Factors influencing the penetration of energy efficient electrical appliances into national markets in Europe

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Report for Defra / the Market Transformation Programme by SoWATT and Bush Energie Gmbh

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Contents

Executive summary

The objective of this study is to identify the "factors influencing the penetration of energy efficient electrical appliances (hereafter also referred to as efficient appliances or efficient models) into national markets in Europe".

In order to achieve this objective, three main sources of information have been used: market data bought from a specialised marketing company (over 1400 graphs), published and grey literature (70 references), and interviews with key stakeholders (29 interviews).

The study covers:

- Seven product categories of domestic appliances bearing the European Energy Label: cooling (or cold) appliances, freezers, washing machines, tumble driers, ovens and cookers, dishwashers and air conditioners.
- Nine European countries, selected for the potential differences they could illustrate:
    - Switzerland (CH)
    - Germany (DE)
    - Denmark (DK)
    - France (FR)
    - United Kingdom (UK)
    - Italy (IT)
    - Netherlands (NL)
    - Poland (PL)
    - Portugal (PT)

The considerable volume of information gathered and analysed shows marked differences between national markets in terms of:

- Market share of efficient appliances and the number of models available for consumers. In summary - high in CH, DE, DK and IT for certain product categories; low in UK and PT
- Purchase price of efficient models: often low in UK and PL; often high in DK, DE and IT
- Electricity prices (purchasing power corrected) – which may be correlated with market shares: high in IT, PL and DE; low in UK and FR

Marked disparities between quantitative and qualitative data have allowed us to develop over 20 hypotheses which can potentially explain these differences. These factors have been identified and classified according to the following themes:

- Factors relating to **energy prices** and **country structure**
- Factors relating to **the appliance market**
- Factors relating to **consumers' attitudes**
- Factors relating to **policy**

Factors relating to **energy prices** and **country structure** include:

- Electricity tariffs and their structure, impacting both consumers and utility companies' perceptions of the economic value of energy efficient appliances;
- The presence of institutions that have a mandate to promote energy efficiency and thus promote efficient appliances;
- The existence of large-scale buyers able to influence the market;
- The impact of the size of the country, which determines the number of stakeholders and creates possible difficulties with control mechanisms within large territories.

Factors relating to **the appliance market** include:

- The type of market – are retailers looking for greater margins and therefore trying to sell efficient models, or are they focused on volume and low-end products? Is the market particularly challenging because of fierce price competition?;
- The range or diversity providing enough/not enough choice to consumers;
- Purchasing prices which are a clear barrier to the wide take-up of energy efficient models. Both the relatively high prices of energy efficient models and low average prices in general (low prices tending to denigrate the offer and increase the focus on price) can be barriers;
- The structure of the retail sector (few powerful players versus more numerous smaller retailers) and business models between retailers and manufacturers (range selection, pricing, commission) – which impact on the policies designed to promote efficient appliances.

Factors relating to **consumers' attitudes** include:

- Consumers' sensitivity to environmental issues, which can make them well-disposed towards energy efficient models;
- Their desire for brands and trusted products which may (or may not) be particularly energy efficient;
- Their focus on purchase price which can override any other sales promotions and can encourage retailers and manufacturers to enter a downward spiral of low purchasing prices;
- Their level of awareness of energy issues in general and the European Energy Label in particular – the penetration of efficient models being greater when consumers know about the label and relate domestic appliances to energy consumption, lower energy bills and wider issues such as climate change.

Factors relating to **policy** include:

- Market transparency and the enforcement of regulations – which have an impact on market stakeholders' behaviour;
- The availability of regular national and European market analysis, covering both sales data and detailed market operations – which could positively influence policy design;
- The general context in which the policies are designed: whether background regulation encourages (or discourages) energy efficiency measures; the time frames within which decisions are taken; stakeholders' involvement, and the current economic crisis.

While no single factor can fully explain the reasons for market differences between countries, all have an impact on the policies that address product efficiency.

The study has also identified 17 policy instruments which are used (or where the use of which is under discussion) to reform the various domestic appliances markets. These instruments are also classified in four main groups:

- **Regulatory measures:** Informative labels; Minimum energy performance standards (MEPS); Enforcement activities – product testing and correct labelling in shops; Taxes on electricity prices; Energy saving and CO_2 reduction obligations on energy suppliers
- **Financial incentives:** Subsidies targeting consumers, retailers, manufacturers; Support for Research and Development; Other types of subsidies
- **Voluntary measures:** Endorsement labels; Information campaigns; Voluntary agreements and programmes; Voluntary target programmes; Training campaigns
- **Other instruments:** Data and market analysis; Public procurement; Technology and cooperative procurement; Identification of most efficient products.

Again, no single policy instrument can be described as fully determinant, because each of them have pros and cons, and for each of them success is very much linked to their detailed design.

However, the nine countries studied have all implemented different strategies:

- In Denmark and United Kingdom, an explicit product strategy is applied with a comprehensive approach, covering all aspects from market research, to regulation enforcement, national endorsement label, voluntary programmes, etc.
- In France, Germany, Italy, the Netherlands and Switzerland, governments implement many activities but not necessarily within a comprehensive framework.
- In Poland and Portugal, fewer measures are implemented, and/or the scope seems to be more limited.

Sales data shows that energy efficient models have very different market shares in the various countries, even when strategies are similar. This suggests that contextual factors are of crucial importance: different tax systems, different electricity prices, different stimuli for energy saving, different consumer cultures regarding product preference, sensitivity to environmental issues, etc. Therefore, success also seems to depend on combinations of policy instruments - combinations which should be chosen carefully and tailored to the factors influencing each national market.

1 - Introduction

One European market, 27 specific markets

The European market for electrical appliances seems to be governed by a paradox. On the one hand, many elements of the supply chain drive the market towards homogeneity: a few large manufacturing companies are present in all countries and able to supply all countries; products are generally similar from a technical point of view, and the European Energy Label facilitates a standardised approach to energy efficiency labelling throughout Europe. On the other hand, this study reveals very important national differences in terms of the market share and supply strategies for efficient appliances.

This paradox can be partly explained by the market structure, which is less international than it initially seems. On the manufacturing side - especially in the white goods sector - sister companies or subsidiaries are often independently managed and, together with retailers, they choose the products they want to sell, influence the marketing of the various brands they manage, and set the price.

Legitimate reasons for national market differences, however, have to be examined through factors specific to each country, such as energy efficiency policies and their enforcement, and electricity prices and purchase price of energy efficient products, as well as cultural anomalies, sensitivities to environmental issues and differences in purchasing power.

The European Energy Label has played a crucial role, firstly in forcing manufacturers to recognise the value of energy efficiency and in raising consumers' awareness. But the labelling of appliances *per se* does not seem to be enough to spontaneously shift the market and result in higher market shares for efficient appliances.

Several Member States have designed policies and implemented measures to support efficient appliances, generally using the energy label as a basis. These measures have included: information campaigns to introduce the label and convey a "go for A" message; training for retailers; the development of endorsement labelling; rebate schemes, and allowing stakeholders to develop their own programmes. Have these policies been effective, and efficient? Have they contributed to more energy efficient appliances being sold, not only in the short-term, but also in the longer term? What are the factors influencing the success of energy efficiency measures, and which preconditions are hindering the sale of energy efficient appliances?

Methodology

In the course of this study, information was gathered from selected European States and analysed in order to provide answers to the questions posed on the previous page. Energy efficiency policies for appliances across nine selected European countries and their impact on the sale of energy efficient appliances were compared – whilst taking into account contextual factors.

The study covered the following nine countries:

- Switzerland (CH)
- Germany (DE)
- Denmark (DK)
- France (FR)
- United Kingdom (UK)
- Italy (IT)
- Netherlands (NL)
- Poland (PL) and
- Portugal (PT)

The countries selected illustrate markets of differing sizes, with differing attitudes towards energy efficiency, and cultural and geographical differences. Furthermore, differences in general policy framework are illustrated (EU – non-EU members), and the countries selected allow comparisons to be made between the implementation of a large market transformation programme and the implementation of more limited measures promoting energy efficient appliances.

Three main sources of information have been used in this study: market data bought from a specialised marketing company, published and grey literature, and interviews with key stakeholders in the various countries.

For the EU-countries, GfK[1]-sales data on major domestic appliances covered by the European Energy Label for the years 2004 – 2008 was obtained. For Switzerland, sales data was separately researched from FEA and eae[2]. More than 1 400 GfK-graphs were analysed in the framework of this study. The seven product categories selected cover the following sub-categories:

1. Cooling (also known as "cold") appliances
    - "1 door": refrigerators with one external door, possibly including a small freezer compartment.
    - "2 door": fridge/freezers with two external doors, with a relatively small freezer compartment on top of the larger refrigerator.
    - "Combi": fridge/freezers with two or more external doors, with a rather large freezer compartment at the bottom and a cooling compartment of equal or larger size on top of it. Usually these appliances have one compressor, but can also have two compressors.
    - "Table top": small 1 door refrigerators which can be put under a shelf. They might also have a small freezer compartment inside.

[1] www.gfk.com

[2] Fachverband Elektoapparate Haushalt und Gewerbe Schweiz (FEA), 2007 and energie agentur elektrogeräte (eae)

- "US-Style": large-volume fridge/freezers with two vertical doors, the freezer compartment possibly being narrower than the cooling compartment.

2. Freezers
   - Upright freezers
   - Chest freezers

3. Washing machines (also known as "wet" appliances)
   - Small washing machines[3]: for less than 6 kg of laundry.
   - Large washing machines[4]: for 6 kg of laundry or more.

4. Tumble driers
   - Condenser driers: condenser driers condense the humid air, collecting the water.
   - Ventilation (or evacuation) driers: these driers channel the humid air outdoors.

5. Ovens and Cookers
   - Ovens: baking appliances, without hotplates
   - Cookers: one appliance containing hotplates and an oven. The energy label however refers to the oven only.

6. Dishwashers (also known as "wet" appliances)
   - Small dishwashers[5]: for less than 12 place settings.
   - Large dishwashers[6]: for 12 or more place settings.

7. Air conditioners
   - Mobile air conditioners: air conditioners in one piece.
   - Split air conditioners: with external compressor.

In relation to the literature review, almost 70 published articles covering energy efficient appliances have been examined. Most of the literature was found in major, well regarded energy journals and books, proceedings of targeted conferences (eceee and EEDAL) and pieces of grey literature. The focus was on literature from Europe in order to cover policy instruments applied in Europe, but some more international sources have also been used. As the topic of domestic appliances in Europe is quite specialised, many sources were only of partial relevance. Some sources were not used because their content was outdated.

29 qualitative interviews have been conducted with policy officers, experts and different market stakeholders, between mid January and mid March 2009. 20 of these experts were interviewed face-to-face, and nine by phone. 14 interviews were held with policy officers from government and administration, six with experts from the manufacturing industry[7], four with researchers, three with retailers and two with NGO experts. The interviewees represent all countries covered by the study: CH (1), DE (2), DK (4), FR (2), UK (5), IT (6), NL (1), PL (3), PT (3), International (2).

[3] This is a marketing definition, different from the technical classification of washing machine sizes: from a technical point of view, small washing machines would cover 4kg of laundry or less, normal size machines 5 – 7 kg and large washing machines 8 - 10 kg.

[4] ibid

[5] This is a marketing definition, dishwashers for 12 place settings are generally considered of "normal" size.

[6] ibid

[7] The wording "Manufacturer" in this study covers both producers and importers.

Overview

The considerable volume of information from all countries, both qualitative and quantitative, was compared and analysed to find patterns of successful energy efficiency policy instruments and to identify barriers and supportive factors influencing the market. Notable findings are highlighted, described and discussed below. There are several aspects which were only touched upon in this study that would be worthy of further investigation, with the use of complementing data sets and qualitative methods.

The study is structured in three sections, plus appendices:

Section 2 examines the *market share of efficient appliances:* efficiency class distribution of appliance sales over the past four years for the nine countries covered by the study, country by country comparison of sales distribution and diversity of efficient appliance offerings across different markets.

Section 3 on *influencing factors* describes the 28 factors influencing the penetration of energy efficient appliances into national markets which have been identified in the research phase. Each factor's effects are described, the evidence presented and short policy recommendations are made. Results from interviews largely helped to determine the influencing factors.

In the fourth section on *policy instruments*, 17 different policy instruments aimed at increasing market share of energy efficient domestic appliances are presented. A description and overview of their implementation in each of the relevant countries is provided for each instrument, and pros and cons are discussed, based on findings from interviews and, more significantly, from the literature review.

Appendix A contains a country comparison matrix. It provides an overview of the main contextual elements, product and price anomalies across all product categories covered as well as existing policy instruments across all studied countries and in the EU.

Appendix B presents a list of nearly 70 references and links to relevant country-specific and European websites.

2 - Market share of energy efficient appliances in European countries

In this section the overall picture of energy efficient appliances in the nine studied European countries is presented. The data first highlights a number of developments that have taken place over the last four years, with particular focus on revealing differences between countries, and also provides details of consumer choice in each country in 2008.

The graphs show market share according to the energy class for seven product categories:

- Cooling appliances, i.e. all types of refrigerators and refrigerators-freezers but not including freezers which are considered separately
- Freezers, both upright and chest models
- Washing machines[8]
- Dishwashers
- Tumble driers
- Ovens and cookers
- Air conditioners[9]

Data for the eight EU-countries was obtained from GfK[10]; for Switzerland from FEA and eae[11].

Before the market data is presented, a brief summary of the potential energy saving impact of efficient appliances is provided.

2.1 – Rough estimation of maximal saving potentials

The table overleaf is included as it provides an overview of the maximum savings that can be made when inefficient appliances are replaced with very efficient ones. The table shows, for example, that replacing cooling appliances (A++ instead of B) leads to large savings (2550 kWh per appliance over 10 years); while virtually no savings are currently likely with dishwashers, as nearly all models are of the similar energy efficiency. Thus this table shows the potential impact of national energy policies under the current European Energy Label. After the ongoing revision of the energy label, the scope will hopefully be greater for the Member States.

Assumptions

The table shows electricity consumption of very efficient appliances (according to energy label and www.topten.info), of inefficient appliances (according to energy label) per year and the difference between them during their (assumed) life cycle of ten years.

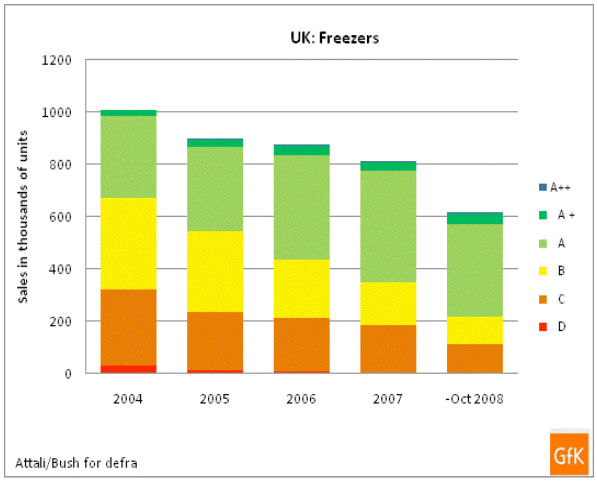
[8] Except combined washing-drying appliances
[9] Data available for 6 countries only
[10] www.gfk.com
[11] Fachverband Elektoapparate Haushalt und Gewerbe Schweiz, 2007 and energie agentur elektrogeräte, http://db.eae-geraete.ch/ on March 10th, 2009

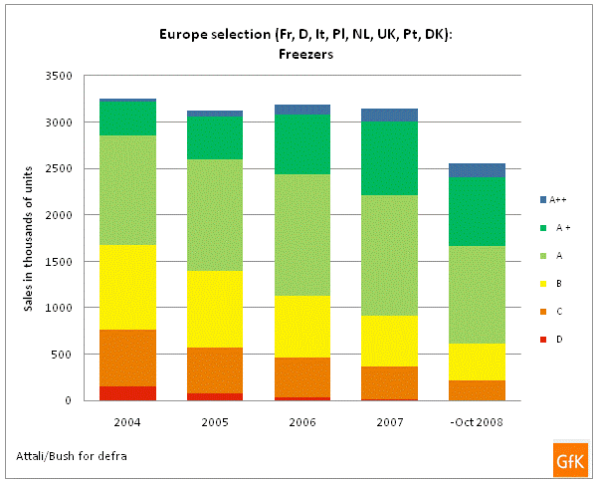
Category	Criteria	Efficient kWh/a	Inefficient kWh/a	Potential kWh over 10 years
Cold appliances	A++ versus B	170	425	2550
Ovens and cookers	A versus B	115	143	280
Dishwashers	A versus A	260	260	0
Washing machines	A+ versus B	170	230	400
Driers	A versus C	320	640	3200
Air conditioners	A versus D	500	615	1150

2.2 – 2004 / 2008 – Striking differences between national markets' development

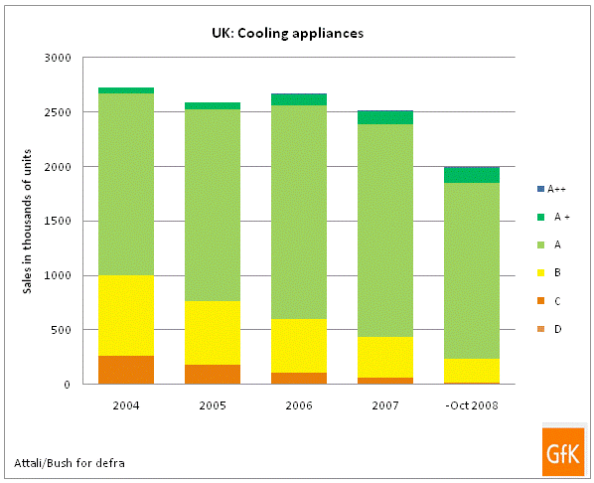
Specific examples within the data have been selected to illustrate differences between countries in terms of market penetration of efficient models, and market developments over the last four years. In section 2, factors and hypotheses are identified to help develop a greater understanding of these differences.

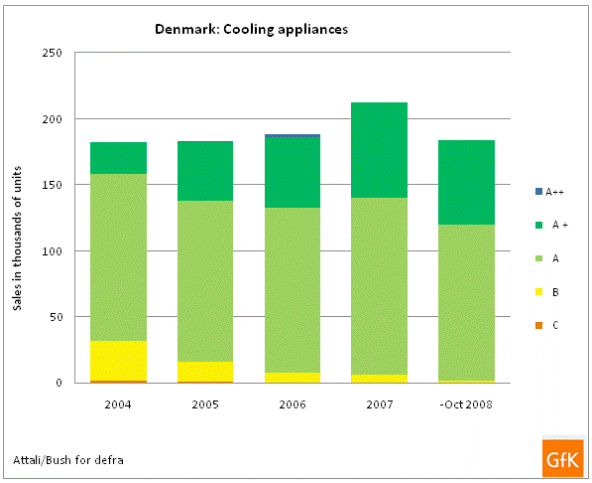
Sales figures show that in both UK and in EU-8 the share of D-, C- and B-class freezers has decreased continuously. In EU-8 overall, A+-class has started to play a considerable role, while A++ is emerging. The introduction of A++ is not, however, evident in the UK.



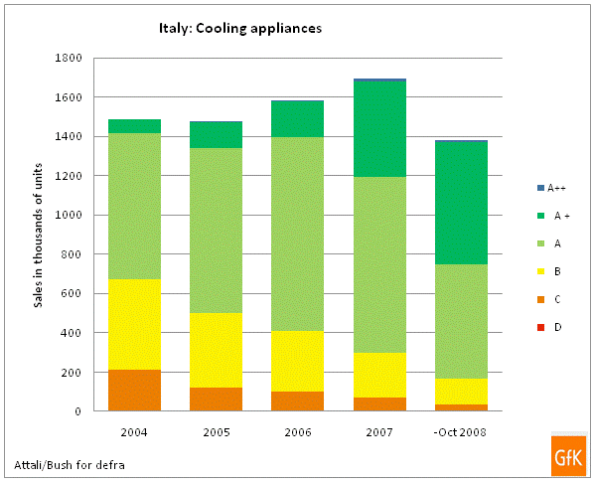


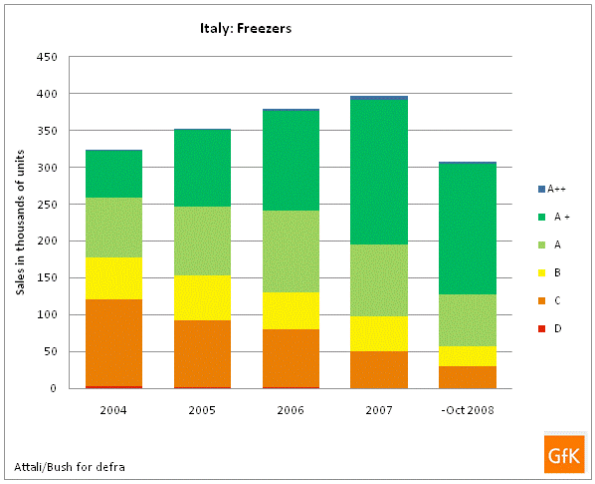
The appliance policies of UK and Denmark show some strong parallels. They both have active institutional players (Defra, Energy Savings Trust/DEA, Elsparefonden) and national endorsement labels. Even so, the introduction of efficient cooling appliances onto the market still varies markedly by country due to different market structures and consumer awareness.



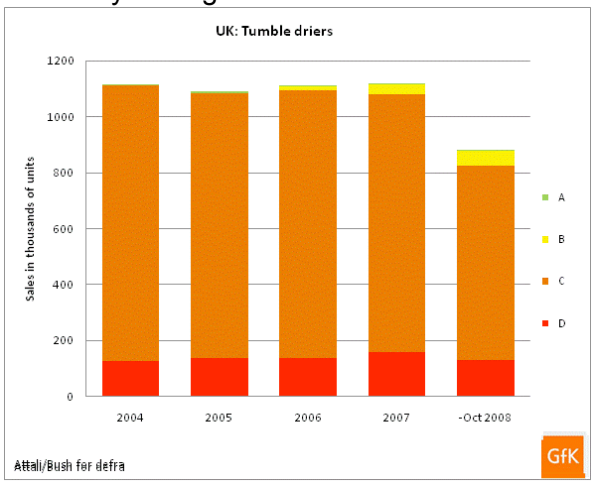


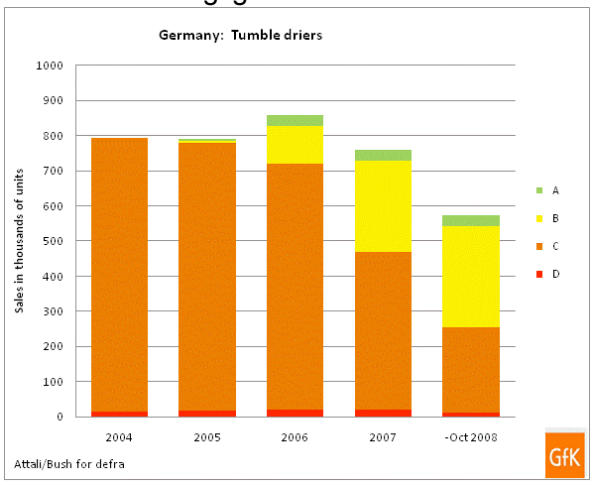
The market share of A+ cold appliances is increasing steadily in most European countries, however in Italy 2007 shows a sudden increase of A+-class, illustrating the success of the nationwide rebate programme that began in 2007.



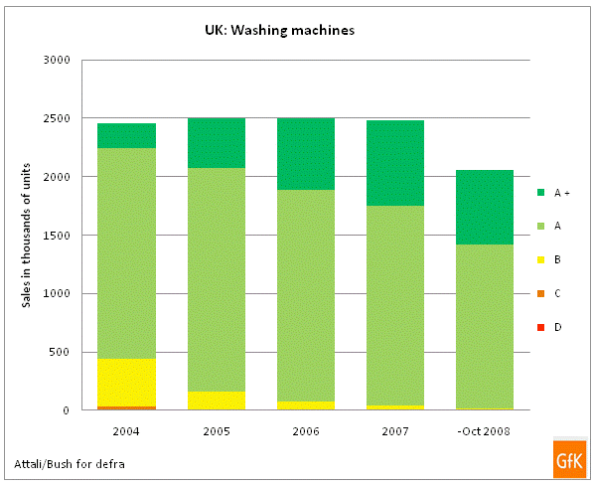


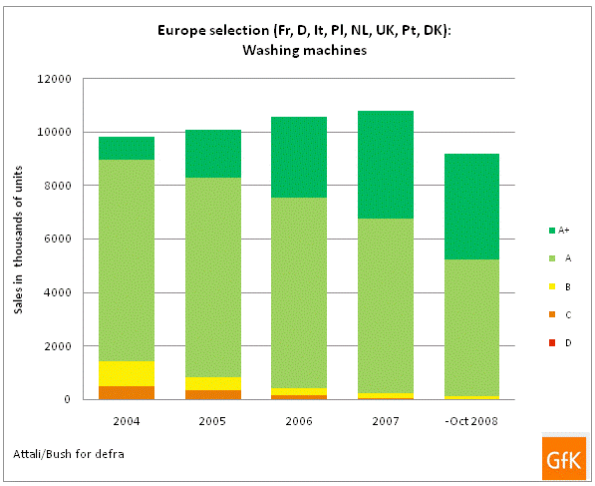
Tumble driers are very popular in UK as in other northern European countries. As A-class tumble driers are twice as efficient as B or C-class driers, there are potentially great electricity savings. The difference between B and C driers is negligible and of little relevance.



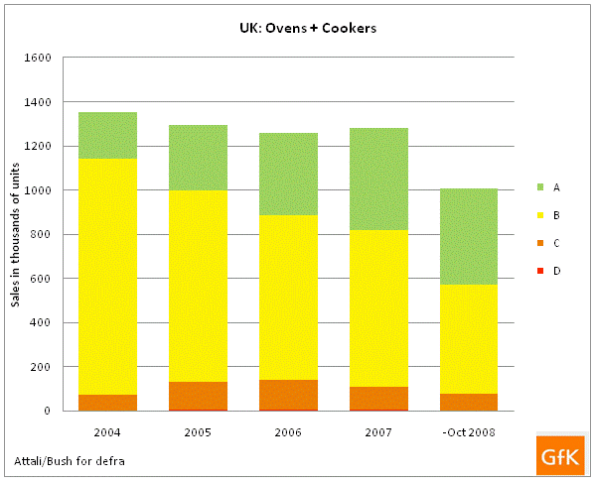


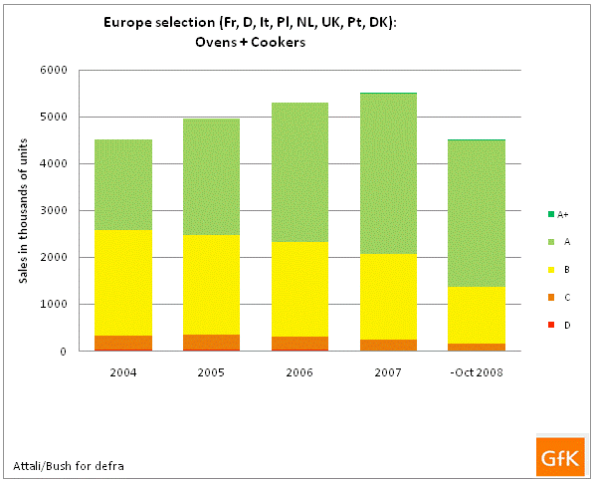
For many years nearly all washing machines have been A-rated: and the labelling scheme is now outdated. The A+ class results from a voluntary agreement between CECED manufacturers only (non-regulatory).





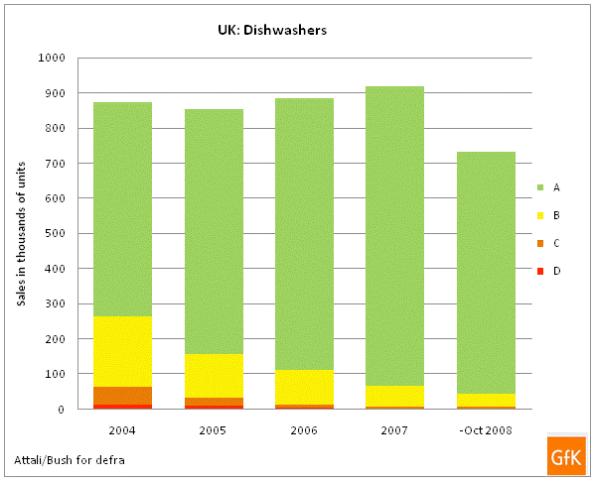
The market share of A-class ovens and cookers is increasing steadily[12].

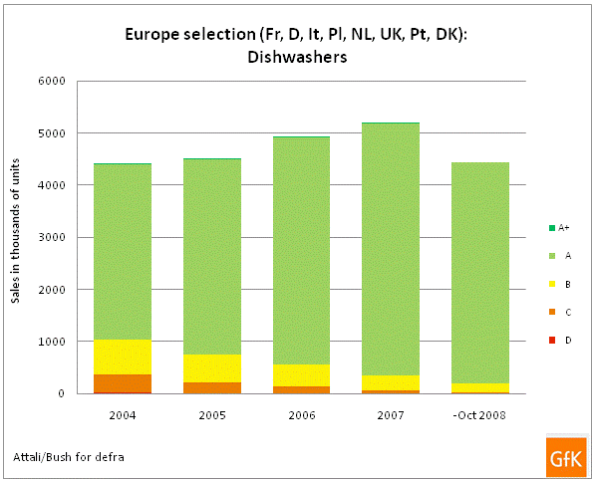




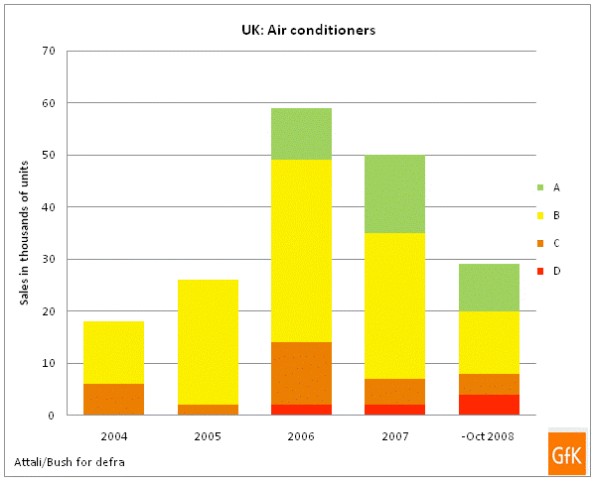
[12] Note: A+ cookers do not actually exist. The reference to A+ models above reflects a misuse of the energy label by one manufacturer in Poland.

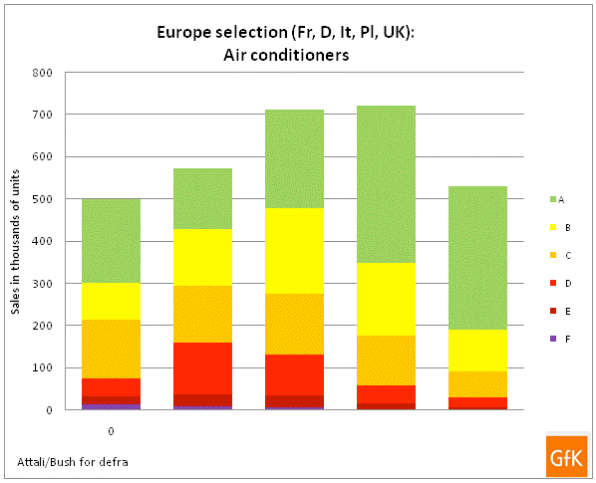
For dishwashers, A-class has held a market share of 80% or more for many years. The label no longer assists with product differentiation and is in need of updating.





Due to its colder climate, air conditioners are not very popular in UK and are of limited relevance. In more Southern countries, the relevance of this fast growing market is important and the energy classes have to be considered.





