

Evaluation of the Ecodesign Directive (2009/125/EC) Second stakeholder meeting

Session 1: Effectiveness of the Ecodesign Directive – Findings and next steps



Centre for
**Strategy & Evaluation
Services**



Overview

- **Section One- Approach and methodology**
- **Section Two- Evidence and Findings**
 - Detailed cases : Televisions and Circulators
 - Summary of remaining products
 - Impacts on innovation, market and industry
- **Section Three- Discussion**
 - Request for data
 - Next steps



Section One: Approach and methodology

Approach and Methodology

Questions on effectiveness related to:

- **Fulfillment of objectives** - reducing energy consumption, relevant environmental impacts, 2020 targets
- **Market sizes** - products targeted by Ecodesign requirements
- **Effects of the regulation on the market** - sales volumes, products withdrawal, prices, product variety, consumer choice
- **Rebound effect** - evidence and significance
- **Results from policies in third countries** - comparison with international progress

Sources

- Literature review and secondary data analysis
- Stakeholder meetings
- Online survey of stakeholders
- Interviews (Commission officials, member state officials, industry organisations, environmental groups, standardisation bodies, other experts)

Structure of chapters for each product group

Eleven product groups

- **Introduction and policy challenge**
- **Methodological considerations**
 - Data sources
 - Limitations to measuring effectiveness
- **Baseline**
 - Initial or preparatory studies
 - Implementation requirements
 - Implementation schedule
- **Effects of the Directive**
 - Change from baseline (quantitative)
 - Secondary effects (qualitative and quantitative)
- **Summary**

Challenges and Limitations

- **Limited time period since entry of implementing measures**
 - **Recent adoption** of implementing measures (2009-2010)
 - Long **phase-in period** for introduction of requirements
 - Some products have rather **long life-cycles** which limit the effect of the Directive on the total stock (i.e. 20 + year life cycle for some products)
- **Lack of data**
 - Few data cover the period after measures have been put in place
 - Data from official statistical offices are normally 2-3 years old when released
- **Causality is complex**
 - Change in market is not necessarily a reflection of the effectiveness of the Ecodesign Directive
 - **Attribution**- other instruments may have played a role, too
 - Influence of general technological development and consumer behaviour



Section Two: Evidence and Findings

Case study: Televisions

Characterised by rapid technological and market change, as well as market failure

- Almost complete transition to new technology (LCD and Plasma)
- Consumption not a factor in purchase decisions
- Few incentives to optimize for efficiency

Influenced strongly by consumer behaviour

- High penetration rates (approx 200 percent)
- Longer viewing time per day
- Larger screen average size

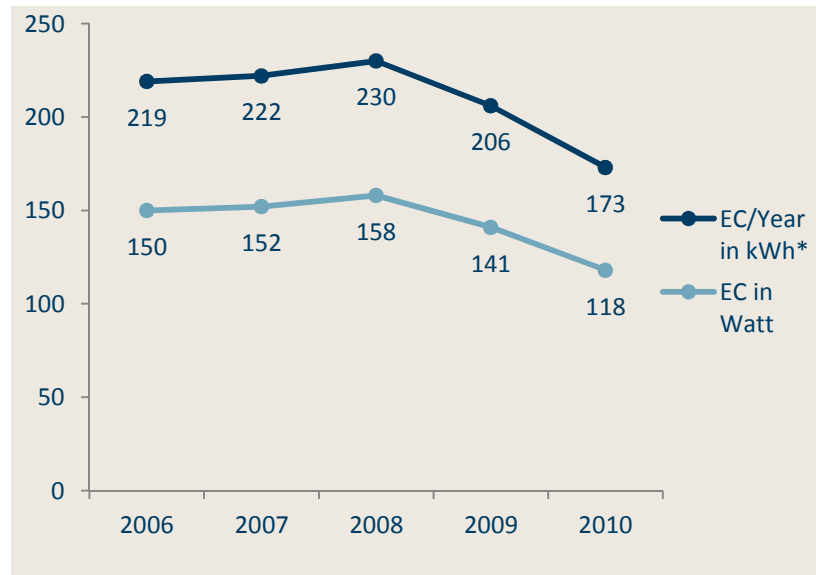
Account for 10 percent of EU household electricity consumption

--2005 Baseline--

Number of products	Energy consumption in EU27	Electricity costs	CO ₂ emission
303 mln. (2005)	54 TWh (2005)	---	24 Mt (2007)

Case study: Televisions

Energy consumption per television set



- Every screen size uses less energy in 2010 than in 2006.
- Aggregate reduction of electricity consumption achieved in 2010.

Improved efficiency offset market and consumer dynamics that had been driving increased electricity consumption:

- While sales of new televisions increased by around 25 % over the period 2008-2010, energy consumption per television dropped by around 25 % in the same period.

However...

