



International Workshop on

# Energy Efficient Set-Top Boxes & Digital Networks

International Energy Agency, Paris, France.

4-6<sup>th</sup> July 2007



**4<sup>th</sup> & 5<sup>th</sup> July: Energy Efficient Set-top Boxes and Televisions**

**6<sup>th</sup> July: Digital Networks to Enable Energy Efficiency**

This International Conference occurs when Governments around the world are increasingly focused on energy efficiency, energy security and greenhouse emissions. At the same time, analysis in many countries shows that electronic devices are amongst the fastest growing areas of electricity consumption, and a major concern for policy makers.

For many years the IEA has advocated policies to address Standby Power and in 2004 hosted a workshop to focus international attention on 'saving energy in set-top boxes'. Since then, the market has changed and we are now seeing a wider range of products, offering more functionality. In some cases, the products boundaries which existed a few years ago have disappeared and a larger number of devices can be connected by a digital network.

Products and markets for set-top boxes continue to evolve rapidly, and the potential energy impacts of the many devices joined by a home network are larger than previously thought.

These developments pose particular issues for policy-makers seeking to frame effective requirements which increase energy efficiency without limiting market development. A small number of countries have already introduced policy measures for set-top boxes and related devices, several others are on the verge of doing so.

This three-day workshop seeks to provide an international forum where technical and policy issues relating to these types of devices and networks in general can be discussed.

The three days are divided as follows

4<sup>th</sup> July: Simple set-top boxes and televisions.

5<sup>th</sup> July: Complex set-top boxes

6<sup>th</sup> July: Digital networks

***See below for further workshop details.....***

## July 4 & 5, 2007 — Paris

# Energy Efficient Set-top Boxes and Televisions

### Aim

The purpose of this workshop is to bring together stakeholders to share information and discuss technical and policy options to improve the efficiency of set-top box technologies. The scope of the workshop will include 'simple' and 'complex' set-top boxes, and to a lesser extent televisions.

Set-top boxes are devices with growing importance in many homes. Expanding markets for set-top boxes in developed and developing countries, the roll out of digital TV and increased functionality mean that energy consumption appears likely to grow unless governments work with industry to develop appropriate energy efficiency policies.

Programmes to encourage the uptake of more efficient simple set-top boxes have already been developed by the EU Code of Conduct and Energy Star. A number of other countries are committed to implementing voluntary and mandatory policy measures in the near future.

However as set-top boxes evolve, it is apparent that there are many issues which impact on the energy efficiency of these devices. For example, even when the boxes themselves have the technical potential to go into a low-power mode, the connectivity requirements of the TV service provider may prohibit the box from powering down.

Understanding these types of issues is vital if policy measures are to be effective. Further, in this rapidly developing market, it is important that energy efficiency considerations are included in design and business decisions in a way that does not prohibit innovation.

### Topics

Amongst the issues discussed will be the following:

- How to should policy-makers define different types of set-top boxes?
- What technical options are available for increasing the energy efficiency of set-top boxes and their services?
- What test standards have been developed for set-top boxes and televisions?
- What policy measures are governments already taking or are about to implement?
- What metrics should be used to measure performance of these devices?
- What is the potential for international policy co-ordination?

### Who should attend?

The workshop will provide valuable information for policy-makers, consumer electronic experts, regulators, industry representatives, product manufactures, digital television service providers, and NGOs.

July 6, 2007 — Paris

## Digital Networks to Enable Energy Efficiency

### Background

For the past two decades, we have seen an inexorable increase in the degree and sophistication of digital networking across information technology and consumer electronics. This has greatly increased the services these devices provide, increased the power levels they draw, driven up the time many of them spend fully on, and spawned the creation of devices whose only function is to provide connectivity. Electronic networks have been designed and implemented with little regard for energy consumption, and without the involvement of the energy efficiency community, so the resulting large increases in consumption are no surprise. Many aspects of set-top box energy consumption from the first two days of the workshop will apply to other emerging networks for appliances and equipment.

Appliances and equipment in buildings are just beginning this transformation, a path which will lead to them becoming highly networked and controllable, across major traditional end uses such as space conditioning and lighting, as well as security. As in the past, for the most part this will be done for reasons *other than* saving energy, such as greater comfort, control, security, productivity, and entertainment. A likely outcome is *increased* energy use, even aside from the energy needed to power the network itself.

This future is not inevitable. Action now can lay a strong foundation for devices to be interoperable with each other and with people in ways that facilitate maximum energy efficiency. This action will require careful attention from an efficiency perspective to many diverse technical standards that accomplish this interoperability — a few of these already exist but can be amended; many others are yet to be developed.

As an example, consider a simple future room that might have climate controls specific to that space only, sensors for occupancy, temperature, and ambient light, time-based controls, ability to open/close windows and control window shading automatically, and diverse lighting sources that can be dynamically adjusted (in concert with ambient daylight) to optimise the experience and minimise energy used for both lighting and space conditioning, whether someone is present or not.

### Approach

The meeting will consider how energy may be used in buildings in 20 years, when technology has advanced to facilitate wide-spread cost-effective use of many sorts of sensors, controls, and actuators, all connected by wired and wireless networks, and interoperable with highly controllable sources of daylight, artificial light, heat, cooling, and information. Experts in these areas will offer visions of what could be, and some of the underlying technologies necessary to make it happen.

We will have reports on the many existing activities from around the globe that touch on network issues and requirements to fully understand the base from which we are working. Finally, the participants will identify policy, research, and standards activities necessary to get us to the desired future that are not happening at all at present, or not to the degree required. This pro-active approach will be much easier and more effective than attempting to integrate efficiency after systems and standards have been developed.

### Results

The workshop will produce an agenda for global action to put energy efficiency at the forefront of network and communications development, with an approach that encompasses all major energy end uses. Emphasis will be given to electronics with their more advanced network capabilities.

### Who should attend?

We expect a diverse set of participants including those who study or promote energy efficiency, product manufacturers, and standards organizations.