

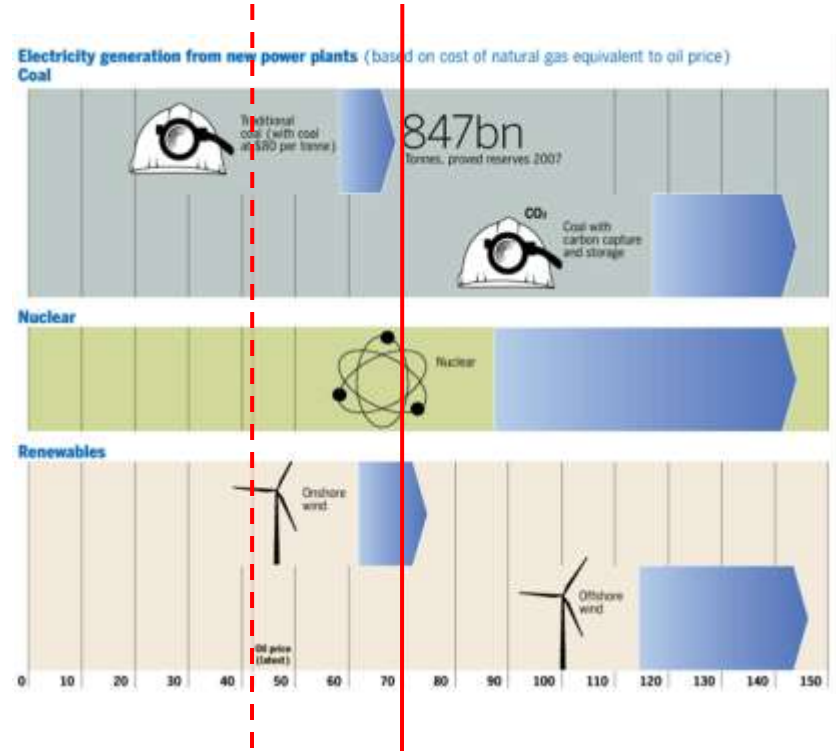
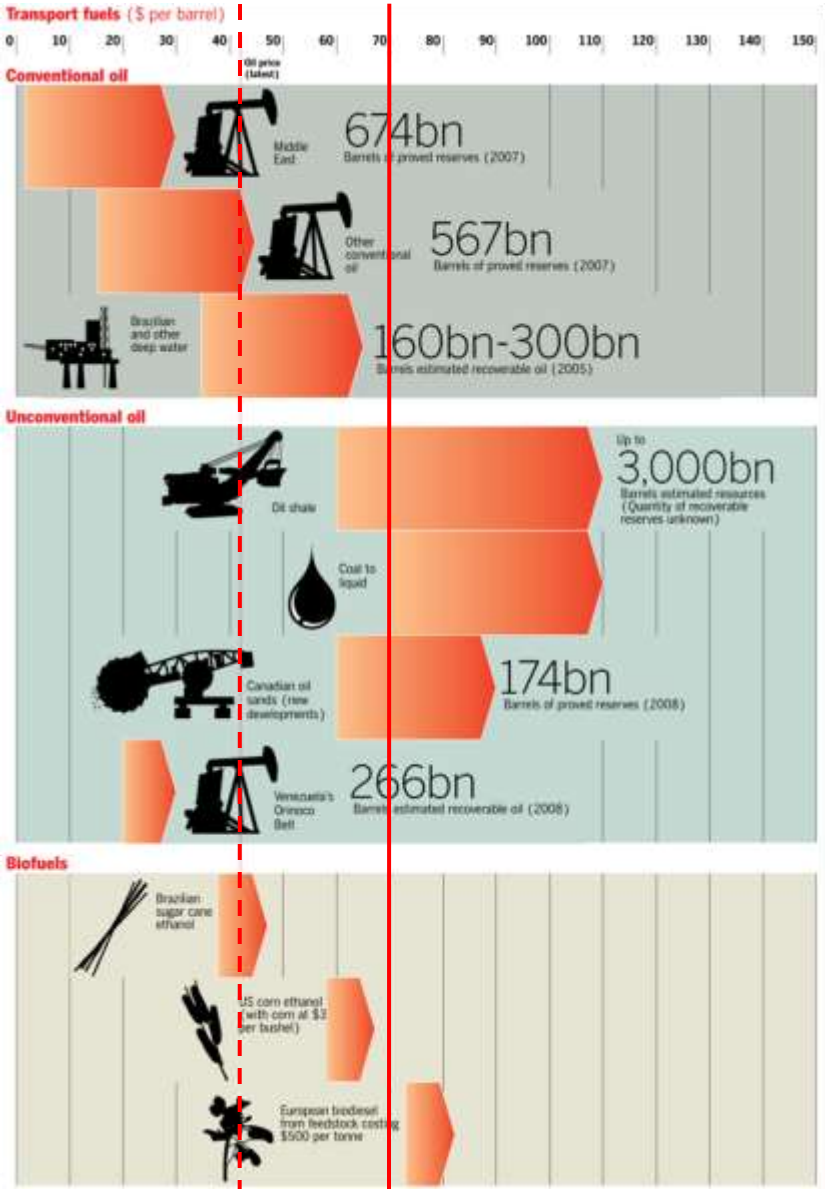
# Information Society Conference Tallinn 2010



