



# The impact of ICT on sustainability : the French experience

PUBLIC SERVICES SUMMIT 2008

CREATING A SUSTAINABLE PUBLIC SECTOR



## Introduction - Content of the presentation



ICT environmental impact in France : estimation of the bad and the good

France's Environment Round Table

Digital Plan 2012 : a plan for the development of a digital economy

Commitments of a "Model State"

Continuous action of the State



## Introduction

- **ARCEP : French Authority for Regulation of Electronic Communications and Postal Services**
- is involved with competition regulation of EC markets, scarce resources management, universal service...
  - Acts within the European Framework applicable to electronic communications
- is, by its missions, not directly involved (yet) in sustainable development policies
  - Does not have any environmental criteria in its decision process
  - Have of course economic missions (competitiveness, employment, investments...)
  - Have also social missions (organization and management of the universal service obligations)
  - Have by national law to consider “interests of territories” (country planning)
- is currently involved with the French Ministry of Ecology and Sustainable Planning and Development (and the Ministry of Finance) in the redaction of a report on “ICT and Sustainable Development”
  - as an expert of the electronic communications sector



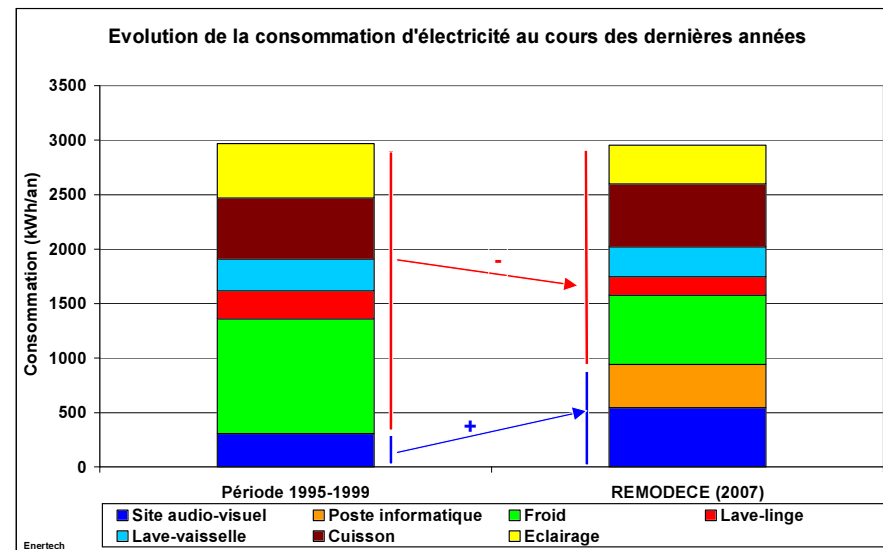
## **ICT environmental impact in France : estimation of the bad and the good**

***The intuition of a positive balance***

# ICT electricity consumption in France

- **ICT represent 12% of the annual electric consumption in France** (total of 453 TWh en 2006).
- 10% growth during the 10 last years
- Residential “specific electricity” (which cannot be replaced by any other energy resources) represent 98,1 TWh in 2006, in which :
  - Audiovisual equipments : 17,1%.
  - Computing equipments : 9%.
  - Standby modes : 10%.

Postes de travail informatiques (PC, écrans, imprimantes) résidentiels	7,1 TWh
Postes de travail informatiques (PC, écrans, imprimantes) professionnels	11 TWh
Serveurs et datacenters	4 TWh
Téléviseurs, magnétoscopes	14 TWh
Téléphones mobiles	0,1 TWh
Autres matériels (télécoms et électronique)	20 TWh



## ICT carbon impact in France

- **A large part of CO2 emissions results from electricity usage involved in production process and usage of ICT.**
  - In France, a MWh corresponds to an emission of 84 kg of CO<sub>2</sub> (nuclear production), world average being at 500kg.
- **In France, ICT represent around 5% of global emissions** (554 millions of tones/year), with 3% relative to professional activities.

