

Introduction to Panel 6: Products and appliances

Panel leader: **Aníbal de Almeida**
ISR-University of Coimbra, Portugal
adealmeida@isr.uc.pt

Panel leader: **Kevin Lane**
AEA Energy and Environment, United Kingdom
Kevin.Lane@aeat.co.uk

Introduction

Energy efficiency measures related to residential appliances, electronic loads, space conditioning, office equipment and lighting present huge cost-effective opportunities to decrease primary energy use and to achieve significant CO₂ emission reductions. There is a continued need to overcome market, policy, trade and information barriers, which prevent the development and delivery of energy efficient products and appliances. Those barriers can be addressed through a combination of policies and programmes. These have been successfully applied over the previous 15 to 20 years, and should continue to be a focus.

Product policy is entering a new exciting phase within Europe. The Framework Eco-design of energy-using products Directive, or the EuP directive, will provide new impetus for European-wide implementing measures, such as minimum energy performance standards and improved energy labels.

This panel addresses recent product developments, load characterisation and well-known policies relating to market transformation, such as labelling and standards. In addition, insights into measures such as procurement, the use of the public sector purse and information campaigns are also covered. Papers will address new areas of research, analysis and interpretation of improving the efficiency of energy using products and appliances.

EVALUATION

Whilst Panel 4 will cover some of the evaluation of previous policy measures, this panel will provide some evaluation of related issues, including costs of efficiency improvements. The basis of many market transformation programmes is based on least life cycle costs to the consumer: Ellis (6,025) suggests that marginal costs for efficiency improvements have previously

been overestimated, meaning that the cost-effective efficiency levels aimed for have not been sufficiently stringent.

STANDARDS AND LABELLING

The traditional approach to market transformation makes use of identifying energy efficiency performance standards. These standards are then used to specify minimum performance standards required for market entry, or performance levels for labelling schemes, whether mandatory or voluntary, or used for performance levels for procurement programmes.

Siderius (6,024) and Nordqvist (6,223) draw inspiration from Japan on how a Top Runner scheme, or components of such a scheme, could be employed in the EU to set performance standards.

The UK has an Energy Savings Recommended endorsement labelling scheme to promote best practice products: Lock (6,248) provides an insight into the merits of this scheme.

A widespread overview of providing information to consumers on the very best products, via Topten, is given by Bush (6,334), along with the reasons why these products are not currently being purchased by consumers.

Efficient circulation pumps offer significant energy savings, especially in northern Europe, where they are integral to many heating systems. Barthel (6,300) reports the first results of an Intelligent Energy Europe project on Energy+ pumps.

Significant energy savings can be made by the introduction of energy-savings materials or products, such as insulation and windows. Avasoo (6,342) throws light on the challenge of a European window energy labelling scheme.

LOAD CHARACTERISATION

Significant savings are available from a buildings perspective. Atanasiu (6,254) details electricity consumption and provides and appraisal of potential savings available. Gruber (6,178) examines this from the perspective of tertiary buildings, whilst de Almeida (6,273) provides significant monitored data from the residential sector.

As an end-use, air conditioning presents significant additional load on an electricity grid: McNeil (6,306) addresses the potential for energy efficiency in the residential sector in developing countries.

INFORMATION TECHNOLOGY AND STANDBY

Increases in energy consumption due to information technology (IT) equipment are expected to be significant. Souchon (6,233) provides an insight into the likely energy demand of the information society due to the infrastructure required.

To redress this and allow reductions in standby, improvements in products and systems will be required: Collins (6,181) examines the energy efficiency options for external power supplies in Australia and New Zealand. Harrington (6,289) goes further to suggest building an international policy framework to address standby power.

LIGHTING AND CONSUMER ELECTRONICS

Two end-uses with potential for increased energy consumption, though also potential for significant energy savings, are lighting and consumer electronics. Lima de Azevedo (6,244) provides a US/EU comparison of consumer adoption of high efficacy lighting technologies while Zissis (6,145) estimates the energy saving impact of labelling high quality compact fluorescent lamps in the residential sector.

A detailed update of energy consumption by consumer electronics in the US is provided by Roth (6,360).

ALTERNATIVE METRICS AND APPROACHES

Many of the approaches and tools for addressing market transformation are well defined, though new approaches can provide new insights. Skumatz (6,317) develops new metrics to measure market developments, where sales and shipment data are deemed to be problematic. Tiedemann (6,288) uses conditional demand analysis to estimate residential energy use and savings. Mowris (6,114) suggests alternative ways to improve the effectiveness of standards and labels.

POSTERS

A rich variety of posters is presented which cover different relevant topics:

Energy down the drain: the energy saving potential in water conservation by Avasoo (6,341) and time-resolved measurements of water consumption in 8 dwellings by Johansson (6,284) addresses water conservation and the links with the associated energy savings.

Two characterisation studies are presented: "Swedish homes – towards a delight future?" by Krantz (6,163) shows the preliminary results of a large Swedish survey and "Field assessment of the urban density of air conditioning use in the United Kingdom in Non Domestic buildings" by Caeiro (6,215) looks at a new load which is reaching increasing relevance.

"The Untapped potential of energy efficient lighting technologies" by Verhaar (6,069) and "A Long-term Scenarios Analysis on LEDs General Lighting in China" by Hong (6,140) present recent developments and potential impacts of energy-efficient lighting technologies.

"Transforming US lighting and appliance markets" by Tiedemann (6,078) and "Introducing the Ordinance on energy efficiency labelling of household appliances on Croatian market" by Kolega (6,062) show market transformation activities in two markets with very different characteristics.

Two posters characterise the use of energy-efficient appliances and its evolution during recent years: "Energy consumption of white goods - what is improving and what is not: analysis of 13 years of sales data in Australia" by Harrington (6,290) and "The impact of new TV technology and increased screen size on the energy consumption of TVs in the home and the need for a more adequate energy measurement standard for TVs" by Keith (6,010)

"Proper sizing of circulation pumps" by Tommerup (6,346) describes field tests of replacing various types of old pumps used for circulating water in heating systems in single- and double-family houses with new types of pumps.

"Danish Electricity Saving Trust's open wireless communication standard" by Wilke (6,052) presents a simple, low cost system based on a global standard that automatically will switch off the electronic equipment not in use.