## **Green ICT strategies: Where are we now and where do we go next?**

**Graham Vickery, OECD**  
17 March 2010

# The challenge: most alternative energy is uneconomic at recent oil prices



- - - : Oil price December 2008

— : Oil price June 2009

Width of the bars: The range of variation in costs

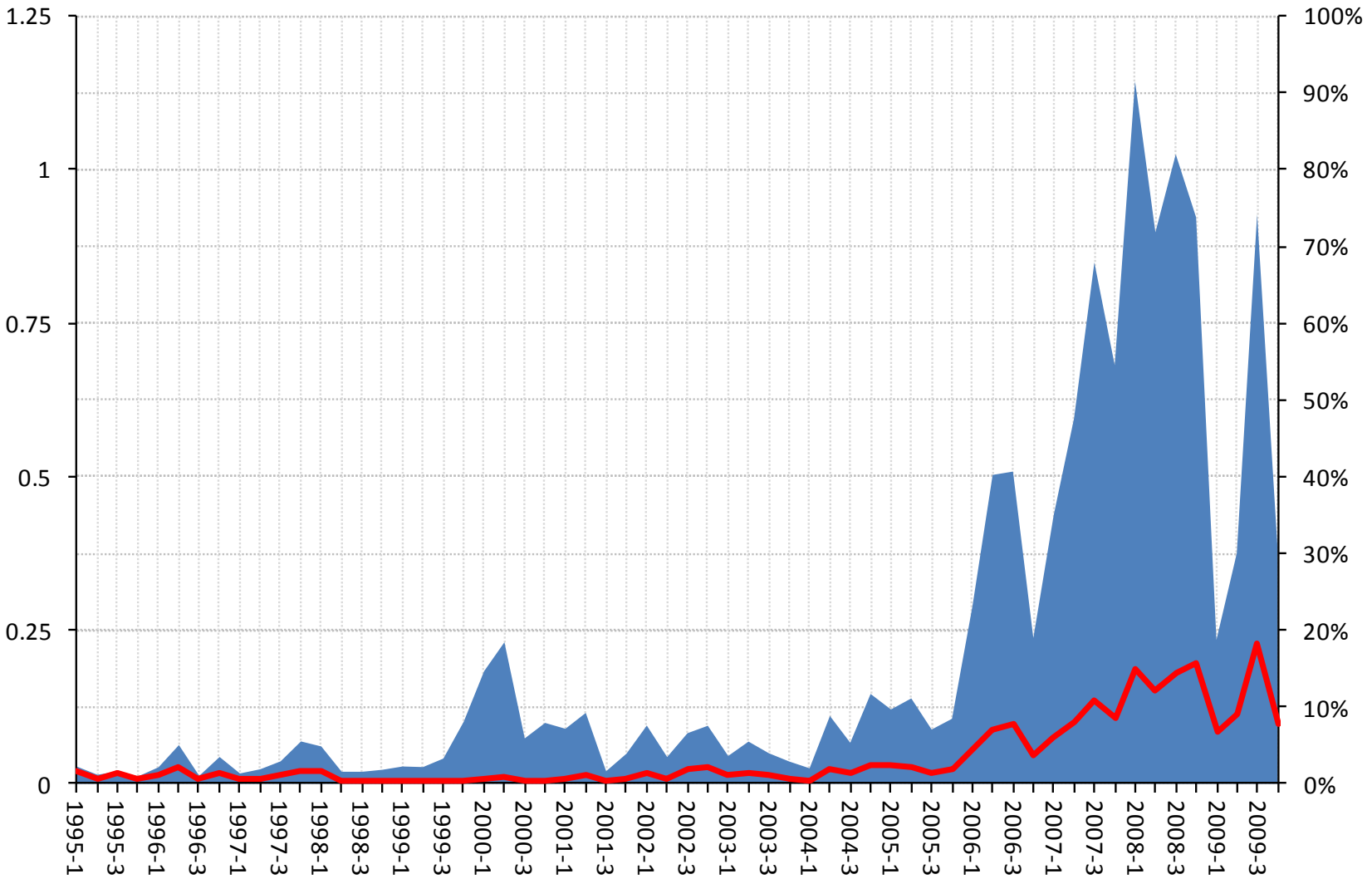
**Sources:** Cambridge Energy Research Associates; IHS Herold; International Energy Agency; Wood Mackenzie; industry estimates; FT calculations

