Global Forum

The Future Is Green

Bucharest, October 20, 2009

Loris Di Pietrantonio
ICT addressing societal challenges
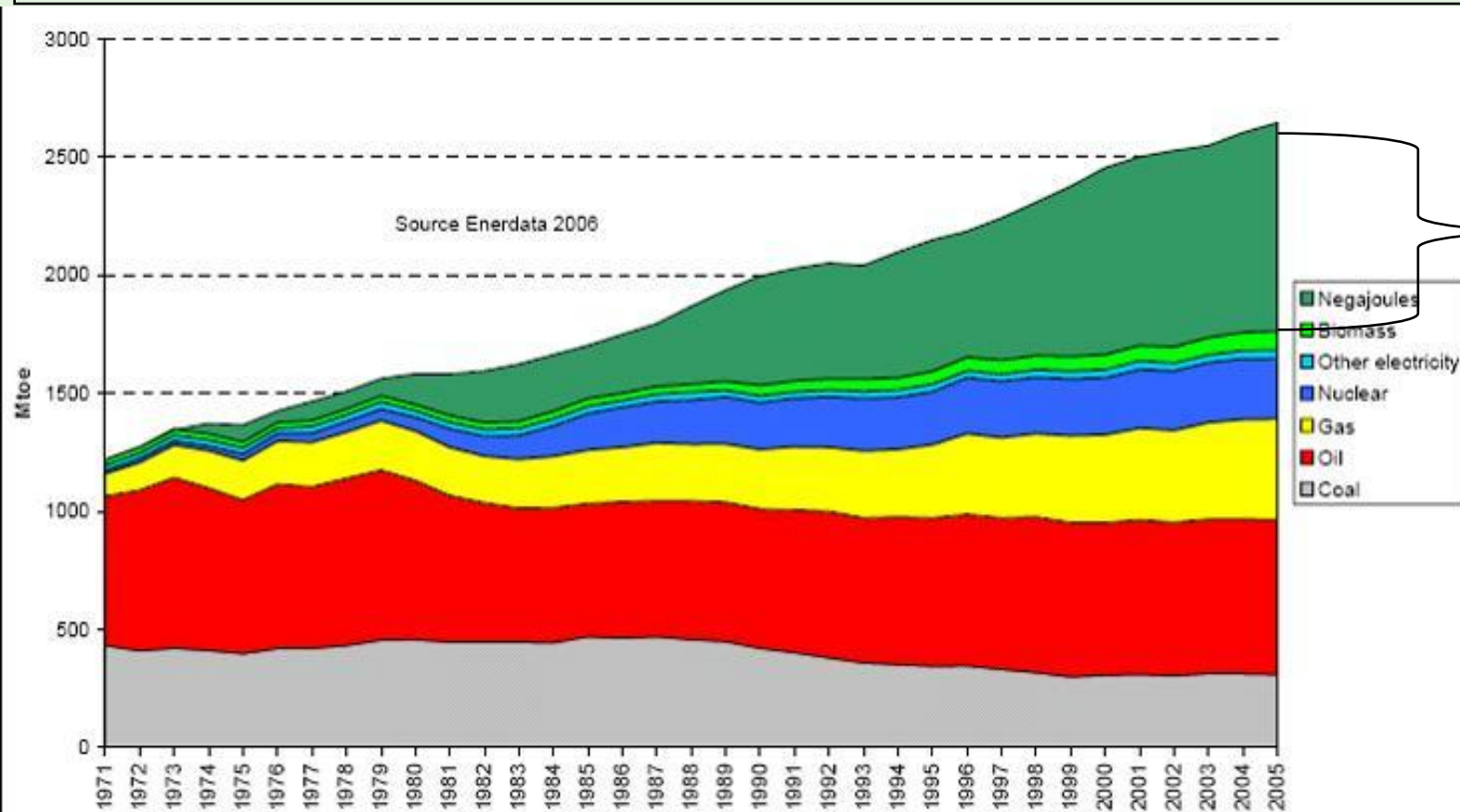**European Commission**
Information Society and Media Directorate-General

Energy-efficiency is, in effect, the fastest, cheapest, and cleanest energy resource

Source Enerdata 2006

Global CO² Emissions

Global CO₂ emission from fuel use and cement production by region

1000 million ton CO₂

International transport

Developing countries
- Other developing countries
- Other big developing countries
- China