2.3 – The market picture in 2008

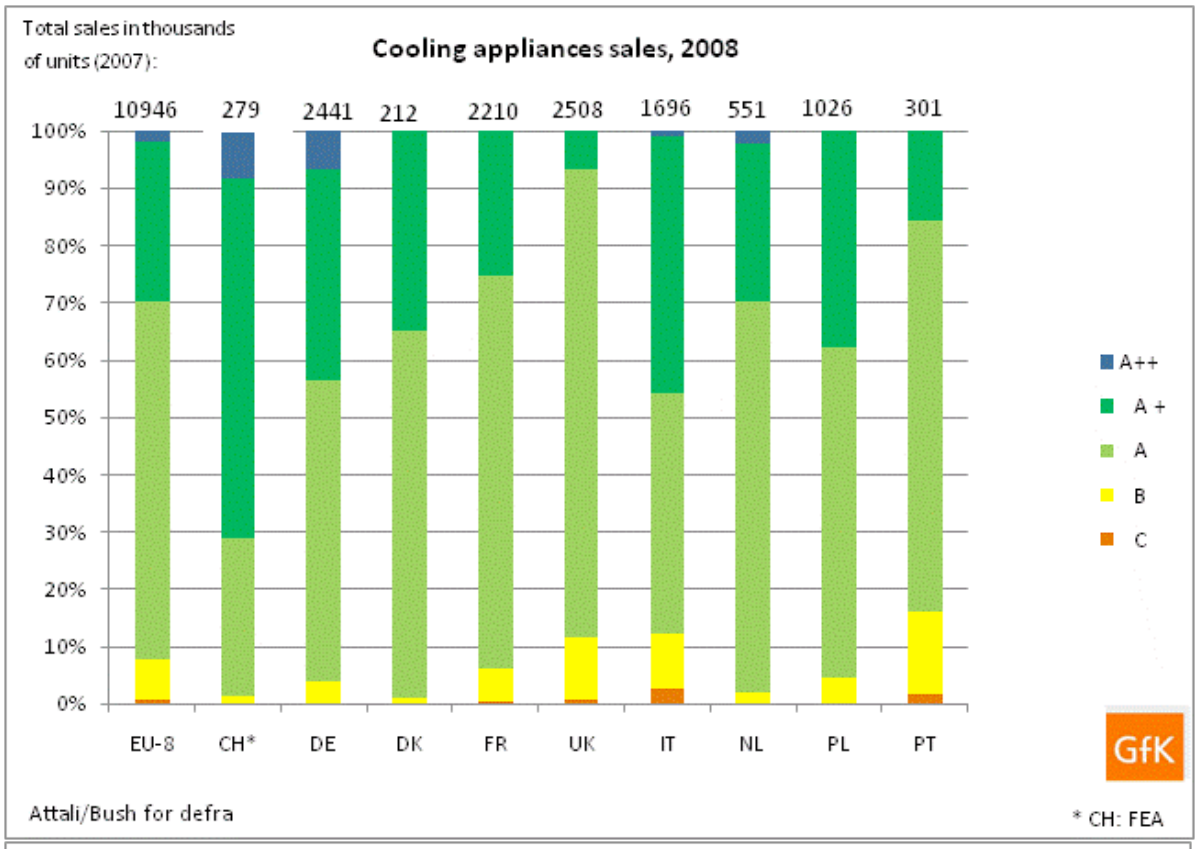
The graphs below show the 2008 (10 months, from January to October) sales share and the number of models available by energy class. For the comparisons between countries, the numbers given are those of 2007, the last year for which full data was available

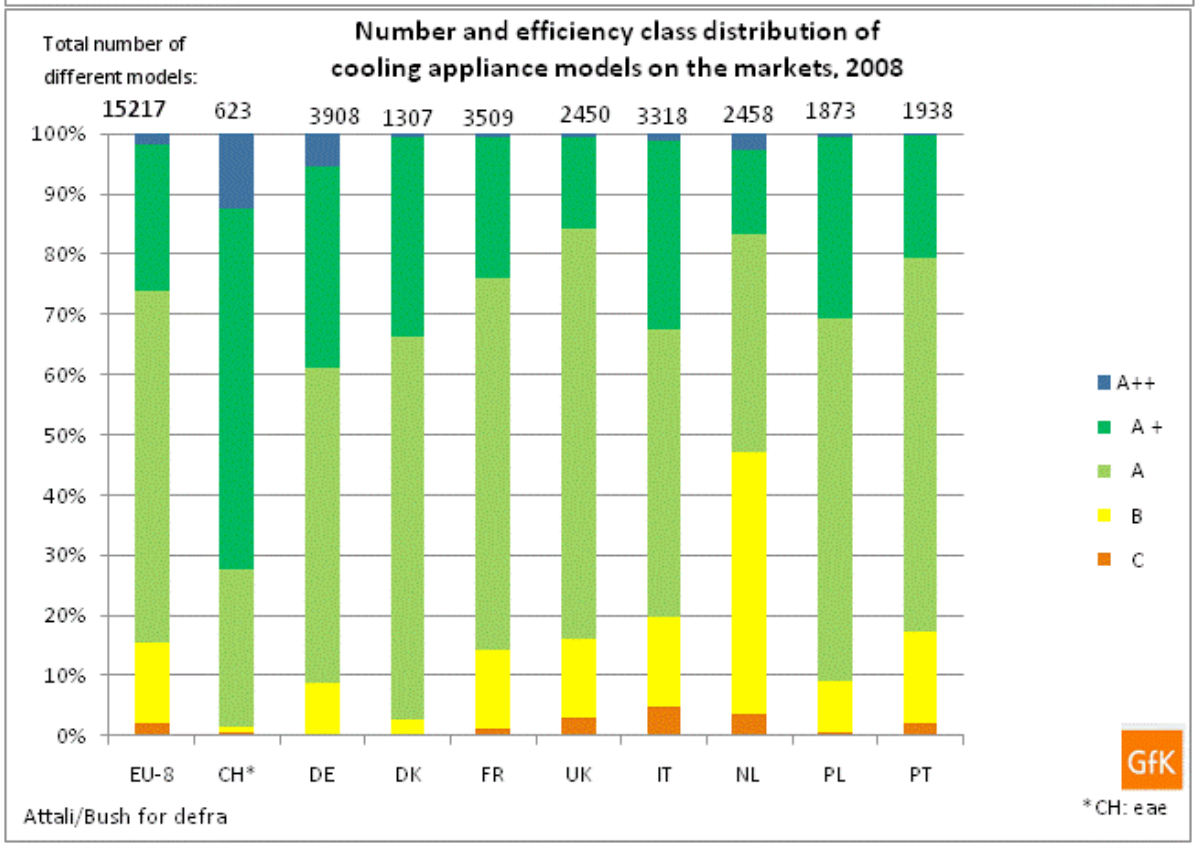
Although the nine countries studied are governed by the same basic legislation on energy labelling and minimum energy performance standards, and are supplied by the same manufacturers, there are marked national differences in the market share of efficient models across all product categories.

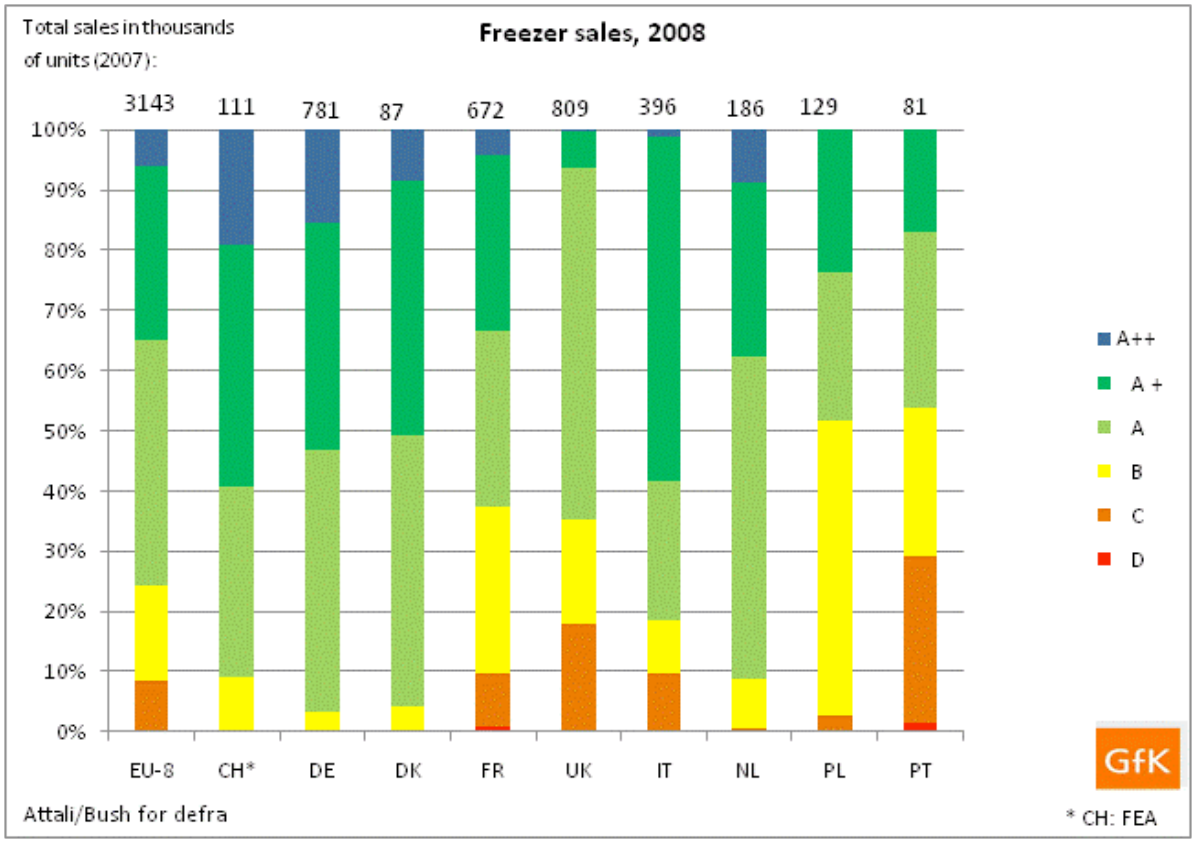
The relationship between market share and the number of models of the same energy class available generally follows a similar pattern i.e. the larger the offer, the greater the volume of sales in each energy class.

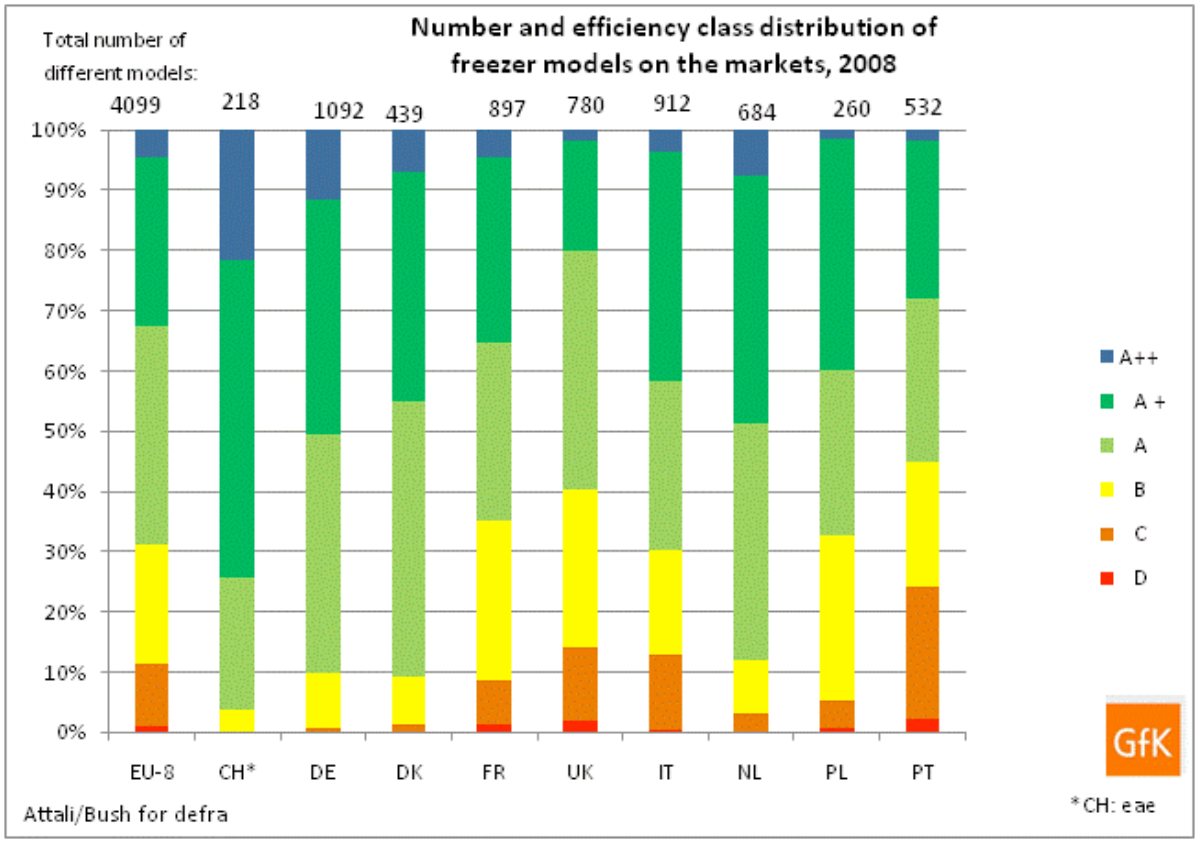
However, the issue of what constitutes a single model and how to define different models has not been well defined by the industry and it currently varies according to brand policy (identical models with different names or vice versa), or by country (same models may have different reference names). There may also be gaps in our understanding by distribution channels (the follow-up data by GfK is focused on retailers). Therefore, information on the range or variety of products must be viewed with caution. In particular, the EU-8 average is presumed to be higher on paper; with a lower number of different models actually available on the various national markets.

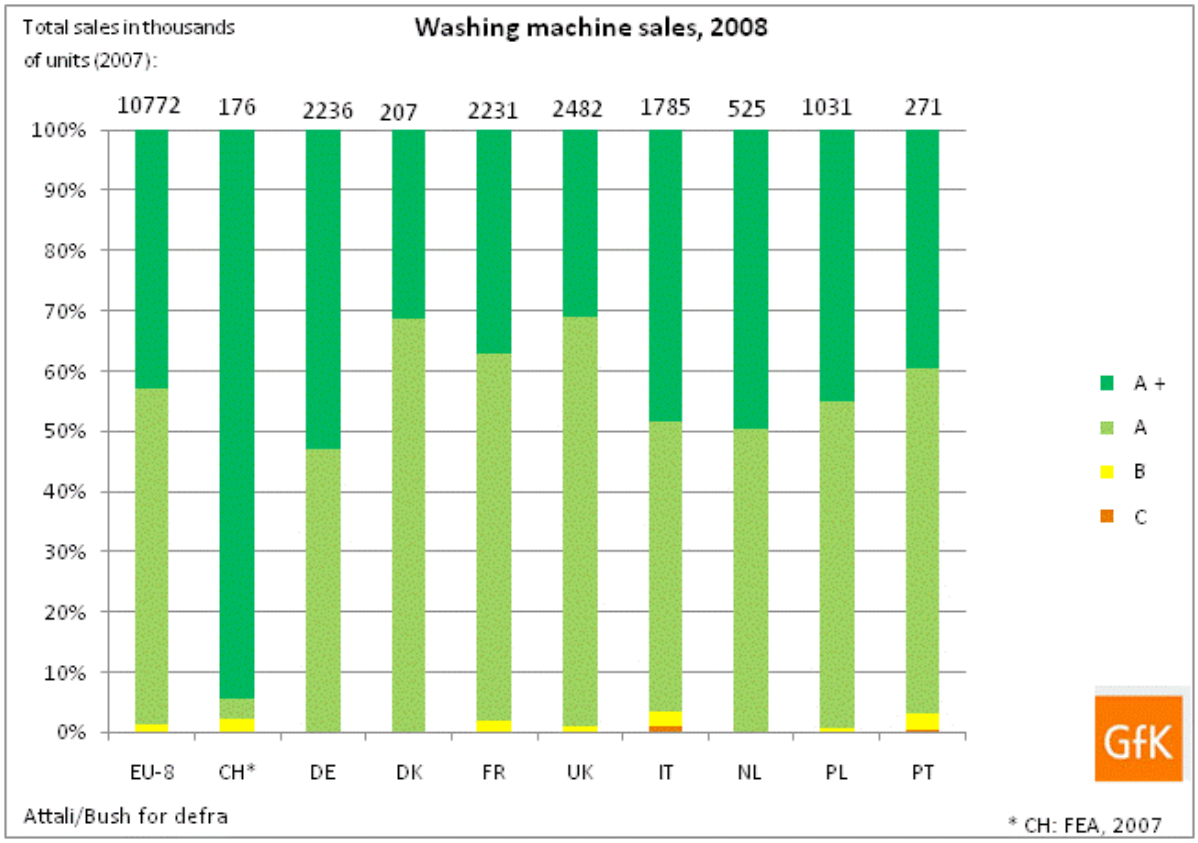
The sales distribution graphs allow for an easy comparison of the situation between the different countries in 2008.

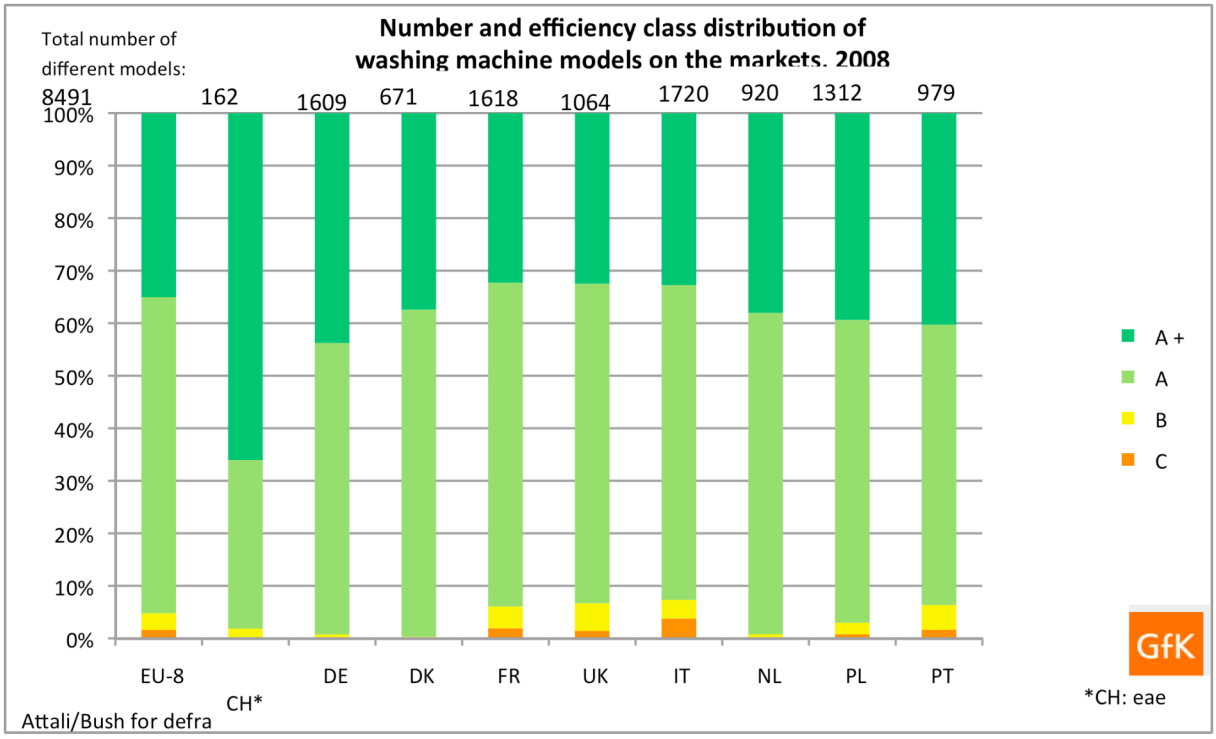

Total sales in thousands of units (2007):
Cooling appliances sales, 2008
10946
279
2441
212
2210
2508
1696
551
1026
301
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
EU-8
CH*
DE
DK
FR
UK
IT
NL
PL
PT
A++
A +
A
B
C
GfK
Attali/Bush for defra
* CH: FEA


Total number of different models:
Number and efficiency class distribution of cooling appliance models on the markets, 2008
15217
623
3908
1307
3509
2450
3318
2458
1873
1938
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
EU-8
CH*
DE
DK
FR
UK
IT
NL
PL
PT
A++
A +
A
B
C
GfK
Attali/Bush for defra
* CH: eae

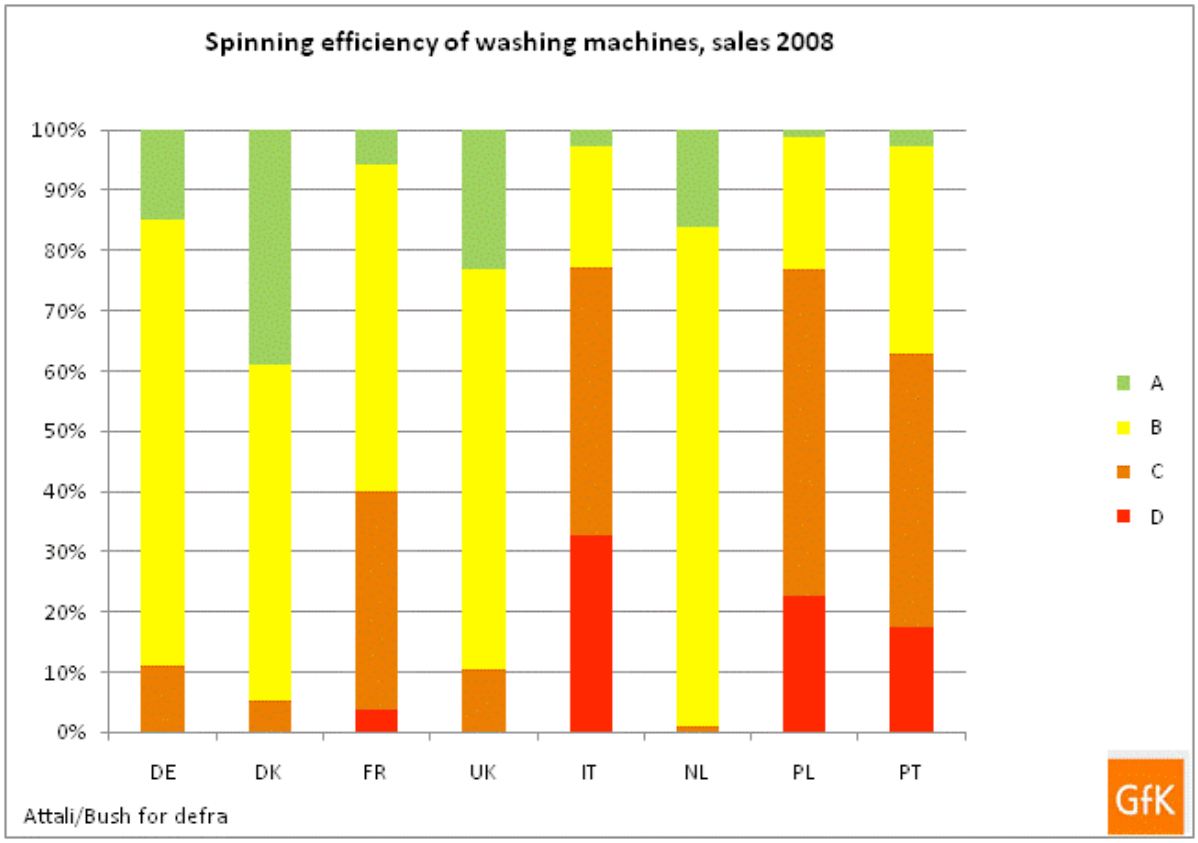

Total sales in thousands of units (2007):
Freezer sales, 2008
3143
111
781
87
672
809
396
186
129
81
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
EU-8
CH*
DE
DK
FR
UK
IT
NL
PL
PT
A++
A +
A
B
C
D
GfK
Attali/Bush for defra
* CH: FEA

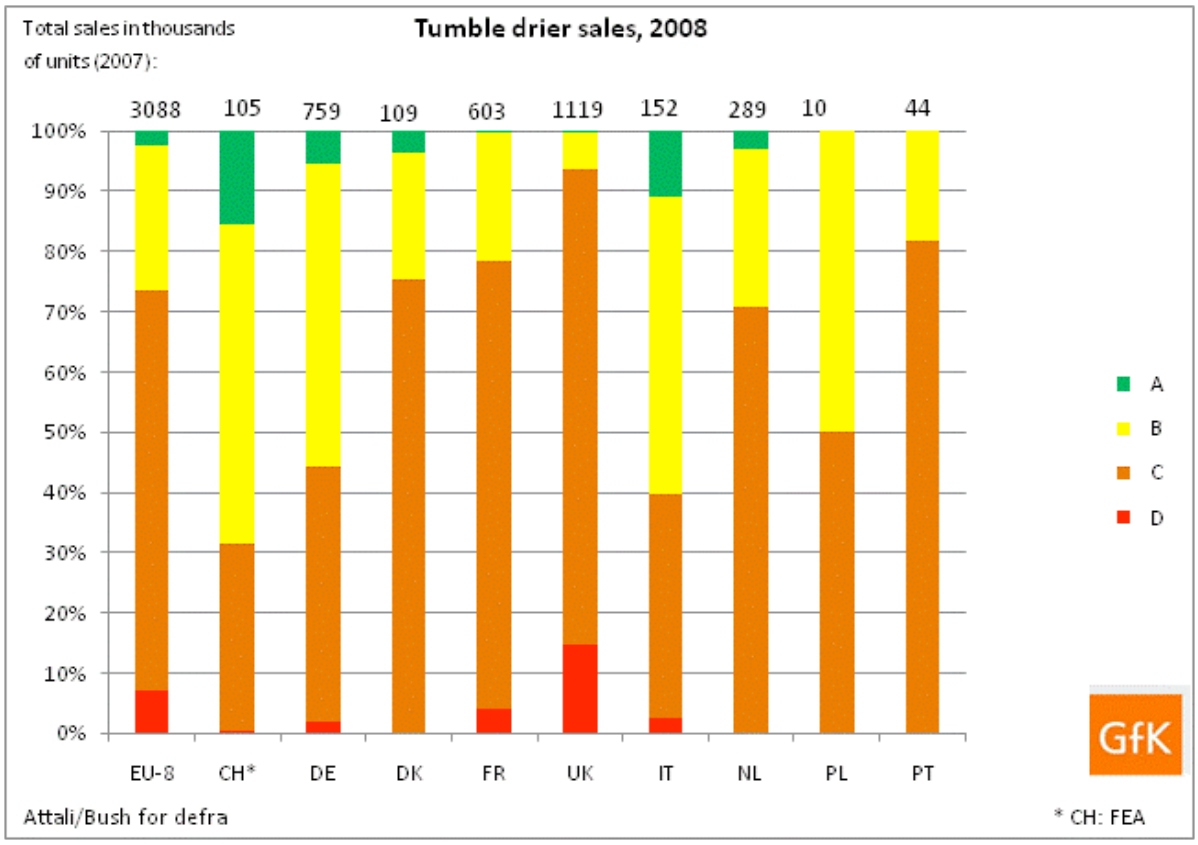

Total number of different models:
Number and efficiency class distribution of freezer models on the markets, 2008
4099
218
1092
439
897
780
912
684
260
532
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
EU-8
CH*
DE
DK
FR
UK
IT
NL
PL
PT
A++
A +
A
B
C
D
GfK
Attali/Bush for defra
*CH: eae


Total sales in thousands of units (2007):
Washing machine sales, 2008
10772
176
2236
207
2231
2482
1785
525
1031
271
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
EU-8
CH*
DE
DK
FR
UK
IT
NL
PL
PT
A +
A
B
C
GfK
Attali/Bush for defra
* CH: FEA, 2007


Total number of different models:
Number and efficiency class distribution of washing machine models on the markets, 2008
8491
162
1609
671
1618
1064
1720
920
1312
979
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
EU-8
CH*
DE
DK
FR
UK
IT
NL
PL
PT
A +
A
B
C
GfK
Attali/Bush for defra
*CH: eae

The spinning efficiency of washing machines is also important, as it has an impact on the energy consumption used for drying indoors.




Total sales in thousands of units (2007):
Tumble drier sales, 2008
3088
105
759
109
603
1119
152
289
10
44
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
EU-8
CH*
DE
DK
FR
UK
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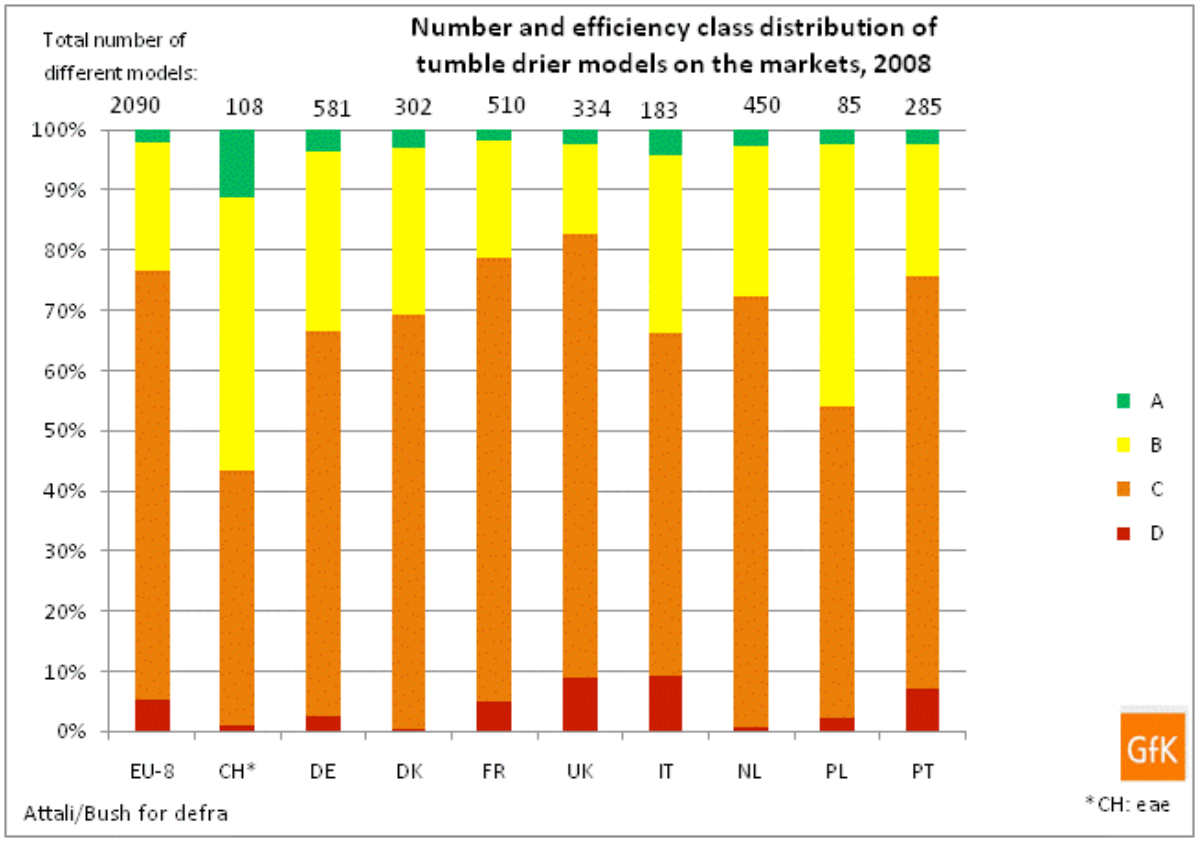
PT
A
B
C
D
GfK
Attali/Bush for defra
* CH: FEA