	Empreinte production (ramenée à l'année) MtCO <sup>2</sup>	Empreinte usage MtCO <sup>2</sup> (TWh)	Total MtCO <sup>2</sup>
Postes travail résidentiels	3,24	0,6 (7,1 TWh)	3,84
Postes travaux professionnels	3,6	0,92 (11 TWh)	4,52
Serveurs et Datacenters	0,39	0,34 (4 TWh)	0,73
Téléviseurs et audiovisuel	5,3	1,18 (14 TWh)	6,48
Téléphones mobiles	0,74	0 (0,1 TWh)	0,75
Reste des TIC	8	1,68 (20 TWh)	9,68
Total	21,27	4,72 (56,2 TWh)	25,99

## ICT applications pro-environment protection

- Dematerialization, e-commerce, efficient energy buildings, efficient energy public transportation, “green grids”, tele-working.... should act in favor of protecting environment.
- These applications rely on facilitated access and large diffusion of ICT equipments and usages.

Smart 2020

Domaine	Gains mondiaux	Rapportés à la France
<b>Dématérialisation</b>	<b>460 Mt</b>	<b>20,7 Mt</b>
<i>Medias en ligne</i>	<i>20 Mt</i>	<i>0,9 Mt</i>
<i>E-commerce</i>	<i>30 Mt</i>	<i>1,35 Mt</i>
<i>E-papier</i>	<i>70 Mt</i>	<i>3,15 Mt</i>
<i>Vidéoconférence</i>	<i>80 Mt</i>	<i>3,6 Mt</i>
<i>Télétravail</i>	<i>260 Mt</i>	<i>11,7 Mt</i>
<b>Moteurs intelligents</b>	<b>970 Mt</b>	<b>43,7 Mt</b>
<b>Logistique intelligente</b>	<b>1200 Mt</b>	<b>54 Mt</b>
<b>Bâtiments intelligents</b>	<b>1680 Mt</b>	<b>76 Mt</b>
<b>Réseaux électriques intelligents</b>	<b>2020 Mt</b>	<b>91 Mt</b>

## First observations

- **Assessment of the environmental impact and potential positive contribution on protection of environment of ICT not easy to realize**
  - Need of common methodologies for measuring such impacts and contributions
- **Intuition of a positive balance**
  - In any case, control and reduce energy consumption and carbon emissions within a short timeframe (direct effects of developments and usage of ICT)
  - In any case, encourage developments of applications based on ICT that contribute to limit both energy consumption and carbon emissions (indirect effects)
- **Support ICT developments that contribute to implementation of such applications in a short timeframe**
  - Encourage broadband diffusion (better coverage, better quality and high-speed connections, mobile or fixed)
    - Establish sustainable competition in markets, promote investments
    - Support public investment where market failures are observed
  - Encourage usage by citizens
    - Role of the governments (central and local)

## First observations

- **For a consistency with a global sustainable development policy, social and economic aspects of ICT have “to be added” to the environmental assessment**
  - Developed in several specialists sessions
  - How to balance between orthogonal interests ? → transform grams of CO2 in € ?
- **In France, the current Government has launched several lines of actions :**
  - “Environmental Round Table” : a collective and democratic action that lead to concrete conclusions with respect to the protection of environment and to sustainable development policies, and implementation by law
  - “Digital Plan 2012” : a plan for the development of a digital economy
  - Continuous work and measures that center around promotion of ICT developments and sustainability.
- **How the French State wants to be a “model” / exemplary.**



