



*European Economic and Social Committee*

**TEN/350**  
**Energy efficiency through**  
**ICTs**

Brussels, 4 December 2008

**OPINION**

of the

European Economic and Social Committee

on the

**Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions – Addressing the challenge of energy efficiency through Information and Communication Technologies**

COM(2008) 241 final

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On 13 May 2008, the European Commission decided to consult the European Economic and Social Committee, under Article 262 of the Treaty establishing the European Community, on the

*Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions – Addressing the challenge of energy efficiency through Information and Communication Technologies*  
COM(2008) 241 final.

The Section for Transport, Energy, Infrastructure and the Information Society, which was responsible for preparing the Committee's work on the subject, adopted its opinion on 10 November 2008. The rapporteur was Mr Hernández Bataller.

At its 449th plenary session, held on 3 and 4 December 2008 (meeting of 4 December), the European Economic and Social Committee adopted the following opinion by 123 votes to 3, with 21 abstentions.

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## 1. **Conclusions and recommendations**

- 1.1 The European Economic and Social Committee believes that sustainable development should be a priority component of EU policies. One way of achieving sustainable development must be through energy efficiency, the development of new, alternative energy sources ("renewable", "clean" or "green") and ultimately the adoption of measures to combat climate change by reducing CO<sub>2</sub> emissions.
- 1.2 The Communication presented by the Commission is a step in this direction, as it recommends the promotion of national and regional programmes for research and technological development (RTD), with information and communication technologies (ICTs) seen as an enabler of energy efficiency.
- 1.3 The Committee agrees with the Commission's view that ICTs contribute in two ways to realising the objectives of sustainable development. Firstly, research, development and innovation regarding their components, equipment and services will allow energy to be saved in their use. Secondly, application of ICTs in different economic areas, at both the production and consumption stages, will allow "dematerialisation" of many procedures and replacement of physical and material exchanges by online services, also saving energy. However, the Committee also believes it is important to introduce energy-saving throughout the process of

manufacturing and using technological devices rather than focusing solely on energy-efficient consumption during the useful life of the device.

- 1.4 In accordance with these objectives, the Commission communication seeks to launch a preliminary phase of information gathering and analysis prior to a second communication in which the main areas for action will be identified.<sup>1</sup> The Committee nevertheless believes it is essential to promote measures aimed at encouraging energy efficiency in the medium and long term.
- 1.5 An important factor in achieving energy efficiency from the supply perspective is the replacement of equipment whose energy consumption is high owing to technological obsolescence or because it has reached the end of its useful life. At European level, more than 50% of household electrical appliances are over 10 years old and can be considered energy-inefficient. As a preliminary or alternative to drawing up directives in this area, the Commission can promote criteria for industry which, with the support of national governments and the help of consumer and user organisations, facilitate plans for replacing such equipment.
- 1.6 The Committee believes, for instance, that the introduction of digital terrestrial television in the different Member States should be used as an opportunity to update receivers, so that the old cathode ray tubes (CRT) are replaced by liquid crystal display (LCD) television screens. This entails, for example, promoting the manufacture and sale, based on agreements with manufacturers and user organisations, of integrated equipment that guarantees interactivity rather than acquiring peripheral decoders that connect to analogue television sets. Technical studies indicate that CRT televisions consume three times as much energy as LCD ones, and energy consumption in "stand-by" mode can be up to 60% higher.
- 1.7 The Commission can adopt a similar approach in other spheres – such as the electricity network (production and distribution), smart buildings and smart lighting. This means developing electronic trading of electricity and new generating and distribution technologies; energy management, accounting and visualisation systems for energy-saving in buildings; and new developments in smart lighting - indoor, outdoor and street lighting – using light sources that can interact with their surroundings, adjusting electronically to lighting needs.

For instance, it is known that the energy used in manufacturing and developing computers is three times greater than consumption during their useful life. The high energy consumption of internet servers and search engines must also be taken into consideration, and specific solutions should be developed in this area taking particular account of the exponential growth in use of the internet, as well as the increase in energy consumption associated with

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<sup>1</sup> One example of this preliminary information gathering and analysis is the recent Commission study *The implications of ICT for Energy Consumption* (e-Business Watch, Study report 09/2008, [http://www.ebusiness-watch.org/studies/special\\_topics/2007/documents/Study\\_09-2008\\_Energy.pdf](http://www.ebusiness-watch.org/studies/special_topics/2007/documents/Study_09-2008_Energy.pdf)).

technological convergence. It is also very important to assess the energy savings that can be achieved by using interoperable equipment that is technically standardised, resulting in less proliferation of equipment and better use being made of it, in line with the objectives of Directive 2005/32/EC<sup>2</sup>.

