



ICT for Sustainable Smart Cities and Communities

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Smart Cities and Sustainability
Communication Networks, Content and Technology
European Commission

Green Digital Charter Roadshow – Smart Cities Exhibition 2012

Bologna 31st October 2012



EU Policy

*Europe 2020: Smart, Sustainable and inclusive Growth
(Adopted by the Commission on March 2010)*

Confirmation of three 20% targets:

- *A reduction in EU greenhouse gas emissions of at least 20% below 1990 levels*
- *20% of EU energy consumption to come from renewable resources*
- *A 20% reduction in primary energy use compared with projected levels, to be achieved by improving energy efficiency.*



EU Policy

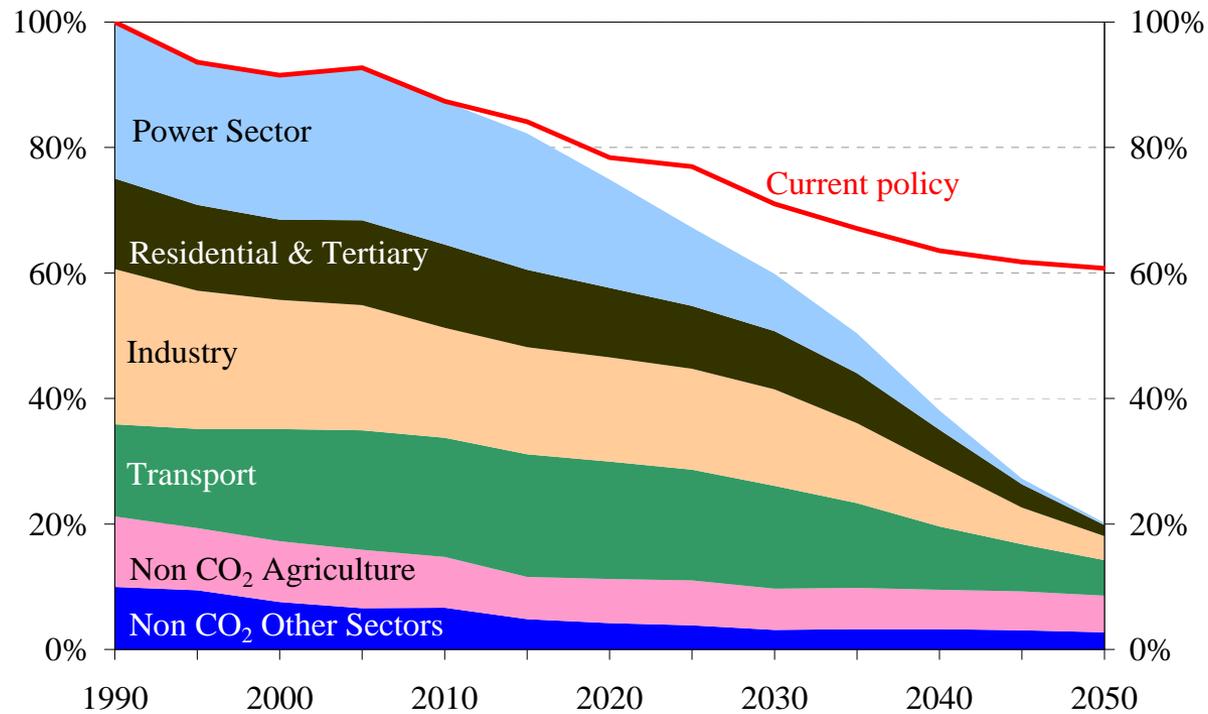
*A Roadmap for moving to a competitive low carbon economy in 2050
(adopted by the Commission on March 2011)*

Reducing GHG emissions by 80-95% by 2050 compared to 1990.

Two examples of Intermediate targets for 2030:

- The power sector reduces its carbon footprint between 54 to 68%*
- The residential and services reduces its carbon footprint between 37 to 53%*

EU GHG emissions towards an 80% reduction (100% = 1990) by 2050





Policy: How can IT

and Telecommunications *contribute?*

- *ICT can bring about direct efficiency gains and can help drive behavioural change:*
 - *measuring, monitoring, intelligent management and control,*
 - *providing reliable data to governments, industries, citizens about energy consumption / carbon emissions*
 - *Substituting physical products by virtual services*

- *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*
 - *Building parallel telecommunication networks infra-exploited*