Crooks (2008), Over a barrel, Financial Times, 21 December.

# Venture capital in clean technology fluctuating

Alternative energy, pollution and recycling, power supplies and conservation

■ Amount of Clean Technology VC investments (billion USD)  
— % of Clean Technology VC Investments on Total

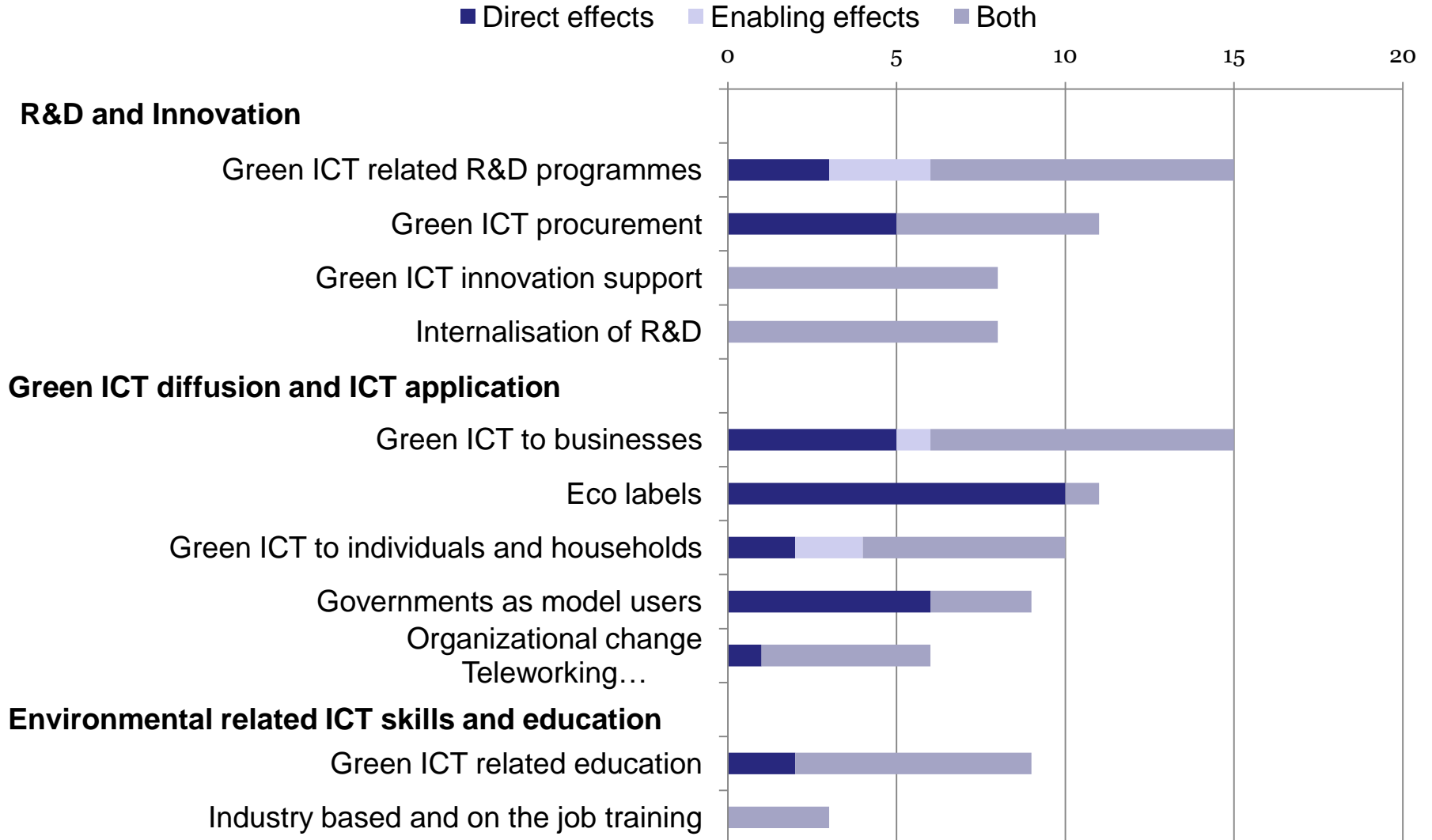


# Government and industry: Reviewing 92 government programmes and industry initiatives in 2009

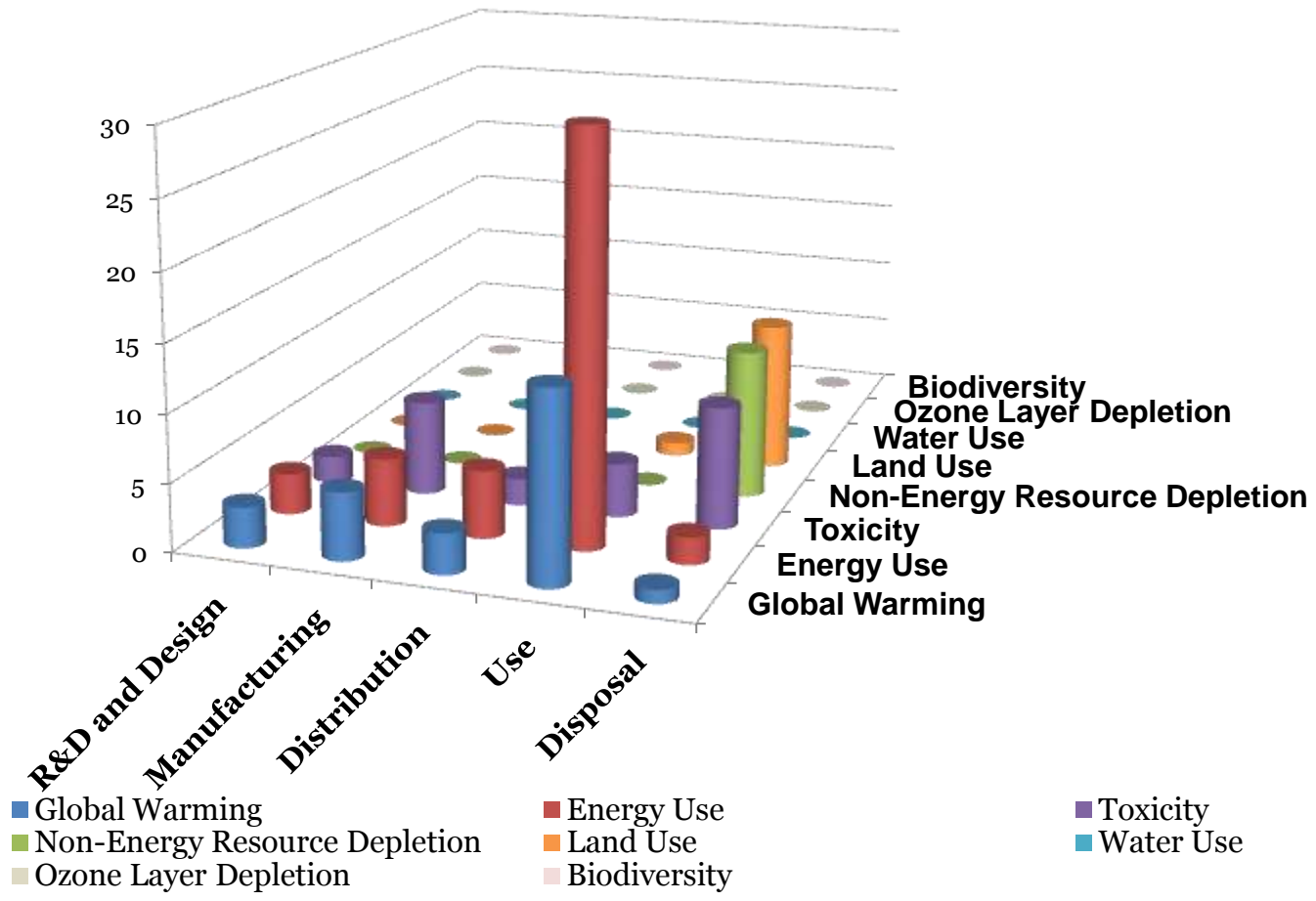
- Programmes and initiatives classified by:
  - **Type of effect:**
    - direct effects* of ICTs (first order effects)
    - enabling effects* through ICT applications (second order effects).
  - **Environmental impact areas:**
    - Global Warming, Energy Use, Toxicity, Resource Depletion, Land Use, Water Use, Ozone Layer Depletion, Biodiversity.*
  - **Life cycle phases:**
    - R&D and Design, Manufacturing, Distribution, Use, Disposal*