Total number of different models:
Number and efficiency class distribution of tumble drier models on the markets, 2008
2090
108
581
302
510
334
183
450
85
285
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
EU-8
CH*
DE
DK
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A
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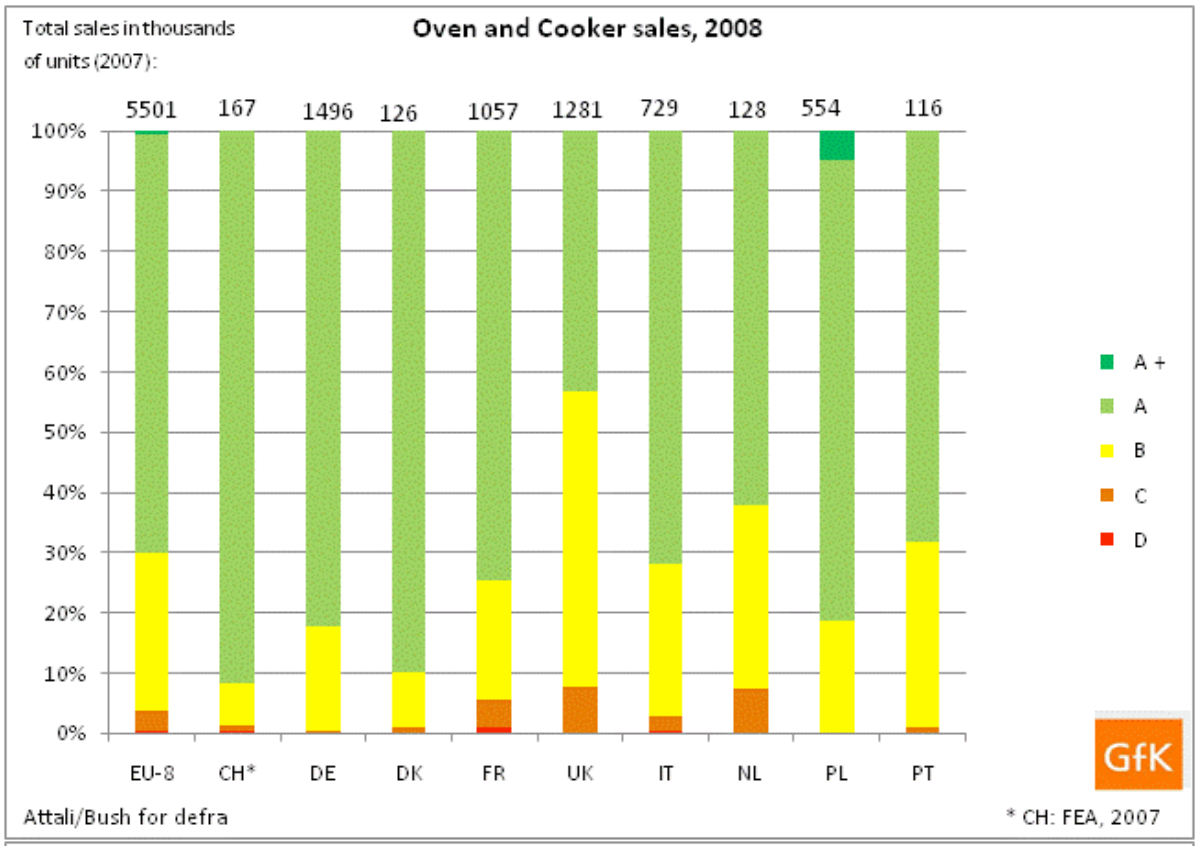
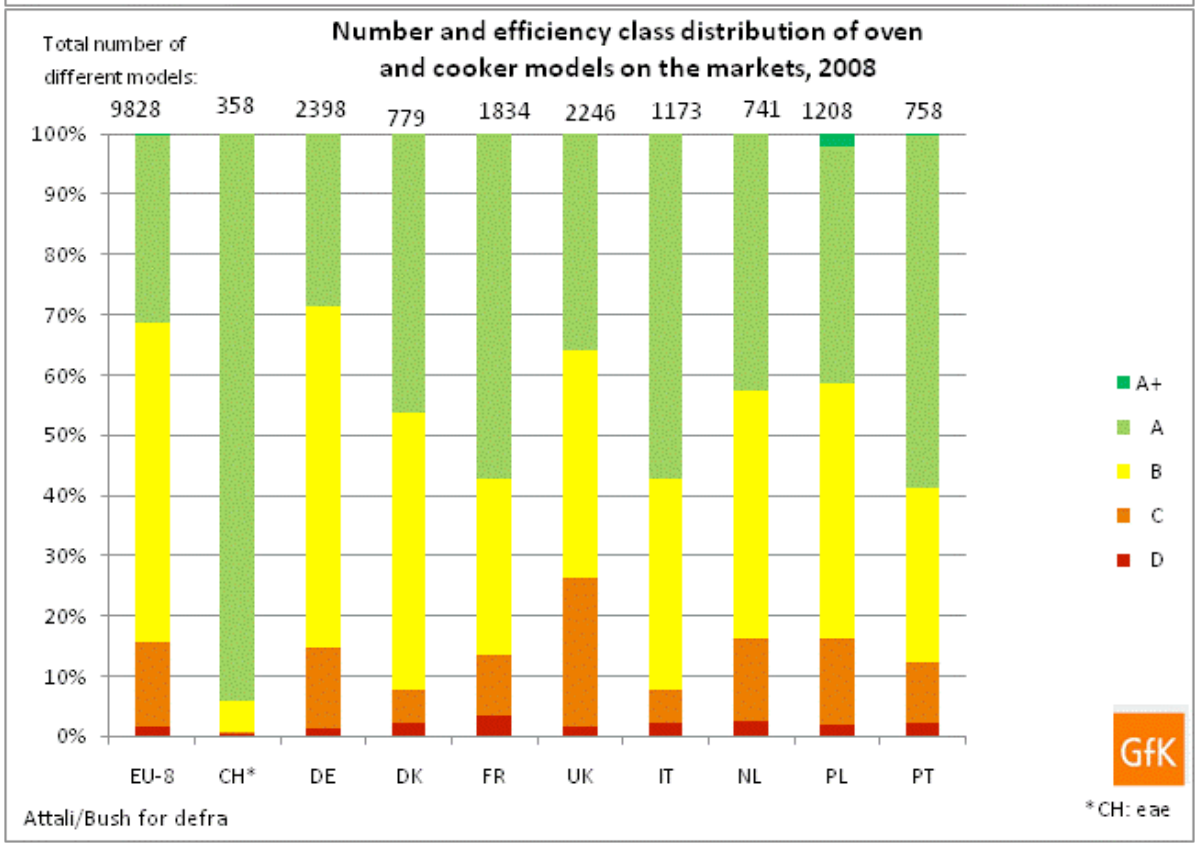
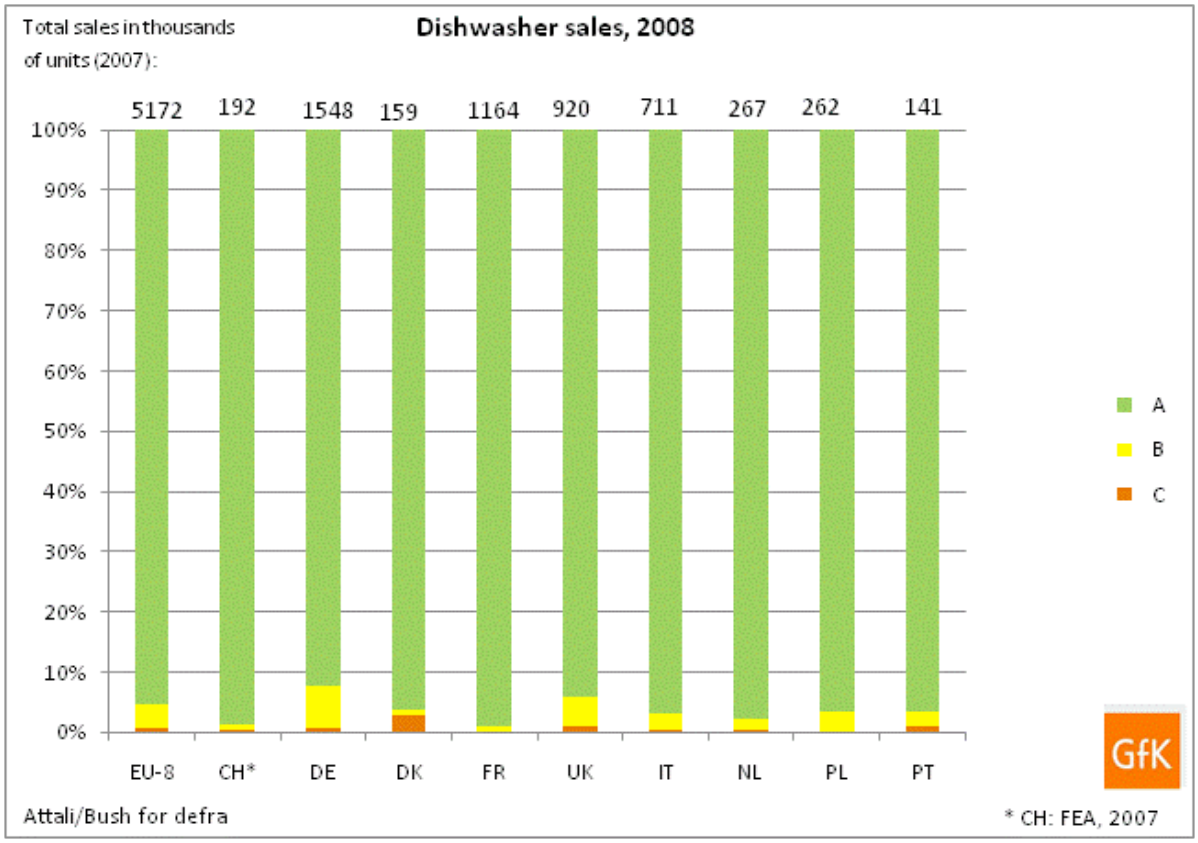
Attali/Bush for defra
* CH: eae

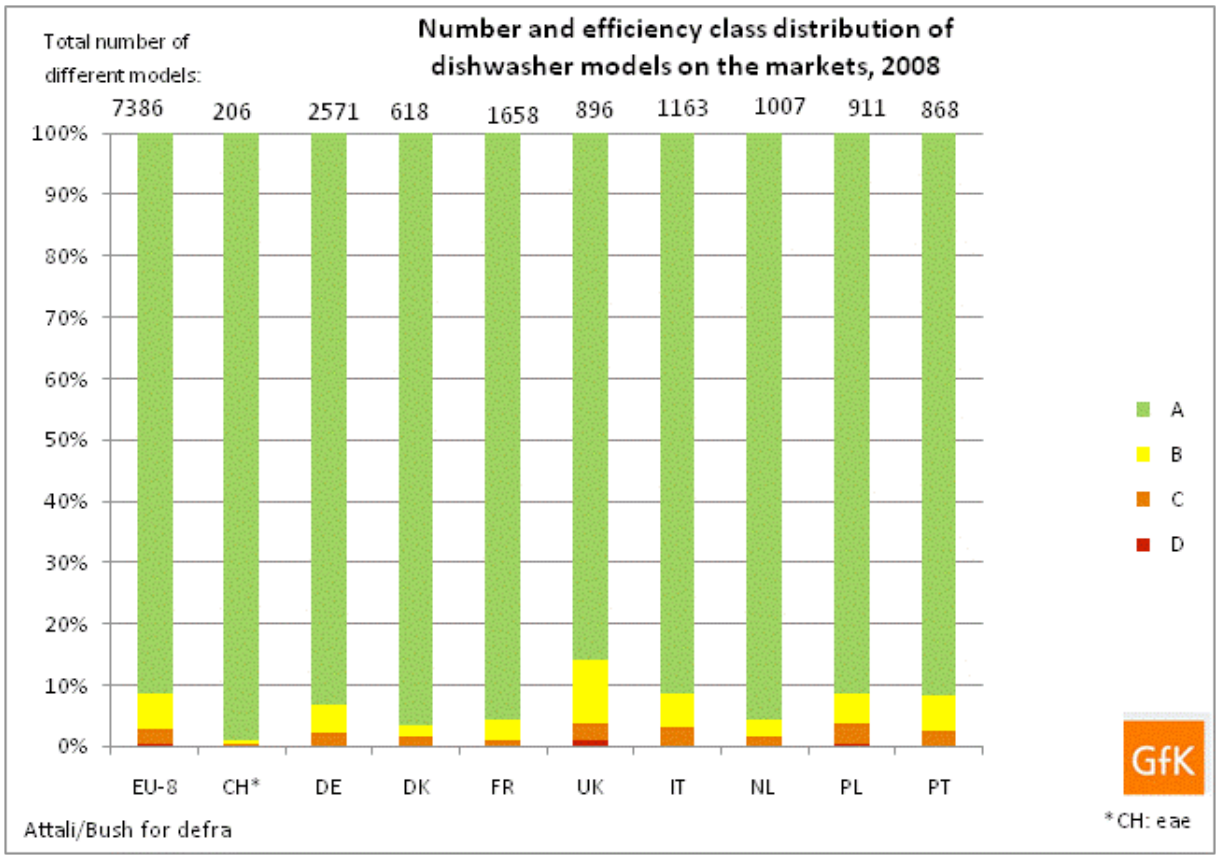


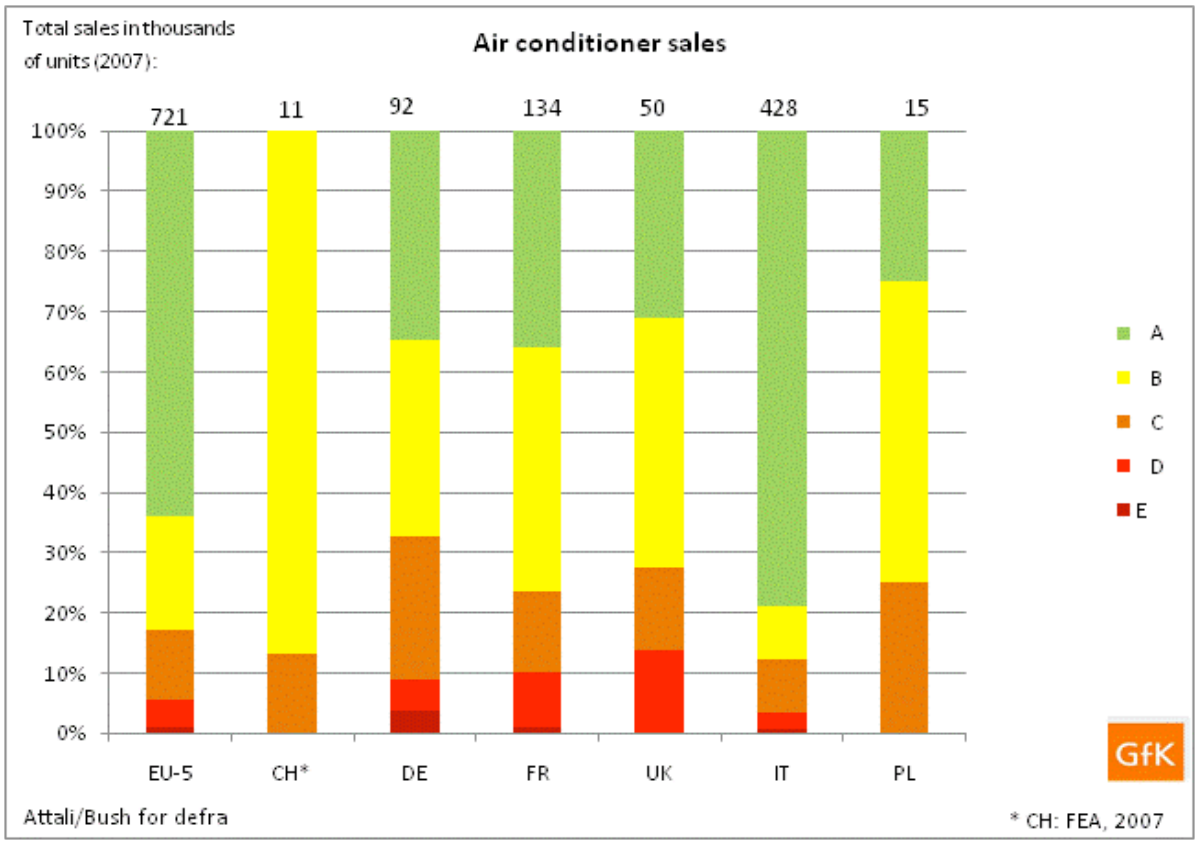


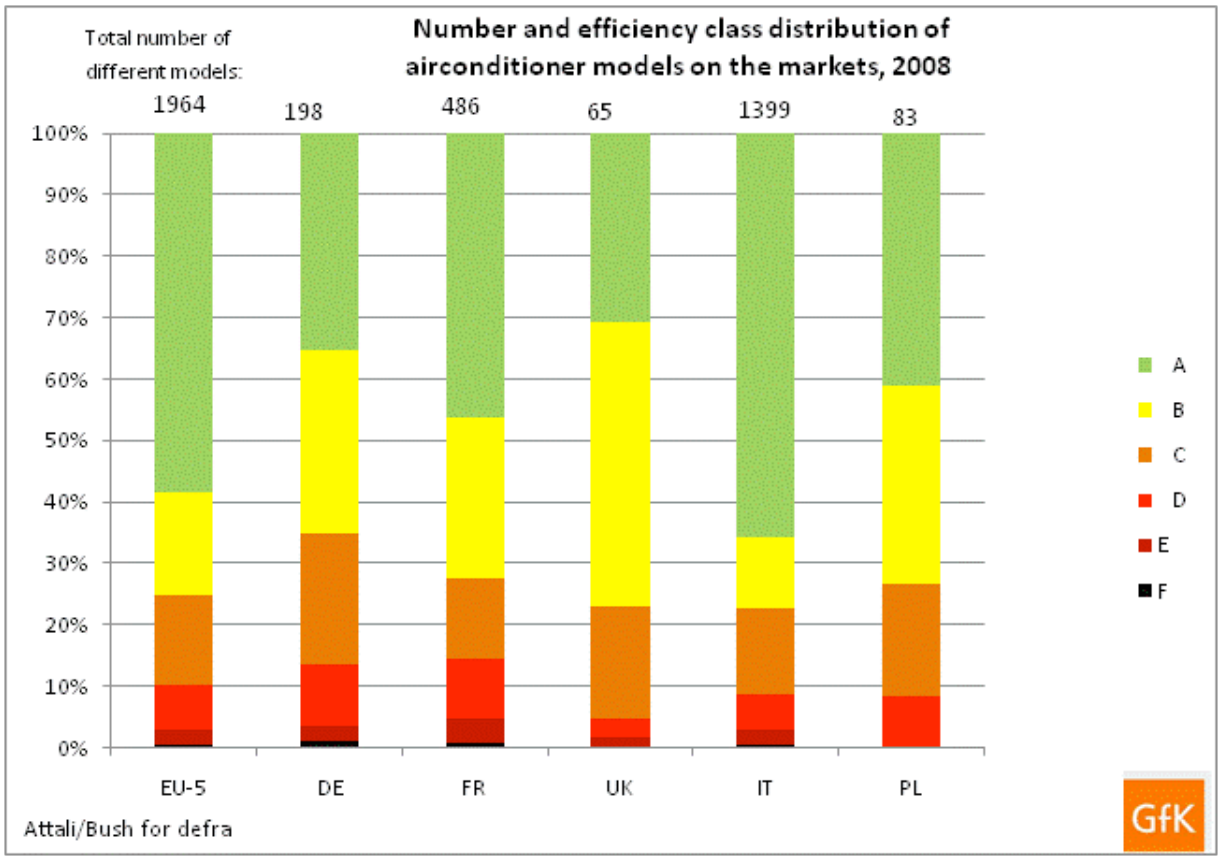
Note: A+ cookers do not actually exist. The reference to A+ models above reflects a misuse of the energy label by one manufacturer in Poland.

Dishwashers are currently an exception, because as nearly all products are A-labelled, there is no information about national differences available.

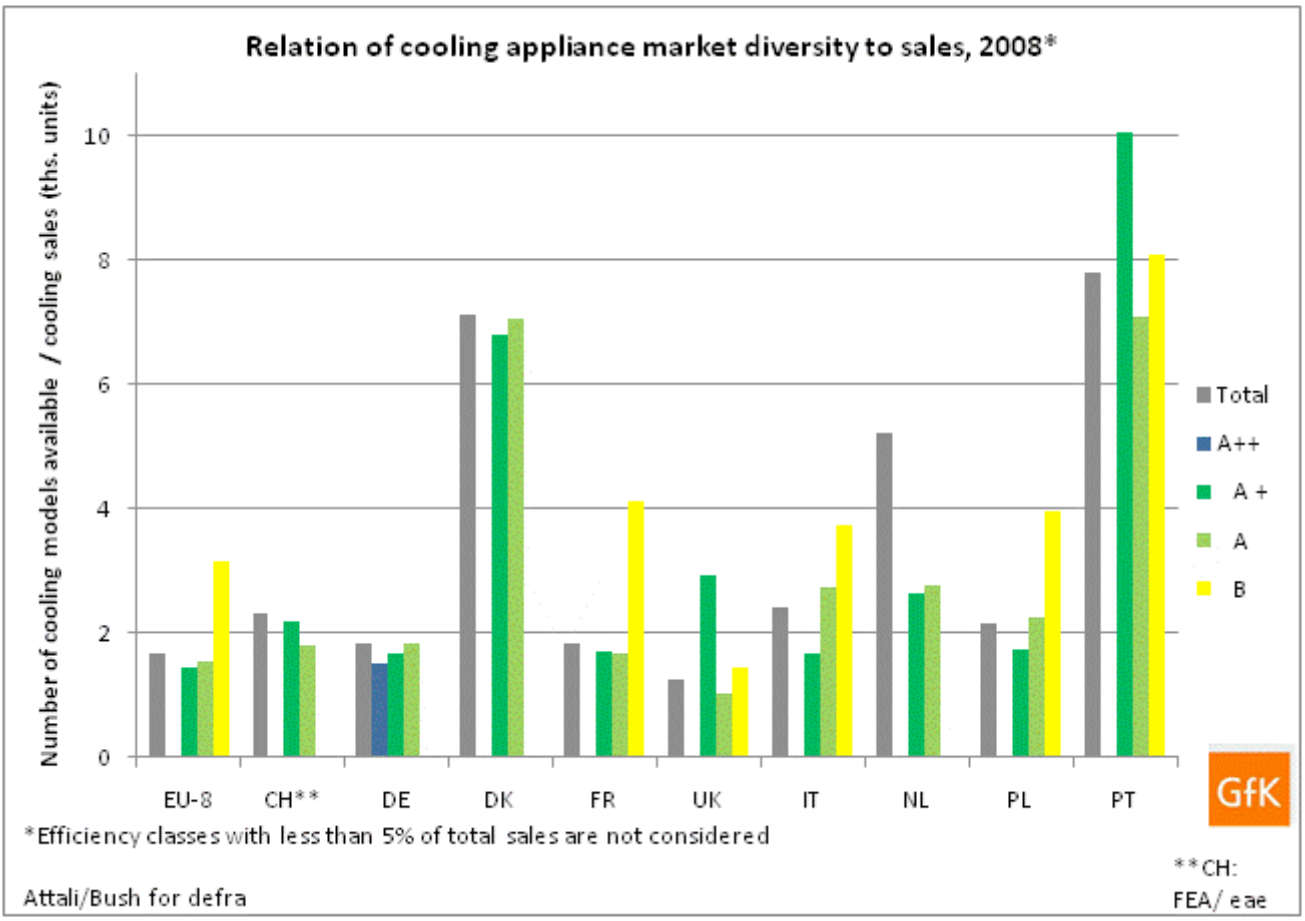



Number and efficiency class distribution of dishwasher models on the markets, 2008
Total number of different models:
7386
206
2571
618
1658
896
1163
1007
911
868
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
EU-8
CH*
DE
DK
FR
UK
IT
NL
PL
PT
A
B
C
D
GfK
Attali/Bush for defra
* CH: eae


Air conditioner sales
Total sales in thousands of units (2007):
721
11
92
134
50
428
15
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
EU-5
CH*
DE
FR
UK
IT
PL
A
B
C
D
E
GfK
Attali/Bush for defra
* CH: FEA, 2007



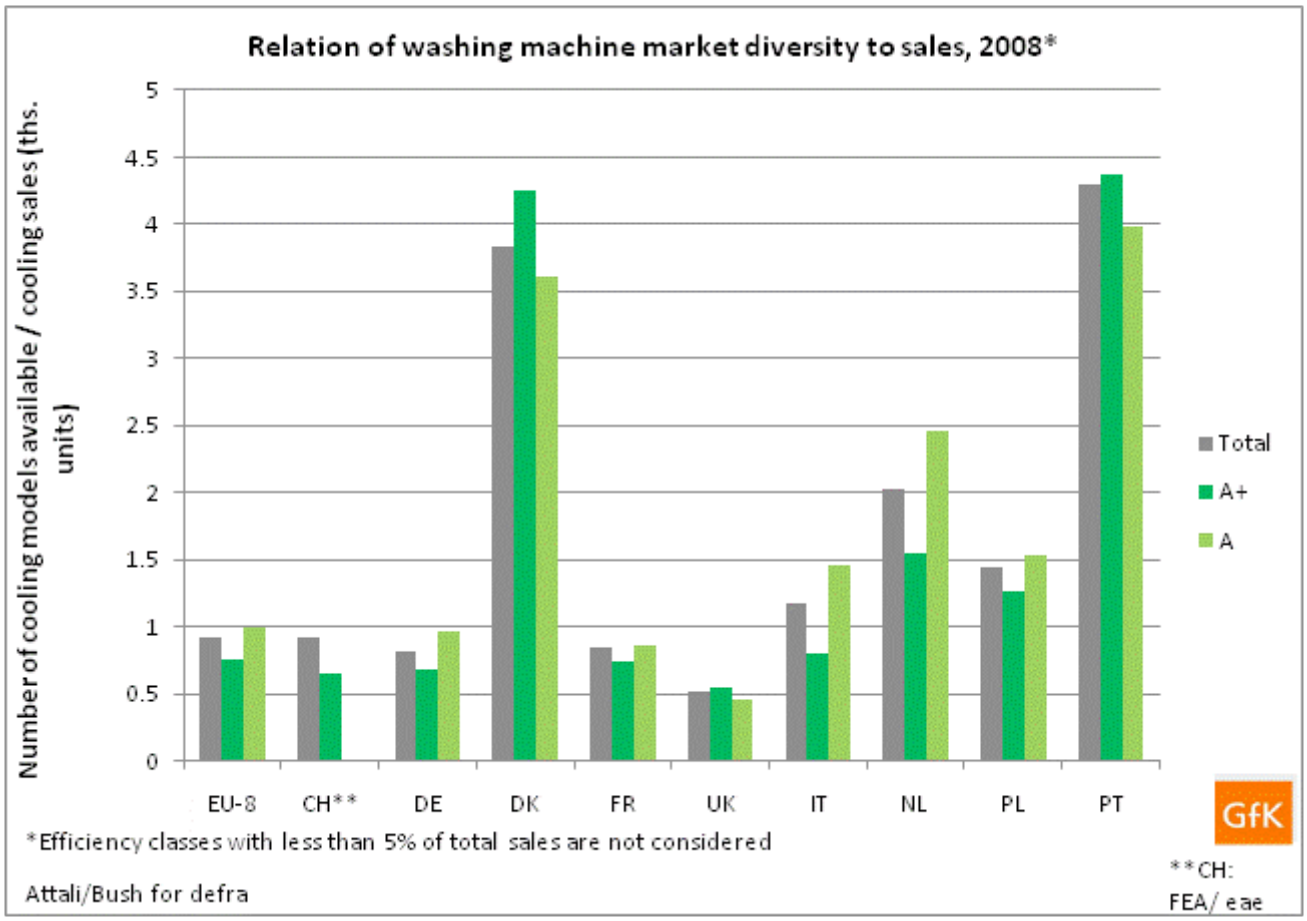
The graphs below show the relationship between the model range available (the number of different models on the market) and the sales, in total and according to the energy class (only energy classes accounting for more than 5% of total sales have been considered) for cooling appliances and washing machines. The higher the bars, the more models available to consumers (range variety). The y axis represents the number of different models available on the market divided by the number of appliances sold in a year. The EU-8 figure is the average of the 8 EU countries.



Denmark and Portugal have the largest choice available for each appliance, each energy class and in total. This can be explained by their smaller populations; and hence lower total sales.

On the other hand, UK has the least choice available in comparison with total sales for refrigerators, freezers (not shown here) and washing machines – in total and for most energy classes. The exception here is A+ refrigerators, which have a rather low sales volume compared to a relatively large product range offering.

The information on energy class-B models should be treated with great caution: as the sales volume is small, specific factors can considerably distort results (one-off models, single site promotions by one retail chain, etc.).


Relation of washing machine market diversity to sales, 2008*
Number of cooling models available / cooling sales (ths. units)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
EU-8
CH**
DE
DK
FR
UK
IT
NL
PL
PT
Total
A+
A
GfK
*Efficiency classes with less than 5% of total sales are not considered
Attali/Bush for defra
**CH: FEA/ eae

3 – Factors influencing the penetration of efficient appliances on national markets

From the evidence obtained from interviews, market data and the literature review, 28 factors influencing the penetration of energy efficient appliances into national markets have been identified. These factors are discussed in this section, and have been structured into four groups relating to:

- Electricity prices and country structure
- The appliance market
- Consumers' attitudes
- Policy issues

A table is provided for each group, which summarises the effect on the market and provides brief policy recommendations. Sources of evidence are also presented in the summary table.

Detailed information on all influencing factors follows, including a description of the factor's 'effect on the market', 'facts and figures' i.e. market data analysis results, 'supporting points' such as relevant quotes taken from interviews and literature which provide highlights about the practice, and 'lessons learned' which provides a summary of conclusions reached.

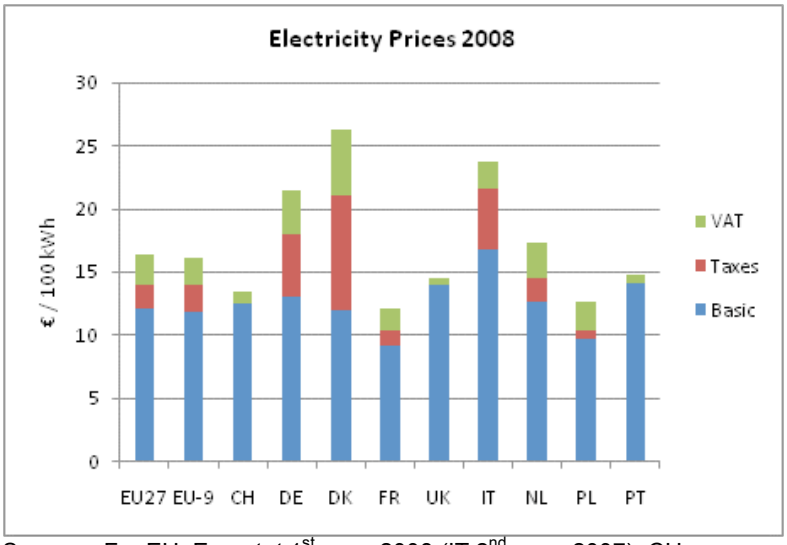
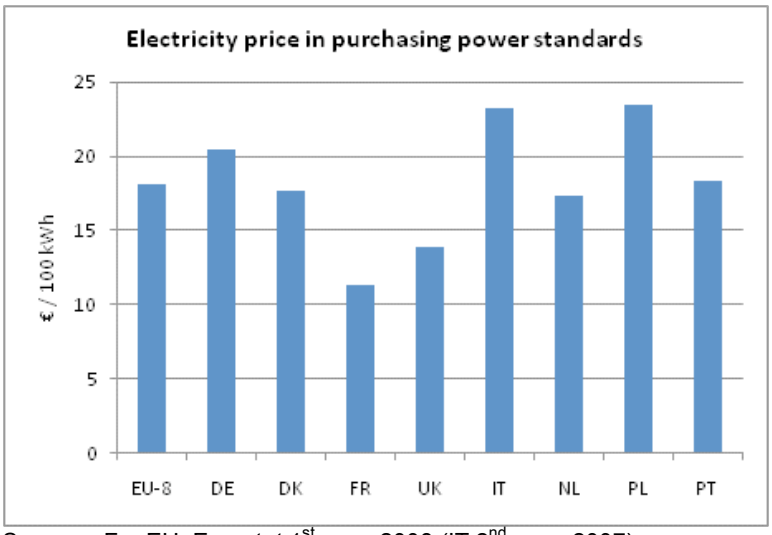
3.1 – Factors relating to electricity prices & country structure

3.1.1 - Summary Table

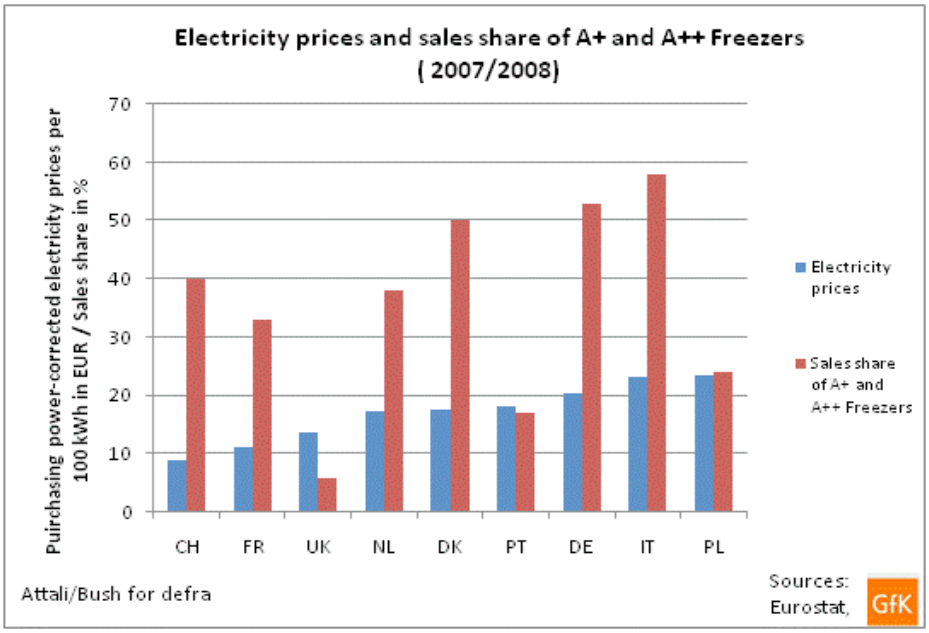
Factors	Description	Policy instruments	Evidence from
High electricity price	High electricity prices make energy efficient appliances more profitable for consumers	Act on the electricity tariff structure (taxes, including those earmarked to fund specific programmes)	Market data, interviews
Quantity discount, regressive electricity tariffs	Influences electricity prices and encourages higher consumption	Act on the electricity tariff structure	-
Utility company's profits linked to sales volume	Utilities profit directly linked to kWh sales volume will encourage high consumption	Act on the electricity tariff structure	-
Strong, smart institutions	Good design and implementation of policy instruments	Capacity development, training	Interviews, literature
Large country versus complex/voluntary measures	Complex follow-up and control of voluntary agreements, complex market monitoring	Include monitoring capacities in up-stream policy design	Interviews
Large-scale procurement, public procurement	Large-scale buyers can weigh on demand and influence producers	Identify large-scale buyers, Design specific strategies	Literature