- Ecodesign Directive might have facilitated change but data do not provide evidence of a causal relationship
- Results influenced by market-driven introduction of LED technology, independent of Ecodesign

Case study: Circulators

Opportunity for improvement

- Newer, more efficient technologies available (variable speed)
- Well-established and consolidated industry

Affected by market failures

- Price differences between models
- Split incentives - consumers rely on installers for purchasing decisions
- Information asymmetry - long-term savings difficult to calculate

Account for about 2 percent of EU electricity consumption

--2005 Baseline--

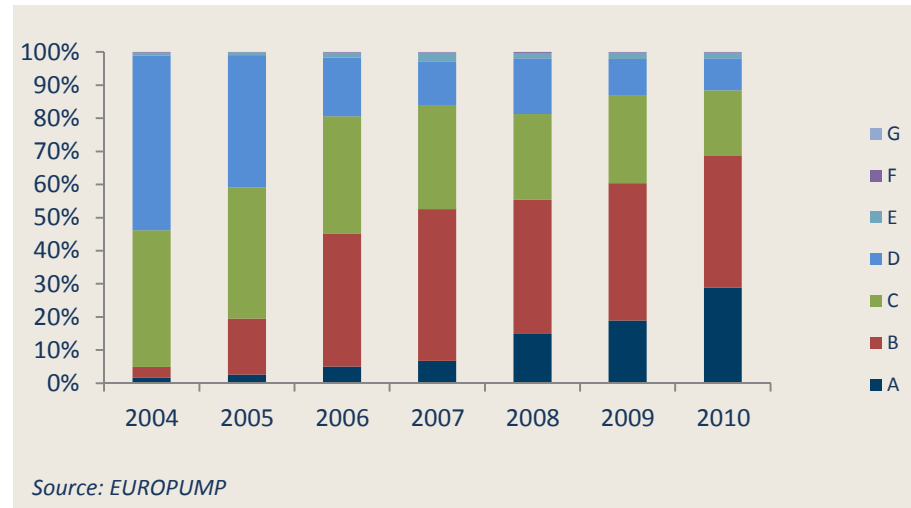
Number of products	Energy consumption in EU27	Electricity costs	CO ₂ emission
140 million	53.2 TWh	---	80 Mt

Case study: Circulators

Clear shift in efficiency over past five years:

- Market share of class A pumps has increased by a factor of 12
- Share of class B increased from 3.3% to over 41.5%
- Share of class C pumps decreased from 41.3% to 26.4%.
- Class D pumps has decreased regularly from over half of the market to 11.1%

Share of each energy class - Circulators (in %)



However...

- Strong yet indirect effect, a clear example of 'announcement effect' or 'signaling effect'
- First milestone takes effect from summer 2011

Summary of Findings-I

Product group (IM into force)	Provisions and anticipated effects	Main findings so far
Standby and off-mode of EuPs (Dec-2008)	<ul style="list-style-type: none"> ▪The requirements came into force January 2010; not fully implemented until 2013. ▪Annual energy savings in 2020: 35 TWh. ▪Accumulated electricity savings by 2020: 194 TWh 	<ul style="list-style-type: none"> ▪Limited quantitative data -- cannot document a direct link between the IM and energy efficiency improvements. ▪Qualitative data -- increased awareness and accelerated efforts to increase efficiency
Domestic refrigerators and freezers (July - 2009)	<ul style="list-style-type: none"> ▪First stage in July 2010, Second 2012, Third 2014 ▪Annual energy savings in 2020: 4 TWh Accumulated electricity savings by 2020: 12 TWh 	<ul style="list-style-type: none"> ▪Label A and A+ class product dominate the market ; improvements probably predate ▪Directive ; No evidence indicating changes related to Ecodesign or preparatory studies
Simple set top boxes (Feb 2010)	<ul style="list-style-type: none"> ▪First stage Feb-2010, Second Feb - 2012 ▪Annual energy savings in 2020: 9 TWh Accumulated electricity savings by 2020: 47 TWh 	<ul style="list-style-type: none"> ▪Very limited data available to assess the effectiveness. ▪The specificity of the market for SSTBs is expected to peak between 2012 and 2016.

Summary of Findings-II

Product group (IM into force)	Provisions and anticipated effects	Main findings so far
Domestic lighting (March 2009)	<ul style="list-style-type: none"> ▪ Six stages running from 2009 to 2016. ▪ Removal of most incandescent lamps by 2009 ▪ Annual energy savings in 2020: 87 TWh Accumulated electricity savings by 2020: 399 TWh 	<ul style="list-style-type: none"> ▪ Indications of change that can be attributed to the IM. Direct impact on incandescent lamps had a significant market share now phased out. ▪ No information on other groups.
Battery chargers and external power supplies (April 2009)	<ul style="list-style-type: none"> ▪ First stage : Oct-2009, Second : Oct-2010. ▪ Annual energy savings in 2020: 9 TWh ▪ Accumulated electricity savings by 2020: no data 	<ul style="list-style-type: none"> ▪ Insufficient data on the effect of the Directive available.
Tertiary lightning (March 2009)	<ul style="list-style-type: none"> ▪ Requirements in three stages – 2010, 2012, 2017 ▪ Annual energy savings in 2020: 38.1 TWh ▪ Accumulated electricity savings 2020: 193 TWh 	<ul style="list-style-type: none"> ▪ Insufficient data available to assess effectiveness at this point