Industrialised countries
- Other Economies In Transition (EIT)
- Russian Federation
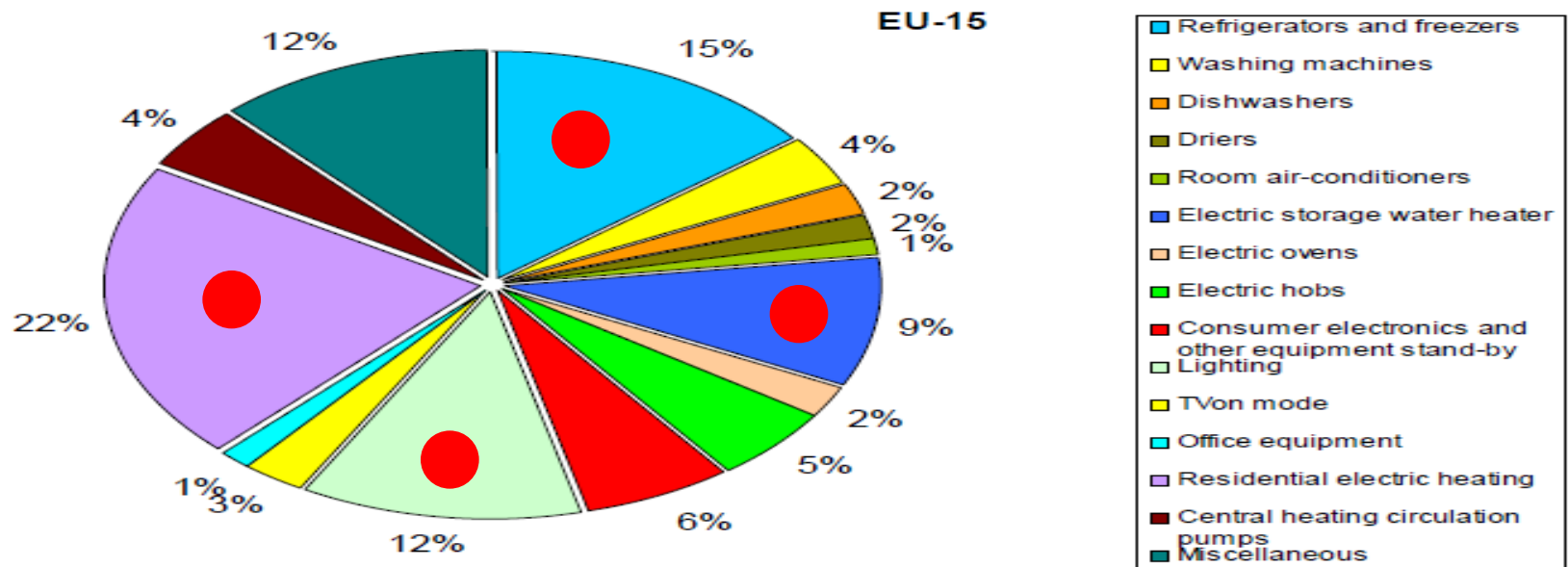- Other OECD'90 countries