Supportive factor in green
Barrier factor in red

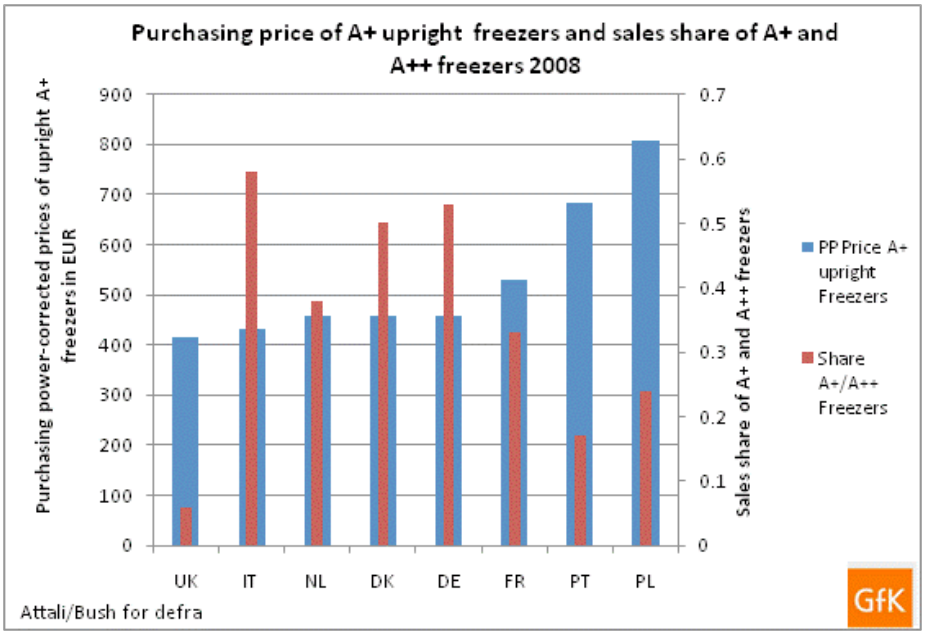
3.1.2 - Further detail

Supportive factor	High electricity price Absolute value and Purchasing Power System - PPS
Effect on the market	There is a correlation between the sale of energy efficient appliances and the price of electricity.
Figures and facts Electricity prices vary by a factor of two between countries. Market shares of efficient products are correlated to a certain extent.	Household electricity prices differ markedly from country to country. These differences are due to differing costs (such as production costs) as well as to taxes and VAT levels. In Denmark, Italy and Germany prices are rather high; in France, Poland and Switzerland rather low. For example, in France and Poland electricity costs about 12 €cents/kWh, whereas consumers in Denmark and Italy pay about 25 €cents/kWh.  Sources: For EU: Eurostat 1st sem. 2008 (IT 2nd sem. 2007), CH: http://strompreise.preisueberwacher.ch Taking into account purchasing power, electricity is least expensive for French and UK consumers.  Sources: For EU: Eurostat 1st sem. 2008 (IT 2nd sem. 2007)

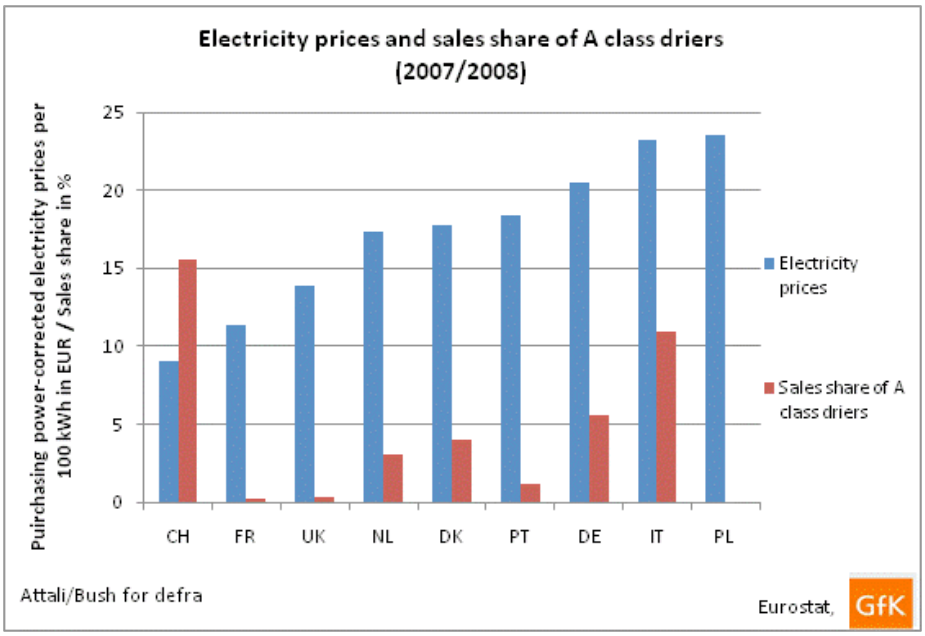
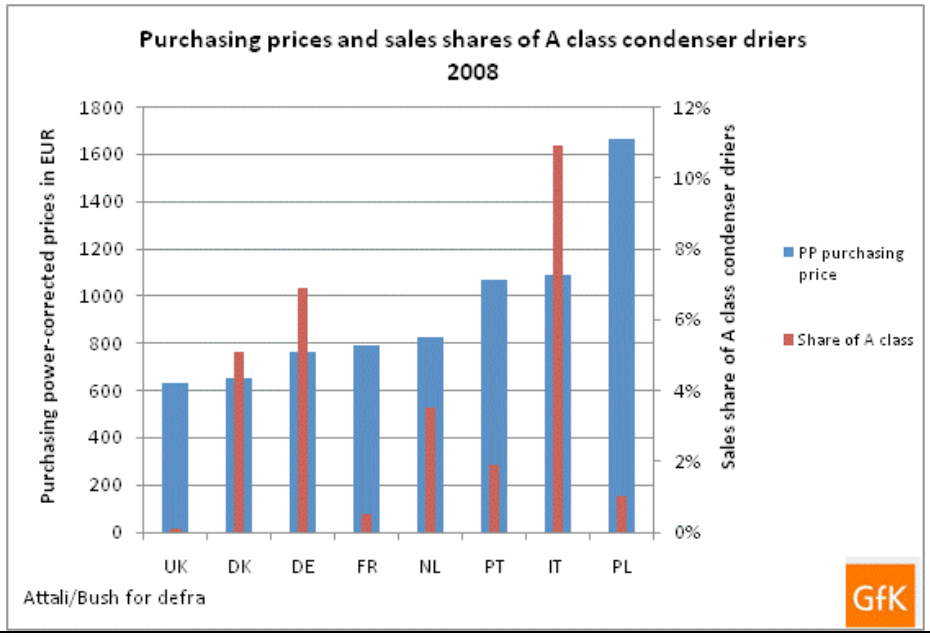
There is a trend showing higher market share of efficient appliances (A+ and A++ freezers) in countries with high electricity prices (purchasing power corrected). However, Portugal and Poland illustrate low market share for efficient freezers.



On the other hand, in Portugal and Poland (purchasing power corrected) prices of appliances are also high, making both the cost of power and of efficient appliances relatively high.



A similar situation arises for energy efficient heat pump driers (class A). These are seemingly more popular in countries with high electricity prices –

	Switzerland being an exception, probably because of its market transformation activities on tumble driers.  As the purchase price of heat pump driers is high in Portugal and Poland, the market share is low. In Italy, taking into account the small number of tumble driers sold per capita, the very high popularity of heat pump driers cannot be fully explained (although explanations may include variations in purchasing power, one-off promotion campaigns etc.). 
Supporting points If electricity prices are cheap, it is	Stakeholders are more inclined to promote and buy efficient models when electricity prices are high, because economic arguments make sense – "invest more at the time of purchase and recover the extra costs through electricity savings". When electricity prices are low, cost saving messages do not have the same impact.

difficult for stores to use the economic arguments to promote efficient appliances	It seems that energy taxes play a crucial role in Denmark. Since about 20 years, household and office customers pay about 100% taxes. This yields to high electricity prices for households and public sector of about 22 – 25 €cents – *Policy experts, DK* Generally speaking, ADEME is opposed explicit communication on money savings, judged counter productive: the saved amount is not enough to convince consumers. Even if consumers can be sensitive to "green messages", they do not think on the long run and compare with expenses they understand. The average electricity consumption of a household is about 2'500 kWh/year, which represents about 300€. Even reaching a 50% saving, i.e. 150 € is not motivating, as it barely equals to the price of two full tanks for the car. Message can rely on savings in percentage but not in Euros. The correlation between price and efficiency is logical and acceptable as long as the energy efficiency can continuously go down through the range of appliances and not be stuck because of marketing reasons at the high-end of the range, with other attributes of high-end products, making energy efficiency expensive – *Policy officer, FR* However, once the population is aware of the potential impact on electricity bills and energy savings, consumers may continue to show concern about running costs even when electricity prices go down. Even with average electricity prices, Dutch retailers communicate on savings expected from lower running electricity costs of efficient household appliances – *Energy Expert, NL*
Lessons learned	High electricity prices stimulate energy efficiency. Even if it is difficult to impose higher taxes on electricity, these can contribute significantly to overall market transformation. Policy tool: Taxes, including those earmarked to fund specific programmes.

Barrier factor	**Quantity discount, Regressive electricity tariffs**
Effect on the market	Quantity discount and regressive electricity tariffs influence electricity prices and consumers' perceptions of the real cost of electricity, and potential energy and cost savings of efficient products.
Figures and facts	Market data alone does not cover this issue, but could be correlated with information on electricity tariffs structures in the various countries.
Supporting points	-
Lessons learned	The fixed element of an electricity bill cannot be influenced by energy savings. Cost saving can be achieved by consumers only if the electricity bill has a strong variable share depending on effective consumption. Policy tool: Act on the electricity tariff structure (linked to market regulation, and obligations on suppliers) so that consumers are not led to believe that the more they consume, the less they pay per kWh.

Barrier factor	**Utility company's profits linked to sales volume**
Effect on the market	If utility company's profits are directly and fully linked to kWh sales volume, it is in their interest to encourage their clients to consume more.
Figures and facts	Market data alone does not cover this issue, but could be correlated with information on the structure of electricity tariffs in the various countries.

Supporting points	-
Lessons learned	Utility companies cannot be expected to introduce measures that conflict with their need to make profit. The rules have to be structured so that utility companies can benefit from promoting and undertaking efficiency measures. Policy tool: Act on the electricity tariff structure (cf. IEA recommendations on decoupling profit from sales and introducing progressive tariffs).

Supportive factor	**Strong, smart institutions**
Effect on the market	Strong, smart institutions are an enabler for good design and the implementation of policy instruments. They have knowledge and flexibility and the credibility to ensure that policy instruments are trusted and respected by market stakeholders.
Figures and facts	Market data does not cover this issue.
Supporting points	Institutions can develop strong positions independently of other market stakeholders as long as the policies implemented are fair and transparent. The success factors for the Electricity Saving Trust are: • Visions and good ideas • Short decision ways, ability to go with good ideas, the Trust can decide on operative matters very easily • Good expertise network on technical issues, market data, evaluations for which external and specialised consultants are usually hired • Secretary or repetitive management work (e.g. for label) are rather outsourced to implementing staff *Policy officer, DK* Attitude of producers towards the Trust: A couple of years ago, manufacturers were still reluctant. Now, more acceptance and agreement is seen as the Trust does good work for its stakeholders. May be the Trust behaves softer today. However, the Trust still publishes black lists, etc. The Trust is not destabilised by short term crisis and manufacturers' discontentment. The impartial work undertaken according to rules that are the same for everybody is actually good for long-term relationship with manufacturers – *Policy officer, DK* Some of the Trust's (Elsparefonden) campaigns have been highly controversial, and it has also been criticised by different stakeholder groups (trade organisations, manufacturers, energy companies, consultants / partners). The Trust's political independence is seen as crucial for making controversial campaigns possible, such as the price overviews - *Rambøll Management, 2004*
Lessons learned Institutions with long-term strategies including both carrots *and* sticks are more likely to be successful	Institutions should be supported by governments through clear mandates, a dedicated budget, and long-term strategies. In this way, they can gain technical and marketing knowledge and need not fear confrontation with market stakeholders, even in the event of negative publicity. Institutions should be flexible so that they can adapt to changes in the market and react quickly (to keep pace with other market stakeholders); and therefore be seen as credible, and trusted and respected by other market players. Policy tool: Capacity development, training on various issues: product, market channels and business models, regulations, marketing.

Barrier factor	Large country versus complex / voluntary measures
Effect on the market The country's size has an effect on policy implementation	Large countries implementing voluntary measures could face difficulties relating to the follow-up and control of voluntary agreements in large territories, or issues relating to how to monitor the market and communicate effectively with all stakeholders. On the other hand, it may be easier to implement regulations or follow-up European legislation developments thanks to relatively larger numbers of staff.
Figures and facts	Market data does not cover this issue.
Supporting points Real opportunities to control and monitor implementation are key to the success of voluntary measures	Staff and budget are both needed to manage national programmes, but even with these in place it is not possible to implement some activities in large countries. For example, the Danish Consumer Products website displays continuously updated price information for all products and all shops across the country. Producer and retailers may use the label on products if they sign a contract. The logo is mostly used by retailers. The Trust provides lot of in-store and point of sale material for retailers; it controls how it is used and the messages developed by retailers in relation with the label – *Policy Officer, DK* When criteria are updated, there is a small transition period, which varies between retailing types (whether catalogues or internet or in shops where the implementation is more complex). With small retailers, it may be more complex as it depends on the director of the shops. Controls are made and if there is a problem it is generally fixed quite rapidly. The ESR scheme is growing very fast: there are 250 members in the product groups (doubled in the last year) and more than 3'000 referenced products. – *Policy Officer, UK* Denmark is a good laboratory because it is, geographically speaking, a rather small country with a highly efficient market and a high consumer awareness; in it, new solutions for a faster market transformation could be experimented without fear for a EU market distortion, and effective solutions can then be exported to other countries – *Policy Officer, IT* Developments in European legislation, in particular the Eco-Design process, necessitate the intervention of technical specialists during the negotiation phase and require more staff to follow-up their implementation. The enforcement activity is expected to grow with the measures to be decided in the framework of the EuP Directive. DEA is now preparing for these new tasks and has not yet decided how large a part shall be kept inside the Agency and what shall be outsourced – the important issue here is that it shall be possible for the Energy Agency to build up competence and capacity on energy efficiency at the "level of the individual product", i.e. to learn from doing this task – *Policy Officer, DK*
Lessons learned	Voluntary measures may be easier to implement in small territories, but large countries may be better equipped to face the numerous Eco-Design developments. Policy tool: Include monitoring capacities in up-stream policy design.

Supportive factor	**Large-scale procurement, public procurement**
Effect on the market Large-scale procurement is of interest to producers	Large-scale procurement can influence demand and producers. For example in Denmark and Switzerland several public and private organisations own furnished flats that they equip with appliances, through bulk-buying operations (volume effect); and they may include energy saving criteria in their procurement (prescriber effect).
Figures and facts	Market data does not cover this issue.
Supporting points	Large-scale procurers can bulk-buy and may demand specific energy requirements of manufacturers. In Denmark, the "A Club" first addressed in 1999 public buyers by providing membership to a Club gathering public administrations. As for any Club gathering selected members, they benefited from targeted information, were treated as VIPs by the Electricity Saving Trust, and in exchange committed to "buy A", participated in meetings with producers, etc. – *Elsparefonden website* The city of Zurich, the largest Swiss city with 360'000 inhabitants, owns about 10'000 flats and is therefore a large buyer of appliances. It buys only A appliances. This has been contributing substantially to the spreading of, for example, heat pump dryers in Zurich - *Bush, 2006*.
Lessons learned Specific policies targeting large-scale procurers are effective	Working with large-scale procurers, (whether in the public or private sector), is usually easier than working with retailers and individual consumers. Large-scale procurers may be attracted by aggregated money savings, the green credentials linked to their purchases, and in participating in technical procurement operations (in which specifications may include new or revised functionalities in order to best match their needs). Public administrations also set a positive example. Policy tool: Identify large buyers for each type of products, design specific strategies.

3.2 – Factors relating to the Appliance Market

3.2.1 - Summary Table

Factors	Description	Policy instruments	Evidence from
Mark-up market	Retailers focus on mark-up – retailers are more likely to promote energy efficient appliances across ranges at different price levels (not only expensive models).	Effective labelling, information campaigns on value added	Interviews
High-volume market	Retailers focus on volume and aim at selling a lot of (generally) low-end models	MEPS, Information campaigns, help lowering the price of more efficient models	Market data, interviews
Large offer, diverse range	Large product range facilitates promotion of efficient models	Consumer information campaigns, assistance to retailers	Market data, interviews
High purchase price of efficient models	High purchase price of energy efficient appliances is a general barrier to consumers buying efficient appliances	Regular revision of the energy label, stimulate demand, rebate and bonus/malus programmes*	Market data, interviews
Low purchase price in general	More difficult to sell value added products	Incentives and information campaigns	Market data, interviews
Structure and balance of power in retail sector	Fierce competition pushes towards war on price	Offer retailers differentiation opportunities	Interviews
Business models – commercial negotiation	Consumer price is not fully related to production costs. Sales negotiations between manufacturers and retailers are not well understood	Provide information to policy decision makers (to make informed decision)	Interviews, literature
Distribution channel favours purchase based on information	Energy efficient appliances are more likely to be bought when information is available	Target each distribution channel with tailored measures so that they inform buyers	Interviews, literature

Supportive factor in green
Barrier factor in red

*For more information about bonus/malus schemes, please see Section 4.

3.1.2 - Further detail

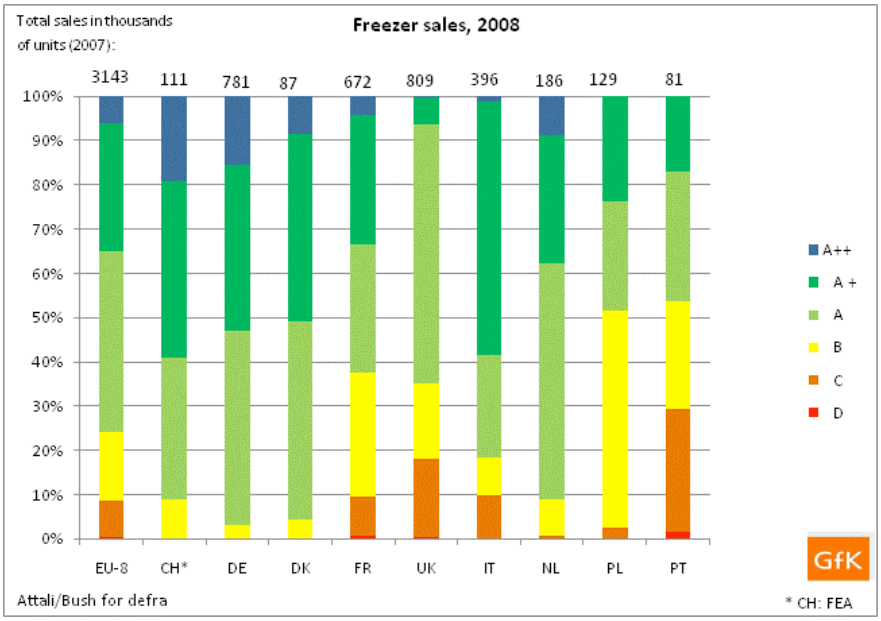
Supportive factor	Mark-up market
Effect on the market	Retailers usually have different marketing strategies, aiming at increasing their market share or their mark-ups. When retailers focus on increasing their mark-up, energy efficient appliances have a greater chance of being promoted as they are generally premium products.
Figures and facts	Market data alone does not cover this qualitative issue.
Supporting points Energy efficient models bring higher mark-ups to retailers, but the ease of promotion varies according to national context	Top-end retailers develop strategies in which energy efficient appliances have a major role to play, as efficiency is a quality messages that can be purveyed to consumers. However, this strategy is more likely to be successful when: - There is sufficient differentiation in the market (impartial labelling to support their positioning in-store) - Consumers can benefit through lower running costs (i.e. green credentials are desirable but generally not absolute) - Consumers are responsive to the green debate and know about energy issues - Electricity prices are high enough to make the extra investment profitable in the long-term - Prices are not so high (compared to the perceived product value added) that they constitute a barrier even for quality retailers – e.g. A++ appliances. Our retail chain has invested in training salesmen to sell value added products and to have arguments to make consumers aware of this value. They can underline energy savings, time and money savings (for example by using a dish-washer instead of washing dishes by hand), etc. The energy label helps the salesman to have an active role in communication the message. As today the energy label does not allow for enough differentiation on the market especially for wet appliances, in the near future, manufacturers will use marketing arguments to show that their products perform "better than A". *– Retailer, FR* For retailers, the battle focuses on price, but green issues are a way for "quality retailers" to retain customers – *Policy Officer, UK* Retailers expect from energy agencies long-term support, competence, communication support and consumer-oriented tools. Dena is highlighting the argument of running costs of electricity and retailers and their customers are interested in this. Environmental arguments are boosting consumer action but cost arguments are necessary (personal not only social benefit). – *Policy Officer, DE* Product differentiation is good to sell high end products but it is not enough as generally, the product's sell depends on the overall specifications. It is easier for set top boxes for which energy efficiency has almost no cost, but is more complex for white goods – *Retailer, UK* On the Italian market, the relationship between retailers and manufacturers is tough but normal: manufacturers and retailers fight to compress the margin of the others, but no one has an interest in a war that would drive prices down. The sales are not driven by "green products" but by margins, and from this point of view, energy efficient appliances are positive – *Manufacturer, IT* Retailer chains are rather favourable to energy efficient products, from which they can get a

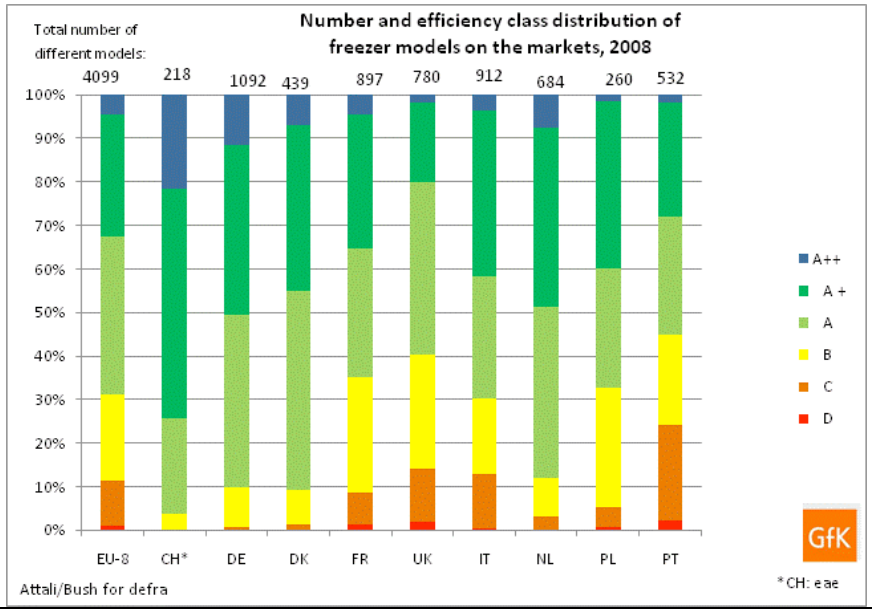
	higher margin and a good image (even for entry of range products). The profit for manufacturers is rather low as in other European countries as retailers are, together with consumers, key stakeholders in making up the price – *Policy Officer, IT* Energy efficiency is often one of the quality attributes contributing to raise margins even if this trend is limited by the purchasing price issue - for example there are almost no A++ models available on the Polish market. First price products are generally best sellers but there are exceptions such as built-in products – which are traditionally more energy efficient – which already represent 40% of the market – *Manufacturer, PL* Since price is an important item in the selling process, the rebate provides retailers with an extra reason to sell A-labelled appliances, especially because the rebate is connected with "doing something good for the environment". This is contrary to promoting a product with a lower price, where consumers might fear that a lower price means lower quality. Since A-labelled appliances were – in general – more expensive than appliances from other categories, it was more attractive for retailers to sell A-labelled appliances – *Energy Expert, NL*
Lessons learned Policies should build frameworks favourable to quality retailers	Energy efficiency is used in retailers' selling strategies aimed at increasing their mark-up. In order to ensure that retailers develop these strategies, policy can help develop a favourable framework that backs sales: through electricity prices integrating environmental externalities, information campaigns on energy issues, energy efficiency benefits, and effective labelling, etc. However, the overall appliance price and the specific mark-ups should not be too high. Policy tool: Effective labelling system, Information campaigns on products' value added.

Barrier factor	**High-volume market**
Effect on the market	Retailers usually have different positions within the market. When retailers focus on raising the volume of products sold, they buy large volumes of products in order to reduce the price and competition becomes price-focused and, most often, less efficient low-end products are promoted.
Figures and facts	The British market, which is known to be a volume market, illustrates the lowest prices across nearly all product categories, especially for less efficient models – which are promoted by retailers (see below the graphs illustrating the factor "High purchasing price of efficient models").
Supporting points Volume markets push competition on the price factor, and do not favour energy efficient models	Volume markets are very challenging. The competition on price is often considered to be a downward spiral in which no player can win: retailers compete for volume, manufacturers get less margin and consumers get poorly performing products. This spiral can be the result of a historical trend, supported by wider economic policies, and sometimes backed by consumer organisations pushing for cheapest prices. In the UK, a combination of elements made it difficult for the market to move, especially in a context of euro-sceptical attitude, strong consumer organisation pushing for the cheapest prices, free market with a lot of competition on price and little market verification and control actions (as in other Member States). In the end this resulted in the import of less costly but less performing products, compared to other European countries – *Policy Officer, IT* Contrarily to the UK, in France the retail sector voluntarily avoids entering the spiral of low prices – because no one can win from this situation where the market is in bad shape: retailers have a harder life fighting for volume, manufacturers have a harder life fighting for their share of margin and consumers have a harder life with low quality and poor environment performing products. Of course the French market is equally very competitive but stakeholders want to avoid declaring a "war on prices". They rather try to invest in energy efficiency and services, including for entry of range products (in their own brand products for example, which are A or even A+

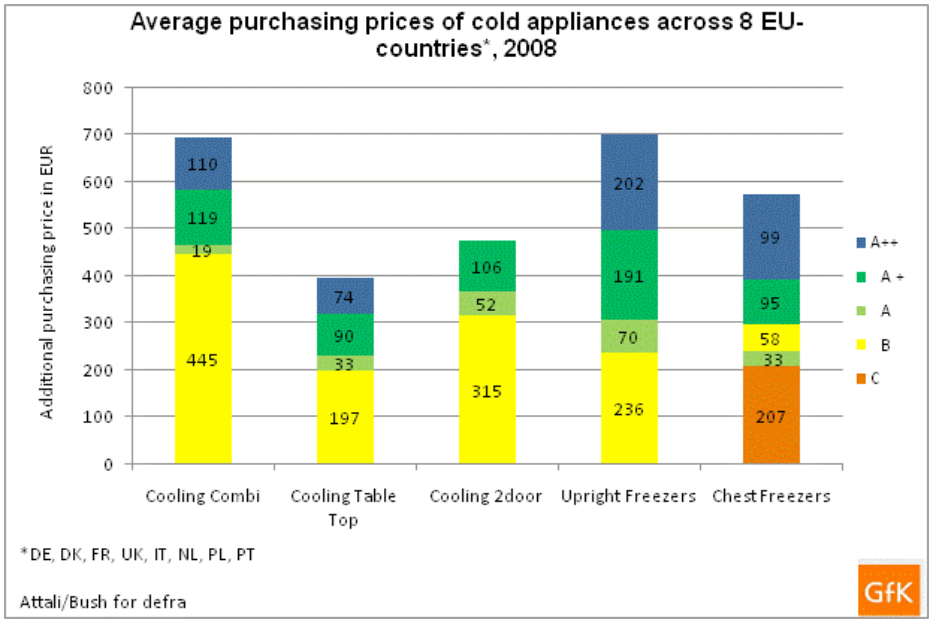
	class) – *Retailer, FR* Relationships between manufacturers and retailers are therefore correct but tough (i.e. normal in the business): retailers are demanding knowing their market is a priority at European level; however a new trend shows that this "volume" market will evolve towards a more "margin" market with the good introduction of built-in and quality products – *Manufacturer, PL* High per capita sales generally confirm the trend towards a volume market. They imply that buyers use shorter life-cycles to evaluate products' total costs, shorter payback time to calculate profitability, and are more attracted by low-end products and low purchasing prices. In the UK, people change house more often (and leave old equipment in the old house), or invest in apartments for renting purposes (and equip them with poor quality low price models). The rate of [sales of] equipment is very high (almost as high as in Germany where the population is larger) – *Policy Officer, International level* The case of Poland is specific as it is one of the few growing markets in Europe (as well as Turkey and Russia). Though the per capita sales are still relatively low compared to the other countries studied, Poland is a volume market that manufacturers consider to be a priority, and in which they are all aiming at securing their position. Poland is considered by manufacturers as a priority market, as it is a growing market in terms of volume, contrarily to the rest of Europe. Purchasing prices are amongst the lowest in Europe. The competition is strong, with all main players present plus one important Polish manufacturer – *Manufacturer, PL*
Lessons learned	Competition does not necessarily benefit consumers. Policies can contribute to preventing overly fierce price competition – which is a consequence of volume markets at the expense of energy efficiency attributes. Policy tool: MEPS to cut off the bottom-end of the market, Information campaigns to raise awareness about quality products, Incentives to help (possibly transitionally) lowering the price for expensive efficient models.

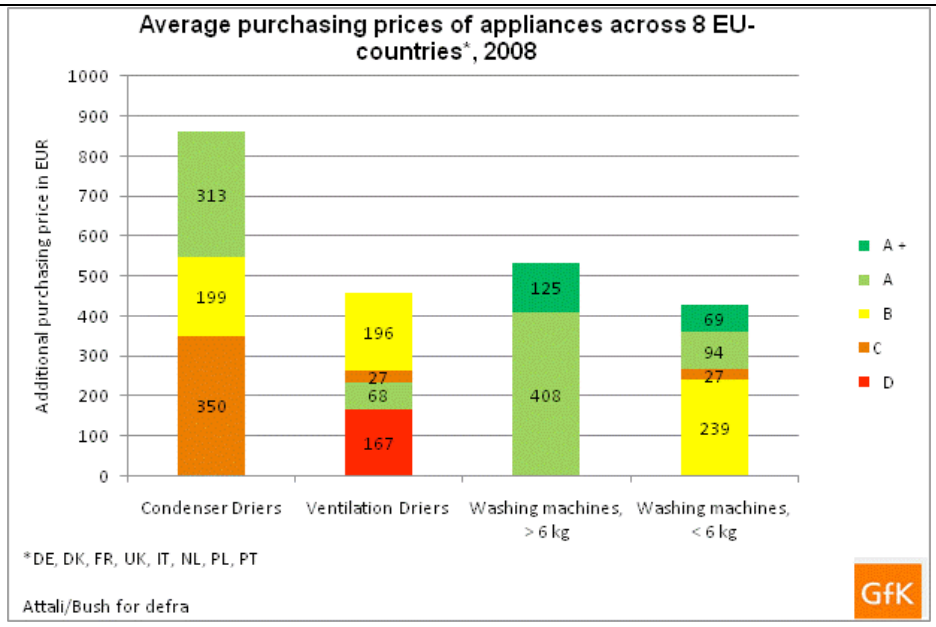
Supportive factor	**Large offer, diverse range**
Effect on the market	It is easier to promote efficient models when there are different types of products within a retailer's range, from entry-level to premium products (as opposed to ranges that actually propose little consumer choice).
Figures and facts For efficient models: less choice leads to less sales	Even though data regarding products numbers should be read with caution (see Section 1), the graphs below relating sales figures and model availability show a certain correlation: in general, energy efficient models sell more if the in-store range is large (within A+ and A++ classes).



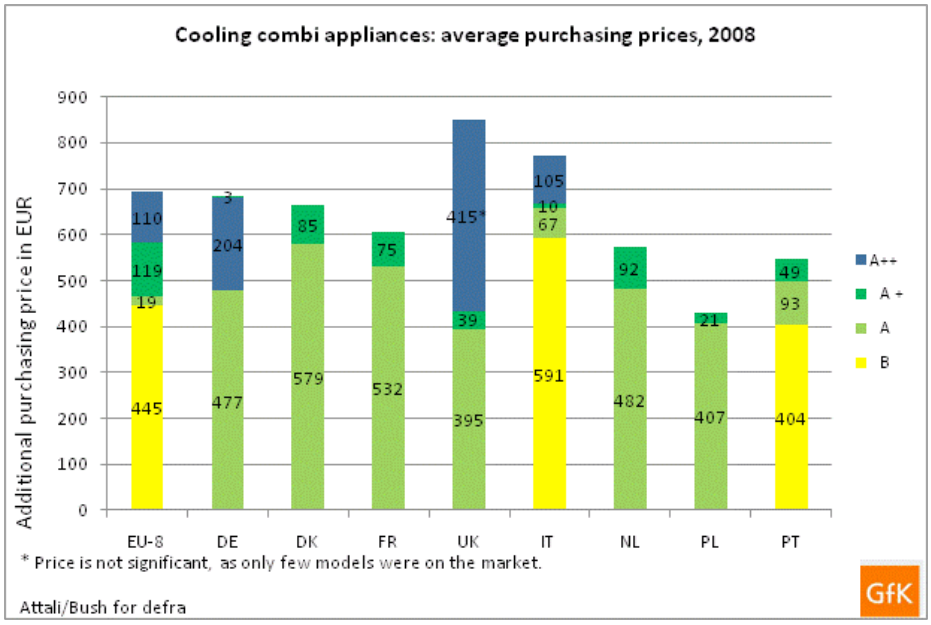


Supporting points	Consumers cannot buy what is not offered in the marketplace. For Polish consumers, there is virtually no choice in shops: only B or A models – and they generally buy A – also because they are not aware of the existence of A+ and A++ cold appliances – *NGO Expert, PL* The Portuguese market faces a lack of offer of efficient appliances. For example it is nearly impossible to find A++ refrigerators in shops (even with the incentives - which may not have been sufficient) – *Researcher, PT*
Lessons learned	There is a correlation, though not a direct one, between the offer and the sales volume. Manufacturers and retailers design their product range to match consumer demand. It may be possible to influence this situation by pulling consumer demand (towards greener products) and by helping retailers to select products (energy performance is not always obvious depending on the product category).