Energy Reductions enabled by ICT



Energy Consumption of ICT solutions

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

Telecommuting/
teleconference
360 Mn tons

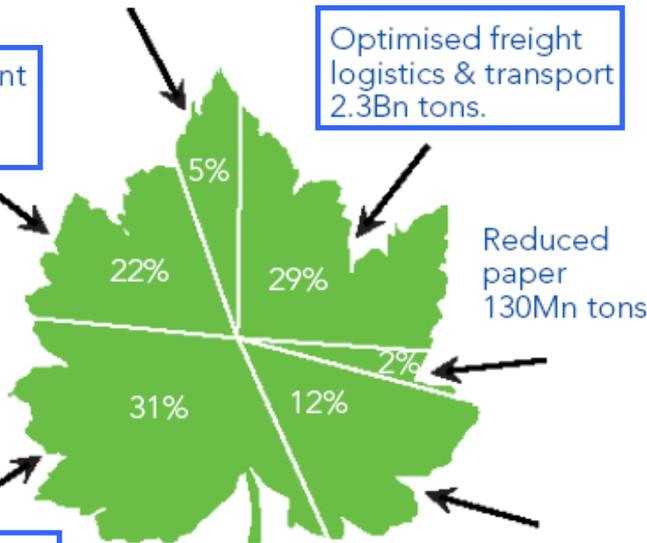
Energy efficient
buildings
1.7 Bn tons

Optimised freight
logistics & transport
2.3Bn tons.

Reduced paper
130Mn tons

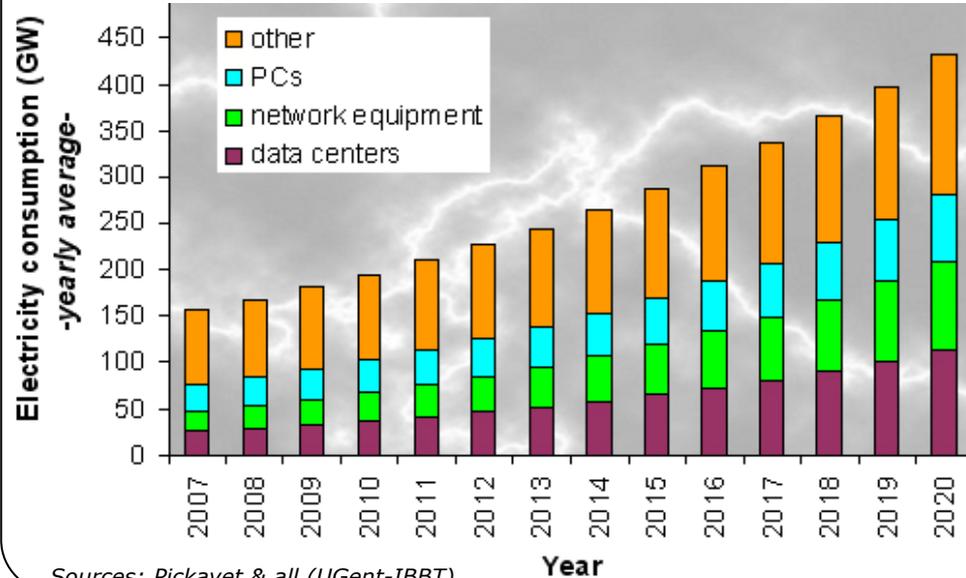
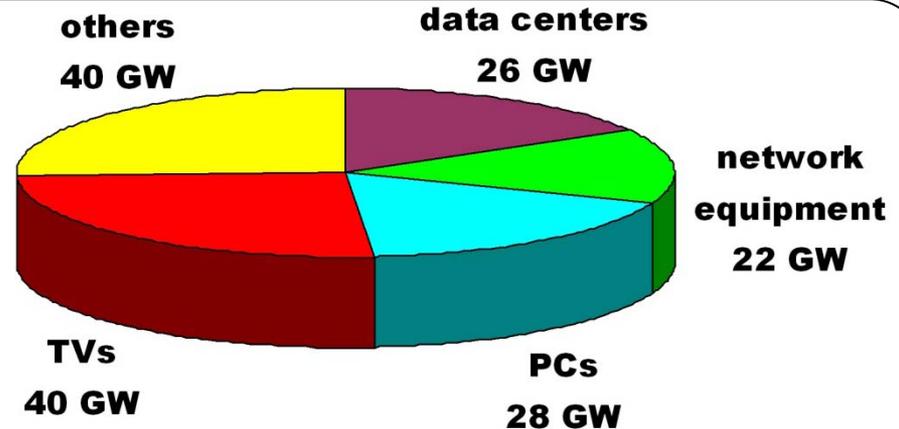
Process efficiency
in manufacture
970 Mn tons