- Japan
- EU-15
- USA
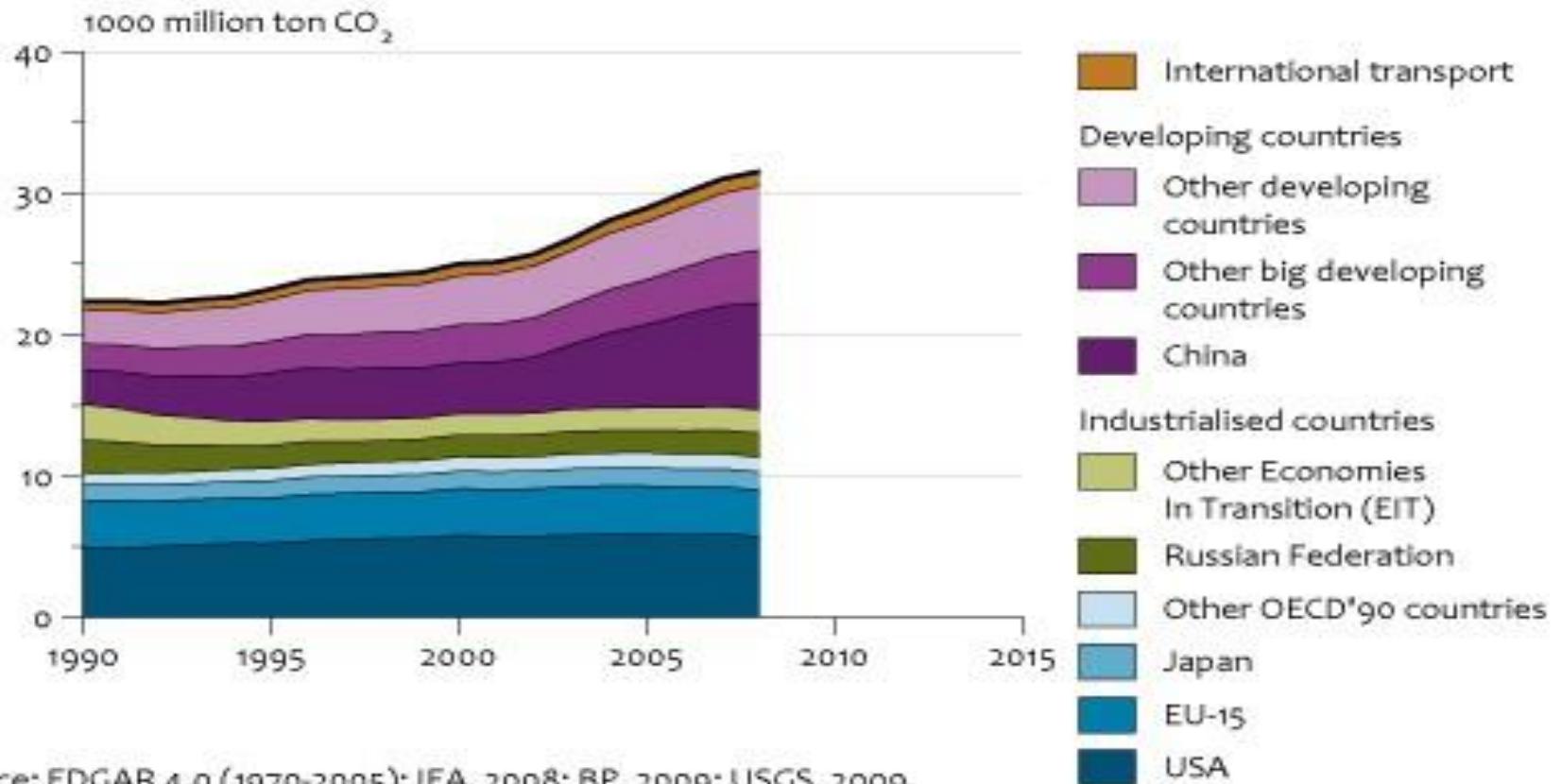
Source: EDGAR 4.0 (1970-2005); IEA, 2008; BP, 2009; USGS, 2009, WSA, 2009, GGFR, 2008.