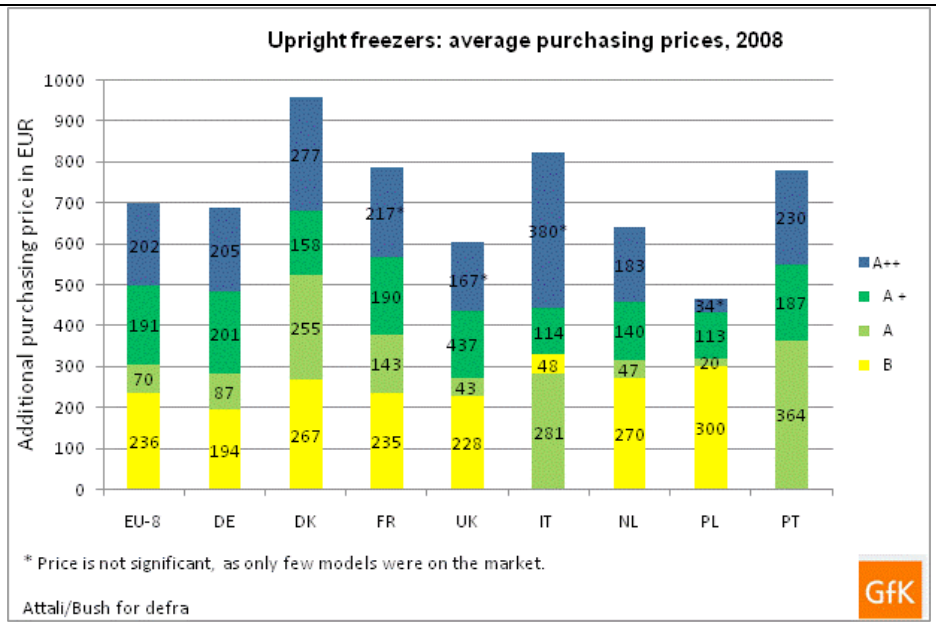
Barrier factor	High purchase price of efficient models
Effect on the market	There is a correlation between the sale of energy efficient appliances and their purchase price: more energy efficient products tend to have higher purchase prices. (The results show that absolute prices are influencable but not purchasing power corrected prices).
Figures and facts Energy efficient appliances are more expensive, even if there are strong variations between countries	Energy efficient cold appliances are more expensive, and generally, the better the energy class, the higher the price (bigger difference between A+ and A++ classes than between A and A+ classes).  The additional price for A-class heat pump drier is about 300 €. However, the potential electricity savings are also high - around 700 € over 15 years (source: www.topten.info, assumed electricity price: 0,15 €/kWh).

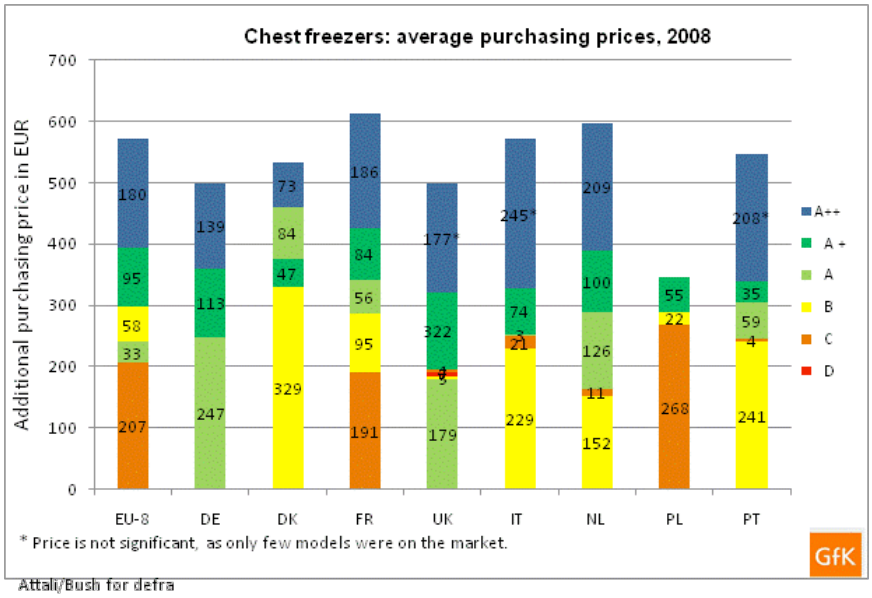


Additional purchase prices for high-efficiency cold appliances (A+ and A++) differ strongly from country to country.

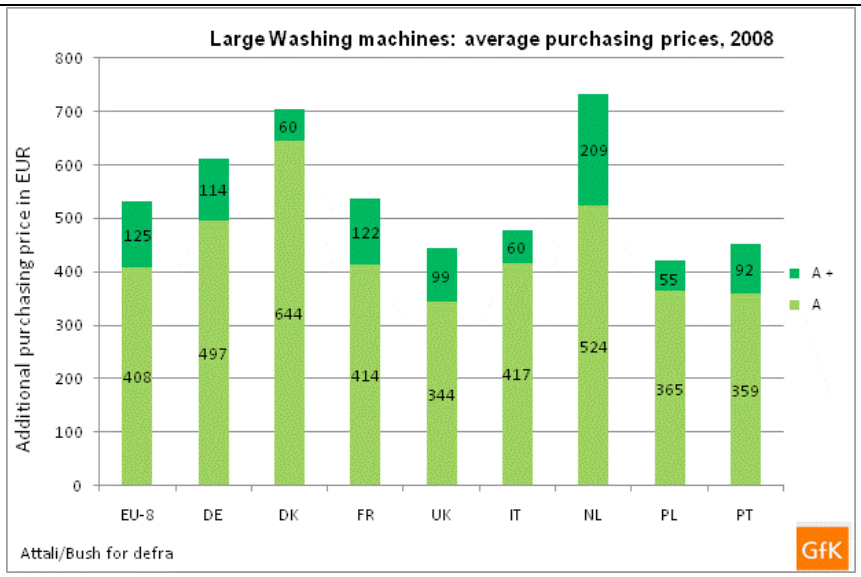


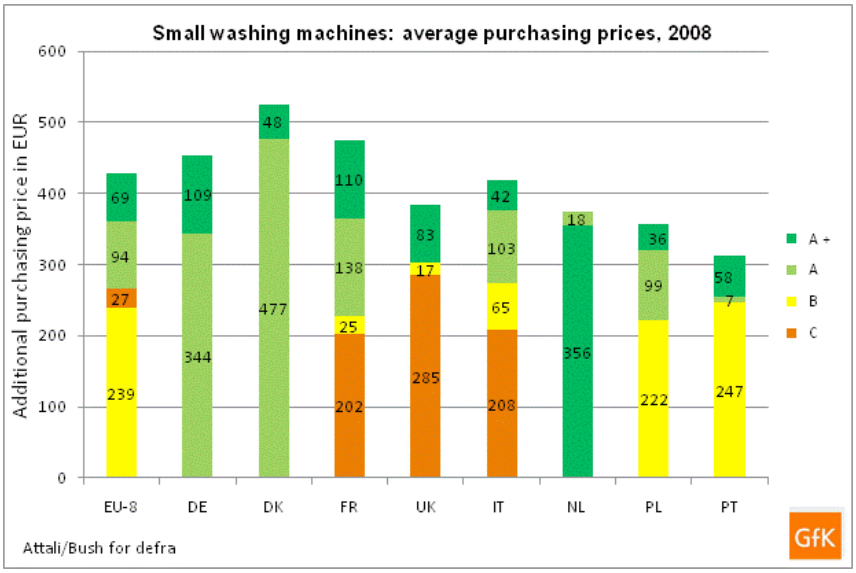
For freezers, price differences between countries are striking. The additional price for A++ is very high.



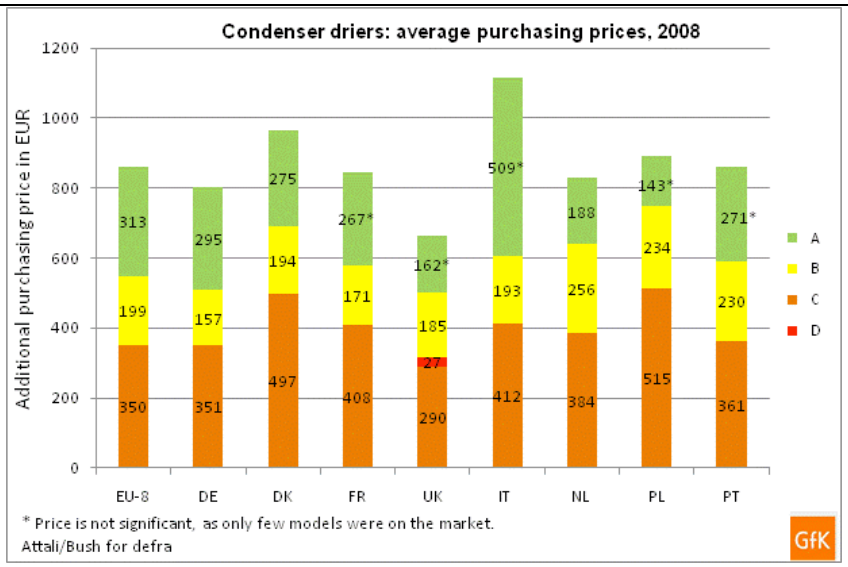


For washing machines, the striking price difference might be due to different performance levels in different countries, especially with regard to the spinning efficiency.

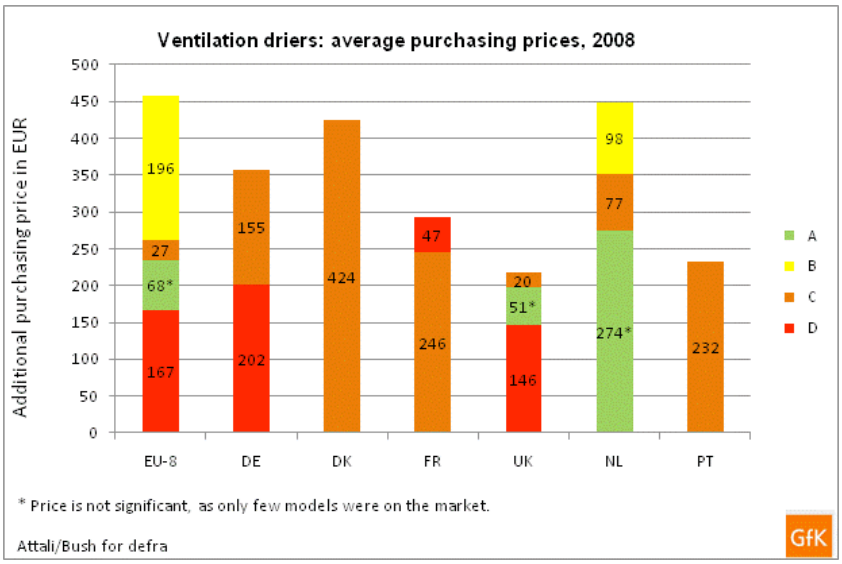




The (still) relatively high purchase price of heat pump driers slows down the breakthrough of profitable energy savings over the life cycle.



Ventilation driers have lower purchasing prices than condenser driers. However, ventilation driers usually cause higher energy loss in buildings.



Supporting points

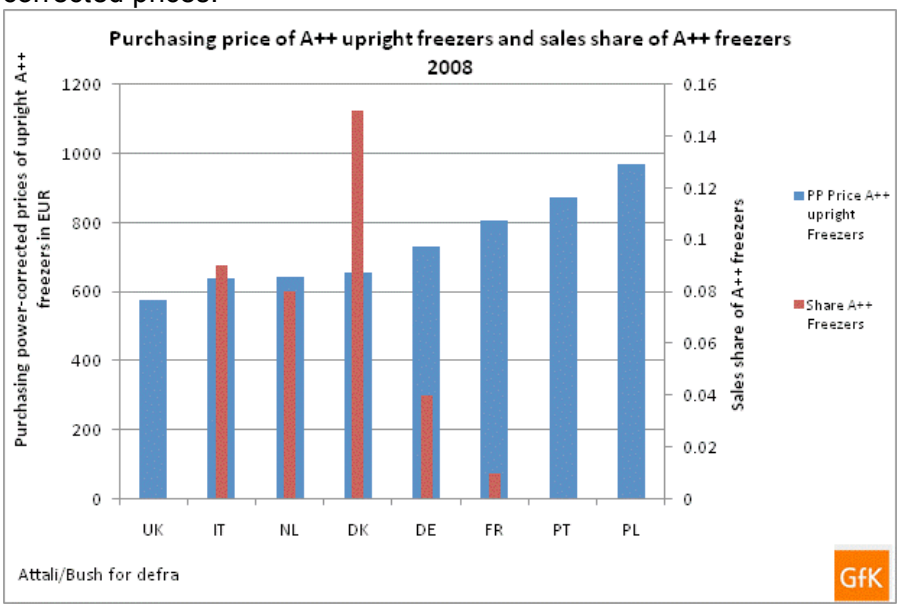
Efficient models are positioned and stuck at the top-end of the market

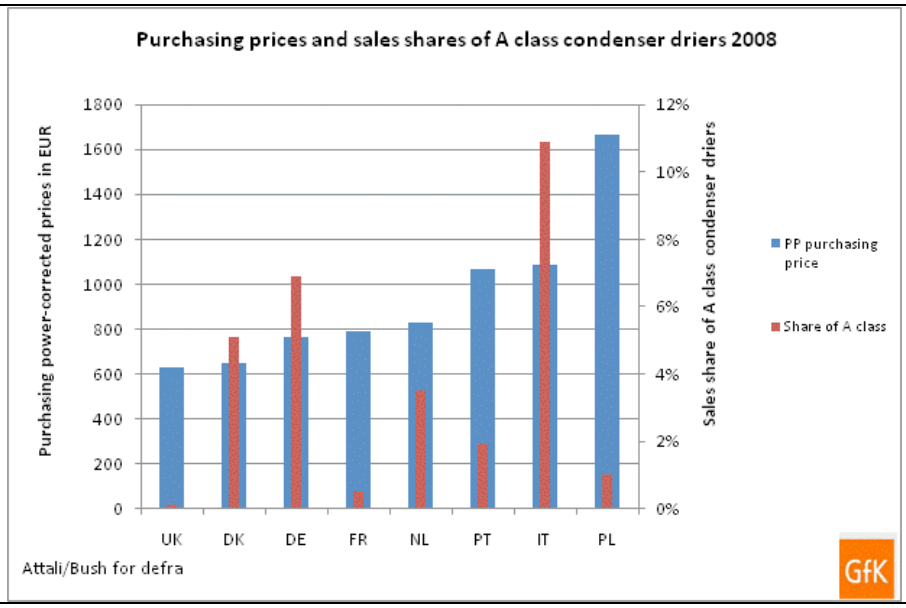
The European Energy Label is used by manufacturers and retailers as a marketing tool. Efficient models "must be" expensive, sometimes far exceeding the relative efficiency cost-saving, because they are positioned at the top-end of the market range.

The main difficulty is that the label has been a victim of its success. The label targeted households to help them decide at the time of purchase but actually manufacturers have used it: the label has rapidly become a marketing argument for manufacturers and thus a financial argument for retailers. More efficient appliances "must be" more expensive - even when they are not more costly to produce.
The correlation between price and efficiency is logical and acceptable as long as the energy efficiency can continuously go down through the range of appliances and not be stuck because of marketing reasons at the high-end of the range, with other attributes of high-end products, making energy efficiency expensive – *Policy officer, FR*

	Producers give contradictory information regarding the additional costs involved in the production of A++ models. Possibly A++ appliances are so far "high end" products – making consumers pays not only for a more efficient compressors and more insulation but for all the other attributes of high end products. The efficiency level has not gone down the range yet – *Policy Officer, DK* Highly energy efficient models may remain niche products. Consumers do not go above a certain price level, although this seems to vary between countries according to the general market context (volume market), consumer attitudes, their willingness to pay for quality features, marketing arguments ("A++" not always judged easy to communicate), etc. This in turn affects manufacturing strategies as market introduction of efficient models needs 'minimum critical mass' for production. Some retailers and some brands can specialise in high-end products. In this case brands remain however on a niche market (e.g. Miele or BSH which are top-end brands presenting top-end products) – *Manufacturer, UK* The European and Italian trends go towards more energy efficient appliances up to the point when the cost becomes too high for the consumer (in order to pay for the R&D, the investments, the higher production costs, etc.). Consumers are generally not ready to pay more, if there is no incentive scheme – *Manufacturer, IT* Even with the rebate programme, A++ cannot really make a break through, possibly because of the timing (the economic crisis does not make it favourable), but also because graphically, these two "+" are not enough to justify a significantly higher price. The future new label may solve the problem, but more communication is needed to convince consumers to go further than their personal interest: even if the individual saving is small, investing in very efficient appliances is good for the country as a whole and for the planet – *Manufacturer, IT* The rebate programme in Italy targeting cold appliances is a success: sales volume of efficient appliances is growing, and the scheme is in place long enough to transform the market, i.e. the A+ class will most probably remain high in sales' proportion. However the rebate scheme has proven its efficiency for the A+ class but is not sufficient for the A++ class (if the sales volume remains around 5%, it is not enough to make prices go down). Incentives could be differentiated according to the energy class. With this respect, the new energy label will be most welcome, but if it is not accompanied by incentives, A++ or higher levels will not massively enter the market – because products will be more expensive. A solution would be to provide incentives to manufacturers for research activities so that the products' cost is lower when they get out of the factory – *Manufacturer, IT* Consumers are in general ready to pay more for advanced products (e.g. dishwashers) and also for environmental issues, but up to a certain point: A++ models are too expensive, mostly because the production costs are too high and because manufacturers must have a price differentiation policy as they can not earn money with first price products – *Manufacturer, PL* On the Portuguese market, the price of efficient appliances is quite high (and as people do not understand the label, they see no value added) – *Researcher, PT* Achieving A++ for refrigerators is considerable more expensive than producing A or even A+. In addition, high energy efficiency is generally combined with special features – *Manufacturer, EU*
Lessons learned	While energy labels continue to fail to provide market differentiation, efficient models will continue to be perceived as overly-expensive top-end products as opposed to being seen as highly efficient: e.g. 1) when most models fall into the best energy class, manufacturers are not incentivised to develop more efficient models since they have no way of informing consumers of it and, therefore, cannot use it as a marketing tool; e.g. 2) the label design must be meaningful: most consumers do not understand that 2 extra "+" on the cold products label justifies a material increase in price in the same way that a

	move from say C to A would. Policy tool: Cyclical revision of the European Energy Label to prevent marketing strategies forcing efficient products remaining at the top-end of the range, Incentives and information campaigns to stimulate consumer demand, Bonus/Malus and rebate programmes to lower the price of efficient appliances.

Barrier factor	**Low purchase price in general**
Effect on the market	When the whole market is driven by low prices, it becomes difficult to sell value added products.
Figures and facts	The graphs above on price differences show that UK often has the lowest purchasing prices. This is also generally the case for purchasing power corrected prices. 



Supporting points	Retailers analyse their customers' willingness to pay and from this develop the positioning of their various products. But a low willingness to pay is also driven by developments in the market and society: messages that support the lowest prices, internet sales, etc. UK market is extremely competitive and challenging. UK's situation, i.e. exclusively price driven market, can be explained by heritage for white goods which have always been first price products, and by the concentration on the retail sector which encourages the price factor to be a the centre of the competition. Internet sales are also growing and driving prices down – *Manufacturer, UK* In the UK, a combination of elements made it difficult for the market to move, especially in a context of euro-sceptical attitude, strong consumer organisation pushing for the cheapest prices, free market with a lot of competition on price and little market verification and control actions (as in other Member States). In the end this resulted in the import of less costly but less performing products, compared to other European countries – *Policy Officer, IT* Retailers keep on analysing their clients and put on the market, or develop through specifications to manufacturers, only those suitable products which will sell – *Retail Expert, UK* Retailers know what the consumers are prepared to pay and, when deciding on a product, they take away features to fit in a pre-defined maximum price: energy efficiency features, painting, etc – *Retail Expert, UK* As the value of the market is (in general) constantly decreasing, retailers have as objectives either to keep their value share, or raise their market shares at the expense of other retailers. UK market is dominated by price, and consumers are price-oriented (especially in this recession period). Cash is at the centre and the "willingness to pay" does not exist in UK – *Retail Expert, UK* The retail business is very much driven by price arguments. There is a strong competition on prices; the value of brands is decreasing, and so have prices in general in the past few years– *Policy officer, DE*
Lessons learned	Low purchasing prices in general do not guarantee that efficient models will be affordable and have a high market share. Conversely, they drive the whole market towards low-end models. Policy tool: Incentives and information campaigns planned in a timely and consultative manner which allows manufacturers and retailers to prepare.

Barrier factor	Structure and balance of power in the retail sector
Effect on the market	In countries where the retail sector is concentrated – i.e. there are few but very powerful retail chains – the competition is fierce and may evoke a "price war". Manufacturers have less influence in their negotiations with retailers.
Figures and facts	Available market data does not cover this issue.
Supporting points	In most of the countries studied, retailers control the market: their concentration is powerful enough to pressurise manufacturers on price issues and range selection. This is why they should be a target for policies – provided that the top management is involved (thus confirming that working with governments on energy efficiency is of strategic benefit). There are two types of retailers in the UK: A) The "value added" retailers, offering a wide range of products, following a "good / better / best" logic and always trying to sale the upper category, focusing on market value and product mark-up, even if the "good" (cheapest) products are advertised as calling card products. The salesmen are most often commission-based paid (the bonus is higher if they sell mark-up products) or bonussed on their store turnover. B) The supermarkets or mass market retailers, almost without salesmen, focusing on lowest price and high market shares. They focus on numbers: buy big numbers and sell them as fast as possible (no expensive stock) on low price argument ("wigig" strategy – "when it's gone it's gone"). On-line shops: the market share is still small but growing very fast. This fundamental difference should be taken into account when designing policies: different strategies are needed to address type A and type B retailers – *Retail expert, UK* Retailers control the market and are focused on low prices – *Policy Officer, UK* Retailers have a decisive advantage over manufacturers, because they are concentrated and large enough (around 5 to 8 major players) to define the products they want – *Policy Officer, FR* Relationships between manufacturers and retailers are correct but tough (i.e. normal in the business): retailers are demanding knowing their market is a priority at European level – *Manufacturer, PL* Manufacturers complain that retailers are almost in a monopole situation, with 2 large retailers dominating the market, and implementing an aggressive pricing policy which impedes to propose more expensive and efficient products – *Researcher, PT* Retailers should be targeted because of the potential, but in order to involve them, high level decision makers should be involved (on the retailers' and public authorities' side). Assistance can be provided for writing specifications, underlining that energy efficiency features are not necessarily costly – *Policy Officer, UK* In Germany, where the retail sector seems to be less concentrated, different strategies have been successfully developed to target different types of retailers. It has been possible to establish a long-term self perpetuating relationship with individual retailers, who spontaneously ask for information and input; whereas with large retail chains, it has been possible to organise occasional one-off projects. Dena has established collaboration with retailers since 2002. Today dena is in contact with about 8000 independent retailers and with Saturn and Media Markt. So far collaboration with the large retailers works on project-basis and not yet with broader framework-agreements. Dena has established standard-collaborations for retailers also with support of regional organisations. • In the low-level collaboration retailers can order POS-material for staff and consumers

	for free. Dena has a standard information package. • In the medium level the retailers are listed in a retailer-data base by dena and maintain a regular contact • In the high level collaboration is based on individual contracts. Co-branding of POS-material or common campaigns are possible – *Policy Officer, DE*
Lessons learned	It seems difficult to influence retail concentration. Where the retail sector is concentrated, public policies could encourage selected players to adopt new and differentiated strategies (including quality elements such as after-sales service, green products, quality attributes etc.) This could be done through a policy proposed to all market players, but in reality only those really willing to collaborate will join the programme. Policy tool: Offer selected retailers differentiation opportunities, offer differentiated policies according to the distribution channels.

Barrier factor	**Business models - Commercial negotiation**
Effect on the market	Business models and negotiation methods between retailers and manufacturers are not well known to policy officers. Appliance price is not fully related to production cost. Brand and market positioning affect the final price, as do complex global negotiations (e.g. good price on cold appliances if a specified volume of washing machines are also sold), promotional events, etc. Policy makers may not currently consider these business practices, but should be encouraged to do so to avoid conflict with retailers' strategies.
Figures and facts	Market data does not cover this qualitative issue.
Supporting points Policy designers do not have an in-depth knowledge of how the business works	Business models vary greatly and directly affect policies promoting efficient appliances. Training sessions have less impact when retail chains have high staff turnover, special offers supported by rebate programmes may distort the market, commission and bonus systems may affect rebate and communication campaigns, margin distribution between retailers and manufacturers dictates the range offered, etc. Retailers have developed their own brands: manufacturers compete to be the producers of these high volume sales models. When it comes to margin, the system is rather opaque – *Policy Officer, FR* The EST is undertaking training session on ESR and A-G label but retailers are not really asking for it and the benefits for such sessions are jeopardised by the fact that there is a high personnel turn over – *Policy Officer, UK* Regarding the Italian market, the relationship with retailers, especially kitchen furniture sellers, is getting more complex as the price issue is getting more important. For example, many kitchen furniture sellers give away free of charge 1 or 2 pieces of equipment to attract new clients. A wrong message is promoted because the consumer gets a wrong perception of the real value of domestic goods – *Manufacturer, IT* In the UK, first consumers demand, retailers react to this and pressure manufacturers to satisfy this. A new trend is developing: manufacturers should pay to have their products on the shelf. This may give the opportunity to manufacturers to influence the range of products they want to sell – but only to the extent that they are confident they can sell the products. At international level, even though retailers buy locally in each countries, can obtain post selling rebates at international level (so many of this products have been sold in all countries so give us back x%) – *Retail expert, UK*

	Retailers govern the market: they estimate the market, choose amongst the products presented by the various manufacturers, make a general agreement for a number of pieces (but in case less pieces are sold, the remaining ones go back to the manufacturers) – *Retailer, UK* In order to gain retailers participation, campaigns should not disrupt the market in terms of who sells what or change the market share. They should focus on product efficiency in general – *Retail expert, UK* In the UK, the distribution sector is very concentrated and fights on the price issue. Very few retailers are interested in the price/quality ratio. Many retailers hunt all over Europe for end of series products – *Policy Officer, International* Within the CERT scheme, retailers are contacted by utilities which offer them money to organise rebates on selected appliances (e.g. 50% off) and/or to pay for promotion activities on energy efficient products (in general, it is both because only promotion can help selling energy efficient appliances). Consumers see a "good deal" but are not necessary aware that it is within and thanks to the CERT framework. Retailers report on sales during the considered period. Manufacturers are not really informed of when and where are made these agreements and can't really influence it nor ask for a share of the money – *Retailer, UK* Retailers can influence the consumer's decision in many cases of appliance purchase. The retailers' support for an energy label can be critical for its success. Labelling programmes should account for the fact that retailers and salespeople get commissions for selling particular brands or models of products. Some programmes such as China CFC-Free Energy Efficient Refrigerator Project include targeted financial incentives to retailers in order to avoid commissions function as counter-incentives - *Wiel, McMahon et al., 2005* On the manufacturing side, HQs stipulate general strategies, whereas national importers select the range best suited to their market. Important strategies (e.g. on brands) are defined centrally and local offices have to implement it. For sales strategies there may be guidelines but these strategies have to be adapted locally and they differ from country to country. The range of product is decided according to the influence of both manufacturers and retailers, according to the sales structures. In some countries inefficient products have relatively high sales rates – this is certainly not the producer's headquarters strategy, on the contrary. The main force governing the local range is the demand structure. If there is no awareness, and the market is too focused on low price there is little room for the most efficient appliances. It can be explained by many elements: consumers not aware of importance of energy efficiency, retailers not educated about the energy label, water saving more relevant than energy saving for average UK citizen, etc – *Manufacturer, EU* In Europe, headquarters of appliance manufacturers are not directing specific products to specific European markets. On the contrary, local manufacturers select the appliances they know are the most relevant for their market (out of a range proposed by the headquarters). They chose the products that consumers want and demand – *Manufacturer, UK* In Poland, manufacturers are rather good partners: they do not reserve their low efficiency products to Eastern countries. The real difficulty lies in the purchasing price – *NGO Expert, PL*
Lessons learned	The issue is not about controlling or regulating business models, but about understanding how they will affect the policies designed to promote efficient appliances. Policy tool: Provide information to policy decision makers (to make informed decision).

Supportive factor	**Distribution channel favours purchase based on information**
Effect on the	There is more chance of energy efficient appliances being bought when

market	information is available (comparison on internet or good salesman, versus poor information on internet and no salesman in shops).
Figures and facts	Available market data did not cover distribution channels.
Supporting points	As informed consumers are more likely to buy efficient appliances, it is crucial to promote information at point of sale. The French situation is different from the UK one: in France there are still salesmen in the shops and the retail sector voluntarily avoids entering the spiral of low prices – *Retailer, FR* Information increases market transparency and lead to prices to decrease. A successful, even though in the beginning controversial example is a website[13] introduced by the Danish Electricity Saving Trust enabling consumers to see where (precisely) they could find appliances at what price. As a result of increased price competition after the publication of the prices of efficient appliances on the web, prices dropped by 20% within three weeks. Compared to other measures aiming at a decrease in price such as subsidies or altered levels of VAT depending on the efficiency of the product, this way of increasing price competition seems to be an effective tool at relatively low costs and seems worthy of consideration by all Member States - *Fawcett et al., 2000* All stakeholders should be made aware of the wider stakes related to energy consumption and CO_2 emission reductions – hence more stringent policies may be more easily accepted. At national level, market stakeholders should be made aware of the wider context: the collective, European and national targets in terms of energy and CO_2 reduction. They should be reminded that a good policy will profit to all stakeholders: energy policies are good for Europe, they are good for maintaining a leading position on technology for manufacturers, they are good because, provided they are correctly designed, they bring differentiation on the market, they bring savings for the community, savings and information to consumers – *Policy Officer, International*
Lessons learned	Understanding the distribution channels and their operations would increase the success of policies. At the same time, if market stakeholders were more conscious of climate challenges, they may be more inclined to fully support these policies. Policy tool: Target each distribution channel with tailored measures to encourage them to inform buyers.

[13] http://www.savingtrust.dk/consumer/products

3.3 – Factors relating to consumers' attitudes

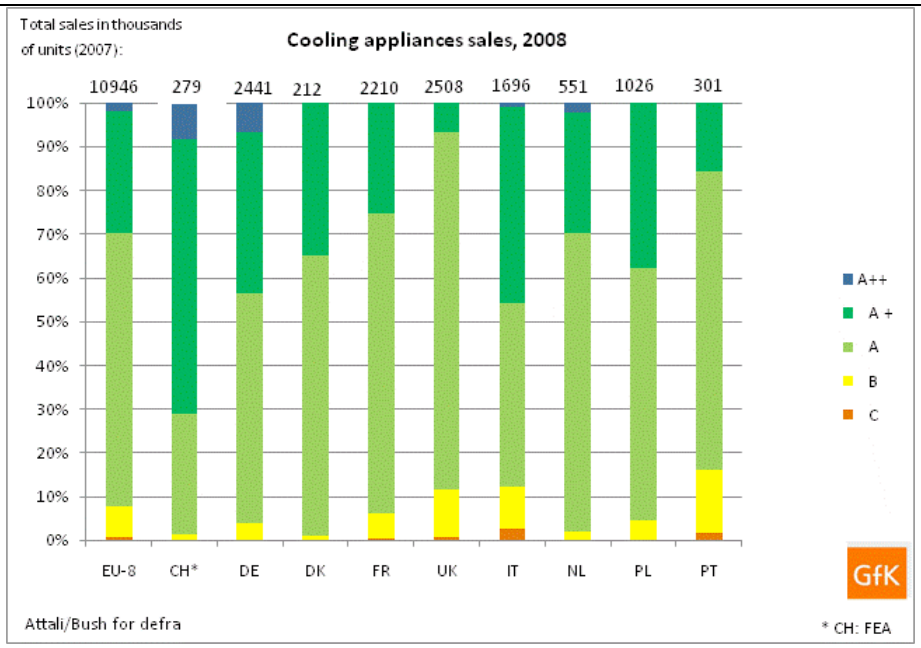
3.3.1 - Summary Table

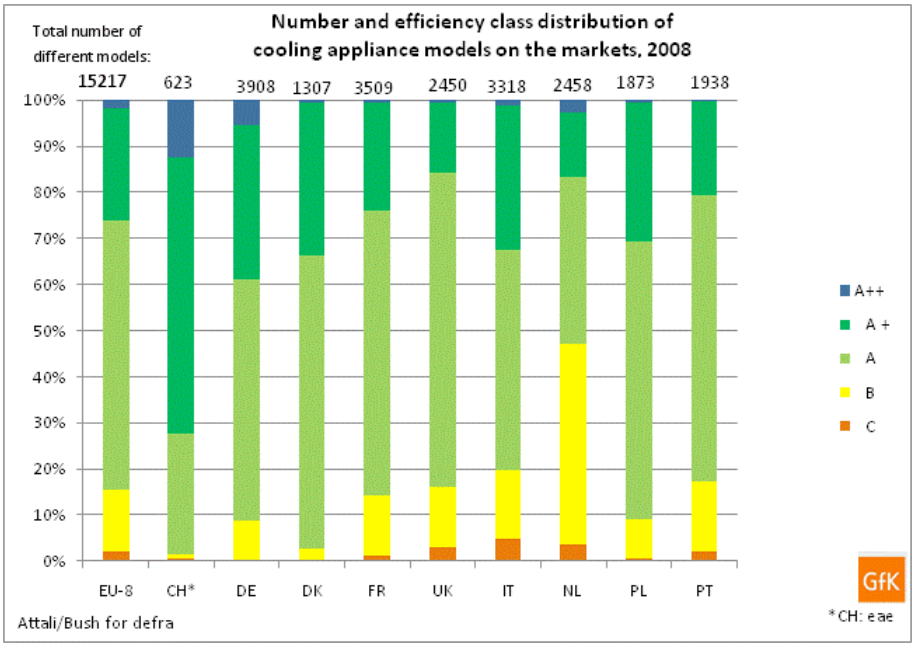
Factors	Description	Policy instruments	Evidence from
Highly sensitive environmental issue	Increases the willingness to pay	Information campaigns relating to energy and the environment	Market data, interviews
Brand awareness	Quality brands offer more energy efficient models	None	Interviews, literature
Preference for products with 'poor' energy efficiency	Some products (that do the same job) consume more energy than others	Information campaigns on energy consumption in absolute terms, tougher regulations	Market data, interviews, literature
Consumer focus on purchase price	Decreases willingness to pay, communication on value added items more difficult	Information campaigns on energy consumption costs	Market data, interviews
Lack of awareness about energy issues	Connection between appliance and electricity bill is not made	Information campaigns on running costs	Interviews, literature
Lack of awareness about the EU energy label	Energy saving message on the label is not understood	Information campaigns on the label	Interviews, literature

Supportive factor in green
Barrier factor in red

3.3.2 - Further detail

Supportive factor	**Highly sensitive to environmental issues**
Effect on the market	High sensitivity to environmental issues increases the willingness to pay for products with a limited environmental impact. If sensitivity is low, "green arguments" have little weight.
Figures and facts Diversity of consumers' attitudes (in the EU) towards environmental issues is reflected in market data	Interviews have shown strong divergences in consumers' attitudes towards environmental issues and willingness to consider long-term benefits such as electricity costs. Market data reflects this diversity: countries where the sensitivity to environmental issues is judged high-to-average show, to a certain extent, higher market shares of energy efficient appliances – see example in graph below which illustrates the diversity between countries.





