

# 5th ECTP-E2BA Era-net Eracobuild



Conference 2011



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Let's Construct Europe's Future  
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*Construction and Societal Challenges*

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# *The role of ICT in Energy Efficiency*

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*Directorate-General Information Society and Media*

*European Commission*



European Commission  
Information Society and Media

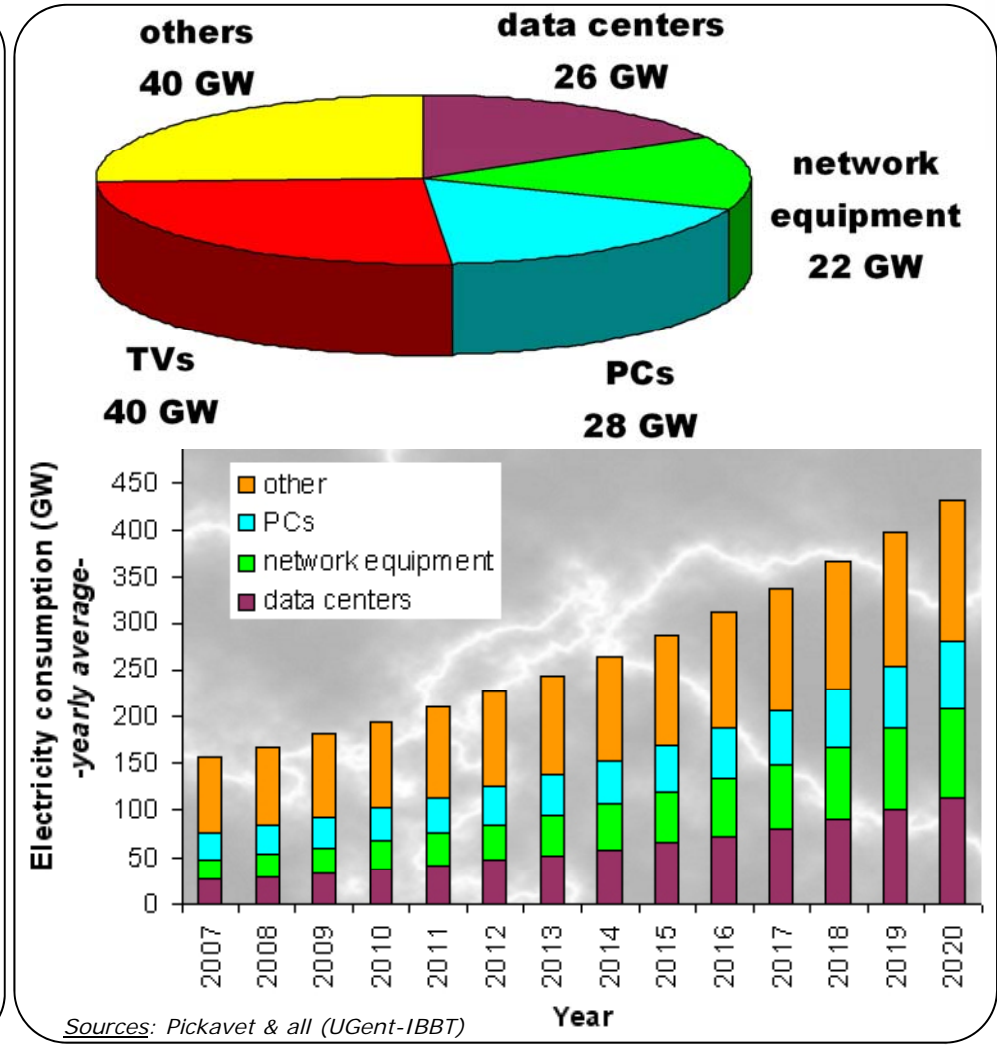
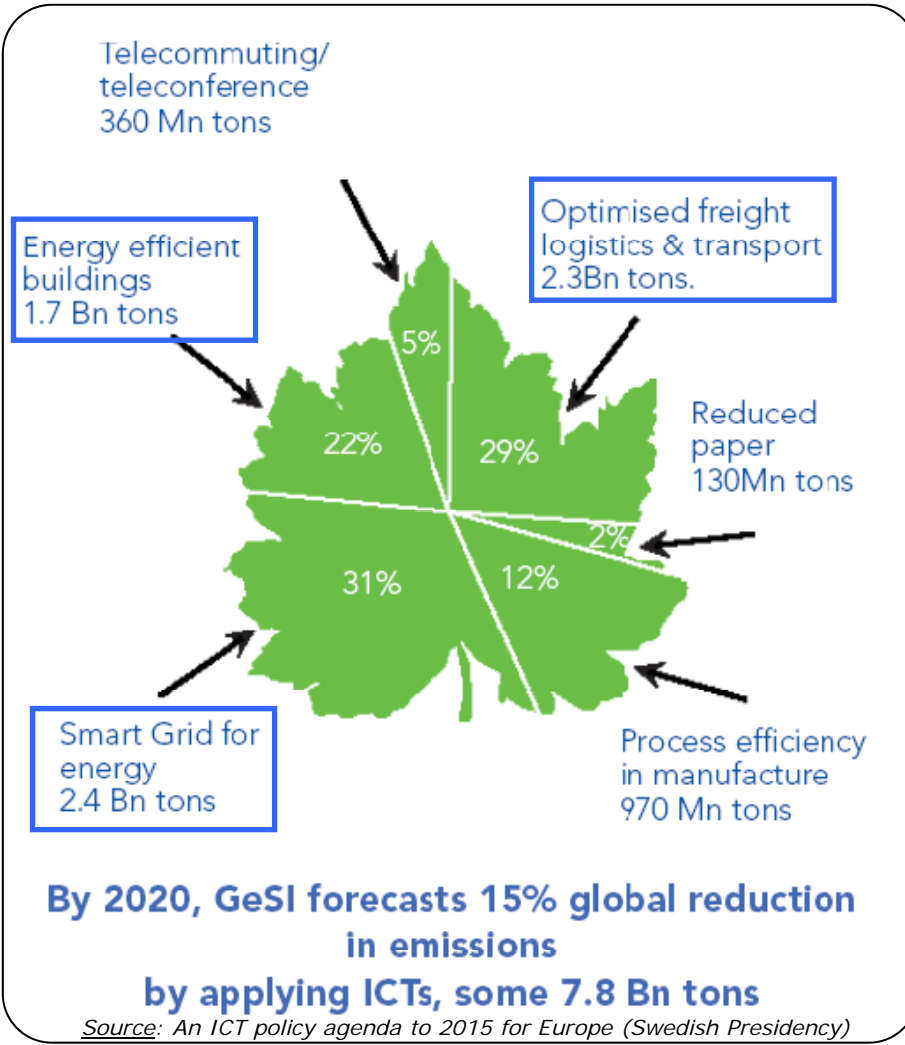