# Government policies & programmes

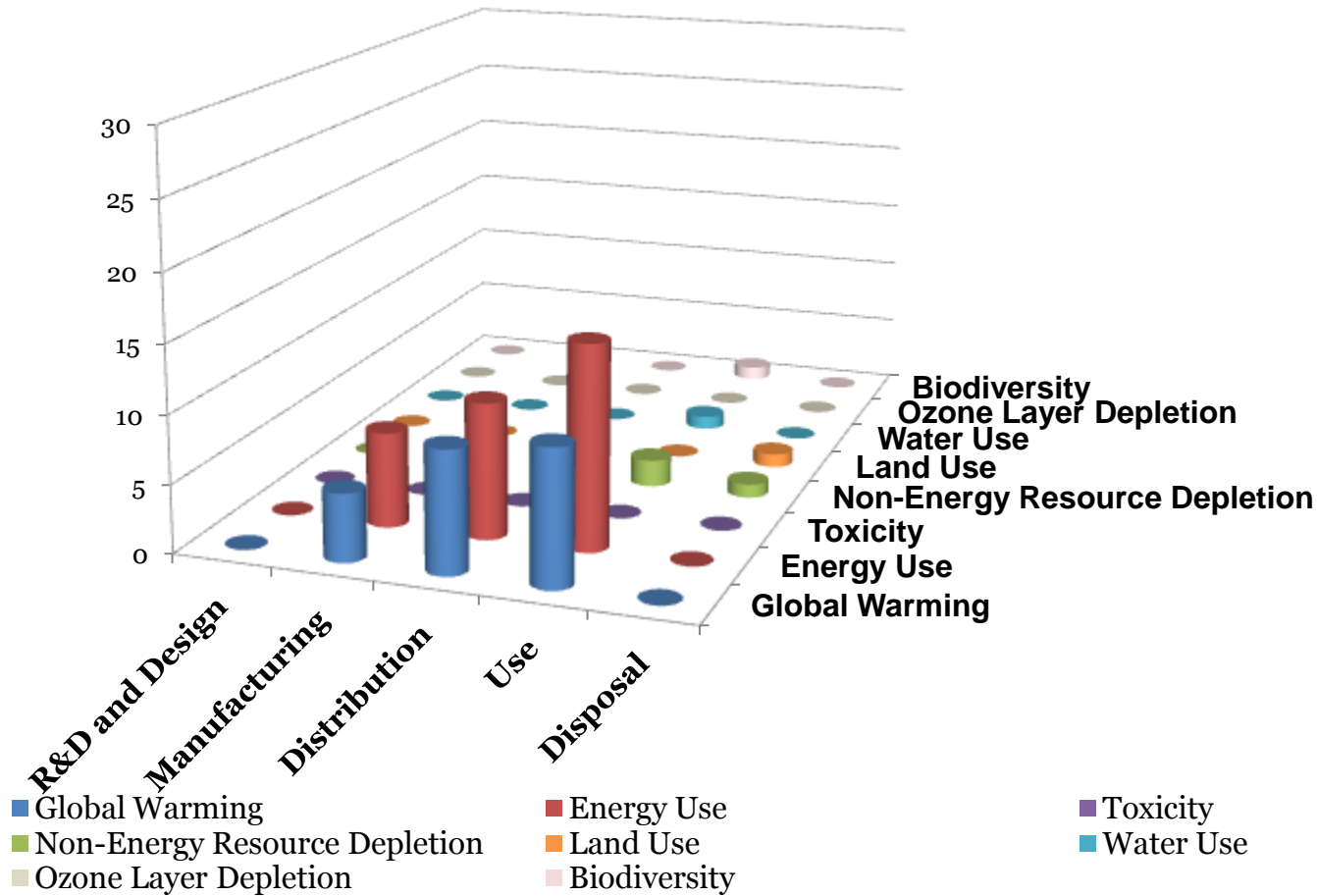
Organised by broad policy areas



# Focus areas of government initiatives targeting **direct** effects



# Focus areas of government initiatives targeting **enabling** effects



# Focus areas of government initiatives targeting direct effects

Focus Areas	All	EU <sup>1</sup>	Japan <sup>2</sup>	Korea <sup>3</sup>	United States <sup>4</sup>
Energy Consumption during ICT usage	High	14	3	4	3
CO2 emission during ICT usage	Medium	5	3	2	2
Toxicity of ICT disposal	Medium	5	0	0	0
Non-Energy Resource Depletion / Recycling ICT equipment	Medium	7	1	1	0
Land Use of ICT disposal	Medium	7	1	1	0
Toxicity of ICT manufacturing	Medium	4	0	0	0
Energy Consumption during ICT manufacturing	Low	2	0	0	1
CO2 emission during ICT manufacturing	Low	1	1	0	1
Energy Consumption during ICT distribution	Low	2	1	0	0

Source: OECD. *Towards Green ICT Strategies*, 2009. **All** includes all the 50 government initiatives. **Low**: if below 10%, **Medium**, if above or equal to 10% but below 30%, and **High**, if above or equal to 30%.