Supporting points

Sensitivity to green issues is one factor, but alone is not sufficiently key to increase market shares of efficient models.

Conscious customers are interested in electricity running costs arguments. Environmental arguments are supporting consumer action but cost arguments are necessary (personal not only social benefit) – *Policy officer, DE*

Work of the Electricity Saving Trust is facilitated by (amongst others) the general sensitivity to environmental issues – *Policy officer, DK*

There is a commercial reality but also increasing awareness on climate and energy: retailers must be ready to offer energy efficient products. The problem is this changing attitude does not translate into behaviour and action. Green is not a top priority – *Retailer, UK*

General expert guess: about 10% of consumers are interested in environmental issues and only

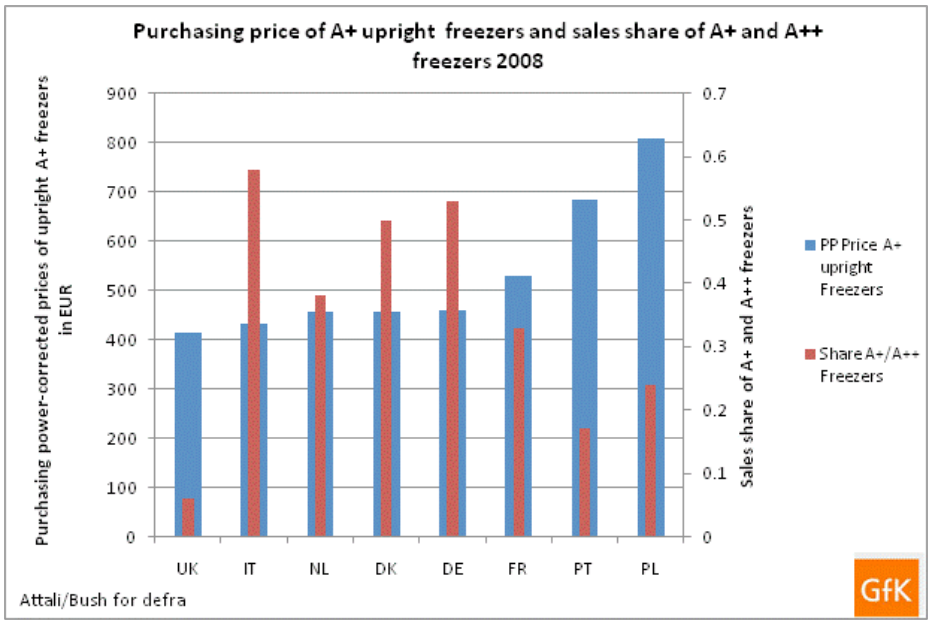
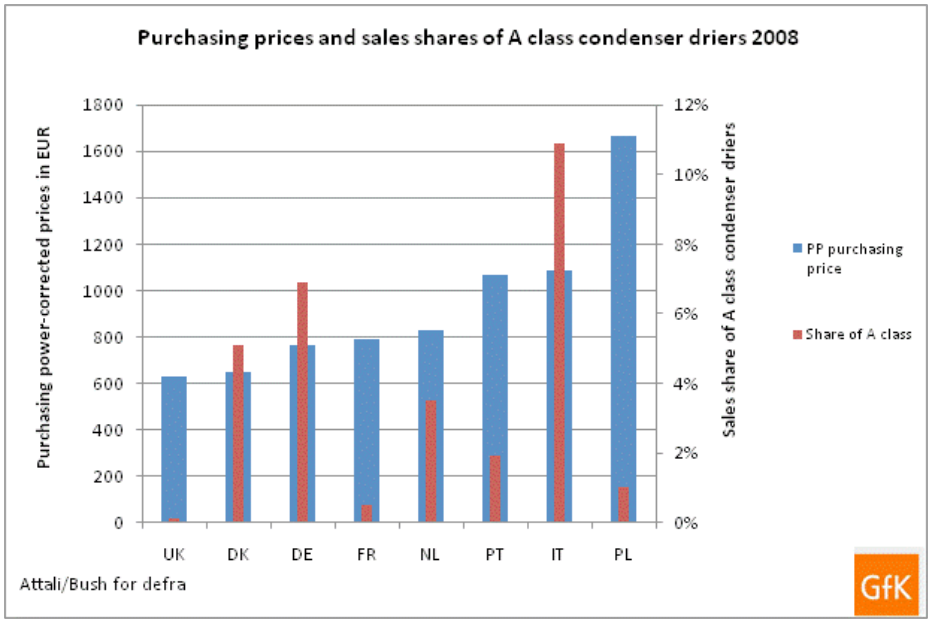
	80% of these 10% are ready to pay more for it – *Retail Expert, UK* In the Netherlands the retailers play an important role in supporting the implementation of the energy label in an active way and communicating on energy efficiency and running electricity costs. *Energy expert and retailer, NL* But it is still necessary to educate consumers on environmental issues. In Denmark, many energy utilities used to have showrooms where consumers could see a range of efficient products learn how to use them correctly; lessons were given to school pupils on how to cook energy efficiently; etc – *Energy Expert, CH*
Lessons learned	Education and awareness raising campaigns linking appliances and the environment do have an impact. Policy tool: Information campaigns relating energy to the environment cost savings, both at a community and personal level.

Supportive factor	**Brand Awareness**
Effect on the market	"Quality brands" offer more energy efficient products.
Figures and facts	The market data studied did not contain brand information. However, market stakeholders underline that clearly identified "quality brands" offer a larger variety of more energy efficient models. Therefore, countries where brand awareness is high should show higher market shares of energy efficient products.
Supporting points	The penetration of quality brands is limited by price issues. Only wealthy consumers have an interest in brands (the others simply go for the cheapest products) and even then, they look on the internet to compare price to find the cheapest product within the brand they are looking for - *Retailer, UK* Quality brands remain a niche market for high end products with a low penetration rate - *Manufacturer, UK* Consumers believe brand is important when choosing a cold appliance. However, only a third of customers always opt for a well-known brand name. First-time buyers show an "overwhelming preference" to choose the cheapest model – *(2007) Mintel, Fridges and Freezers, Market Intelligence* The value of brands is decreasing – *Policy officer, DE*
Lessons learned	It is not advisable for public policy makers to enter into the brand debate.

Barrier factor	**Preference for products with 'poor' energy efficiency**
Effect on the market	Fashion and consumer product preference influence the supply of appliances. Some products are intrinsically more energy consuming than others that provide a similar service, for example side-by-side or "US type" refrigerators, frost free refrigerators, combined washer drier/washing machines, etc. On the other hand, quiet operation and built-in appliances are generally top-

	end products and therefore tend to be more energy efficient.
Figures and facts	Product preference and corresponding market share have an impact on energy consumption. Data from UK shows highest market shares amongst the nine studied countries for particularly high energy consuming products: side-by-side refrigerators (8% of all refrigerators, i.e. twice the EU-8 market share), combined washer driers machines (15% compared to the EU-8 5%). It also shows a preference for less efficient evacuation driers and a higher proportion of D models sold (15% compared to the EU-8 7%).
Supporting points *Product developments are guided both by consumers wishes and by supply side stakeholders*	Kitchen aesthetics and decoration play an important role. If consumers get equipped with built-in appliances, the energy efficiency will most surely rise (as generally built-in appliances are high end, energy efficient models) - *Policy officer, international level* There has been rising interest in internal décor with kitchen makeovers playing an important role in house development. Higher-end appliances are increasingly seen as must-have products and there has been a growing fashion for larger industrial-style cookers and US-style fridges - Trade Sector Profile - UK Household Appliances (White Goods) – *(2007) Purple market research* Between 2005 and 2007 the sales growth of 8% on the fridges and freezers market has largely been driven by significant growth in refrigerators, as customers have demonstrated their willingness to pay more for added features, higher energy ratings frost-free options and lifestyle-led designs – *(2007) Mintel, Fridges and Freezers, Market Intelligence* When buying a cold appliance in the framework of a kitchen upgrade or redecoration, customers would not buy a unit that did not complement the appearance of their kitchen. Additional functions and features, for example an icemaker, are an important consideration as well – *(2007) Mintel, Fridges and Freezers, Market Intelligence* But are manufacturers just trying to meet consumer demand? The design of the European Energy Label encourages manufacturers to increase the size of their products by making it easier for larger products to achieve better ratings and manufacturers are already marketing oversized products which do not seem to be developed to meet the real needs of consumers. Household evaluations of campaigns have actually discovered that the important efficiency gains over the last decade are being cancelled out by growing size of major appliances and the number of electricity consuming devices each household owns. The energy label categorises products according to their energy efficiency instead of their absolute energy consumption, and this causes manufacturers to increase the size of their products in order to achieve a good label easier. For example, see the trend towards larger washing machines despite the decrease in average household size throughout Europe, or the US-Style refrigerators which are gaining in popularity in UK - *Boardman (2006)*
Lessons learned	The market shows a tendency towards larger machines, larger internal volumes for cold appliances, and multiple features - which often leads to more energy consumption but also sometimes to more quality or functional optimisation (e.g. laundry products determining water consumption based on load size). This is a complex debate, but energy consumption in absolute terms should be underlined to consumers.

	Policy tool: Information campaign on energy in absolute terms, tougher regulation for oversized and "poor" products.

Barrier factor	Consumer focus on purchase price
Effect on the market	Focus on purchase price decreases the "willingness to pay". Communication on value added items and running costs is more difficult.
Figures and facts Attitude towards purchase price is not sufficient to explain market shares of efficient models	Price is always important to consumers but in some countries consumers focus on quality and brand, and only then look for competitive prices (e.g. CH and DE). In other countries, price is the primary criteria but other criteria are also considered (e.g. FR, IT) and for some countries, it is difficult to develop marketing strategies other than by focusing on the purchase price (e.g. UK and PT).  

Supporting points There is no unique response to the focus on purchase price – the context must be considered	Purchase price plays a central role, but what are the messages that would help consumers focus on other criteria? Some favour messages focusing on initial cost and running costs, and insist that they should be expressed in Euros or UK Pounds, as this would be the only way to reach consumers. Others argue that this message has little weight when electricity prices are low: the extra investment may not be profitable, even within the life cycle. For consumers, the price remains the most important criteria, before the energy labelling which is however rising in second position – *Policy Officer, FR* The recession is making the price issue even more proprietary for consumers – *Policy Officer, UK* In the UK, only wealthy consumers have an interest in brands (the others simple go for the cheapest products) and even then, they look on the internet to compare price to find the cheapest product within the brand they are looking for – *Retail Expert, UK* In the UK, neither A-G nor ESR appears in retailers' advertisement (or very rarely). Both are good but would be more efficient if money information was attached to them: pounds and pounds over life time instead of kWh or CO_2 – nobody understands it) – *Retail Expert, UK* Customers go for the "value for money" and if they cannot see the value of an energy efficient model, they will not buy it. Therefore, any measures underlining the cost savings attached to an energy efficient model would be good. The difficulty is then that the cost difference between an A and an A+ model should not be too high – *Retailer, UK* Communication on purchasing price versus savings is delicate as consumers do not think on the long run and compare with expenses they understand. The average electricity consumption of a household is about 2'500 kWh/year, which represents about 300€. Even reaching a 50% saving, i.e. 150 € is not motivating, as it barely equals to the price of two full tanks for the car. Therefore messages can rely on savings in percentage but not in Euros – *Policy officer, FR* The focus on purchase price can be for different reasons and be linked to culture and habits: the willingness to pay more for trendy products, the culture of investing in cheap products intended to furnish rented flats, the traditional focus on lowest price criteria instead of "quality/price" ratio, etc. On the consumers' side, the situation may evolve if other factors evolve: e.g. the trend to open kitchens. If people begin to buy built-in appliances, may be the energy efficiency will go up (as generally built-in appliances are high end, energy efficient models). People change house more often (and leave old equipment in the old house), or invest in apartments for renting purposes (and equip them with poor quality low price models). The rate of equipment is very high (almost as high as in Germany where the population is larger) – *Policy Officer, International* Italian consumers are today much more aware than in the past of energy and environmental issues even if the message constantly needs to be repeated. Of course, price remains a key criterion for consumers, but it has evolved towards a "quality / price" ratio in order to get good eco-efficient products for a correct price – *Policy Officer, IT* UK was in a bad position for a start; UK consumers seem to be very much driven by price. There is no willingness to pay for efficient appliances as consumers do not see an added value for these models as they don't know about the energy consumption (the look is more important). UK Consumers are also diffident towards directive messages and do not appreciate to be told what to do – *Policy Officer, UK*
Lessons learned	Communication should focus on tailored messages able to drive consumers away from the immediate short-term purchasing price. Policy tool: Information campaigns on electricity and water running costs; Information about quality features and products' value for money (e.g. the Danish and British Energy label which include quality criteria).

Barrier factor	Lack of awareness about energy issues
Effect on the market	No link is made between the potential appliance and the future electricity bill. It is then more difficult to promote energy efficient products.
Figures and facts	Market data alone does not cover this issue, but could be correlated with statistical data on consumer knowledge.
Supporting points Non energy conscious consumers show little interest in efficient appliances	Lack of awareness on energy issues is identified as a barrier against efficient appliances. Consumers do not generally equate appliances and their energy consumption to climate change issues. In the UK, there is a strong need for education in order to raise consumer awareness – the way to do it is to work with retailers. Climate change is becoming a known concept for consumers but they do not make the link with appliances – *Policy Officer, UK* The real barrier is that the public is not informed enough. Information campaigns are needed so that other instruments – including white certificates and other market-based instruments – can work properly. The economic discourse dominates over the environmental messages – *Policy officer, IT* The Polish electricity prices are quite high given the standards of living. In general Polish consumers have a good understanding of their electricity consumption in kWh but, even though energy expenses as a whole have a significant weight on households' budgets, the awareness level on how to make savings is low. Appliance purchasing price remains the first selection criterion for consumers – *Policy Officer, PL* Portuguese consumers do not make links: money savings, money savings on the long run, kWh savings, CO2 emissions – *Researcher, PT* Consumers are aware that electricity prices are growing. Given the economic crisis, it is a concern but the link is not made with efficient appliances – because the first cost remains high – *NGO Expert, PT* There are two kinds of consumers: those thinking before buying – institutional communication should focus on this consumer type, and consumers that could be called "spontaneous shoppers" which are almost impossible to reach - *Energy Expert, CH* On the contrary, experiences (including from the IT sector) show that informed consumers are more likely to change their behaviour, and therefore consumers should be educated. Several manufacturing associations are also focusing their efforts in this direction. The work of the Electricity Saving Trust is facilitated by (amongst others) the good knowledge of the population regarding their own consumption – *Policy officer, DK* Campaign effects and self-analysis Internet tool. This paper underlines the usefulness for consumers to know about their current energy consumption - *(2007) B. Brange, T. Larsen, G. Wilke, eceee summer study proceedings 2007* A standby project with 30 households in Denmark showed that public campaigns and continuous information on standby consumption of households are of minor or no use, while individual advice and technical devices result in real standby reductions. In this project sending out written material and leaflets about standby reduction possibilities had almost no effect on the household's standby consumption. Also access to a homepage where the household's measured standby consumption was shown had little effect. A visit by an energy consultant who visualized standby consumption and presented or even installed 'standby killers' led to an average reduction of the households' standby consumption by two thirds - *Gudbjerg, Gram-Hanssen, 2006.* In 2007 leaflets were sent to all households in Denmark addressing energy efficient behaviour

	(the Electricity Saving Trust is not only working on the choice of the product but also on its quality and the way it is used) – *Policy officer, DK* Consumers should be educated on energy savings, and AMDEA, the trade association for the domestic appliance industry in the UK, is promoting the idea of replacing old inefficient models through the "Time to Change" programme and website. www.t2c.org.uk – *Manufacturer, UK*
Lessons learned	In countries where electricity prices are not too low, establishing a link between energy, costs and money should have an impact on behaviour. Policy tool: Information campaigns on electricity (and water) running costs.

Barrier factor	**Lack of awareness about the EU Energy Label**
Effect on the market	The energy saving message on the label is not well appreciated: there is a low level of knowledge about the label, no understanding of its message, and it has little impact on the choice of the appliance bought.
Figures and facts	Market data alone does not cover this issue, but could be correlated with statistical data on consumers' knowledge.
Supporting points A label that supports energy efficient appliances is a tool that provides enough product differentiation, and that is recognised by consumers because its message is regularly backed by institutions.	Institutions must regularly run awareness raising campaigns for the European Energy Label, in order to guarantee that consumers really understand and use the label at the time of purchase. The energy label obviously had an effect (shops were rather "red" and F-class in 1994 which is not anymore the case) and is well known by French consumers. Nevertheless, communication is still needed to remind the message and continuously encourage real appropriation of the tool by consumers. The coming new label will necessitate a specific institutional communication campaign as the experience with A+ and A++ classes shows that communication from manufacturers only is not sufficient. For example, surveys show a good recognition rate for the label in general, yet 67% of the same sample in 2007 did not know about the A+ and A++ classes – *Policy Officer, FR* European energy label recognition rate - France 2003: 67% 2005: 75% 2007: 81% A "Round Table" in 2000 on the label showed that 1) salesmen reported to use the energy label which helps selling higher mark-up products but also to face the difficulty that the label had become the only point of interest for consumers – at the expenses of functionalities, 2) Consumers reported to know the label, how to use it, to appreciate the scale and the colours, but also to want more information on other subjects than energy (e.g. compulsory information on noise, but given in a unit more understandable than dB) – *Policy Officer, FR* One of the Portuguese difficulty: The lack of knowledge about the meaning of the label, i.e. consumers recognise the label but do not understand its meaning and how to use it – and may buy efficient appliances by chance – *Researcher, PT* Across 20 big hypermarkets offering appliances in Poland the worst labelling situation was found in the case of air conditioners (0% labelled), ovens (33%) and freezers (39%), the best but still not satisfactory in the case of refrigerators (54%) - *CEECAP 2006 – National Verification and Enforcement Plan – List of activities and prepared solutions.* Retailers should also be informed and possibly trained, especially when new regulations are being implemented. The need for training appears to differ between countries.

	A yearly survey is undertaken regarding compliance in shops watching that the label is present on all models and correct. There are consistent results over time with 80 to 90% present and correct labels in large retailers' chains, whereas the situation in the other retailer types can vary from 0 to 100% compliance depending on how individual shops do it. As nobody really informs retailers, there is a transition problem with newly labelled products (e.g. cookers) which is solved over time – *Policy Officer, FR* Retailers' managers are sometimes not aware of their labelling obligations. As far as salesmen are concerned, generally speaking, they are not aware of the energy label and therefore do not advise consumers properly. This is a crucial issue as consumers tend to trust retailers which are the main point of contact at the time of purchase – *Policy Officer, PL* On a general level, the awareness for energy efficiency of retailers has risen considerably in the last few years – *Policy Officer, DK* But the label itself should be consistent and support market differentiation – otherwise it is not useful to retailers. (A retailer) has invested in training salesmen to sell value added products and to have arguments to make consumers aware of this value. They can underline energy savings, time and money savings (for example by using a dish-washer instead of washing dishes by hand), etc. The energy label helps the salesman to have an active role in communicating this message. Retailers have a pedagogical role to play towards their clients. As today, the energy label does not allow for enough differentiation on the market especially for wet appliances, in the near future, manufacturers will use marketing arguments to show that their products perform "better than A" – *Retailer, FR* Regarding the energy label: today, its market push role is valid only for cold appliances. Consumers always want information, and this is why the label continues to be used, but actually consumers would want information on many more issues than just energy. Consumers are attached to the fact that information is provided, not to the form of the current existing label. The label should be renewed very quickly so that the race for better appliances can be re-opened – *Manufacturer, IT*
Lessons learned	The European Energy Label alone, even when well recognised by consumers, is not sufficient to ensure significant market share to efficient appliances. European customers need to be regularly made aware of it. Policy tool: Regular information campaigns on the label itself (especially as a new label is expected), cyclic labelling revision.

3.4 – Factors relating to Policy issues

3.4.1 - Summary Table

Factors	Description	Policy instruments	Evidence from
Market transparency, EU label	Correct and complete EU label declarations are an essential condition for other policies	National informative system may be necessary	Interviews
Enforcement and market surveillance	Ensures fair competition, builds manufacturers' trust	Products and shop testing, publication of results	Interviews, literature
Market research and analysis	Enable policy design and negotiation with market stakeholders	Market studies, cost/benefit analysis, programme evaluation	Interviews
European comparison	Work within the European perspective, as manufacturers do	European market surveys, coordination between Member States	Interviews
Regulatory context	Provide conditions for stakeholders to implement energy saving measures	Better design of regulatory context	Interviews
Timing issues, long-term approach	Measures to fit the international agenda. No "stop and go" policies	Follow-up of international development	Interviews, literature
Overly involved stakeholders	Retailers and NGOs could provide complementary views to manufacturers when discussing policy design	Balanced involvement of retailers, consumer and environmental organisations and manufacturers (associations)	Interviews
Economic crisis	Sales in 2009 will go down, manufacturers may stand against regulations, consumers have less money available to invest in efficient appliances	Direct public money in promising areas for the future	-

Supportive factor in green
Barrier factor in red

3.4.2 - Further detail

Supportive factor	Market transparency EU label
Effect on the market	Correct and complete declarations on energy power and consumption in the framework of the EU label are an essential condition for all the other policies. Without this information, no other tools can be designed.
Figures and facts	Market data does not cover this issue.
Supporting points	The revision of the European Energy Label is crucial to regain trust in it as an effective tool, which can then be fully supported by governments. Without updated efficiency classes of the energy label many measures are impossible or useless as rebate programmes. It is important that consumers are able to find good products quickly and easily – *Energy Expert, DE* The problem for many categories is that the European energy label is not yet ready for high efficient appliances, no more differentiation is possible - *Energy Expert, NL* The European labelling scheme was good (and would probably have been enough) but today when nearly all models are A-classified, the scheme has to be updated, as lack of dynamism is a barrier to energy efficiency. As long as the European labelling scheme is not updated, the Danish endorsement label could be valuable – *Energy Expert, DK* Danish endorsement label is necessary mainly because European Energy label is outdated and because of the confusion introduced by new names of best category: A+ and A++ or AAA. Advantage: Quick updating of thresholds possible (compared to EU label) – *Policy Officer, DK* In the past ENEA used to publish a list of appliances, underlining their efficiency. It was useful when the label was first introduced but the market changes too fast; the list became heavy to manage and was quickly obsolete. Today, the activities concentrate on raising consumers' awareness about the label itself – *Policy Officer, IT*
Lessons learned	The European Energy Label and MEPS can be supported and used by governments and market stakeholders only if they are well designed and consistent with the market. Policy tool: If the EU label or MEPS are weak, national systems of information may be necessary (in whatever form: mandatory declaration, endorsement label, regulation, information such as Topten, etc.).

Supportive factor	Enforcement and market surveillance
Effect on the market	Enforcement activities build manufacturers' trust in the system – they know competition is on fair grounds.
Figures and facts	Market data does not cover this issue but shows the misuse of the energy label which can sometimes occur.
Supporting points	While enforcement in shops seems to be correct and shop controls are undertaken (with differences in enforcement activities depending on countries) product tests are insufficient and not shared between countries. The problem is that there is very little control on correct declaration of products. There are doubts about correct declarations especially of no-brand products. Testing- and verification procedures are extremely complex and expensive. Incorrect declarations lead in many countries to nearly no consequences (exception Denmark with black lists and some countries with rather small fines as in Switzerland). Self-control by industry does not seem to be popular - *Energy Expert, CH* Enforcement procedures could be improved. It is unfair that government should test all products individually whereas manufacturers can consider them as groups – *EnR Working group for appliances (meeting discussion)* There are close to 30 000 models of cold and wet appliances on the EU market, many of which are essentially similar and with frequently changing model numbers. Authorities must check every single model to establish (non-)compliance. Information sharing among the countries should be facilitated, e.g. by a database of tested products. Furthermore, a simplified compliance checking procedure and reduced measurement tolerances are recommended – *Klinckenberg, Siderius, 2008*. Manufacturers want rules to be correctly enforced, ensuring fair play. Market enforcement (compliance) activities must be in place to create a levelled playing field, and eliminate unserious producers – *Manufacturer, EU* Market surveillance is also an issue as only European manufacturers can be held responsible for potential problems (with the declared efficiency, regarding the ROSH or REACH Directives, etc.). In this way, non-European manufacturers have no worries because can not be traced as opposed to European manufacturers. The product testing organised by CECED Italy on air conditioners showed that European products are therefore penalised. More market surveillance by regulators to ensure that manufacturers do not cheat could be of great support – *Manufacturer, IT*
Lessons learned	A system based on self declaration can convince only if random and regular tests are undertaken, otherwise it is subject to too much doubt. Policy tool: More tests, publication of results, European coordination.

Supportive factor	Market research and analysis
Effect on the market	Governments which have at their disposal regular market research and analysis are in a better position to design policies and negotiate their implementation with stakeholders.
Figures and facts	Market data does not cover this qualitative issue.
Supporting points	Various analyses are needed on market data, business models (how do the businesses work and how do stakeholders integrate public policies) and programme evaluation. However, programme evaluation should address qualitative aspects, especially when evaluating soft measures, the results of which cannot fully show in market data (evaluations cannot determine which measure is responsible for which share of improvement, or for how many saved kWh). Both at European and National level, two types of studies could be undertaken, but they need to be large enough to present a statistical relevance: - Regular measuring campaigns to know how appliances are really used in homes, if hypothesis on life-time are verified over the long run, etc. - Regular fallow-up of sales, with annual reports The results would feed-in a model, optimising policies at European level and developing more or less aggressive policies at national level – *Policy Officer, International* The Trust has no more quantitative goals in GWh as quantification of soft measures turned out to be too complex. For each sector and project, there are specific goals set up by the Trust in terms of label knowledge, evaluation of market shares and sales figures – *Policy Officer, DK* Wishes and experiences of retailers should be evaluated on a regular basis – *Policy officer, Germany.*
Lessons learned	Better understanding of programmes' impact and of the reality of marketplaces (sales and practice in shops) will improve policy design. Policy tool: Study the markets, including cost/benefit analysis to prioritise activities according to political targets, Programme evaluation (qualitative for soft measures).

Supportive factor	European comparison
Effect on the market	Most manufacturers think at least at a European level; therefore national governments need to think at a global or at least European level, when devising national policy in order to keep pace with manufacturers.
Figures and facts	Several European programmes provide market analysis (preparatory studies within the Eco-Design process, SAVE projects analysing market data or supporting measuring campaigns) but there are no systematic market surveys covering all European countries undertaken on a regular basis.

Supporting points	More analysis and investigations on a European level are needed so that national policy can be better designed. Quite often, national policies are decided without enough background studies and justifications. There is a lack of analysis at International and European levels. Without this analysis, it is impossible to negotiate with manufacturers as governments are in a weak position. It is not a problem of facing a too strong lobby but rather of not knowing on which technical and market grounds to discuss with manufacturers. "Carrot and stick" policies do work, but only if there actually is a stick and when the carrot is motivating enough. The respective size of the stick and carrot can be estimated only if there is sufficient analysis providing a European picture. From this point of view, Member States should ask the European Commission to follow-up the appliance market and present annual reports so that decision markers are regularly informed – *Policy Officer, International* The SAVE programme played an important role in putting energy efficiency on the agenda in many countries, for example in Poland and Portugal where there were few governmental programmes. Only few governmental programmes were implemented targeting appliances, mainly 2 information campaigns in the past and more recently a saving calculator. However several SAVE projects were implemented in Portugal (e.g. training for retailers, cooperative procurement) most often with the support of the government, through ADENE's participation) – *Researcher, PT*
Lessons learned	National decision makers need easy access to European analysis on markets and policies. The energy label is of key importance for coordinating national strategies but the European level could go further and initiate and coordinate market analysis. Policy tool: European market research needs to incorporate the global picture (Member States could ask the European Commission to coordinate certain aspects of the market follow-up).

Supportive factor	**Regulatory context (e.g. obligation on suppliers)**
Effect on the market	The regulatory context creates the right conditions by incentivising stakeholders to implement energy saving measures.
Figures and facts	Market data does not cover this issue.
Supporting points	Although in many countries electricity efficiency is stated as a priority within energy strategies, in practice, energy supply measures are still often favoured. In Poland, so far government policy has focused on energy supply (coal or nuclear) as opposed to demand-side management. It has not exploited the situation in which electricity prices are high for households and could therefore influence behaviours toward energy saving measures if they were made aware that savings are possible – *NGO Expert, PL* The starting point should be the political objectives: reducing CO2 emissions and energy consumption to a given point by a given date. Different routes can lead to these objectives but only a cost / benefit analysis allows comparing options, including to energy savings and investments in new production means – *Policy Officer, International* Energy saving and CO_2 reduction obligations for energy suppliers could be adjusted to ensure that measures are implemented in the field of domestic

	appliances. CERT allows utilities implementing energy saving activities - within the framework of their CO_2 reduction obligation - to keep part of the money they would have to otherwise pay to the regulator. They are therefore looking for the most cost effective actions (as they can keep the remaining money instead of using their profit to pay for these measures). So far activities have therefore concentrated on insulation (most cost efficient) and lighting measures (for which the credit claim is quite high). There is a hope that appliances will finally be addressed in the present and coming schemes – *Policy officer, UK* However, the regulatory context should not be too complex. EU legislation is often too complex – *Manufacturer, EU* Governments should not pile up too many regulations (Energy label, EuP, ROHS, REACH, WEEE) - *Manufacturer IT*
Lessons learned	Effective but simple regulations are required. Policy tool: Better design of regulatory context if cost/benefit analysis shows that action in the appliance sector would be beneficial.

Supportive factor	**Timing issues and long-term approach**
Effect on the market	Policy measures aiming to develop more efficient domestic appliances are developed within an ever-changing international arena. Stakeholders have difficulty in planning strategies if they are faced with “stop and go” policies.
Figures and facts	Market data does not cover this issue.
Supporting points	All stakeholders need enough time to react on new policy designs. Stringent MEPS may require R&D, new production lines etc. Sufficient timing within the international sphere (new standards, new regulations) is important. Industry needs years of preparation to develop strong measures. In general, transforming the markets requires to reward efforts and to provide a clear view with transparent objectives on what is going to happen in the next years. The industrial perspective is 5 to 6 years, with 1 or 2 years of product development and 3 to 4 years to sell the products and recuperate the investment – *Manufacturer, IT* The programme's crucial aspect, as for any instrument aiming at market transformation, is the stability: the programme needs to be announced in advance in order to reduce prices (and therefore reduce the cost of rebates). If manufacturers know the rebate will last for three years, they can adjust prices in order to recover their investment in very energy efficient models on the long run – *Policy Officer, IT* Retailers also need time for preparation, but they are much more flexible. If retailers know a campaign is coming and will influence the demand, they can get ready for it. They need to prepare the stocks in about 4 to 12 weeks – *Retail Expert, UK* Policy design should focus on mid- and long-term periods and take into account international developments (planned standard revision, announced rescaling of a label, etc.).

