (MLIT) (Smartway, ASV-4)



## International Cooperation (2)

### The General Framework

#### EU-METI Cooperation

- Cooperation Agreement endorsed in Tokyo in March 2008
- Covers ICT for Energy Efficiency and Automated Driving
- EC-METI Task Force on Energy Efficiency
- Workshop and demonstration in Japan 26-27 February 2009



#### EU-U.S. DoT RITA Cooperation

- To be signed in NY during the ITS World Congress (requires Commission decision)?
- Will strengthen the EU-US Cooperation in research in ICT for Transport
- Covers in particular cooperative systems, V2V and V2I communications, greening of transport
- In time for the next call!



## International Cooperation (3)

### The EU-US Agreement

- Based on the Agreement for Scientific and Technological Cooperation between the European Community and the Government of the United States of America, signed December 5, 1997
- An Implementing Arrangement to cover cooperative activities in the field of ICT applications for safer, more efficient and greener transportation on road transport
- The purpose is to advance cooperation on research in ICT for transport and to contribute to a mutual understanding of each other's needs, research programmes and results. The agreement covers e.g.
  - Co-operative vehicle-to-vehicle and vehicle-to-infrastructure systems;
  - Collision avoidance at intersections;
  - Architecture for ICTs for road transport;
  - Field operational tests;
  - Applications on energy and the environment;

## International Cooperation (4) EC-METI Cooperation Agreement on ITS



Tokyo, 3 March 2008

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## International Cooperation (5)

### The objectives of the Joint EC-METI Task Force

- Objective: Development of common assessment methodology of the impact of ICTs for energy efficiency issues and international standardization of the methodology
- Joint research Task Force for the assessment methodology is to be established, with participation of scientists from both the European Union and Japan. The Joint Task Force will develop a technical report on assessment methodology of the impact of ICT for energy efficiency issues.
- The Joint Task Force will establish a mechanism of mutual validation of ICT impact by organizing two workshops with participation of scientists from European Union and Japan, and looking
- It is expected that the first Workshop will focus on analyzing current State of the Art and available methodologies, and the second on the road map for the development of the necessary technologies.

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## International Cooperation (4) European Task Force Members

- Experts:
  - Angela Spence, MIZAR
  - Siebe Turksma, Peek Traffic
  - Ab Schelling, TNO
  - Thomas Benz, PTV
  - Jean-Pierre Medevielle, INRETS
  - McCrae Ian, TRL
- European Commission:
  - Andre Vits
  - Juhani Jaaskelainen
  - Eva Boethius

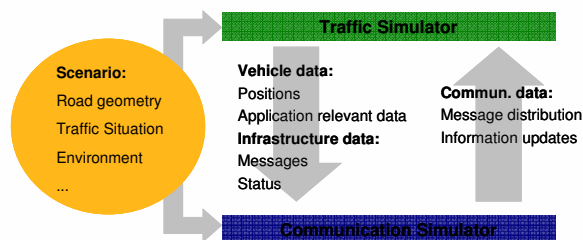
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## International Cooperation (5) The Task Force Report

- To be published in end of November 2008
- A Technical Report, summarising the progress in Europe towards an impact assessment methodology impact of ICTs for energy efficiency, using traffic and communications simulation models.
- The aim is to provide the reader with a synthesis of the European approach to the assessment of the environmental (CO2) impacts of ITS in Road transport.
- The report also analyses the existing gaps in research and gives recommendations.



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## Next Steps

- Publication of the EC-METI Task Force Report (November 2008)
- Publication of the Ad-Hoc Group (November 2008, with sector reports)
- Adoption of the Commission Recommendation on ICTs for Energy Efficiency (Early 2009)
- FP7 ICT for Mobility Calls
  - Call 4 launch 18 November 2008, close 1 April 2009
  - Call 6 launch 24 November 2009, close 13 April 2009
- ITS World Congress, New York November 2008
- Workshop and Demonstration (Tokyo, February 2009)

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**Thank you for your attention!**