- 1) 26 government initiatives in the EU (Belgium, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Norway, Portugal, Slovak Republic, Sweden, United Kingdom, EC),
- 2) 3 government initiatives in Japan,
- 3) 4 government initiatives in Korea,
- 4) 4 government initiatives in the United States

# Focus areas of government initiatives targeting enabling effects

Focus Areas	All	EU <sup>1</sup>	Japan <sup>2</sup>	Korea <sup>3</sup>	United States <sup>4</sup>
Energy consumption during usage of goods	High	8	3	2	1
CO2 emission during usage of goods	Medium	4	3	1	1
Energy consumption during distribution of goods	Medium	7	2	1	0
CO2 emission during distribution of goods	Medium	6	2	1	0
Energy consumption during manufacturing of goods	Medium	5	0	0	0
CO2 emission during manufacturing of goods	Low	3	0	0	0
Non-energy resource depletion during usage of goods	Low	1	0	0	0
Water consumption during usage of goods	Low	1	0	0	0
Non-Energy resource depletion / recycling	Low	1	0	0	0

Source: OECD, *Towards Green ICT Strategies*, 2009. **All** includes all the 50 government initiatives. **Low**: if below 10%, **Medium**, if above or equal to 10% but below 30%, and **High**, if above or equal to 30%.