Summary of Findings-III

Product group (IM into force)	Provisions and anticipated effects	Main findings so far
Electric motors 1–150 kW (July 2009)	Three stages: First June-2011. Second and third stages 2015 and 2017. Annual energy savings in 2020: 135 TWh Accumulated electricity savings until 2020: 657 TWh	<ul style="list-style-type: none"> ▪ Insufficient data available to assess effectiveness - Energy efficiency of motors improved over time but no data after 2006. ▪ Shift from fixed speed to variable speed motors expected to improve energy efficiency
Domestic washing machines (Dec-2010)	First stage: Dec- 2011. Second: Dec-2013 Annual energy savings in 2020: 1.2 TWh Accumulated electricity savings until 2020: n.d.	<ul style="list-style-type: none"> ▪ Shift to more efficient products already happening. ▪ No data available indicating acceleration of trend related to the Ecodesign Directive.
Domestic Dishwashers (Dec-2010)	5 stages - First stage: December 2011 last Dec-2016. Annual energy savings in 2020: 1.7-2 TWh; Accumulated electricity savings until 2020: 9TWh	<ul style="list-style-type: none"> ▪ Shift to more efficient products already happening. No data available indicating acceleration of trend related to the Ecodesign Directive.

Effectiveness

Evidence of rebound effect

- Estimates from studies on rebound effect for electrical appliances (range from 10-35%) cannot be verified at this stage
- Trend towards larger size TV sets but no evidence of linkage with increased efficiency of products or the Ecodesign

Comparison with policies in third countries

- Evidence on effectiveness of policies limited at this stage
- Efficiency issues:
 - US: much clearer timetable and more resources dedicated for preparation of studies
 - Australia: Much more effective market surveillance
 - Data submission requirement in US, Australia and Canada – supportive of market surveillance and policy assessment - appears as important omission from Ecodesign

Effectiveness of the Ecodesign Directive

Impact on innovation

- Different views on role and impact on innovation
- Diverging views whether Directive has a role beyond the elimination of the least efficient products and the adoption of already existing technologies.
- Positive
 - The Directive and the IMs **provide the necessary framework conditions, clear timetable and legal certainty** ; supports the operation of a competitive market and favours the development of innovation
- Negative
 - **Delays in the development of the Implementing Measures** for some products can cause **long periods of uncertainty and delays in investment in new technologies.**
 - Suggestions that **requirements are not always ambitious enough** ; Role of Least Life Cycle Cost criterion
 - **No dynamic approach of IMs** together with preparatory study delays often miss market developments
- **Role of advanced benchmarks**
 - Industry indicates limited, if any, practical role
 - The advanced benchmarks defined in the Implementing Measures are, with rare exceptions, not used to set performance standards in public procurement.

Effectiveness – Impact on market and industry

- Too early to assess the effects of the Directive on production costs or profit margins for firms (very limited data available)
- Some indications that prices of EuPs have remained stable or decreased – but not possible to connect with Ecodesign.
- No evidence of adverse effects on importers identified; but reference to the difficulties for non-EU producers and their importers in following the requirements and procedures of the Directive.
- Data available do not allow for any definite conclusions on the impact of the Directive and the IMs on the competitiveness of industry.
- Other factors, including normal market pressures for more efficient products and the emergence of new technologies, are seen to have a more prominent role.

Effectiveness – Global impacts

- Regulators in a number of third countries adopt minimum energy performance standards ; In certain cases, the Ecodesign approach has served as a benchmark (e.g. Russia, Canada, Switzerland, set-top boxes voluntary agreement under development in Australia)
- A few manufacturers aim to “impose” Ecodesign requirements in third countries to avoid diverging regulation
- However, harmonisation of test procedures is the crucial aspect – still important differences despite existing efforts (CLASP, 4E)

Effectiveness of the Ecodesign Directive

Section Three: Discussion

Request for Data

Additional data to support analysis:

- Reports or surveys
 - Shifts in the market shares across the classes of products
 - Different classes of products
 - Aggregate/average efficiency gains achieved
 - Product withdrawal
- Indirect effects of the regulation
 - Sales volumes
 - Prices
 - Product variety
 - Consumer choice
- Additional effects
 - Qualitative changes

Next steps

- Analysis of input from stakeholders
- Aggregate findings from additional literature and data
- Triangulate data from literature with other sources of information
- Finalise analysis

Effectiveness of the Ecodesign Directive



Thank you