	A successful project on international co-operative white goods procurement was Energy+, which ran from EU-wide 1999 to 2004. The supply side created demand via retailers, wholesalers and other supporting organisations and expanded the existing market, while at the same time manufacturers were stimulated to develop more energy efficient products. Energy+ also adapted the criteria of the 'New Label Directive' and put forward the A+ and A++ cold appliance categories. Energy+ resulted in a permanent change in the involved manufacturers' product range. At national level, the project resulted in a large amount of new energy efficient cold appliances available. The level of success depended on national circumstances such as policy, economy, financial incentives, market structure and cooperation of local distributors - *Lechtenböhmer et al., 2006.* In order to achieve some effects and a market shift, we need to focus on long term periods (similar to Italian system). If the rebates will only last for a week, manufacturers will not bother to place new models on the market. Every change in models on market requires new investments for the manufacturers in administration, new language, service, product catalogues, point of sales, logistics, etc. Also respect the industry's investment cycles when implementing policies – *Manufacturer, EU* Several successful rebate programmes were implemented; however the Trust is not satisfied with the latest one – in 2005 for A++ cold appliances. A++ models were subsidised with 1'000 Danish Crowns (~135 €, ~120 £) on recommendation of industry (as opposed to 500 Danish Crowns offered in the 2004 campaign). As the demand was extremely high, the budget was rapidly consumed and the programme was over after five weeks (35 MDKK for incentives and 4 MDKK for contact with retailers, administrative and control costs, 4,7 M€ + 630 000 €, 7 M£ + 1,4 M£). There was a good increase of sales figures for A++ but only during the programme; afterwards the sales and even the product range in the stores were reduced. The Trust concludes that the programme was enforced too early as producers, retailers and consumers were not yet ready. In fact the European market took its time to develop, in 2007 there were about 110 models of cold appliances on the whole European market (according to www.topten.info). In 1999, there was a rebate programme on A-rated heat pump driers (1'000 DKK, ~135 €, ~120 £). Also this programme was judged to be premature as there were very few A-models on the market at that time - *Policy Officer, DK* The EST is providing support in the form of information on specifications. But they would like a faster identification and marketing of products, to have a good list for a start and reduce the time lag: it takes a lot of time to test the products whereas the catalogues are decided 6 months ahead of their production (result of testing can be communicated through flyers and on the Internet but it is often too late for the main catalogue) – *Retailer, UK* On the policy side, UK has often had a specific position when it comes to Europe, European products (especially in the 90's) and European messages. The "Energy Saving Recommended" label is an illustration: UK developed its own national message when the European one would have been more consistent. It created confusion and was not enough stringent – *Policy Officer, international*
Lessons learned	Policy measures may be stringent (e.g. MEPS) but stakeholders (especially industry) need to be informed and be given enough time to adapt to new requirements. They should be provided with mid-term plans and continuity. Policy tool: Follow-up international development.

Barrier factor	**Overly involved stakeholders**
Effect on the market	When working in the appliance sector, policy design is generally discussed with manufacturers, whereas retailers and NGOs could often provide complementary views.
Figures and facts	Market data does not cover this issue.

Supporting points	Manufacturers' associations are much better organised for lobby work than other types of stakeholders. Manufacturers often have too much weight (manufacturers' associations are conservative when individual manufacturers are innovative). Environmental and consumer organisations and retailers are under-represented – *Energy Expert, CH* Despite its crucial role, there is very few discussion with the retail sector – *Policy Officer, IT* CERT uses ESR criteria as thresholds but ESR criteria are influenced by manufacturers sitting within the product committee – which probably avoid setting stringent criteria. Therefore CERT activities (e.g. rebates) go to products already on the market rather than to new products – *Policy Officer, UK* So far, ESR is free of charge for retailers and manufacturers, but asking for a contribution is under discussion (to retailers and / or manufacturers) is under discussion. A positive point would be more funding for a growing programme. But a negative aspect would be a loss of credibility because good products may not sign up (just because the licence fee is not paid) or the criteria could be suspected to be influenced by paying manufacturers – *Policy Officer, UK* Involvement of front runner manufacturers can lead to sound solutions. In general, trade associations are complex to deal with because their goal is to protect their weakest members – *Policy Officer, UK* Threat of negative publicity can be effective in enforcing fair rules of the game. Today there is no publication of blacklists if testing shows problems, but the risk is nevertheless high: the exclusion from the scheme would be a bad sign for a brand – *Policy Officer, UK*
Lessons learned	Considering know-how and experiences of all stakeholders should lead to better policy design. Policy tool: Balanced involvement of retailers, consumers and environmental organisations and manufacturers' associations (who have been dominant so far).

Barrier factor	**Economic crisis**
Effect on the market	Sales in 2009 will go down, and manufacturers want to avoid any type of regulation viewed as a penalty (compared to non-European manufacturers). Populations will have less spending power to invest in energy efficient appliances.
Figures and facts	Available market data ends in October 2008 and only shows the warning signs of the sales decline.
Supporting points	-
Lessons learned	Product energy efficiency could be taken into account in the policies designed to support specific economic sectors. On the other hand, sound projects may be penalised by lack of funding given the current financial difficulties. Policy tool: Direct public money into promising areas for the future.

4 - Policy instruments

This section discusses various policy instruments aimed at raising market shares of domestic energy efficient appliances.

These policy instruments have either been mentioned in the literature[14] (see complete reference list with more than 70 references in Appendix B) or by the individuals across nine countries who have been interviewed for this study.

The policy instruments have been classified by type, with case studies or specific highlights presented in boxes alongside the text. The classification is as follows: -

1. Regulatory measures
    - Informative labels
    - Minimum energy performance standards (MEPS)
    - Enforcement activities – product testing and correct labelling in shops
    - Taxes on electricity prices
    - Energy saving and CO_2 reduction obligations on energy suppliers
2. Financial incentives
    - Subsidies targeting consumers, retailers, manufacturers
    - Support for Research and Development
    - Other types of subsidies
3. Voluntary measures
    - Endorsement labels
    - Information campaigns
    - Voluntary agreements and programmes
    - Voluntary target programmes
    - Training campaigns
4. Other instruments
    - Data and market analysis
    - Public procurement
    - Technology and cooperative procurement
    - Identification of most efficient products

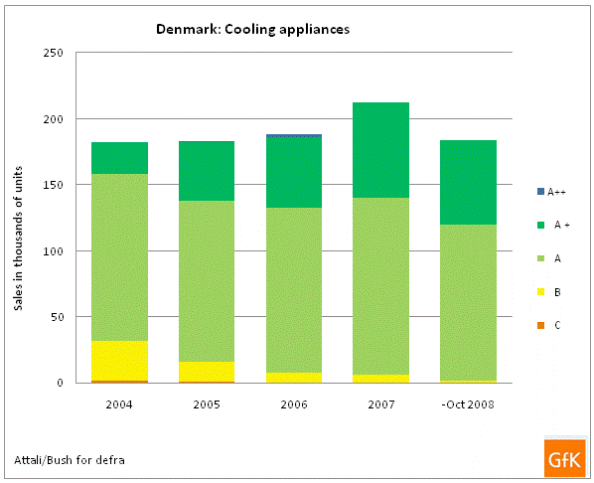
[14] The literature mainly comes from major recognised energy journals and books, proceedings of targeted conferences (eceee and EEDAL) and pieces of grey literature. The focus was put on literature from Europe in order to cover policy instruments applied in Europe, but some more international sources have also been used. The topic of domestic appliances in Europe being quite specialised; not many fully relevant sources were found. Some sources were not used because of their being outdated.

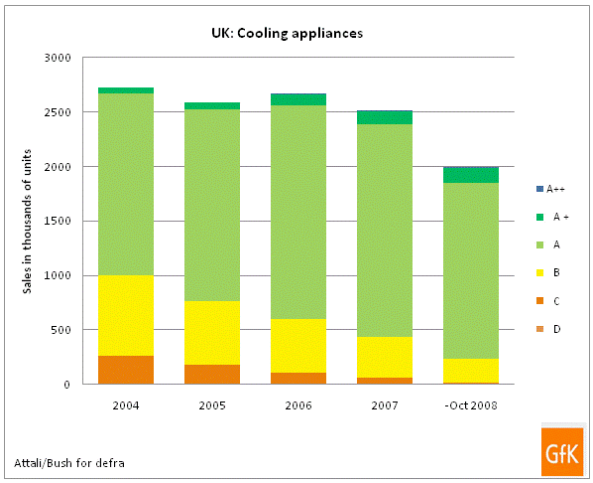
Box 1 – Diversity of national strategies

In the nine countries covered by this study, three broad policy strategies implemented at national level (beyond the implementation of EU regulations on domestic appliances) can be noted:

- In Denmark and UK, an explicit product strategy is comprehensively applied, covering all aspects from market research, to enforced regulatory measures, national endorsement labelling, voluntary programmes, etc.
- In France, Germany, Italy, the Netherlands and Switzerland, governments implement many activities but not necessarily within a comprehensive framework.
- In Poland and Portugal, fewer measures are implemented, and/or the scope seems to be more limited.

Sales data shows that energy efficient models have different market shares in each of the countries, even when strategies are similar (see the graphs below and the differences in sales over four years in Denmark and UK). This suggests that contextual factors are of crucial importance: different tax systems, different electricity prices, different stimuli for energy saving, different consumer cultures concerning product preferences, sensitivity to environmental issues, etc.





The interviews generally concluded that market transformation can be achieved only if policy instruments are well coordinated, and used in conjunction with well planned and timed evaluations of stakeholders and international comparators.

When questioned as to their preferred tools for market transformation, manufacturers generally favoured subsidies; retailers favoured consumer education and subsidies; and policy officers and experts favoured regulatory measures including energy taxes, subsidies based on stringent criteria, and in some countries, voluntary programmes with retailers.

In particular, the literature suggests that:

> The most successful countries have used a comprehensive policy set to improve the energy efficiency of home appliances, lighting and office equipment and home entertainment electronics including labels, MEPS and awareness campaigns – *OECD, IEA, 2005.*
> The success of a market transformation strategy depends on the proper timing: cost reductions and higher market penetrations of high efficiency appliances should be synchronised. The study modelled the development of 6 appliance groups in the EU-25 and 5 European non-EU

countries under different energy efficiency strategies. It concluded that electricity consumption of household appliances is expected to increase under the business as usual scenario due to higher penetration rates (of dishwashers and tumble driers especially). If, on the other hand, strict political efficiency strategies are implemented, 60% of the electricity could be saved compared to the business as usual scenario by 2030. Under the efficiency scenario, however, a greater proportion of the investment costs could be passed on to the consumers, with the current speed of technology improvement and price decrease of efficient appliances. The analysis, furthermore, showed that ambitious saving targets could become much more attractive when combined with policy measures to speed up price decreases: accelerating the introduction of new high efficiency technology by about 25% made the high saving scenario also the least investment scenario – *Lechtenböhmer et al., 2006.*

4.1 – Regulatory measures

The nine countries studied have in place regulatory measures covering domestic appliances which come from the translation of European Directives: the European Energy Label and, for some products, minimum energy performance standards. By setting performance thresholds, these regulations often serve as a basis for other types of instruments, such as financial incentives. Some countries have also put in place instruments obliging utility companies to reach targets (energy savings or CO_2 reductions), including the implementation of measures covering domestic appliances.

Product regulatory measures are generally based on international measurement standards. Where more and more products will be covered by regulations, particular attention should be paid to the negotiation of these (new or revised) standards, their technical content and the corresponding obligation for manufacturers to declare their products' energy consumption values.

4.1.1 - Informative Labels

Description

Informative (or comparative) labels show the relative use of energy (or of other resources) of a product compared to other models. Informative labels make it easier for consumers to compare energy efficiency between models and are therefore a crucial step towards market transparency.

Implementation

Informative label

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EU energy label	EU energy label	EU energy label	EU energy label	EU energy label	EU energy label	EU energy label	EU energy label	EU energy label	EU energy label

Discussion

The initial market impact of the European Energy Label and the actions of European MEPS can be positively evaluated as follows:

- Most informative labels use either a categorical, discrete ranking system or a continuous scale without categories to indicate the product's relative energy consumption in an easily understandable way – *Wiel, McMahon, 2005.*

- It is generally recommended that labels should be credible, applied to every product in a particular range of appliances so as to avoid free-riding, easy to understand and eye-catching – *Burgess, 2008.*

- Labelling programmes as well as performance standards must be open-ended and regularly revised ad upgraded in order to be effective – *World Energy Council, 2008*.

- The EU energy label for household appliances was introduced in 1992 and has been successful in contributing to pulling the market towards more energy efficient products. Part of the reason for the energy label's success is seen in the fact that it was used by the Member States for setting levels for incentives such as rebate schemes. By now, due to the label's impact most appliances correspond to the levels A or B. Its impact has been greatest on white goods, especially refrigerators, freezers and washing machines. It is estimated that energy labelling schemes accounted for about half of the increased penetration of energy efficient appliances, while the rest has been achieved mainly through 'business as usual' technological development and MEPS set under the Ecodesign Directive (2005/32/EC) for fridges, freezer, ballasts for fluorescent lighting and hot-water boilers – *Commission of the European Communities, 2008.*

- The combination of labelling and the standards taking effect in 1999 reduced the average electricity consumption of new refrigerators and freezers sold in the EU by 27% between the early 1990s and 1999 – *Waide, 2001.*

- Evaluation of the EU labelling scheme for refrigerators, washing machines and lamps showed that the sales-weighted average energy efficiency improved by 26% from 1992, before the label was introduced, and 1999. The study estimated that 16% resulted from minimum efficiency standards and 10% from labelling – *Wiel, McMahon, 2005*.

- Class A refrigerator sales in the EU increased to 23% of total sales in 2000 and 61% in 2005 (from less than 5% in 1995); additionally 19% of the refrigerators sold in 2005 were in the classes A+ and A++. Even more rapid was the sales development of washing machines (1% A in 1996, 38% in 2000 and 90% in 2005). The effect of labelling was supported by the introduction of minimum efficiency requirements for refrigerators and by the agreement with the European Committee of Domestic Equipment Manufacturers (CECED) for washing machines – *World Energy Council, 2008*.

Even though the European Energy Label initially targeted consumers, manufacturers were very prompt to react and integrate it in their design and marketing strategies.

> On the consumer side, energy labels promote the purchase of more efficient products. Once a label displays an impact on consumer choice, manufacturers may be motivated to enhance energy efficiency of their products. The effect of labels on product efficiency showed clearly after the introduction of the EU energy label: products [are] designed to just cross the efficiency classes' threshold – *Wiel, McMahon et al., 2005, citing Waide 1998.*
>
> The European classification scheme was taken over also in countries which had not implemented the energy labelling directive. Manufacturers in various Eastern European countries before the entry into the EU acted proactively and labelled the products before the implementation into national law. Where the energy label was present, it significantly influenced

> the market of major domestic appliances. Furthermore, comparison of GfK-data showed that supportive measures such as subsidy programmes in Netherlands accelerated the penetration of efficient products – *Stöckle, 2006*.

> The label targeted households to help them decide at the time of purchase but actually manufacturers have used it: the label has rapidly become a marketing argument for manufacturers and thus a financial argument for retailers. More efficient appliances "must be" more expensive - even when they are not more costly to produce – *Policy officer, FR*

As with all policy instruments, the "devil is in the detail" and some technical aspects, for example overly generous tolerance margins, or incorrect positioning of the A to G scale, can jeopardise the efficiency of the label.

> The allowed tolerance of 15% between the claimed and measured efficiency of room air conditioners allows manufacturers to jump between up to three efficiency classes with their products – *Saheb et al., 2006*.

There is a consensus among stakeholders that the European Energy Label needs to be dramatically revised: the label is a victim both of its success (in many products categories the vast majority of products are A-class) and of the overly long European time frame for this revision.

> Because of the significant efficiency improvements that have been achieved, both the labelling scheme and the efficiency standards need to be revised - *Waide et al. 2003.*

> Now the energy label exerts no more incentive for the manufacturers to develop more efficient products, and the label provides no way to market such more efficient products. To adapt the label to the improved standards, the criteria are currently being upgraded under the recast of the 92/75/EEC 'Energy Labelling Directive for Household Appliances' – *Commission of the European Communities, Commission Staff working document, impact assessment SEC 2863, 2008.*

> The European labelling scheme was good (and would probably have been enough) but today when nearly all models are A-classified, the scheme has to be updated, as lack of dynamism is a barrier to energy efficiency. As long as the European labelling scheme is not updated, the Danish endorsement label could be valuable – *Policy officer, DK*

> Labelling is cost effective and the A-G label must be revised in a good way (consumers assume that labels are revised continuously and that products always improve – as the performance of computers) – *Policy officer, UK*

> National energy policies often base on the energy label. Without an updated A – G scale, for many product categories it is no more possible to design rebate programmes - *Energy Expert, NL*

4.1.2 - Minimum Energy Performance Standards (MEPS)

Description

Minimum Energy Performance Standards – MEPS (also known as "minimum efficiency requirements") prevent manufacturers and retailers from placing on the market products which fail to meet certain minimum efficiency levels. They therefore cut the tail off the bottom-end of the market by eliminating the least efficient models.

All EU Countries have implemented the European MEPS for household refrigerators and freezers. The Eco-Design process is currently setting new MEPS for major domestic appliances that will be implemented in coming years. Switzerland has also implemented the European MEPS, and a national consultation on further requirements is on-going.

MEPS are generally developed in combination with informative and/or endorsement labels, using the same threshold values. For example, when the EU Energy Label was introduced for cooling appliances in 1994, manufacturers had the time to plan for the forthcoming MEPS fixed at the level of energy class C and D that were to be implemented in 1999.

In Europe, only the European Commission can introduce mandatory minimum standards for traded goods. Member States wishing to influence MEPS should therefore enter into negotiations at European level.

Implementation

Minimum Efficiency Requirements

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
European MEPS	European MEPS and national consulta-tion on new MEPS	European MEPS	European MEPS	European MEPS	European MEPS	European MEPS	European MEPS	European MEPS	European MEPS

Discussion

Providing they are well designed, the application of MEPS is simple and clear.

> Strong MEPS are the best solution as they take away the choice from consumers (this is acceptable as long as the service remains good) – *Policy Officer, UK*
>
> Minimum energy performance standards are generally the most effective instrument, though targets must depend on the type of market (mature versus new markets) – *Policy Expert, DK*
>
> MEPS are a good solution. UK tried to introduce faster MEPS thanks to voluntary activities (e.g. TVs but does not apply to white goods) – but starting on a voluntary basis is not enough to transform markets – as renouncing on bad products voluntarily means that other producers/retailers will sell them – *Policy Officer, UK*

> The REMODECE project recommends strict MEPS for air conditioners. According to the report air conditioner penetration is increasing, and the European market has been flooded with very inefficient low-cost models – *De Almeida, 2008*

MEPS are also a very cost effective instrument for market transformation.

> In strong contrast to rebate programmes or information campaigns, MEPS are extremely cost effective to transform markets, as they are generally designed to meet least life cycle cost analysis (as it is the case within the Eco-Designs economic evaluations) – *Energy Experts, NL and CH*

MEPS can be utilised either as a way of preventing the worst models from entering the market, or as a way of stimulating energy efficiency in the future – in which case, they should be planned and announced in advance and updated regularly.

> Minimum energy efficiency / Eco-Design requirements alone are not the solution, because they are only meant to cut the tails of less efficient models on the market – *Policy Officer, IT*

> Minimum efficiency standards can be a very effective instrument for stimulating efficiency improvements on a large scale, especially if they are updated on a regular basis – *Geller, 2006.*

The adoption of MEPS implies negotiations with manufacturers. Independent data on the technical and economic consequences of the MEPS adopted should therefore be made available to all parties.

> Manufacturers are generally opposed to measures that can disrupt market operation; efficiency standards in particular, but in certain contexts also labelling systems. Arguments frequently brought up by them is the risk of higher production costs while the possibilities to increase prices are limited due to fierce competition, innovation focused on areas of little importance to consumers, and a less diverse range of products. As experience has shown, such fears are largely unfounded. Nor is the turnover and the profit of manufacturers adversely effected by newly introduced standards, nor do the standards compel them to eliminate certain functions to lower the energy consumption. Nevertheless, the negotiation process when introducing new standards or revising existing ones tends to bring up conflicts – *World Energy Council, 2008.*

4.1.3 - Enforcement activities: product testing and correct labelling in shops

Description

The European Energy Label relies on self-declarations from manufacturers and its correct implementation in shops by retailers. Appliance testing and shop controls, complemented by possible sanctions in the case of a misuse, fall under the responsibility of the Member States (Council Directive 92/75/EEC). These enforcement activities are a prerequisite to regulations being seen as trustworthy, and are a critical issue in supporting market transformation.

Implementation

Enforcement activities: product testing, label present and correct in shops

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
	✓	✓	✓	✓	✓	✓	✓		
-	Regular tests of products, shop testing in the past (good implement-tation)	Few product and shop tests – label present and correct in shops	Regular tests of products including negative publicity, regular shop tests - label present and correct in shops	Very few products tests, 2 studies on shops – label present and correct in shops	Limited tests of products by MTP, EST tests 5% of ESR labelled products. Regular shop tests – label present and correct in shops	Very few tests and shop verify-cations – label present and correct in shops	Some shops testing label present and correct in shops	No product test, very few shops' verificat-ion - problems with labels in shops	Very little shop testing

Discussion

Although only limited official product testing has taken place in Europe, this has shown that energy consumption is actually higher than declared. Systematic legal action in case of non-compliance would reinforce the credibility of enforcement and verification activities. Negative publicity (e.g. publication of brand names and model references of non compliant appliances) is also a powerful tool.

> Compliance checking is under the responsibility of the EU countries; in some countries it is delegated to regional level. While most countries do check the label presence in shops, mostly New Member States (NMS) claim not to have access to a qualified test laboratory. Most countries have not established a verification and enforcement procedure, and out of 27 EU countries, only 3 or 4 regularly test accuracy of the labels. Tests have shown that the measured energy consumption on average is 8% higher than declared. The verification procedure is complex, expensive and takes up to two years. Accuracy of energy performance declarations should be checked by authorities, and legal action should follow in the case of non-compliance – *Klinckenberg, Siderius, 2008*.
>
> Models with incorrect declarations are put on black lists and the Electricity Saving Trust publishes press releases – *Policy Officer, DK*
>
> Regarding the label in shops, DEA is responsible for spot-checking in shops. The practical work in relation to shop-controls is outsourced to a private institution. So far wrong declarations were punished with penalties. The greatest amount ever fined to a retail-shop for not displaying the energy label was only 10’000 Danish Crowns (app. 1’350 €). Today, DEA cannot deal directly with the violation of the energy label. Cases of non-compliance have to be turned over to the local police and the police decide whether the case is brought to court.
> Regarding product testing, wrong declarations are usually solved directly with manufacturers through dialogue. For the time being it is not possible to expose publicly manufacturers and shops, which do not comply to the energy-labelling requirements, but during 2009, an executive order will be changed so that wrong declarations may be made public directly by DEA ("negative publicity). – *Policy Officer, DK*

The complexity of the European appliance market suggests that there could be more European cooperation in the follow-up of product testing, and possibly a simplification of procedures. With future Eco-Design measures, enforcement and verification activities are expected to increase.

> The enforcement activity covers 1.5 full time job for the coordinators plus a team who regularly controls shops[15]– *Policy Officer, DK*

> There are close to 30 000 models of cold and wet appliances on the EU market, many of which are essentially similar and with frequently changing model numbers. Authorities must check every single model to establish (non-)compliance. Information sharing among the countries should be facilitated, e.g. by a database of tested products. Furthermore, a simplified compliance checking procedure and reduced measurement tolerances are recommended – *Klinckenberg and Siderius, 2008*

> The enforcement activity is expected to grow with the measures to be decided in the framework of the EuP Directive. DEA is now preparing for these new tasks and has not yet decided how large a part shall be kept inside the Agency and what shall be outsourced – the important issue here is that it shall be possible for the Energy Agency to build up competence and capacity on energy efficiency at the "level of the individual product", i.e. to learn from doing this task – *Policy Officer, DK*

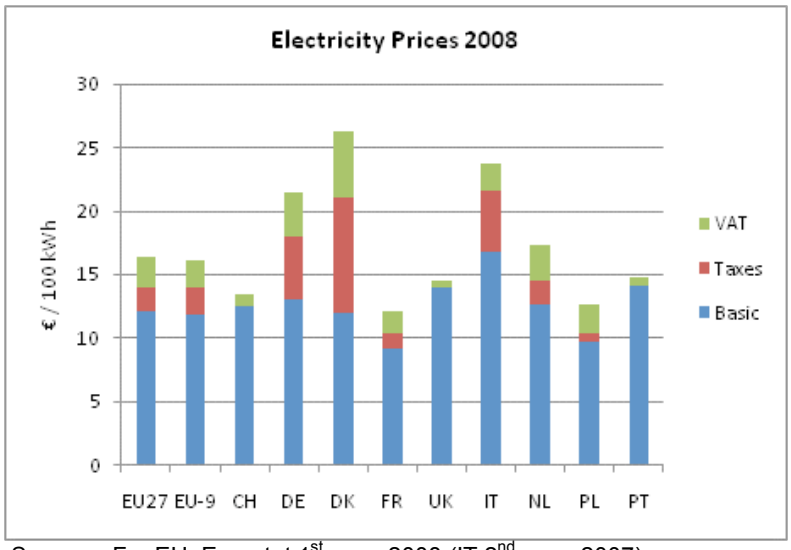
4.1.4 - Taxes on electricity prices

All countries apply taxes on electricity prices to consumers. However, in some countries the taxes exist not only to finance government spending but also to:

- Encourage consumers to pay attention to their domestic consumption and to adopt energy saving measures and behaviours
- Fund specific energy saving activities (through earmarked taxes)

For example in 1996, The Netherlands introduced an energy tax for households and SMEs (on electricity and gas). This tax was intended to offset the CO_2 emissions resulting from energy end-use, and to serve as a stimulus for energy efficiency by increasing the cost-effectiveness of energy efficient products (since it was accompanied by a tax rebate for buyers of energy efficient appliances, the Energy Premium Scheme - EPR, see below). In 1996 the tax began as 2 Eurocents per kWh; in 2002 the tax was about 14 Eurocents per kWh, and today, after a change of Parliament and governmental policy, it is around 4 Eurocents.

[15] The web-site of the secretariat for energy labels of appliances is integrated as a part of the web-site of DEA www.ens.dk/sw12327.asp (English version).



Sources: For EU: Eurostat 1st sem. 2008 (IT 2nd sem. 2007)
CH: http://strompreise.preisueberwacher.ch

4.1.5 - Energy saving or CO_2 reduction obligations on energy suppliers

Description

Mandatory energy saving or CO_2 reductions targets can be assigned to utility companies which then have to implement measures to fulfil their targets, and document these measures to the public authorities. Policy design may vary, as follows:

- The type of utility: i.e. supplier or distributor, type of fuel, or by number of customers
- The sectors and technology covered: i.e. measures only for the residential sector, or across all sectors of the economy, where potential measures to be implemented have been identified, or where stakeholders can propose new measures
- Methods of evaluating targets: i.e. engineering calculations, standard catalogues, complete *before and after* studies
- Financing: i.e. cost of measures recovered through tariffs, levy on electricity tariffs, creation of *ad hoc* markets where saving certificates (also called white certificates) can be traded, penalties etc.

In order to fulfil their obligations, utility companies sometimes organise rebate programmes to promote efficient appliances (see part below).

Implementation

Energy savings or CO_2 reductions obligations on energy suppliers

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
	✓		✓	✓	✓	✓			
-	Some local obligati-ons from public owners	No	Yes, but recent changes in the scheme influenced utilities away from measures on appliances	Yes, Certificates d'Economie d'Energie, appliances covered but almost no measure implemented	Yes, EEC/CERT appliances are covered but not a significant saving delivered	Yes, Certificati Bianchi, appliances covered but hardly any measures implemented	No	No	No

Box 2 – Obligations on utility companies: instrument adapted to domestic appliances?

Five out of the nine countries covered by the study have developed regulatory measures instigating mandatory targets for utility companies.

- In UK: a mandatory CO_2 target to be reached through measures implemented in the residential sector.
- In Denmark: a mandatory energy saving target to be reached through measures implemented in all sectors.
- In France and Italy: a mandatory energy saving target to be reached through measures implemented in all sectors and a market to trade energy saving certificates (i.e. a mix of regulatory measures and market based policy instrument).
- In Switzerland: according to local regulations, some utilities have a mandatory energy saving target.

In these five countries, domestic appliances are, in principle, covered by the schemes, but not in practice (except in Switzerland where the system, though more limited in scope, is more straightforward and explicitly based on rebate programmes). Evaluations have shown that domestic appliances represent a very small share of the implemented measures and of the savings achieved (1 to 5% of the savings).

- The schemes' design encourages utility companies to focus on the most cost effective measures: home insulation and compact fluorescent light.

- When there is no sector obligation, utilities may be more inclined to implement measures in the industrial sector, where clients are easier to deal with – less numerous, higher financial stake to encourage their interest, better chance of gaining client loyalty, etc.). For example in Denmark, a 2006 change to the scheme to open it to all market sectors meant that utility companies reduced their focus on the residential sector.

- When there is no or only partial fuel obligation, electricity savings may not be regarded as a priority. However in France, the scheme may evolve to also cover petrol distributors. In this case, hypermarkets selling petrol could be tempted to implement measures on domestic appliances that they also sell.

- The European Energy Label, which serves as a basis for identifying eligible products, does not currently provide enough performance differentiation for the market. For many products, the best energy class can no longer be considered as an energy saving measure.

- On a more general level, the structure of electricity tariffs in the residential sector should also be consistent for utility companies which are, on the one hand encouraged to implement saving measures; and on the other hand generate profits that are directly related to the volume of kWh sold.

4.2 - Financial Incentives

4.2.1 - Subsidies targeting consumers, retailers, manufacturers

Description

Sales of high efficiency appliances can be promoted through subsidies. Financial support can be given either to manufacturers, retailers or consumers.

Implementation

Subsidies

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
	✓	✓	✓		✓	✓	✓		✓
-	Some local on-going rebate programme: A++ cold, A-driers	Local operations, very limited scope	Short rebate programmes to kick-start markets (A tumble driers in 1999, A+ in 2003, A++ in 2005)	No	EST limited rebate in 1999 Various one-off operations: to retailers from utilities (within CERT)	On-going rebate for consumers: tax deduction for A+ and A++ cold appliances (2007 - 2009)	Large rebate programme from 2000 to 2003/04, on all main appliances (most efficient)	No	Limited scope utility rebate programme for cold appliances in 2007 and 2008

Box 3 – Various ways of using subsidies in the countries studied

A variety of subsidy schemes are used, or have been used, in seven out of the nine countries studied:

Countries and organisations have different objectives when using subsidies:
- Denmark uses short-term subsidies to kick-start a market.
- Subsidies to transform the market, with financial support available over several years are currently used in Italy and have also been used in The Netherlands.
- UK, Portugal and, most importantly, Switzerland use subsidies in a less formalised way to support market transformation activities.
- CECED views rebate programmes as a way of promoting "timely replacement", arguing that the accelerated replacement of inefficient appliances will bring about more savings than technology driven measures.

There are various ways to organise subsidy campaigns:
- Governments choose to undertake a subsidy programme, within the framework of a wider information campaign (in the Netherlands and Denmark) or independently of institutional in-store communication campaigns (in Italy retailers and manufacturers have developed their own promotional tools).
- Energy utilities choose to undertake a subsidy programme, sometimes clearly underlining that the subsidy is granted within the framework of energy efficiency measures (in Switzerland and Portugal), sometimes promoting to the consumer only the "good deal" element and not relating it to energy saving measures (in UK, where utilities negotiate with retailers for one-off subsidy operations).

Scope and budgets vary and can be:
- Rather large, such as in Italy and The Netherlands; or
- Rather limited in Denmark, UK, Portugal and Switzerland

There are a variety of practical arrangements. Customers can, for example, receive:
- Cash back in shops
- Price reduction in shops
- Cash back at the utility showroom (which they have to visit)
- Tax deduction from income tax (at the end of the year) or tax credit for lower income households
- Money from utility provider (who in the Netherlands were contracted to operate the programme for approximately 20% of its overall cost)

Other subsidy instruments found in the literature review or interviews are detailed below. These include: subsidy for manufacturers aiming at lowering the price of future efficient models, bonus/malus systems, VAT levels and zero-rate loans.

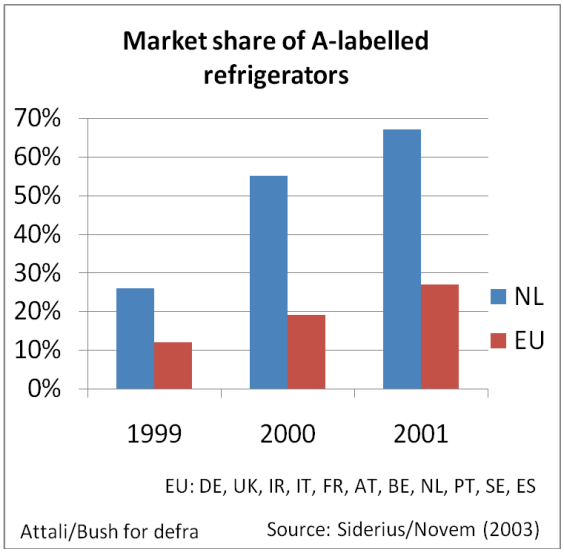
NB. A bonus/malus scheme runs on the principle of awarding good behaviour (bonus) i.e. through a rebate or cash-back scheme, while simultaneously punishing bad behaviour (malus) i.e. through additional taxation or charges.