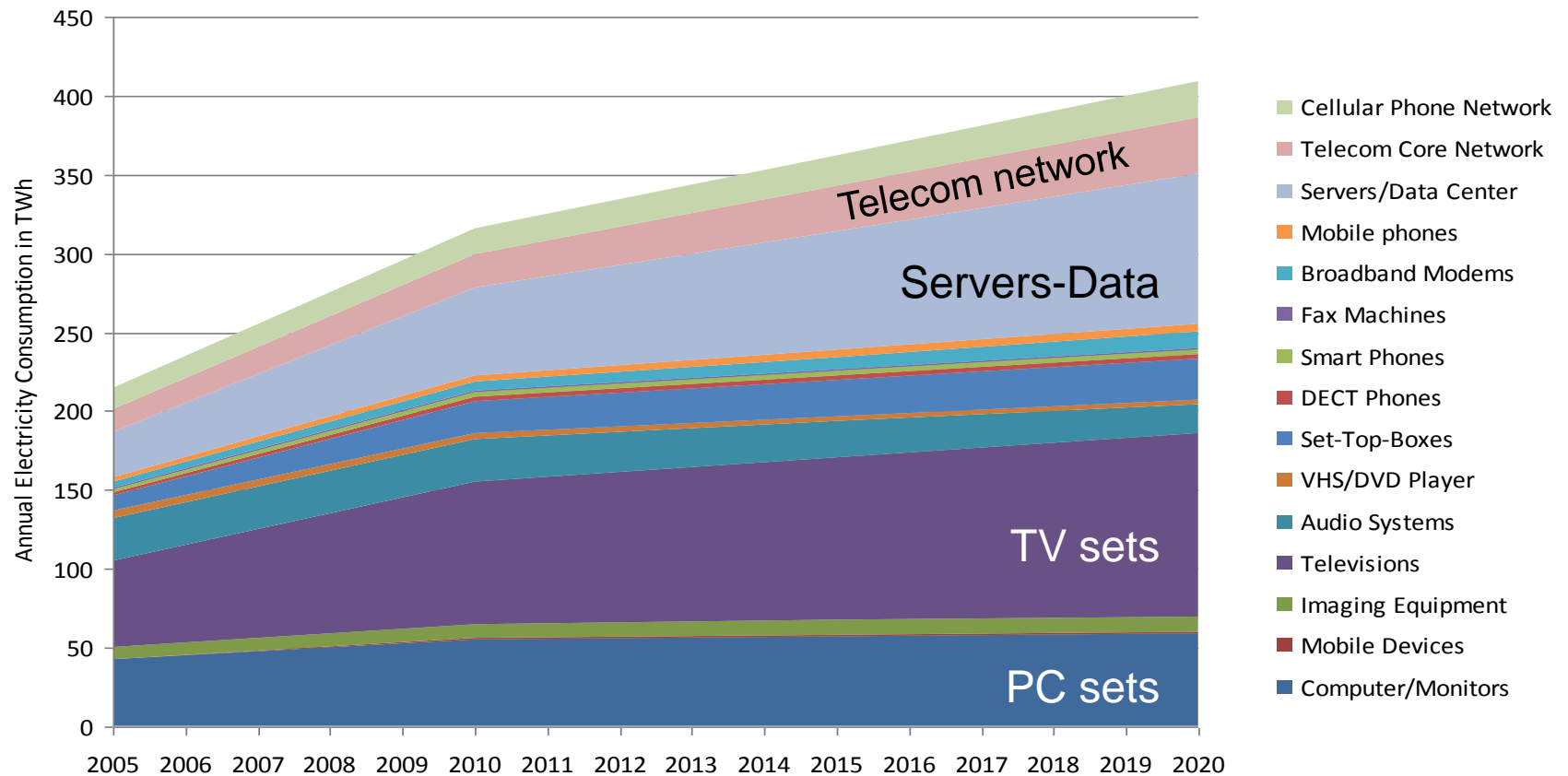www.pbl.nl/en

The potential of ICT

ICT **saving up to 15%** of total energy use by 2020

- heating and lighting
- efficient power grids
- supply-chains
- transport logistics
- manufacturing

EU-15

Pie chart percentages: 15%, 4%, 2%, 2%, 1%, 9%, 2%, 5%, 6%, 12%, 3%, 1%, 22%, 4%, 12%

Legend:
- Refrigerators and freezers
- Washing machines
- Dishwashers
- Driers
- Room air-conditioners
- Electric storage water heater
- Electric ovens
- Electric hobs
- Consumer electronics and other equipment stand-by
- Lighting
- TVon mode
- Office equipment
- Residential electric heating
- Central heating circulation pumps
- Miscellaneous

Energy Efficient ICT

BAU Scenario Annual Electricity Consumption of ICT (in TWh/a)

Legend (top to bottom):
- Cellular Phone Network
- Telecom Core Network
- Servers/Data Center
- Mobile phones
- Broadband Modems
- Fax Machines
- Smart Phones
- DECT Phones
- Set-Top-Boxes
- VHS/DVD Player
- Audio Systems
- Televisions
- Imaging Equipment
- Mobile Devices
- Computer/Monitors

Chart labels: Telecom network, Servers-Data, TV sets, PC sets

Y-axis: Annual Electricity Consumption in TWh (0, 50, 100, 150, 200, 250, 300, 350, 400, 450)

