Mobilising information and communication technologies to facilitate the transition to an energy-efficient, low-carbon economy

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PURPOSE: to encourage Member States and the private sector to use information and communication technologies (ICT) in order to improve energy efficiency.

CONTEXT: the ICT sector is responsible for 2% of carbon emissions in Europe: .75% resulting from the use of ICT products and services, and 0.25% from their production. While the ICT sector should set itself ambitious targets for improving its own energy and carbon footprint it will lead to the biggest energy-efficiency gains when used in the wider economy. The use of ICT across all sectors of the economy and society can reduce the remaining 98% of European emissions. ICT-enabled systems can **reduce**, for example, **energy consumption of buildings in the EU by up to 17% and carbon emission in transport logistics by up to 27%**.

On 10 January 2007, the Commission adopted an energy and climate change package, endorsed by the European Parliament and by EU leaders at the March 2007 European Council, targeting a 20% increase in the use of renewable energy and a 20% reduction in greenhouse gas emissions compared to 1990 levels by 2020. On 13 May 2008 the Commission announced that it would promote the role of ICT in meeting these goals by improving energy efficiency throughout the economy (COM(2008)0241) In December 2008, the EU reiterated its commitment to meeting these targets and stressed the urgency of improving energy efficiency. The potential of ICTs to improve energy efficiency is generally accepted. However, in the absence of specific policy measures to coordinate fragmented efforts and to incentivise action, this potential may not be realised in the timeframe of the 2020 targets.

Though legislation is being enacted and implemented, data suggest that energy savings are not being realised fast enough. Recent reports suggest that when fully implemented, current measures should achieve energy savings of about 13% by 2020. This represents a major achievement but still falls far short of what is needed.

There is untapped potential to complement the existing measures with a set of specific actions to overcome barriers and exploit the full potential of ICTs to enable more efficient use of energy. The proposed policy framework aims to add impetus to the existing regulatory and non-regulatory measures in the area of energy efficiency and thereby contribute to the 2020 targets by:

- improving the energy efficiency of ICTs;
- using ICTs to bring about improved energy efficiency in the other energy-using systems and infrastructures that support our economy;
- using ICTs to provide a quantitative basis upon which energy-efficiency strategies can be devised, implemented and evaluated;
- inviting Member States to drive innovation, to deploy and to showcase ICTs for enabling energy-efficiency gains;
- reinforcing cooperation between all private and public players to reap the maximum benefits from the use of ICTs to improve energy efficiency.

CONTENT: this Communication presents a set of ambitious measures that focus on what can be achieved in the short term both **by the ICT sector and by fully exploiting the enabling capacity of ICTs** in all

sectors of society and the economy. It provides the background to a Recommendation to be adopted by the Commission in the second half of 2009. The Recommendation will set out tasks, targets and timelines, for industry stakeholders and Member States to accelerate progress towards these ends.

The Recommendation which the Commission will issue sets out measures that will pave the way for ICTs to contribute to energy efficiency gains and emissions reductions across the economy and society, in a measurable and verifiable way. The measures will be structured around the three following strands of action.

1) the ICT sector will be invited to set itself targets and reach a **collective agreement on measurement methodologies** that focus on accuracy, transparency and verifiability of the energy consumption and carbon emissions of its processes, at company and sector level;

2) **working partnerships between the ICT sector and other major energy-using sectors** will be encouraged to identify where and how ICTs can play a role in improving efficiency and reducing emissions in those sectors and thus accelerate the delivery of tools to assess and to optimise energy performance on a comparable basis;

3) Member States should be called upon to enable the EU-wide roll-out of ICT tools likely to trigger a **shift in the behaviour of consumers, businesses and communities** and at the same time drive demand for innovative ICT solutions to optimise the energy performance of their own operations.

The Recommendation will focus on buildings and construction, and on transport logistics, in view of their relatively large share in overall energy consumption and of ongoing endeavours by the Commission and Member States in these sectors. It aims also at encouraging an enduring shift in the behaviour of consumers, businesses and communities.

Buildings and construction:buildings account for approximately 40% of energy end-use in the EU, of which more than 50% is electrical power. The sector has significant untapped potential for cost-effective energy savings which, if realised, would mean an 11% reduction in total energy consumption in the EU by 2020.The ICT sector will be invited to work together with the buildings and construction sector to identify areas where the impact and cost-effectiveness of ICTs can be maximised, and to specify requirements.

Transport:transport systems represent about 26% of energy end-use in the EU. Many opportunities exist for improvements in energy efficiency and rationalisation, notably through logistics. Under the Freight and Logistics Action Plan, a number of actions are introduced to expand the role of **logistics in the rationalisation of transport** and the reduction of its environmental impact. The ICT sector should work together with the transport logistics sector to build on the opportunity for improved and expanded information as identified by the Action Plan. Useful information on energy consumption and carbon emissions of freight transport should be made available to those businesses that rely on freight transport for their own operations.

Encouraging an enduring shift in the behaviour: Member States should be called upon to agree on EU-wide minimum functional specifications for smart metering that will enable network operators, suppliers and notably also consumers, effectively to manage their energy needs and to use ICT solutions, once they become available, for automated energy management. In terms of functionality, this will require two-way, real-time information flows and the possibility of new control loops. These specifications would be compatible with the standardisation mandate for utility meters that has recently been issued by the Commission.

Public authorities: Member States, central, regional and local authorities should be called upon to take the lead in driving demand for innovative ICT-based solutions that will help them to incorporate energy efficiency into all aspects of service delivery and infrastructure management, urban planning and policy-

making. A public consultation will be launched in order to ensure that the Commission and all stakeholders have the same understanding of the issues to tackle and of the proposed solutions. In particular, in the interest of transparency, and of achieving real and measurable progress, the Commission wishes to be assured that expectations, claims and commitments are based on a common language. Following the public consultation, the adoption of a Recommendation is planned for the second half of 2009.

Following the publication of this Communication, the Commission will invite representatives of the sectors, where appropriate through relevant sector associations, to set up a working structure to achieve the goals set.

The Commission will also investigate the possibility of setting up a **European web portal** to serve as an open information and communication platform to engage both public and private stakeholders in sharing best practices, experiences, information and data that can serve to accelerate progress towards the goals set.

In collaboration with the Committee of the Regions, the Commission is working on delivering **a practical guide for regional and local authorities** on improving energy performance through innovative use of ICTs. The guidewill set out how administrations can exploit ICTs in their climate change plans. At the same time it will describe how the Cohesion funds can support business partnerships to deliver innovative ICT applications, and will set out practical steps to encourage synergies between Commission supported research and innovation funding.