## France's Environment Round Table

### *"Le Grenelle de l'environnement"*

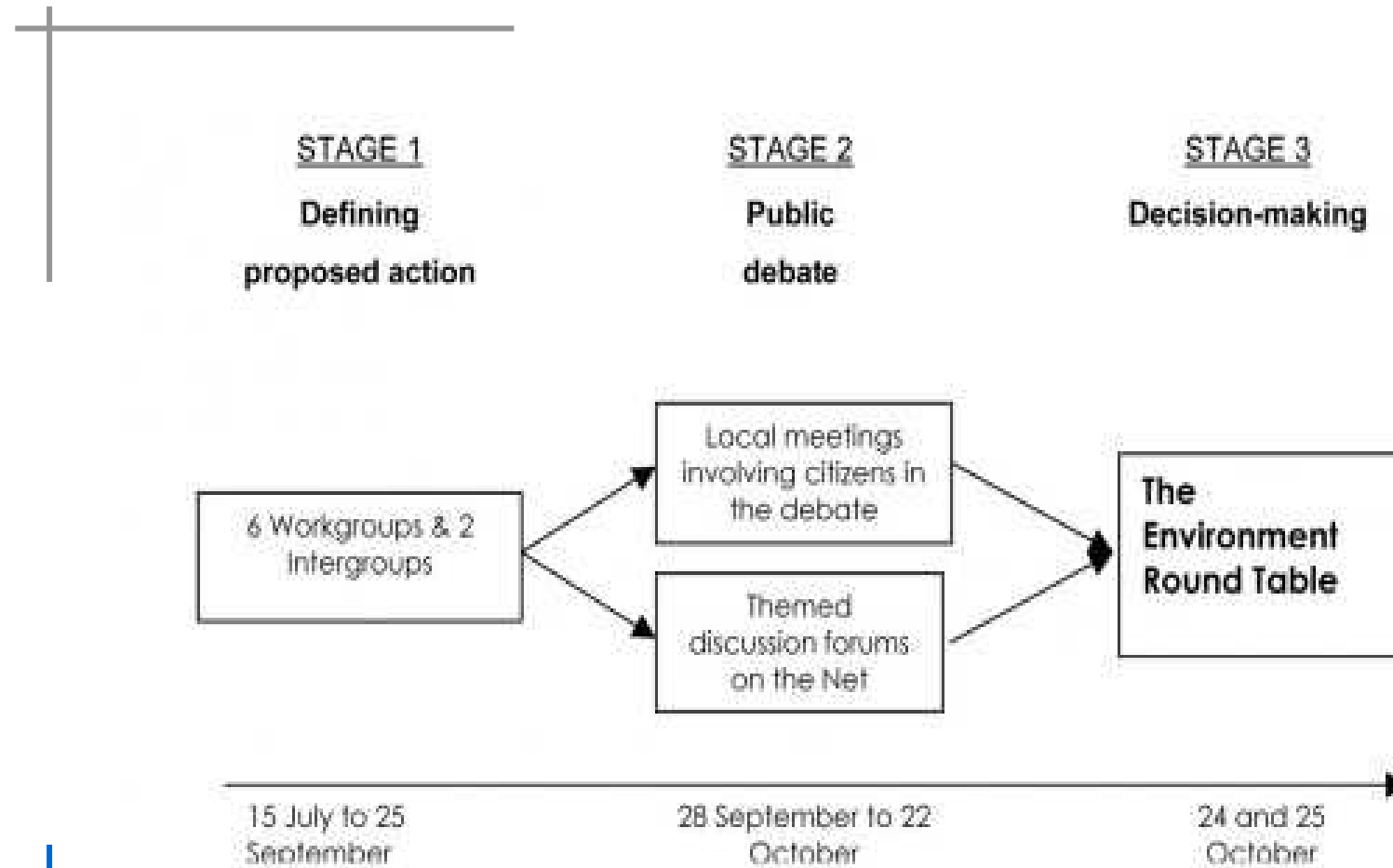
October 2007 till now



## France's Environment Round Table

- **Set of political meetings** held in October 2007 to agree on long term decisions with respect to the protection of environment and sustainable development
- Organized by Ministry of Ecology and Sustainable Planning and Development, Secretary of State for Transport and Secretary of State for Ecology.
- For the first time, the Round Table brought all the civilian and public service representatives together around the discussion table, thus forming 5 colleges: the State, unions, employers, NGOs and local authorities.
- **Six workgroups were organized :**
  - Fight climate change and control energy demand
  - Preserve biodiversity and natural resources
  - Create an environment conducive to health
  - Adopt sustainable modes of production and consumption
  - Construct a green democracy
  - Promote green development favoring employment and competitiveness