# Energy Reductions enabled by ICT



# Energy Consumption of ICT solutions

~8% of total electricity consumption  
~15% by 2020



# The Net Balance: ~15% potential emission reduction (GtCO<sub>2</sub>e)



## A) 'Greening' ICT

### **Energy Efficient ICT Applications**

*(Intelligent Transport Systems, Public Services, Health...)*

### **Energy Efficient ICT Systems**

*(Telecom systems, services platforms, multimedia, robotics, embedded systems, enterprise systems, search engines...)*

### **Energy Efficient ICT Components**

*(Photonics, micro-electronics, nano...)*

## B) 'Greening' other Industry Sectors

- Energy demand /energy end-use management through smart-metering
- Buildings & Construction
- Transports & Logistics



# How can ICT *contribute*?

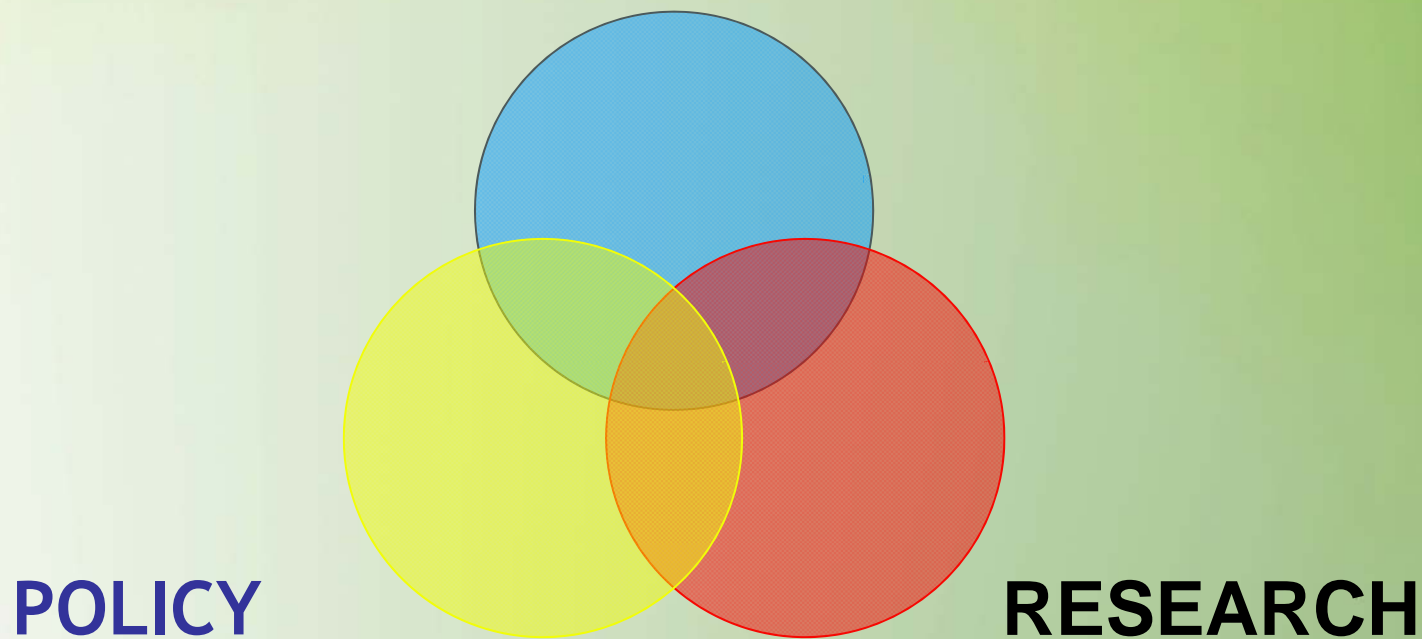
- ICT can bring direct efficiency gains
  - measuring, monitoring, intelligent management and control, etc
- ICT can help drive behavioural change
  - provide reliable data to governments, industries, citizens about energy consumption / carbon emissions





# How to tackle the Challenge?

**REGULATION?**



# Policy Areas

- Energy Efficiency of ICT
- Smart Sustainable Cities
- Energy Efficient Buildings
- Smart Grids
- Water Management



# The Green Digital Charter

- An initiative of Manchester City, Eurocities and the Commission launched in November 2009
- The signatory Mayors commit to
  - Deploy 5 large scale projects before 2015
  - Decrease ICT direct carbon footprint by 30% by 2010
  - Create partnerships on ICT and energy consuming sectors by 2011
- Signatories: Amsterdam, Belfast, Birmingham, Bologna, Bristol, Genoa, Ghent, The Hague, Helsinki, Lisbon, Malaga, Malmo, Manchester, Murcia, Nantes Métropole, Nice Cote d'Azur, Nuremberg, Reykjavik, Rijeka, Stockholm, Tallinn, Vienna and Zaragoza.



# The Green Digital Charter (2)

- Aims at:
  - Reducing own ICT footprint (notably data centres)
  - Increase the use of renewables
  - Improve measurability, transparency and visibility of emissions and energy use
  - Improve transport and urban mobility
  - Deploy smart grids with particular attentions to micro-grids and virtual power plants

[http://ec.europa.eu/information\\_society/events/ict4ee/2010/charter/index\\_en.htm](http://ec.europa.eu/information_society/events/ict4ee/2010/charter/index_en.htm)





# NiCE project

- To promote and advance implementation of the commitments of the Green Digital Charter (GDC).
  - (1) Will develop a common framework, tools, and information resources for classifying, measuring, reporting
  - (2) Will develop targeted exchange and learning activities with experts and other signatory cities with a view to triggering implementation.
  - (3) Will increase the number of signatories and showcase, including a special focus on engaging with Chinese cities currently developing similar initiatives

**Duration : 01/09/2011 - 28/02/2014**

**Total Cost 1 147 158 €, Contribution 998 000 €**



# ICT for energy efficient buildings PPP

## The 4 years strategy

### call 2010

Buildings

5 STREPs- 15M€

ICT 4 E2B Forum

### Call 2011

Buildings and public  
Surrounding spaces

7 STREPs - 20M€

### Call 2012

Neighbourhoods

30M€

### Call 2013

Extended  
urban/rural areas?  
Smart cities?