- 1) 26 government initiatives in the EU (Belgium, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Norway, Portugal, Slovak Republic, Sweden, United Kingdom, EC),
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# Measurement and evaluation

- Few initiatives have implemented measurable targets for the evaluation of their policies or programmes.
- Governments provide measurable indicators more frequently than industry associations.
- Efforts are being made to develop and promote instruments to measure the quality and impacts of policies and programmes.

# The bigger picture early 2009: Green ICTs in economic recovery packages

- Many OECD economic stimulus packages include investments in Green technologies (16 of 23 OECD countries plus the EC).
- Many plans rely directly or indirectly on ICTs (e.g. “intelligent” transport systems, smart cars, smart buildings, smart electricity systems).
- Many packages have nonfinancial measures:
  - Stricter energy efficiency requirements (sometimes related to public investments) and
  - Setting mandatory energy efficiency targets for production and new infrastructure.

# OECD country policy priorities end-2009

	Policy area	Crisis priority
1.	<b>ICT skills and employment</b>	15
	<b>Broadband diffusion</b>	15
2.	<b>Enabling environmental impacts of ICTs</b>	11
	<b>R&amp;D programmes</b>	11
	<b>Venture finance</b>	11
3.	<b>Technology diffusion to businesses</b>	10
	<b>Innovation networks and clusters</b>	10

*Economic  
recovery  
priorities*

	Policy area	High priority	Increased priority
1.	<b>Security of information systems and networks</b>	23	11
2.	<b>Broadband diffusion</b>	22	10
3.	<b>Government on-line</b>	22	8
4.	<b>ICT R&amp;D programmes</b>	18	11
5.	<b>Innovation networks and clusters</b>	18	8
	<b>Enabling environmental impacts of ICTs</b>	10	16

*Overall  
priorities*

# Green ICTs: International context

- Policies to promote **enabling** environmental impacts
  - Major element of national economic crisis responses
  - Increasing international importance
    - OECD high-level conference, Denmark,
    - EC, ITU, IGF, World Bank activities,
    - OECD Green Growth strategy.
- Policies to limit **direct** environmental impacts
  - Life cycle approaches, government procurement, etc.
  - OECD policy recommendation in process

## ...some examples

- **Enabling** environmental impacts
  - **Smart grids** policy initiatives increasing
    - E-energy (DE), Recovery Act (US), Smart Grid, Smart City (AUS), Smart Metering (NL), ...
  - But also other environmental impacts
    - Water Information Networks and “smart” agricultural irrigation (AUS)
    - National online waste management platform (POR)
  - Cross-discipline R&D needed
    - Research funding for Green ICT+nano+bio (DK)
    - Greener Pearl River Delta (joint HK-Guang Dong research projects)
- **Direct** environmental impacts
  - UK: **Greening government ICT** strategy
  - JP: **Green IT Promotion Council** to exchange sector greening strategies
  - US: Reduction of CO<sub>2</sub> emissions of federal data centres, etc.
  - Green ICT procurement provisions in many OECD countries
  - KOR: “Green cloud computing”

# More information

- ICT, the environment and climate change:
  - [www.oecd.org/sti/ict/green-ict](http://www.oecd.org/sti/ict/green-ict)
- OECD Information Technology Outlook at:
  - [www.oecd.org/sti/ito](http://www.oecd.org/sti/ito)
- ICT industry, ICTs, growth and jobs, digital content:
  - [www.oecd.org/sti/information-economy](http://www.oecd.org/sti/information-economy)