X-axis: 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
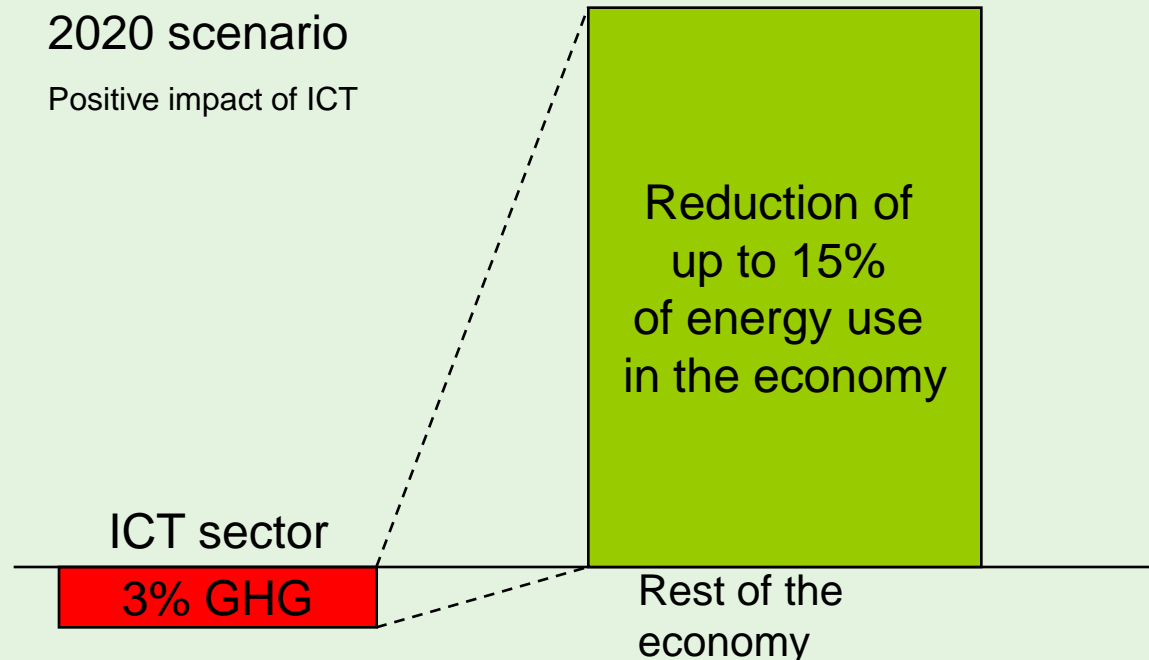
Energy Efficiency for ICT (EE4ICT)

- Energy use by ICT equipment and services
  - 8% of electrical power in the EU
  - 2% of green-house gas emissions
- Proportion of energy used by ICT expected to grow to over 10% of total electrical power consumption by 2020
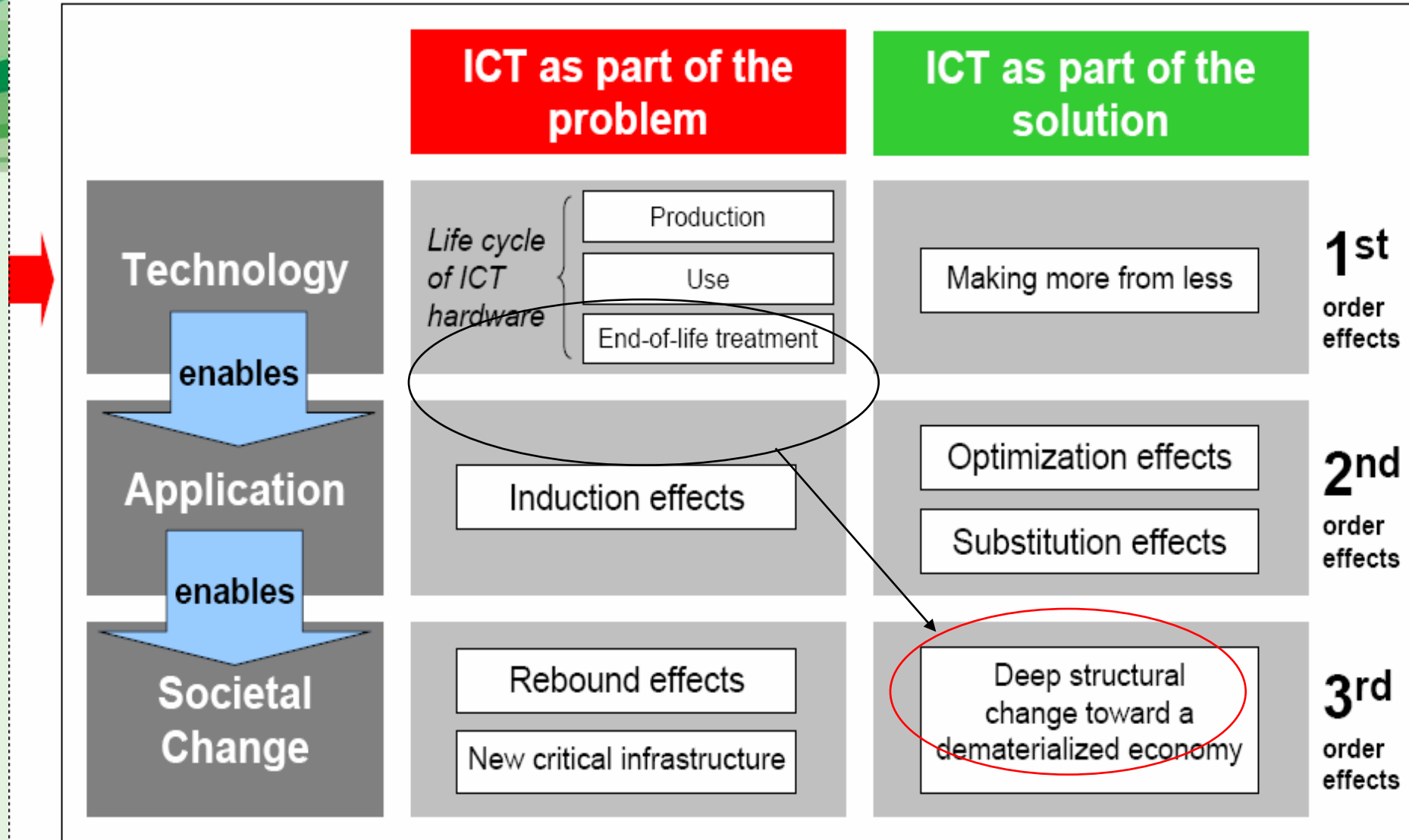- ICT expected to account for 3% of total greenhouse gas (GH) emissions by 2020

