



for a living planet[®]



**IDENTIFYING THE FIRST
1,000,000,000 TONNES OF CO₂ REDUCTIONS USING ICT SOLUTIONS**

Identifying the first one billion tonnes of CO₂ reductions using ICT solutions

Background

The possibility of providing new and better services with the help of ICT is well known. Less well known is the significance of these new services in the reduction of carbon emissions. This discrepancy in understanding that exists almost everywhere, from politics to business and in the media as well as NGOs, has resulted in a situation where focus has been on the ICT sector's internal emissions and the energy efficiency of equipment. While these two areas are important, their contributions to global emissions are not the most significant.

On the other hand, solutions provided by ICT can and must play an important role as we move towards a low carbon economy if we are to reach the targets set by scientists and policy makers.

Earlier studies have shown that the EU could, for example, increase productivity and welfare AND save 50 million tonnes of CO₂ by implementing six simple ICT solutions. Such data, along with similar studies was developed at a time when the full magnitude of the climate challenge was not known and many of the studies are based on old ICT solutions. It is now time to take the next step.

This project will identify and provide a roadmap for the implementation of ICT solutions that can become the first generation of ICT solutions, to be implemented strategically on a global scale that can reduce CO₂ emissions by at least one billion tonnes.

Instead of only looking at incremental improvements, this project will begin with the assumption that much of the economic development over the coming decades will take place in emerging economies such as China and India. This provides a historically unique opportunity to use the investments in places like the EU, the US and Japan to support development in the emerging economies and to make it more sustainable.

Objective

The project will provide a roadmap in the form of a report with examples of ICT solutions such as tele-working, e-governance, intelligent heating and cooling, the dematerialisation of goods, the efficient use of office space as well as spin-off solutions that spring from ICT developments, such as highly efficient batteries for electric cars — solutions which, when combined, could deliver the first billion tonnes of CO₂ reductions as a result of strategic implementation of ICT solutions.

ICT solutions for CO₂ reductions

1. Virtual meetings

Enabled by video conferences and tele-meetings through service providers such as HP's Halo rooms, Virtual Presence, Webex, Skype and others.

2. De-materialisation

Solutions moving away from or minimising materials used; includes e-taxation, music downloads and digital paper.

3. Flexi-work

Laptops and suitable software along with mobile phones provide flexible work space for employees.

4. Intelligent heating, lighting and cooling

Servers that control temperature and light, sensors which communicate when to regulate systems, wireless contact with electricity utilities to ensure electricity consumption off-peak demand are all intelligent solutions to manage heat, light and cooling requirements of buildings more efficiently.

5. Improved urban planning

Servers and ICT solutions which are built into urban infrastructure can, for example, make it possible for people to work outside the office.

6. Increased transport efficiency

Radio Frequency Identification tagging and memory spots allow for more efficient tracking of goods while servers and ICT solutions built into infrastructure allow for more efficient transport flows.

7. E-government

Laptops and/or mobile phones along with the appropriate software allow people access to government services without travelling and without using paper.

8. Improved efficiency in existing business

A wide range of ICT solutions, from computers ensuring CAD-CAM testing to save materials, to sensors that ensure optimal temperature/humidity during processes, can optimise efficiency in existing business practices.

9. Better information

Smart Data Centres can process data more efficiently and provide governments, business and individuals with real time data. Radio Frequency Identification/memory spots track goods and minimise the processing power needed to handle logistics.

10. Increased office efficiency (less office space)

On a micro scale, efficient use of multi-purpose machines can save materials and energy. On a Meso scale, a whole office can be used more efficiently by using a combination of servers, laptops and software which allows connectivity. This would result in less office space to heat, cool and provide lighting for.

11. Spin-off effects

More efficient batteries developed for laptops, for example, in turn allow for better electric cars, such as the Tesla roadster, and storage of electricity which make solar-PV systems more cost-efficient.

The report will be developed with thought leaders in the fields of ICT, climate change, innovation and urban planning. It will discuss current barriers to the use of sustainable ICT solutions and provide concrete recommendations for possible ways forward.

How much is one billion tonnes?

One billion tonnes is a significant amount of CO₂. The EU's total emissions are around four billion tonnes. The US emits almost six billion tonnes; cars, the second largest source of emissions after burning coal, create nearly 1.5 billion tonnes of CO₂ annually. World-wide, CO₂ emissions for the year 2006 amounted to almost 30 billion tonnes.

Finding ICT solutions that work and suggesting ways forward for implementation to reduce one billion tonnes of CO₂ emissions will hopefully contribute to a situation where the ICT sector can take the lead and become a winner in the transition towards a low carbon economy.

Which ICT solutions will be included?

Many different solutions will be included in the report. They will range from solutions with a straight forward connection to CO₂ reductions, such as virtual meetings through videoconferencing reducing the need to fly, to more complex connections, such as ICT solutions controlling heating and cooling and in turn reducing the need for new coal power plants to be built.

The report will also include systemic solutions where implementation of ICT in a company can encompass reduced transport to and from the office, reduced office space and reduced flying, all the while improving company productivity.

The box "ICT solutions for CO₂ reductions" lists the eleven categories that the project will use to categorise the different solutions.

How will the one billion tonnes be calculated?

The one billion tonnes will be based on projects that have already been implemented, with the potential to be magnified. The scale of magnification will be decided together with experts, potential customers and policy makers to ensure that that the solutions that can deliver the first billion tonnes are easy and strategic to achieve. The CO₂ reductions from the implemented projects should be verified by an independent third party.

A number of strategic solutions will also be included to highlight how the next steps beyond the first billion tonnes could be achieved.

Who can contribute?

The project will welcome all contributions. If you would like to submit a suggestion, we would like you to follow

the matrix below and fill in as many of the fields as possible. This matrix is developed in order to ensure that the contributions complement each other and that experts can assess them in a structured manner.

CO ₂ Reduction suggestion	
CO₂ reduction potential	Low estimation
<i>[million tonnes]</i>	Medium
	High
For?	Individual
<i>»Target group»</i>	Businesses
	Urban planners
When?	Now
<i>»Technical readiness»</i>	Soon – currently in the pipeline
	Later – currently in the labs
In what way?	Direct effect
<i>»Impact»</i>	Indirect effect
	Systemic effect
Who?	Alone
<i>»Providers needed for successful commercialisation»</i>	Two
	Network
Where?	Early market
<i>»Market maturity»</i>	Rapidly growing market
	Mature market
What?	Companies implementing
<i>»Needed for implementation»</i>	Sectors needed to collaborate
	New infrastructure and standards

The project will also contact companies that have shown an active interest in implementing sustainable ICT solutions or who have based their business solutions on ICT innovation. Governmental actors who have demonstrated leadership will also be contacted and so will world leading researchers.

How will the results be used?

The results of the project will presented so that it is possible for the WWF, HP and other interested stakeholders to use it as a guiding tool for further work.

The results will be communicated during 2008 to key policymakers in areas such as innovation, public procurements, export support and economic incentives, and to potential and existing users of the solutions. •

www.panda.org/ict • www.hp.com/go/wwf

TOGETHER WWF AND HP HAVE DESIGNED AND LAUNCHED AN INNOVATIVE PRIVATE SECTOR-NGO PARTNERSHIP



FOR FURTHER INFORMATION PLEASE CONTACT:

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