Objective EEB-ICT-2011-6.5  
ICT for Energy-positive neighbourhoods  
call FP7-2012-NMP-ENV-ENERGY-ICT-EeB

SHALL

Target Outcomes

➤ Management and control systems

and / or

➤ Decision support systems

To achieve energy-positive neighbourhoods  
and/or energy-positive extended urban/rural  
communities



# Objective EEB-ICT-2011-6.5

## ICT for Energy-positive neighbourhoods

call FP7-2012-NMP-ENV-ENERGY-ICT-EeB

Proposals **Have to** Include

- Systems Integration
- A substantial validation Phase
  - Record evidence of benefits
  - Total cost of operation
  - Scalability potential
  - User benefits

Consortia **MUST** be compact



# Objective EEB-ICT-2011-6.5

## ICT for Energy-positive neighbourhoods

- **Funding schemes: STREP**
- **Indicative budget distribution:**
  - **STREP: EUR 30 million**
- **Call: FP7-2012-NMP-ENV-ENERGY-ICT-EeB**
- **Date of publication: 20th July 2011**
- **Call deadline: 01/12/2011**





# Objective ICT-2011.6.1 Smart Energy Grids

Call: FP7-ICT-2011-8

- **Targeted Outcome: ICT systems to assist in the management of the **electricity distribution grids** in an optimized, controlled and secure manner.**

**STREPS**

- a) **Strengthening the distribution grid by providing control systems, management and decision support tools that enable the **integration of renewable energy sources.****

**STREPS**

- b) **Advancing **security and reliability**, as well as protection of equipment, fault detection and alert, and self-healing through development of high power electronics.**



# Objective ICT-2011.6.1 Smart energy Grids

Call: FP7-ICT-2011-8

STREPs

- c) Data management infrastructures to allow **electricity production and consumption to be measured, reported and controlled.**
- d) Home energy controlling hubs that will collect real-time or near real time data on energy consumption data from smart household appliances and enable intelligent automation.
- e) Building consensus on **industry-driven open standards** to ensure the interoperability of smart grids control and management systems.

STREPs

STREP: EUR 29 millions  
CSA: EUR 1 million

CSA



# Objective ICT-2011-6.3 ICT for Efficient Water Resources Management

Call: FP7-ICT-2011-8

## Objective

**Integrate real-time knowledge on demand and supply across water distribution networks and water sources.**

***Partnerships between ICT equipment providers, software companies and water authorities.***

**Budget allocation: 15 M €**

## Target Outcome

**ICT-enabled solutions for Integrated Water Resources Management (IWRM), involving as key building blocks:**

- *Innovative demand management systems,*
- *Decision support systems,*
- *Data management technologies*

**STREPS**



# Related calls

## Administrative details

**December 2011 !**

➤ **Call deadline: 01/12/2011**

EEB-ICT-2011-6.5 ICT for Energy-positive neighborhoods

GC-ICT-2011-6.8 ICT for the Fully Electric Vehicle

➤ **Call deadline: 17/01/2012**

ICT-2011.6.1 Smart Energy Grids

ICT-2011-6.3 ICT for Efficient Water Resources Management

ICT-2011-6.7 Cooperative Systems for energy efficient and sustainable mobility

**January 2012 !**

➤ **Indicative budget distribution:**

ICT-2011.6.1 29M€ + 1M€ for CSA

ICT-2011-6.3 15M€

EEB-ICT-2011-6.5 30M€

ICT-2011-6.7 37M€ + 3M€ for CSA

GC-ICT-2011-6.8 29M€ + 1M€ for CSA



# Interoperability



A semantic Web approach

## Energy Efficiency Data Models

Clusters / stakeholders:

- Green Building Information Modelling
- Energy and Behavioural Modelling at Facility Management
- Heterogeneous Physical Devices
- Energy using or producing Products
- Micro Energy Trade

## 2nd Workshop on eeBuildings Data Models

CIB W078 - W102, 26-28 October 2011

Sophia Antipolis - France

<http://2011-cibw078-w102.cstb.fr>

EE Data Models **collaboration space**:

<http://forum.ict4e2b.eu:8080/share/page/site/eedatamodels/dashboard>

To visit the space as a visitor use:

Username: visitor\_eedatamodels

Password: ict4e2b

To register as a contributor send an e-mail to [info-ictforsg@ec.europa.eu](mailto:info-ictforsg@ec.europa.eu)





**Thank you for your attention!**