# France's Environment Round Table



## France's Environment Round Table

- Workgroups met to propose concrete actions to be implemented. Proposals were opened up to debate by a range of public groups. Then round tables were organized. **On 25 October 2007, the French President presented the conclusions of these discussions.**
- **In every set of conclusions, there are proposals related with public sector involvement and with ICT role in achieving sustainable development goals.** Among others :
  - Modernizing buildings and cities
    - Energy efficient renovation of public buildings within the next 5 years
  - Energy efficiency and carbon
    - Carbon assessment of all administrative departments and 20% improvement in energy efficiency
    - Compulsory inclusion of environmental clauses in the public procurement code
  - Mobility and transportation
    - Priority given to public transportation
  - Governance program
    - Transparency regarding environmental information and assessments
    - NGO given a place in a reformed economic and social council and in local trade and industry chambers
  - ....

## Adoption of the draft “Law of Grenelle” by the Parliament in October 2008

- The conclusions of the Roundtable were qualified as a **“framework for consistency of a public action”** and the final report to the government as a **“pedestal for a sustainable development strategy”** and therefore as an **“exposé for the future law necessary to implement the conclusions of the Roundtable”**.
- **Adoption of the draft law in October (526/4)**
  - In line with the conclusions of the Roundtable
  - Proposals for concrete implementations
  - Promote sustainable growth
  - Impose promotion by public policies of sustainable planning (environmental, social and economic spheres)



## **“Digital Plan 2012”**

### **a plan for the development of a digital economy**

*Prime Minister and Secretary of State charged of Forecasting  
and Assessment of public policies and Digital Economy  
Development*





## Invest in digital economy : an answer to the slowing down of economic growth

- **“Digital economy”** is the most dynamic sector of the world economy (electronic communications, audiovisual sector, software, computing services, on-line services...) : **25% of the global economic growth**
- **Main factor of economic competitiveness** : investments in digital economy impact productivity of every other sectors.
  - In France, investments in digital economy is by half lower than in US and by third lower than in Japan or Korea. To double these investments in France would generate 1 point of French economic growth.
- **“Digital economy” is good for national employment**
- **Four priorities to be followed in implementing the plan :**
  - Enable all citizens to access digital networks and services
  - Develop the production and supply of digital contents
  - Increase and diversify usages and digital services in firms, public sector, and consumers/citizens
  - Modernize digital economy governance


## Three democratic objectives ...

- **Guarantee high speed internet access to every citizen.**
  - To give access to information, education, training, leisure, public services.
  - By 2012, 100% of the French population should be provided with high speed internet (>512 kbit/s)
  - By 2010, internet access will be provided on a universal service base.
- **Implementation of global digital TV by November 2011.**
  - Switch-off will enable release of 72 MHz of spectrum (790-862) affected to electronic communications services and in particular high speed internet access.
  - Revenues from attribution will be attributed to digital economy development.
- **Reduce the digital divide.**

## ... and promotion of digital usages to accelerate environmental mutation of the society

- **ICT represent a large potential of economy of CO2 emissions and a new growth model, based on sustainability. Therefore, need to :**
  - rethink ICT equipments to optimize energy consumption and recycling of ICT wastes.
  - change behaviors, in particular in firms.
- **Improve inputs and production process – measure 134 :**
  - Launch a program for research and experimentation on optimization of energy consumption by data centers, and on reuse of generated heat
  -  - Launch a study on the State's data centers optimization (to reduce energy consumption and costs)
  -  - Create a working group with the ICT sector that should commit through a voluntary basis and together with the State, to reduce energy consumption, develop eco-conception and recycling of products and services (in line also with the European standards and labels)
  -  - Create communication and information campaigns on best practices (organized by public sector, private sector and environmental and consumers associations together)
  -  - Environment protection and population health protection will become objectives that should follow ICT regulators (ARCEP and CSA).