Smart Grid for
energy
2.4 Bn tons



By 2020, GeSI forecasts 15% global reduction in emissions
by applying ICTs, some 7.8 Bn tons

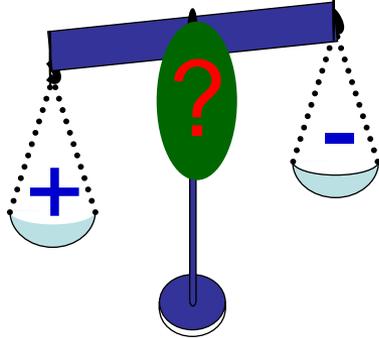
Source: An ICT policy agenda to 2015 for Europe (Swedish Presidency)



Sources: Pickavet & all (UGent-IBBT)

Towards a Common Methodology: An agreed measurements framework to define environmental KPIs for ICT's impact is a precondition

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 Cities

- Cities' infrastructures cover whole potential of smart green ICT use:
 - Buildings, Neighbourhoods
 - Energy grids
 - Water
 - Transport, Logistics
 - Cities provide sufficient demand to achieve critical mass
- To be able to compare and learn cities require own framework to measure ICT's impact



Synergy Energy – Telecom: Infrastructure

By 2020 all Europeans will have broadband access at least at 30 Mbps and 50% or more Europeans will have it at 100 Mbps.

- It could cost more than 200 B€*
- However, up to 80% of total investment cost are civil engineering works.*

Public Consultation on an EU Initiative to Reduce the Cost of Rolling Out High Speed Communication Infrastructure in Europe.

*- Report available at:
http://ec.europa.eu/information_society/newsroom/cf/dae/itemdetail.cfm?item_id=8868*

- Preparing a legislative proposal: information sharing and mandating access to infrastructures of other utilities (e.g. ducts)



Synergy Energy – Telecom: Infrastructure (2)

EC proposal: Connecting Europe Facility Proposed budget 50B€

Energy – € 9.1bn

Transport – € 21.7bn (+ €10bn)

Telecommunications – € 9.2bn

The Telecommunications has two parts:

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

The provision of Smart Energy Services to manage energy demand, energy resources and storage capacity with the aim of improving efficiency.

<https://ec.europa.eu/digital-agenda/en/connecting-europe-facility>



End-to-end systems for Socio-economic goals

*ICT
Theme*

	Digital Libraries and Content	Sustainable & personalised healthcare	ICT for Mobility, Sustainable growth	ICT for independent living and inclusion
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Technology roadblocks

Pervasive & trusted Network and service infrastructures				
Cognitive systems, Interaction, robotics				
Components, systems engineering				

Future and Emerging Technologies



For WP2013 focus on three Areas:

Smart Grid

Focus on Distribution:
18M€

From 18/9/12 to 16/4/13

Smart Cities

Joint call CONNECT,
ENER, RTD

95 + 90 + 24 M€

From 10/7/12 to 4/12/12

Mobility

Cooperative
mobility: 25M€

From 4/7/12 to 15/1/13

Electro-mobility 40M€

From 10/7/12 to 4/12/12



Smart cities: Joint Call between ENER, CONNECT and RTD

CONNECT

Internet of things 20M€

Optimising energy 40M€

Data Centres 20M€

Integrated personal mobility 15M€

ENER

Demonstration of optimised energy systems 90M€

RTD - 24M€

Planning rules for linking EV to the grid

Interoperability and conformance testing for EV-grid

Integration of renewable energy

From 10/7/12 to 4/12/12

<http://ec.europa.eu/research/participants/portal/page/cooperation?callIdentifier=FP7-SMARTCITIES-2013>



Smart Cities and Communities in Horizon 2020

Commission Communication adopted on 10th July.

- To launch a collection of "lighthouse projects" to validate in cities innovative solutions at the convergence of transport, ICT and energy.*
- and a set of horizontal actions to foster cross project cooperation on, for instance, standardisation or measurement methodologies*
- projects will start in 2014*

Now:

- High Level Group and Stakeholders Platform*
- Strategic Innovation Agenda*
- Work Programme 2014*

[http://europa.eu/rapid/press-release IP-12-760 en.htm](http://europa.eu/rapid/press-release_IP-12-760_en.htm)

Thank you for your attention!

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