- Mobile telephones have become 100-times more energy-efficient
- Base stations have become 70% more EE in last 7 years
- Stand-by power of TV has been cut from 6W in 1995, to 2.5W in 2007

Enabling role of ICT4EE

- By 2020, improvements enabled by ICT can help save 15% of the total energy used and carbon emitted by human activity world-wide
- These savings amount to five to ten times the total environmental impact of the ICT sector

2020 scenario

Positive impact of ICT

Reduction of
up to 15%
of energy use
in the economy

ICT sector

3% GHG

Rest of the
economy

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	ICT as part of the problem	ICT as part of the solution	
Technology	*Life cycle of ICT hardware* { Production / Use / End-of-life treatment }	Making more from less	**1st** order effects
enables ↓			
Application	Induction effects	Optimization effects / Substitution effects	**2nd** order effects
enables ↓			
Societal Change	Rebound effects / New critical infrastructure	Deep structural change toward a dematerialized economy	**3rd** order effects

Source: Information Technology and Sustainability - Essays on the Relationship between ICT and Sustainable Development, Hilty 2008

- ICT for a **systemic solution**
- Addressing **demand side**

Commission initiatives in ICT4EE

- Energy-efficiency Action Plan (October 2006), endorsed at the European Council in March 2007

  - The objective is to reduce the actual energy consumed by the EU in 2020 by 20% compared to current projections

- Commission Communication on "Addressing the challenge of energy efficiency through Information and Communication Technologies" (May 2008)

  - Recognising the potential of ICT as cost- effective means for EE

- Commission Communication highlighting the role of key stakeholders (March 2009)

- **Launch of the Public Private Partnership (PPP) on energy efficiency buildings** - €1000 million

- **Recommendation** on *"Mobilising Information and Communications Technologies to facilitate the transition to an energy-efficient, low-carbon economy"* – 9 October 2009

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Challenges addressed

- Absence of **commonly agreed measurement**, quantification and management methodologies and tools, particularly for complex systems
  - Risk of green-washing
- **Investment problem**: energy savings linked to cost-intensive investments in ICT equipment.
- **Interoperability and standardisation** issues, slow innovation adoption: "early adopter" vs. common specifications
- **Skills gaps** and the fear of single supplier
- Absence of **cross-sectoral partnerships**
- Lack of **awareness** and visibility of information

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- **ICT sector should make a collective effort to reduce its own footprint**

- **Agree on common ways of measuring energy and carbon footprints**
  - **Adopt the first common measurability framework by 2010**
  - **Adopt targets for EE that exceed the EU 2020 targets, already by 2015**

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Recommendation – Member States

- Deploy (*bi-directional) **smart-metering**
- Expand use of ICT to improve the evidence–base for policy making
- **Public procurement** of greener ICT
- **Energy-simulation and modelling** to be included in the education and training of professionals
- Encouragement to **telecommuting and teleconferencing** (availability of broadband)
- Engage all relevant stakeholders in **large-scale pilot implementations** of smart metering and smart grids.
- Open digital platforms that will facilitate an **integrated approaches** to urban planning and public service delivery across Europe

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Thank you for your attention

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ICT addressing societal challenges

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