## ... and promotion of digital usages to accelerate environmental mutation of the society

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- **To increase the status of firms that voluntary commit in a sustainability policy founded on ICT, the Government will create and attribute distinctions and prizes – measure 135 :**

- The “green IT” prize : attributed to the ICT sector
- The “ICT for Clean technologies” prize : attributed to the sectors that use ICT to adopt a sustainable behavior
- Award attribution based on efforts made and actions taken to reduce energy consumption and/or to reduce carbon emissions
- Jury
  - co-chaired on the Ministry of Ecology and Sustainable Planning and Development, Secretary of State responsible for Industry and Consumption and Secretary of State charged of Forecasting and Assessment of public policies and Digital Economy Development
  - Investors, researchers, entrepreneurs, industrial groups managers...

## ... and general consistency with a global sustainability approach

- **Accelerate the development and usage of digital simulation**, in particular to find answers to societal stakes and sustainable development constraints (energy, climate change, transportation infrastructures and green grids) - measure 72.
- **Adapt education to digital economy needs**, in particular in adapting and creating degree courses to new required skills : contents management and marketing, multimedia, software and internet design, sustainable development - measure 100.
- **Encourage tele-working** by launching a national action together with main stakeholders and actors to work on potential obstacles to a concrete development : employment law, technologies, organizational issues, transport and sustainable development – measure 117.
  - Involve local authorities
  - Development of tele-centers and digital public spaces
  - Work on access security



## Commitments of a “Model State”

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### Results of the Environment Round Table

- **The State (and every public authorities) has**
  - to take into account of environmental consequences in every decision - process, -making and -implementation (with respect to climate change, biodiversity preservation)
  - to justify any decision that would undermine these objectives
  - to consult all concerned actors and stakeholders in the process
- **The State has to associate draft law proposals with impact studies,** related with the three pillars of sustainable development (environmental, social and economic dimensions).
- **Pro-environmental public procurement** (15% of the French GDP)
  - From 2009, vehicles bought by the State with maximum emissions of 130g of CO<sub>2</sub>/km – unless specific necessity
  - From 2009 : development of ICT use and visio-conferences equipments

## Commitments of a “Model State” Results of the Environment Round Table

- **Energy consumption and CO2 emissions**
  - From 2009, energy assessments for administrations and civil services
  - Implementation of the measures with respect to the buildings with accelerated deadlines for public buildings (20% of improvement by 2015).
- **Reconsideration of public aids and subsidies programs** according to environmental criteria.
- **Specific education of civil servants** on sustainable development issues (by 2012).
- **Implementation of sustainable development criteria**, in particular in the national accounting where public environmental goods will be evaluated.

## **A Prime Minister executive order signed last week**

### **First implementation phase**

- **The State wants to exert a powerful incentive to public institutions, local authorities, firms and citizens to move towards an environmental and energy efficient society.**
- **Trough the leverage effects that public investments in building and public procurement, the State wants to accelerate supply of commercial offers (reasonable prices and virtuous effects) to drive the society to sustainability and competitiveness.**
- **Several concrete commitments from the Model State.**
- **1. Renovate all the buildings of the State (50 millions of m2) and of public institutions (70 millions of m2) to reduce from 40% the energy consumption and from 50% the carbon emissions within a 10 years timeframe.**
  - Energy audits (before end of 2010)
  - Implementation works



**Thank you for your attention**

**Questions ?**



# A Prime Minister executive order signed last week

## First implementation phase

- **2. Modify in depth the administrations functioning**
  - Every ministry to elaborate a plan in 2009 “Model administration”
  - Modify behaviors and procurement practices
  - Creation of sustainability criteria to assess public policies
  
- **3. Focus procurement of vehicles on less polluting ones**
  - From beginning of 2009 : vehicles with maximum emissions of 130g of CO2/km – unless specific necessity (same criteria than applied to citizens for receiving the “financial bonus”)
  
- **4. Develop usage of products from the biologic agriculture in the public and collective restaurants (15% in 2010 and 20% in 2012)**
  
- **5. Increase transparency and communication with respect to**
  - social information (employment, professional relationships, organization and conditions of work...)
  - Environmental information (data on scarce resources consumption – water, energy, air..., measures taken in the environmental sphere – protection of natural ecosystems.