



InnoGrid2020+ Brussels, 23th February 2011

The role of ICT in the future electricity system

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European Strategy

- 2020 Smart, Sustainable and inclusive Growth
Confirmation of three 20% targets.
- 2050 A Roadmap for moving to a competitive low carbon economy
Reducing GHG emissions by 80-95% by 2050 compared to 1990.
A fully decarbonised Power Sector
- 2030
The power sector reduces its carbon footprint between 54 to 68%

Electricity the main energy source



Electricity consumption will increase:

- Electrification of transport
- More electricity for heating
- Increasing number of electrical appliances
- Energy efficiency is the difficult target for 2020

Huge investment in ICT for the electricity sector



The contribution of ICT (1)

- The Electricity Grid
 - Deploying a communications network for the electricity grid;
 - Monitoring and controlling millions of devices;
 - Power electronics (integration of renewables);
 - Computing and Data management (including privacy);
 - Cyber security.
- Demand side management
 - Home area networks and home gateway;
 - Internet Services.
- The market
 - Enterprise management systems, analytics, costumers profiles



The contribution of ICT (2)

- Systemic approach
 - To counterbalance possible rebound effects;
 - Decision support systems;
 - Simulation;
 - Inter-domain planning.
- Accounting and measuring efficiency
 - Policy support.

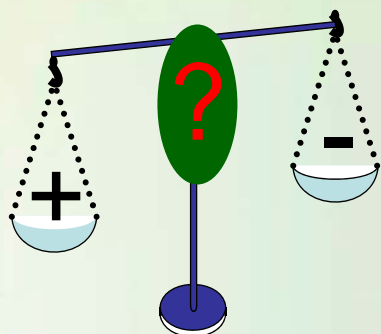
However:

Rapid growth of electricity used by ICT: today responsible for the 8% of electricity consumed in the EU and expected to double by 2020

Addressing the Challenge – Towards a Common Methodology

An agreed measurements framework to define environmental KPIs for ICT's impact is a precondition for any further meaningful work.

The Issue



- + ICT as enabler to contribute to energy, resource efficiency targets
 - Negative impact of ICT on the environment
- How to measure the overall impact of ICT?

EC Approach

- Working with international standardisation bodies (ITU, ETSI, IEC, ...)
- Working with industry stakeholders

Completing and expanding efforts to a common framework to capture ICT's overall impact across environmental dimensions

Application to Energy

- Energy infrastructures
- Energy Services

To be able to compare and learn the energy sector require a framework to measure ICT's impact



The role of DG INFSO (1)

Policy

- EC Telecom-Utilities Workshop

Objectives:

- exploring synergies and opportunities to put in place broadband infrastructures for the rollout of smart grids
- designing the policy framework to support the deployment of the ICT infrastructure needed for smart grids
- examining business, regulatory, and technological issues.

Examples of Issues:

- dedicated services or new infrastructure
- spectrum allocation, usage of unlicensed or light spectrum

Liaison with Smart Grids Task Force WG #3

- The Green Digital Charter



The Green Digital Charter

The Green Digital Charter means political commitment and specific actions towards ICT-enabled sustainability targets and greening ICT itself.

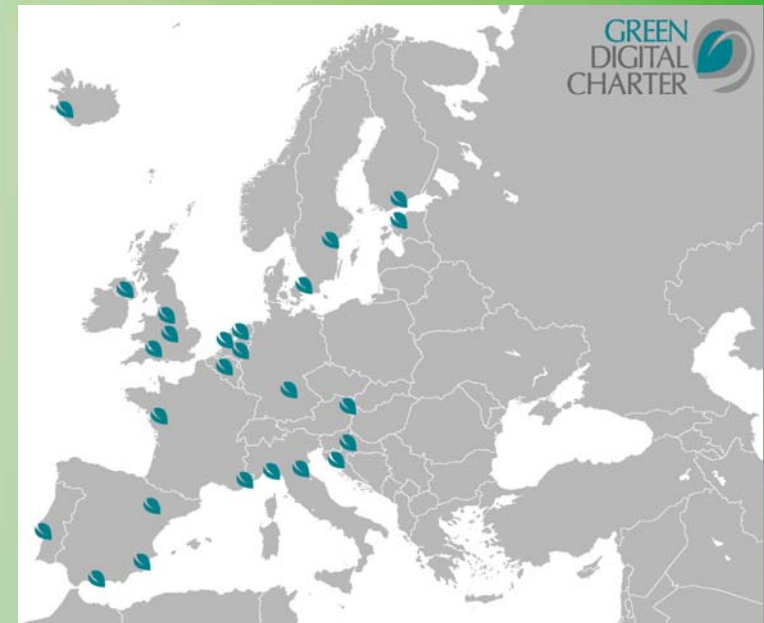
Overall Objectives

Since November 2009, to encourage cities to:

- (i) reduce the carbon footprint of their ICT and
- (ii) roll-out ICT solutions leading to more energy and resource efficiency, carbon neutrality and further public policy goals

Signatory Majors' Commitments

- Closely cooperate on ICT deployment towards public policy goals
- Deploy 5 large scale ICT projects within 5 years
- Decrease ICT's direct carbon footprint by 30% within 10 years





The role of DG INFSO (2)

Deployment

EC proposal: Connecting Europe Facility Proposed budget 50B€

- Energy – € 9.1bn
- Transport – € 21.7bn (+ €10bn)
- ICT/Digital – € 9.2bn

The ICT has two parts:

Infrastructure: exploiting the synergies between the roll-out of broadband networks and smart grids.

The provision of Smart Energy Services

Core service platforms for utilities to monitor assets, to control and manage power and for data management

Generic Services provided by innovative companies (e.g. ESCOs) for costumers to manage their energy demand, energy resources and storage capacity with the aim of improving efficiency.

Link with Smart Grid Task Force WG #4



The role of DG INFSO (3)

Research – draft WP 2013

- Objective 6.1 Smart Energy Grids
 - Intelligent systems built over existing and future telecommunication networks and services for the management of the electricity distribution grid.
 - Proposals should include appropriate validation phase
 - Opening: 18/09/2012 Closing: 16/4/2013 Budget 18M€
- Objective 6.5 Optimising Energy Systems in Smart Cities
 - Decision support and management and control systems for energy-efficient neighbourhoods
 - Validation phase in real-live environments in at least two cities
 - Call opening: 16/07/2012 closing 27/11/2012, Budget 40M€



Thank you for your attention!

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Disclaimer: The opinions in this presentation are those of the author and do not commit in any way the European Commission