Consumers can make an important contribution to this energy-saving effort through appropriate use of new technologies; in this case, too, development of computer programmes and technology gives consumers rapid and easy access to the information they need to use equipment efficiently and to quantify the resulting energy savings. For example, only leaving computers and peripheral devices switched on strictly while being used; avoiding screensavers or leaving computers on in low-consumption mode; and optimising the use of printers, etc. It is generally calculated that the "phantom energy use" generated by devices in standby mode (see above) can amount to about 12% of a household's annual electricity bill, which shoots up when poor use of technology is compounded by obsolete equipment. Clearly the need to replace equipment entails considerable costs for consumers, which in certain cases should be offset by social assistance.

- 1.8 This whole drive should be complemented by quality certification and precise and clear labelling information for users on the energy efficiency of given equipment, its "environmental footprint" or "carbon footprint", etc., raising awareness among the general public, and steering demand and promoting efficient and sustainable use of energy. Potential experience with ICTs in areas such as audiovisual appliances, electronic communications, the electricity sector, and smart buildings or lighting would be instructive for energy-saving measures in other key areas where the Commission has launched programmes, e.g. car manufacturing, manufacturing industry, transport.

The Committee urges the Commission to take active measures to provide information to consumers, businesses, administrations, etc. based on awareness-raising campaigns using different media supports.

- 1.9 The Commission should also stimulate the development of standardised and reliable indicators for quantifying and evaluating the energy savings that can be made by using ICTs. This would help to stem the growth in fraudulent or misleading use of such concepts as "green" or "clean" energy as a pure marketing strategy with no real justification that can be demonstrated and quantified in terms of savings and reducing emissions. Introducing such indicators would help to clarify whether or not a business practice is unfair, particularly in advertising that uses such "eco-marketing" arguments.

At a time when the energy market is being privatised and liberalised, it is important to encourage businesses to opt for investment in energy savings and sustainability, helping them

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<sup>2</sup> OJ L 191 of 22.07.2005, p. 29.

to see such investment as a commercial opportunity and a source of stable and skilled employment.

- 1.10 The Committee believes it is necessary to strengthen the political impetus in the EU to guarantee the resources needed to achieve the proposed energy-saving objectives, with compulsory measures regarding equipment to fill the gaps in national plans. Community action in this domain based on adoption of a directive would give added value to measures by the Member States, without affecting the Commission's support for establishing codes of good practice at national level and conducting comparative studies on energy optimisation to provide an incentive within the EU and encourage businesses to draw up reports on energy saving.

## 2. **Explanatory statement**

### 2.1 **Background**

2.1.1 The Commission communication is published within the context of:

- the priorities set by the European Council of Heads of State or Government held in spring 2007, which signalled the need to address climate change, to have sufficient, secure and competitive energy, and to guarantee a model for sustainable development in the 21st century. At the above-mentioned summit a consensus was reached on the need to make the integrated climate and energy policy the actual basis of the EU's political programme, fixing precise and legally-binding objectives to signal its determination in this sphere. The Commission believes it will be necessary in future to decouple continuing growth of the European economy, which is essential to achieve full employment and social inclusion, from energy consumption. Information and Communication Technologies (ICTs)<sup>3</sup> have an important role to play in reducing the energy intensity, and increasing the energy efficiency, of the economy;
- the package of measures adopted by the European Commission on 23 January 2008, designed to demonstrate that the above-mentioned objectives are not only technologically and economically feasible, but that they also provide a business opportunity for thousands of European companies;
- the European Strategic Energy Technology Plan and numerous other actions launched by the European Commission in different areas, all aiming to tackle the climate change challenges.

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<sup>3</sup> ICT refers to micro- and nano-electronics components and systems, but also to future technologies such as photonics that promise both far greater computing power for a fraction of today's power consumption and high brightness, easily controllable, power-efficient lighting applications.

## 2.2 General comments

2.2.1 Against this background, the Communication under discussion is intended to stimulate an open debate between stakeholders in various selected areas, such as the ICT sector itself, and the electricity, smart buildings and smart lighting sectors. This means initiating a process of information-gathering and analysis, but also of consultation and partnership involving a maximum number of stakeholders: the European institutions (Parliament, Committee of the Regions, European Economic and Social Committee), Member States, industry, research bodies and consumers. These can play an important role in piloting new equipment and components.

The Commission should do more to encourage consumers and users to pursue the energy saving objectives through ICTs, so that systems are intelligent not only in terms of energy-saving but also in the way the general public uses them. There are different procedures for putting into practice such participation in research, development and innovation processes, such as the European *living labs* network whereby users' opinions, attitudes and practices can be made known directly by means of mechanical observation through ICTs.

2.2.2 The synergies and agreements on good practice that could develop during this process can be used to boost pilot projects, by enhancing research and technological development (RTD). Where ICTs in particular are concerned, research on energy efficiency would take place under national and regional programmes, the EU Competitiveness and Innovation Framework Programme and the operational programmes funded by cohesion policy. This would prompt companies to evaluate their "environmental footprint" and, working from this analysis, to take decisions based on the combination of advanced communication networks and renewable energies in order to achieve energy savings ("negawatts").

2.2.3 The EESC has already set out its position on various occasions regarding the importance of ICTs in achieving structural change and the major contribution they make to innovation, for instance in its opinions on nanotechnology<sup>4</sup>, biotechnology<sup>5</sup>, healthcare research<sup>6</sup> and in particular in the opinion on information technologies. The Seventh Framework Programme addresses these questions on a strongly horizontal basis. As far as R&D measures are concerned, from an economic and environmental point of view it is essential to use the most up-to-date technologies and to commit more Community funding in order to encourage research and innovation<sup>7</sup>.

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4 [OJ C 157 of 28.06.2005.](#)

5 [OJ C 234 of 30.09.2003](#), [OJ C 61 of 14.03.2003](#) and [OJ C 94 of 18.04.2002.](#)

6 [OJ C 302 of 7.12.2004.](#)

7 [OJ C 65 of 17.03.2006](#), p. 9, rapporteur Mr Wolf, co-rapporteur Mr Pezzini: *Proposal for a Decision of the European Parliament and of the Council concerning the seventh framework programme of the European Community for research, technological development and demonstration activities (2007 to 2013).*

## 2.3 Specific comments

2.3.1 The Commission analyses in particular the electricity sector, which is currently undergoing a process of far-reaching change based on market liberalisation, multiplication of local energy networks, integration of renewable energy sources, spread of co- and micro-generation (micro-grids, virtual power plants), shortening the chain between energy generation and consumption, energy offsetting between users, and new demands by the general public.

2.3.1.1 The question of upgrading the electricity network, from generation to distribution, which includes improving the efficiency of the network to avoid energy wastage, is addressed in the assessment of national energy efficiency action plans, on which the EESC has set out its views in an opinion, to which we refer<sup>8</sup>.

2.3.1.2 The Commission also looks at the energy-saving options provided by smart buildings, both residential and commercial. Energy management, accounting and visualisation systems for energy-saving are specifically mentioned in this connection; these also have the advantage of promoting greater user awareness of such consumption. It must be borne in mind that over 40% of energy consumption in Europe is building-related.

2.3.1.3 The Committee believes<sup>9</sup> that new cultural stimuli and incentives must be found, on the one hand to offset higher costs and on the other to raise interest in:

- project research,
- revised building methods,
- the use of better materials in the construction process, and
- new structural methods.

2.3.1.4 The EESC repeats<sup>10</sup> that from the point of view of the final consumer consideration must be given to the obstacles hindering the promotion and implementation of energy efficiency in buildings in Europe: barriers of a technical, economic, financial, legal, administrative, bureaucratic, institutional, management-related and socio-behavioural nature and barriers linked to inconsistencies in approach (imbalances between heating/air-conditioning, no consideration of the local climate).

Smart homes contribute to the quality of life, the comfort and security of their occupants and to economic and energy savings. Connectivity offers access to communication services

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<sup>8</sup> Opinion CESE 1315/2008 (TEN/341), rapporteur Mr Iozia: *Energy efficiency – assessment of national action plans*.

<sup>9</sup> See opinion CESE 270/2008 (TEN/299), rapporteur Mr Pezzini, OJ C 162 of 25.06.2008, p. 62: *Energy efficiency of buildings – the contribution of end users* (exploratory opinion).

<sup>10</sup> Opinion CESE 270/2008, point 1.11.

(reception, adaptation and distribution of audio and television broadcast signals by terrestrial and satellite waves, ADSL, cable, electrical network), but also to other services which are highly effective in saving energy: detection of gas and water leaks, excessive consumption of electricity due to defects, automatic watering and air-conditioning control.

The incorporation of both active and passive procedures for improving the environmental conditions of housing can reduce household consumption by up to 50% and, according to some studies, the combination of clean energies and mechanical environmental control systems by up to 70%.

2.3.2 Developments in smart lighting – indoor, outdoor and street lighting – use light sources that can interact with the surroundings, adjusting electronically to lighting needs. Technologies such as light-emitting diodes (LEDs) or the newer organic light-emitting diodes (OLEDs) are already on the market, offering considerable energy-saving potential. About one fifth of world electricity consumption is accounted for by lighting.

2.3.2.1 The EESC supports the promotion and encouragement of voluntary agreements on adopting progressively smarter energy-efficient lighting for all outdoor and indoor public spaces.

2.3.2.2 Promoting "green procurement" in the ICT sector in order to achieve a carbon-neutral industry by introducing voluntary agreements on pilot projects could be a way of directing and testing structural change.

The Commission should help to ensure that firms which invest in reducing their "environmental footprint" are looked upon more favourably by consumers, as well as enjoying the cost reductions from energy saving. Naturally, firms should also switch to appropriate recycling of electronic components, residues and surpluses, as part of their environmental management. Recycling should be planned into the actual manufacture of equipment so that a high percentage of materials and components are reusable. Given the importance of this issue, the EESC is drawing up an own-initiative opinion on the subject in which it will give its views on the management of electro-waste<sup>11</sup>.

2.3.2.3 The EESC has already recommended that **green procurement** be promoted<sup>12</sup> by: defining the technical characteristics of "green" products, starting with those with the best environmental impact; including the cost of the product or service's lifecycle in its specifications; making a dedicated database available online; bringing EC directives on public procurement up to date by including references to standards, EMS systems, Ecolabels, and eco-design; and lastly, publishing national action plans for the adoption of green procurement. This support must focus in particular on the SME sector because of its importance in terms of

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<sup>11</sup> See NAT/389, rapporteur Ms Gauci, CESE 645/2008.

<sup>12</sup> OJ C 224 of 30.08.2008, p. 1 (INT/349): *Eco-friendly production*. Rapporteur: Ms Darmanin.

production and employment, which is consistent with the Commission's concern to support such businesses.

2.3.3 ICTs are well placed to help reduce the effects of climate change<sup>13</sup> since ICT products and services can contribute to replacing goods and reducing travel (e.g. by promoting the use of videoconferencing systems). Primary energy consumption – and thus CO<sub>2</sub> emissions – can also be reduced significantly by introducing new forms of work (e.g. teleworking), electronic billing, distance learning or use of online forms, for example.

2.3.3.1 Companies can find new sources of income by providing ICT solutions for services that help other sectors to be more efficient, such as:

- encouraging the identification and realisation of opportunities to reduce greenhouse gases;
- drawing up lists of opportunities for reducing greenhouse gases for companies or sectors;
- strengthening the development of energy-efficiency projects within companies;
- identifying opportunities for reducing emissions in services;
- considering the cost-benefit implications of greenhouse gas emissions as an indicator when evaluating new projects.

2.3.3.2 It may be useful for companies operating in the ICT sector to set up "Climate Change Offices". Such offices could serve to:

- increase the use of renewable or surplus energy;
- ensure that processes are consistent with the company's energy policy, improving the energy efficiency of the processes in question;
- identify the best measures already implemented in the various projects carried out and promote them in the future;
- set objectives for reducing CO<sub>2</sub> emissions;

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<sup>13</sup> According to information from the International Telecommunication Union (ITU), this sector could contribute to reducing CO<sub>2</sub> emissions by over 48.4 million tonnes in ancillary sectors, if adequate solutions are introduced based on telecommunications (health, urban mobility, public authorities, etc.).

- seek accreditation of energy management systems by an external organisation;
- carry out an energy assessment, identifying areas where consumption is highest.

Brussels, 4 December 2008

The President  
of the  
European Economic and Social Committee

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