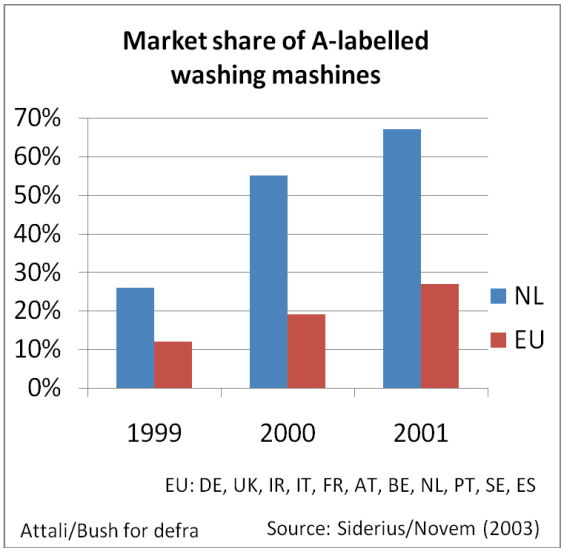
Discussion

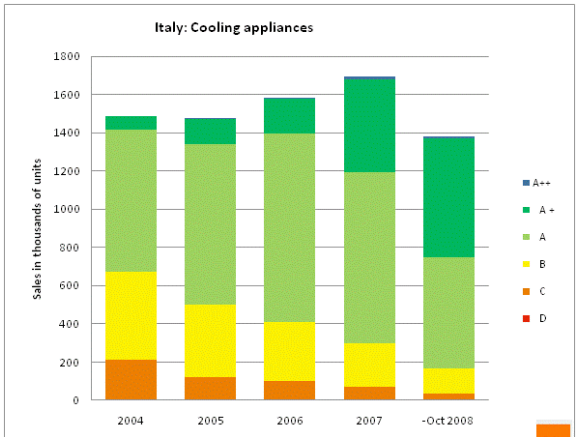
Subsidies are the only policy instrument (with MEPS, depending on cases) which is powerful enough to be tracked through market data, as their effect directly shows in the sales figures.

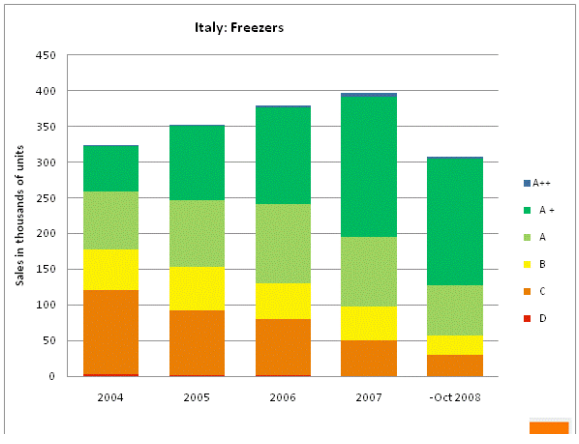
> The current example the Italian incentive programme for cold appliances of A+ and A++ energy classes, which is part of the financial law and lasts for three years in total (2007 – 2009). The incentive consists in a rebate, which is capped at a maximum 20% of the appliance cost, so that the incentive is perceived as significant, and a maximum of 200 Euros so that the range covered is large enough – from the volume and quality points of view. The rebate takes the form of a tax deduction, according to the yearly individual tax declaration – *Policy Officer, IT*
>
> In Italy, thanks to the incentive system, the sales of A+ products have increased from 14% to 46%, compared to, e.g. Sweden, for the same period, A+ shares shifted from 14% to 13,5% – *Manufacturer, International level*
>
> A GfK-based study from 2006 showed that subsidies in The Netherlands significantly accelerated the sales of the most energy efficient appliances, compared to the German market. Consumers advance their replacement under the influence of subsidies. This was especially visible towards the phase out of the programme, as markets dropped right after the termination of the subsidies – *Stöckle, 2006*.
>
> An evaluation by SenterNovem from 2003 summarises the rebate programme in the Netherlands, called "Energy Premium Scheme (EPR) for domestic appliances". It has started in January 2000 and has been a success in transforming the market for household appliances: sales of A-labelled appliances went up to about 70% in 2001 and even higher in 2002 (with exception of dryers). This success stimulated the revision of the EU labelling scheme for cold appliances. The costs for the EPR amount to 65 million Euro in 2000 and 135 million Euro in 2001. Regarding CO_2 reduction, the EPR saved about 210 million kg CO_2 in 2002 – *Siderius* 2003.

Rebate programmes' impacts revealed in market data for the Dutch and Italian markets:









> Experts believe that subsidy programmes were key for market transformation of heat pump tumble driers in Switzerland and stimulated market share of High efficient cold appliances – *Energy Expert, CH*

Subsidy programmes are a powerful policy instrument for changing the market, but there is also an associated cost:

> The Dutch rebate programme (135 million Euros in 2001) was paid for by an energy price tax which amounted to 50% of the energy prices in 2002. In Italy, the cost is estimated at around 50 million Euros for 2007.
> In order to design subsidy programmes as cost-effective tools for market transformation, criteria have to be stringent. As soon as the market share of efficient models benefiting from the rebate reaches about 15%, criteria should be tightened. For example, in 2009 only A++ cold appliances or A-labelled tumble driers should be considered – *Energy Experts, NL and CH*

In addition, subsidy programmes should be designed carefully, on a case-by-case basis, taking into account: their objective, their scale (local versus national), their timing (is it too early to push for a technology?); the involvement of the various stakeholders (retailers, utilities, etc.); the amount offered, and the potential downsides (such as promoting the sales of larger appliances), etc.

> Financial incentives provided for newly commercialised technologies have a strong impact, in particular those having high first cost but good prospect for cost reduction when demand is growing and production increasing – *Geller, 2006*.

> Rebate programmes should not be short-term actions, but multi-year schemes. This means that the rebate does not urge consumers to pre-empt on their decision to buy an appliance. Furthermore, retailers have ample time to adjust marketing and selling practices – *Energy Expert, NL*

> Rebate actions are popular. According to a Dutch evaluation report of the rebate programme, 80% of the respondents had a positive opinion on it - *Belastingdienst, 2002*

> Rebate programmes should be national schemes. Regional schemes are also possible, but national schemes have advantages regarding promotion and involvement of nationwide retailers – *Energy Expert, NL*

> The electricity distribution companies heavily supported the rebate programme because they were contracted for handling the applications and taking care of part of the marketing – *Energy Expert, NL*

> There are different possibilities of how to hand out the financial support. Several rebate programmes by local authorities or public energy suppliers in different European countries (CH, DK, NL, D) grant subsidies directly to consumers (in shops or at the utility's showroom), while Italy has been granting tax deduction very successfully to buyers of A+ refrigerators since 2007. In UK, enhanced capital allowances have been granted to buyers of lighting and cooling equipment, boilers and motors – *UK market transformation programme, 2007*

> In Italy, the maximum of 200 Euros should not influence consumers to buy larger appliances than they would otherwise have bought since the size is determined by the needs and the available space of each family – *Policy Officer, IT*

> For the Electricity Saving Trust, rebate programmes are meant to create a critical mass for a new technology, and should give a kick-start to the market and thus do not have to last very long. Usually these rebate programmes are only active for some months, they are rather an attractive part of a communication campaign.

> Several successful rebate programmes were implemented; however the Trust is not satisfied with the latest one – in 2005 for A++ cold appliances. A++ models were subsidised with 1'000 Danish Crowns (~135 €, ~120 £) on recommendation of industry (as opposed to 500 Danish Crowns offered in the 2004 campaign). As the demand was extremely high, the budget was rapidly consumed and the programme was over after five weeks (35 MDKK for incentives and 4 MDKK for contact with retailers, administrative and control costs, 4,7 M€ + 630 000 €, 7 M£ + 1,4 M£). There was a good increase of sales figures for A++ but only during the programme; afterwards the sales and even the product range in the stores were reduced. The Trust concludes that the programme was enforced too early as producers, retailers and consumers were not yet ready. In fact the European market took its time to develop, in 2007 there were about 110 models of cold appliances on the whole European market (according to www.topten.info) – *Policy Officer, DK*

> In general, transforming the markets requires to reward efforts and to provide a clear view with transparent objectives on what is going to happen in the next years. The industrial perspective is 5 to 6 years, with 1 or 2 years of product development and 3 to 4 years to sell the products and recuperate the investment – *Manufacturer, IT*

> Rebate programmes are effective since they target the money issue. However, the rebate should be important enough (50 £ is not enough) – *Retailer Expert, UK*

Subsidies can take various forms, each of them sending a message to consumers, which may influence how they view the product being sold.

> - Rebates for consumers are positive because consumers are made aware that more efficient appliances have a cost, but that they get a bonus because the government is involved in favour or energy efficiency in the framework of climate change issues. This tool has an immediate effect on the market as sales volumes of efficient appliances grow.
> - VAT reduction would not be effective because it sends the wrong message to consumers, i.e. that it is possible to get more efficiency for less value since the total price is shown "all taxes included" (whereas it is not possible to get more efficiency for lower prices).
> - Tax credit for manufacturers have a different purpose: they reward the design of efficient appliances and provide the opportunity to invest in future products. Support in R&D generates cheaper innovations and therefore higher efficiency in the range – *Manufacturer, IT*

The literature reviewed questions whether consumers should necessarily be the target of subsidy programmes, but does concludes that if they were offered to retailers, there would need to be safeguards concerning the monitoring of results and margins, and consumer education (beyond the mere promotion of a good deal).

> Because of multiplier effects, subsidies that are paid directly to retail staff are more cost effective than those given to consumers in some cases. However, in this case subsidies do not automatically contribute to raising the awareness among consumers – *Fawcett et al., 2000*

> Several studies identified retail staff as highly influential for the consumer's decision. Fawcett et al. expect financial incentives or extra commission to sales staff to promote and sell efficient products to have a longer term effect on the sales rate of efficient appliances than direct subsidies to consumers, especially if sales staff received training on how to use energy efficiency as a selling tool – *Fawcett et al., 2000*

> If there are incentives for retailers, they should be transparent (as opposed to now when consumers are proposed "good deals" and do not know this is because of energy efficiency). In general with rebates, the issue is how transparent the margin for retailers and manufacturers is (public money should go to consumers) – *Policy Officer, International level*

There are also arguments (particularly from manufacturers) to give the subsidies directly to the industry, as implemented in the USA. The issues would then be not to disrupt overall market competition and to find a transparent control mechanism.

The US Energy Act of 2005 introduced production tax credits for manufacturers of efficient household appliances. For clothes washers and dishwashers qualifying for 'Energy Star' and for refrigerators consuming at least 15% less electricity than the 2001 standard appliance, tax credits of up to $ 175 (for refrigerators saving 25% or more) per appliance are available. Tax credits are applied to the additional production only; the average production of the preceding three years serves as a reference (multiplied by 110%). The aggregate amount of income tax credit for a single producer may not exceed $ 75 million per year.

Observers judged that in the case of refrigerators the system might encourage manufacturers to sell more high efficiency products, due to high saving goals and high amounts of credits, while the incentive for dishwashers and clothes washers appeared more oriented towards helping producers to market the slightly more efficient appliances. The authors see the same technological scenario for the EU, where also the possible savings for washing machines and dishwashers are considered low due to limited development opportunities, while in the case of refrigerators and freezers still high savings should be achievable with new methods, which however would lead to higher costs – *Mebane and Piccinno, 2006*.

Subsidies could go to manufacturers (even though this is still considered as "taboo" in a European environment) for the production of the very high efficient models – *Policy Officer, IT*

But some countries could be rather opposed to direct subsidies to manufacturers – because it would create competition distortions – *Policy Officer, FR*

CECED suggests tax credits for manufacturers based on incremental production and selling of high efficiency appliances. Lower taxes would enable manufacturers to offer new products at competitive prices, which in turn would lead consumers to replace their outdated appliances more quickly. Furthermore, such a tax credit system would prevent European producers from moving to other countries, such as America or China, where the competitiveness of manufacturers of eco-efficient products has been boosted recently – *CECED, 2006*

A study modelled the economic impact of production tax credits for A++ refrigerators on manufacturers, governments and consumers that showed increased cash flows for the manufacturers, neutral for the government and positive for the consumers. The government's losses in electricity taxes due to energy savings and the cost of the tax credits were almost fully compensated by increased value added taxes and increased corporate income taxes, due to the shift to the more expensive A++ models. Comparison to a rebate scheme aiming at consumers results in a negative government cash flow. The reasons are primarily seen in more wasted money on free riders, less effective marketing campaigns (by the government instead of the producers) and little effect of rebates once a minimum level of market penetration has been reached. Applying the tax credit to the Value Added Taxes delivered grossly the same results as the rebate scheme and showed to be less cost effective than production tax credits. A fourth option modelled was application of the tax credit to labour tax instead of corporate income tax. Benefits for producers were lower, and cash flow for the government was raised in comparison to the application to the corporate income tax, and this scheme thus is less favourable to the producer – *Mebane and Piccinno, 2006*

4.2.3 - Support for Research and Development

Research and Development (R&D) projects develop new energy efficient technologies, and can be initiated or supported by governments. The critical issue is to ensure that these research projects transform into products (not everlasting prototypes) which will be marketed. Such programmes exist and cover appliances; for example in France through ADEME, and in UK through the Technology Strategy Board, sponsored by the Department for Innovation, Universities and Skills.

Including support to R&D into early stage technology introduction programmes makes the programmes more likely to be successful – *Kranzl et al., 2006*

ADEME co-finances R&D activities, with long-term objectives, for products that may come on the market in 8 – 10 years. Producers may propose a work programme for an upstream subject (e.g. phase change material for cold appliances able to deliver to the electricity grid when needed) – *Policy Officer, FR*

There is a gap between industry research focused on product development and fundamental research programmes. More support would be needed for applied research to fill-in this gap – *Energy Expert, CH*

4.2.3 - Other types of subsidies

Even though these are currently not being implemented for domestic appliances, three variants of subsidy instruments are briefly described below, as several countries have shown an interest in their use.

A) Bonus/Malus programmes

The aim of Bonus/Malus schemes would be to alter the price of products according to their energy efficiency. Such a scheme is currently implemented for cars according to their level of CO_2 emissions.

Within such schemes, consumers choosing an energy efficient product receive a subsidy (in the form of a price reduction) and consumers choosing a product with poor energy performances pay an additional amount. Average products may be considered as "neutral" and are not concerned neither by the bonus nor the malus.

Although this is rather complicated due to the difficulty in forecasting consumer behaviour, the system could be designed to be revenue neutral, revenue generating or needing additional resources to fund it depending on the relative size of the malus and bonus and their market share. The economic balance of the systems depends on the precise threshold setting and the ability to regularly upgrade the scheme to take into account product improvements.

B) Value added tax levels

Lowering value added tax levels for energy efficient products is another way of altering the price of products according to their energy efficiency. Many retailers would welcome such a move as a means of stimulating demand for such products. Though it is possible that some manufacturers may not necessarily favour this measure as they consider that it sends the wrong message to consumers who could be led to believe – as the price they see includes tax – that energy efficient products are cheaper to produce.

It should be noted however that it is not actually possible at present for an individual Member State to introduce a reduced VAT rate for energy efficient products because of certain constraints in EU VAT law.

C) Zero rate loans for efficient equipment

Zero interest loans address the initial cost barrier faced by households who are having difficulty making the initial investment (as opposed to addressing the "over cost" linked to buying a more efficient and more expensive product than would normally have been chosen). These types of programme exist in the building sector (particularly for retrofitting works).

Public authorities negotiate a particular deal on interest rates for loans with a specific purpose, such as energy efficiency works. Banks develop specific products with a lower than average rate which is paid by the public authorities. Consumers can benefit from a zero rate loan and invest in energy efficient measures, while the banks are certain to recover the interest from the authority.

4.3 - Voluntary measures

Endorsement labels, information campaigns and training programmes can raise awareness about energy efficient products. These instruments are also called 'soft measures', and tend to be more effective in combination with financial incentives, voluntary agreements or regulatory measures. They can be initiated by governments or by market stakeholders themselves.

4.3.1 - Endorsement Labels

Description

Endorsement labels indicate that a product is among the most energy efficient on the market. They confirm that a product meets certain specified criteria, without offering much more information. Endorsement labels are usually developed under voluntary label schemes, and may be combined with financial incentives (for products bearing the label).

Examples of endorsement labels are Energy Star, the EU Ecolabel (which covers a broader environmental impact), the Danish Elsparefonden Energy Label, and the UK Energy Saving Trust's Energy Saving Recommended label.

Implementation

Endorsement labels

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
✓			✓		✓				
Eco-Flower	No	No	Danish Energy Label	No	Energy Saving Recommended	No	No	No	No

Discussion

Informative and endorsement labels may have the same positive effect on manufacturers, retailers and consumers, and also sometimes expose the same issues, such as retailer's commission.

> Next to influencing consumers to choose more efficient products, labels do also lead to competition among manufacturers to produce the most energy efficient models, which brings retailers to promote efficiency. Distributors and retailers may change the mix of products they stock and promote after the introduction of a label. Retailers in particular can influence the consumer's decision in many cases of appliance purchase. The retailers' support for an energy label can be critical for its success. As label programmes enhance average efficiency of the products on the market, they do not only affect energy-aware consumers, but the average consumer as well – *Wiel, McMahon et al., 2005*

> Labelling programmes should account for the fact that retailers and salespeople get commissions for selling particular brands or models of products. Some programmes such as China CFC-Free Energy Efficient Refrigerator Project include targeted financial incentives to

retailers in order to avoid commissions function as counter-incentives – *Wiel, McMahon et al., 2005*

Certain issues more specifically affect endorsement labels: the credibility of the initiator which in turn encourages stakeholders to participate in a voluntary programme, the framework in which it is created (is there an effective informative label in place that the endorsement label may have to compete with?), the cost of implementation, the flexibility to upgrade the system, and the stringency of the criteria chosen.

For a voluntary label's success it is important that the organisation involved has credibility and no commercial interest in the products – *UK market transformation programme, 2007*.

In Denmark, a bit less than half of the Electricity Saving Trust budget for the household sector goes to the Energy Saving Label (8 out of 20 Mio DKK are dedicated to the promotion and administration of the Danish energy label, i.e. 1 M€ / 1,6 M£) – *Policy Officer, DK*

The possibility to develop a national mandatory energy label was studied in the '90s in parallel with the creation of the EU labelling scheme, but then not developed because the European Energy Label was judged fully complying with the terms of reference for the national label – *Policy Officer, IT*

On the policy side, UK has often had a specific position when it comes to Europe, European products (especially in the 90's) and European messages. The "Energy Saving Recommended" label is an illustration: UK developed its own national message when the European one would have been more consistent. It created confusion and was not enough stringent – *Policy Officer, International*

In UK, other types of label exist: the "BEAB" label concerns electrical safety, a possible future "Water saving recommended" label (even though for the moment the industry would like to own such a label), a future Carbon Trust's label on LCC: there will possibly be a collaboration to avoid confusion amongst consumers – *Policy Officer, UK*

In the case of non-effective informative labelling, endorsement labels with stringent selection criteria and adequate control measures are believed to be a good type of voluntary measure.

As rebate programmes are quite cost intensive and there may be more cost effective measures to undertake, new rebate programmes are not on the agenda today. A tentative was made to reach an agreement with manufacturers on the voluntary phase out of poor performing models, but did not conclude. The Trust develops a new philosophy based on "voluntary" programmes
Added value: mainly because European Energy label is outdated and because of the confusion introduced by new names of best category: A+ and A++ or AAA.
Advantage: Quick updating of thresholds possible (compared to EU label).
More quality and performance requirements may be included.
More credibility thanks of testing and publishing of test results – even if they are negative, the Trust does not hesitate to strongly communicate on these – *Policy Officer, DK*

4.3.2 - Information campaigns

Description

Information campaigns can target manufacturers, retailers or consumers. They are crucial in accompanying other policy instruments such as labels or subsidy programmes, but can also be used as standalone instruments. Information campaigns include editorial articles, advertising, multiple support awareness campaigns, websites, etc.

Implementation

Information campaigns

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Support through several IEE projects	Yes, 'SwissEnergy' programme	EnergieEffizienz' national campaign and various regional activities	Yes, regular, informative leaflets	Yes, regular, informative leaflets 'Faisons vite ça chauffe'	Yes	Yes, informati-ve leaflets	Not by government but Climate programme by NGOs (Hier)	No, except a recent production of leaflet but limited scope	Not by govern-ment but climate programme by NGOs (Quercus)

Discussion

Information on energy consumption of domestic appliances reinforces other policy instruments.

> Motivating consumers, retailers, manufacturers, installers and other actors through education and information campaigns backs up all other market transformation policy measures – *Fawcett et al., 2000*
>
> The real barrier is that the public is not informed enough. Information campaigns are needed so that other instruments – including white certificates and other market-based instruments – can work properly. The economic discourse dominates over the environmental messages – *Policy Officer, IT*

Information brings market transparency and encourages consumers to take action.

> Next to raising awareness, information can also increase market transparency and lead to prices to decrease. A successful, even though in the beginning controversial example is the website introduced by the Danish Electricity Saving Trust's informing on where to find which product at what price (www.savingtrust.dk/consumer/products): as a result of increased price competition after the publication of the prices of efficient appliances on the web, prices dropped by 20% within three weeks. Compared to other measures aiming at a decrease in price such as subsidies or altered levels of VAT depending on the efficiency of the product, this way of increasing price competition seems to be an effective tool at relatively low costs and seems worthy of consideration by all member states to the authors – *Fawcett et al., 2000*
>
> A standby project with 30 households in Denmark showed that public campaigns and continuous information on standby consumption of households are of minor or no use, while individual advice and technical devices result in real standby reductions.

> In this project sending out written material and leaflets about standby reduction possibilities had almost no effect on the household's standby consumption. Also access to a homepage where the household's measured standby consumption was shown had little effect. A visit by an energy consultant who visualized standby consumption and presented or even installed 'standby killers' led to an average reduction of the households' standby consumption by two thirds – *Gudbjerg, Gram-Hanssen, 2006*

Retailers favour institutional information that supports their stock and efficient models, even if they are more expensive.

> Advertisement campaigns, TV commercials, etc. on product efficiency. In order to make the transformation long lasting, the same message should be applied to different products over time: a quarter on cooling, a quarter on washing machines, a quarter on TV… in order to drive the customers – *Retail expert, UK*

> These campaigns should speak about money (either rebates or long term money savings thanks to energy efficient appliances) – *Retailer, UK*

But information on energy savings and environmental issues, global stakes or concrete action should be continuously refreshed.

> The energy label obviously had an effect (shops were rather "red" and F-class in 1994 which is not anymore the case) and is well known by French consumers. Nevertheless, communication is still needed to remind the message and continuously encourage real appropriation of the tool by consumers – *Policy Officer, FR*

NGOs also have a role to play in providing information to consumers, especially where governments do not carry out regular campaigns.

> In Portugal, Quercus NGO:
> - Uses its daily TV programme "green minute" to speak about energy efficient appliances. The green minute is shown three times each morning on the main TV channel and is very well known to the public. The message is then also shown in public transportation, on the international Portuguese TV channel, transforms into the "green sentence" in partnership with the free newspaper Metro, etc.
> - Manages the Portuguese EcoCasa project – analysing consumption and saving potentials in homes
> - Manages the Topten project
>
> Both these programmes are used to inform households about energy stakes in general and what consumers can do.
> *NGO Expert, PT*

> In the Netherlands, the "Hier" (Dutch for 'Here') campaign is a large Dutch NGOs climate programme promoting initiatives that reduce the risk of climate change. The campaign involves over 40 national charity organisations, business and the government – *Energy Expert, NL*

4.3.3 - Voluntary agreements and programmes

Description

Voluntary agreements and programmes cover both measures implemented after a negotiation between public authorities and manufacturers or retailers (who sometimes use voluntary agreements as an alternative to regulatory measures), and measures implemented by manufacturers or retailers through their own initiative; as they complement their marketing strategy.

The aim is generally to increase the average efficiency of particular product groups. Agreements usually include the production and promotion of efficient, and/or the phasing out of the least efficient models. If within the framework of a negotiated agreement, the purchase of efficient products can be supported with campaigns or subsidies.

Implementation

Voluntary agreements and programmes

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
✓	✓	✓	✓	✓			✓		✓
EC with CECED	Topten with retailers	dena with retailers	Electricity Saving Trust with retailers	Ademe/EDF with retailers	No	No	Retailers	No	Retailers (limited)

Discussion

Voluntary agreements (VA) between the European Commission and CECED have had a positive impact on the market. The European Commission views the principle of VA with manufacturers as positive and intends to develop them further.

> Further agreements negotiated and signed by the European Commission and appliance manufacturers were found to have contributed to about 20% reduction in energy consumption of clothes washers and dishwashers and a reduction of 25 – 35% of the standby power consumption of TVs and VCRs – *Bertoldi et al. 2001*.

> Voluntary agreements are seen as more flexible, less resource intensive and quicker to implement than regulatory minimum efficiency requirements. Also they meet less resistance from the manufacturer's side, and they do not need to involve Council or Parliament – *Communication on Environmental Agreements, European Commission, 2002*

However, existing literature highlights some of the disadvantages of voluntary agreements with manufacturers and underlines conditions under which they can be ineffective.

> The limited results of different agreements of EU countries with industry suggest that they do result in some energy savings, but are not as influential as regulatory standards because the goals are not stringent enough and/or some firms fail to comply. Voluntary agreements can be effective especially where regulations are difficult to implement. To be most effective, agreements should be combined with financial incentives, technical assistance where needed, and the threat of taxes or regulation if companies fail to meet their commitments – *Geller, 2006.*

> However, compared to minimum efficiency requirements, industry agreements have a number of handicaps: they do not cover all products on the market, and non-participants can continue to

sell products not meeting the targets. Agreements do not authorise legal sanctions, often they lack independent monitoring – *Fawcett et al., 2000*.

Furthermore, it is unlikely that tough efficiency targets can be agreed on, as there is an information asymmetry about technically and economically feasible improvements between manufacturers and the government. Targets that are only marginally more ambitious than the current trend do not contribute to reaching ambitious saving goals more rapidly, even if they are implemented quicker than tough efficiency standards – *Fawcett et al., 2000*.

Voluntary agreements are seen as a possibly effective market transformation instrument in certain conditions, while the alternative of regulatory measures must remain a realistic threat if voluntary agreements are to have a really significant impact on performance improvement. They must involve a large majority of manufacturers in the market in order to show an effective benefit to the environment – *Menanteau, 2002*.

Several countries are now showing interest in negotiated agreements with retailers; who are key players because of their roles at point of sale, procurement of ranges and advising consumers. They, however, acknowledge that working with retailers can be a long and complex process, involving long term strategies and the production of communication brochures, leaflets, etc.

Box 4 – Lessons learnt from negotiations with retailers acting on large markets

In 2004 and 2005, French institutions ADEME and EDF developed a partnership targeting retailers. The idea was to develop a "give and take" programme: retailers would commit to selecting a fairly wide range of products (% of high energy class, no lowest class), to training their staff and to displaying the Partnership's Charter informing consumers about the programme in their stores. In return, the institutions would commit to provide training, promotions, organisation of a media launch of the programme, and to developing a charter bearing their logos.

This programme was not successful as only one retailer signed the Charter; after several months of negotiations with the major retail chains. The evaluation highlighted the main difficulties faced when working with retailers:

- Reluctance to modify ranges and delete low-end, but best-selling products
- Difficulties in involving the whole retail sector, with each retailer looking to have exclusivity
- Retail staff not used to collaborating on non-priority issues (range selector, marketing and training staff)
- Little interest in the "green image" retailers could have conveyed to their clients
- Reluctance to entrust training activities to external trainers
- Reluctance to pay for communication material with a dedicated graphic Charter
- A desire to include institutional logos without prior permission

In general, voluntary agreements with retailers aiming to reach consumers have been shown to be time consuming and often limited to communication activities rather than actions that could contribute to market transformation. If communication techniques are involved, it can become expensive, and, depending on the size of the country and the structure of the distribution sector, very difficult to control.

On the other hand, working with retailers to develop their own environmental position and strategy can yield results – as long as their core business of selling products (i.e. transportation of products, in-store air conditioning, commercial cold display etc.) is not affected.

To summarise, institutions willing to work with retailers must understand retailers' needs and desires before instigating programmes, as a retailer's job is not to convey institutional or societal messages. Programmes should:

- Bring a benefit to the core activity, i.e. selling products
- Take into account the differences between distribution channels
- Allow sufficient time for retailers to get prepared (stock and communication)
- Offer communication support, with impartial stakeholders reinforcing the retailers' sales message
- Support the selection of the range (i.e. how does each product perform)
- Supply simple and easy tools to use at the point of sale, such as the European Energy Label, or if this tool does not bring enough market differentiation, a national endorsement scheme.

On a general level, the awareness for energy efficiency of retailers has risen considerably in the last few years – but working with retailers takes a lot of time before they accept cooperation – *Policy officer, DK*

> Dena has established collaboration with retailers since 2002. Today Dena is in contact with about 8000 independent retailers and with Saturn and Media Markt. So far collaboration with the large retailers works on project-basis and not yet with broader framework-agreements.
> Dena has established standard-collaborations for retailers also with support of regional organisations.
> - In the low-level collaboration retailers can order POS-material for staff and consumers for free. Dena has a standard information package.
> - In the medium level the retailers are listed in a retailer-data base by Dena and maintain a regular contact
> - In the high level collaboration is based on individual contracts. Co-branding of POS-material or common campaigns are possible – *Policy Officer, DE*

> Reaching successful collaboration with retailers implies developing long term strategies and producing many communication supports – *Policy officer, DE*

> Generally speaking, large retailer chains do not need help from public authorities to do their job. But they need good regulations (e.g. a new dynamic label) to support this trend towards more sustainable development products – *Retailer, FR*

> There are some voluntary agreements on consumer electronics (set top boxes, laptop, etc.) which implied a lot of discussions for little success. In some cases retailers' specifications may have been influenced but there is no formalised feedback (e.g. some large retailers may bring in their range "green products" with upfront messages concerning standby) – *Policy Officer, UK*

Measures and campaigns undertaken by retailers on their own initiative are usually a success because they fit with the retailers' strategy. Public authorities can support these initiatives if they agree to work with selected stakeholders.

> Home Retail group has an internal policy setting energy efficiency targets for each product category, in terms of percentage of efficient models present in the range. This is a tough policy. Defra's "red-green calculator" is a difficult tool to use because it is sales weighted whereas the low-end products make up the biggest sales volumes – *Retailer, UK*

Box 5 – A retailer comprehensive promotion campaign on efficient cold appliances

Since 2003, the Swiss retailer Migros (one of the country's two main retail chains) has developed an appliance strategy to bolster its reputation as a 'quality retailer'. It decided to promote efficient appliances, sometimes enlisting the help of energy experts to broaden its appliance range.

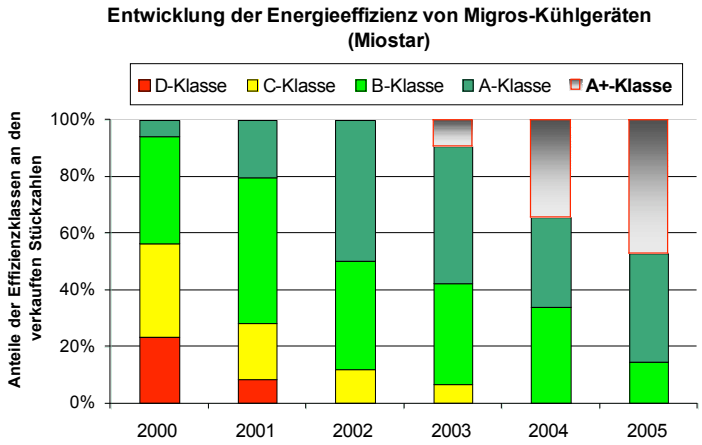
Rearrangement of assortment/range
In 2003 the entire range of refrigerators and freezers was revised. Appliances with efficiency class C were removed from the range while those with efficiency class A were promoted and two A+ models were introduced (identified through the Energy+ project).

Communication activities
Migros incorporated energy information in all of its literature and produced a specific brochure (circ: 2.1m) on the topic - including an example of likely cost savings when an A+ class model was purchased.

Campaigns
In September 2003, customers were offered a discount of 60 € for an A+ refrigerator and 100 € for an A+ refrigerator-freezer. An even more impressive rebate campaign, including communication activities, was offered to customers in the Zurich area, in collaboration with local electricity provider EWZ.
In 2004 Migros won the "European Energy+ Participant Award" for the most creative promotion campaign.

Results

Share of efficiency classes of cold appliances sold by Migros



Migros is continuing to develop this campaign; in 2008 it elected to collaborate with Topten Switzerland and will co-brand Topten products at point of sale.

4.3.4 - Voluntary Target Programmes

Voluntary target programmes were used in Switzerland in the 1990s but are not currently being used in Europe. With voluntary target programmes, a certain minimum efficiency target (often a sales-weighted average efficiency target or fleet average standard) is negotiated with manufacturers for defined product groups. Although this instrument is sometimes viewed as flexible, the Swiss example suggests that it does not lead to concrete results unless a real threat exists to manufacturers who do not meet the targets.

> Target values are more flexible than minimum efficiency standards and allow the sale of less efficient equipment as long as products exceeding the target are also offered for sale – *World Energy Council, 2008*

> Voluntary agreements and target programmes present the advantage of reaching environmental targets with minimal regulation, controlling and administrative costs. Switzerland agreed on a target programme for domestic, office and electronic appliances in the 1990s.The targets were to be met by 95% of the models on the market, but the evaluation revealed disappointing results: in spite of improvements, not in one of the appliance categories the target was reached by 1997. The Swiss experience has shown that missing consequences for firms that fail to reach the target are problematic – *Bush, 1998*

4.3.5 - Training campaigns

Description

Several countries are proposing or have implemented training programmes for retail sales staff, mainly covering the European Energy Label or endorsement labels where they exist.

Implementation

Training campaigns

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
✓		✓	✓	✓	✓		✓		
Support through several IEE projects	No	Yes, when the energy label was introduced	Yes, when the energy label was introduced	Yes, when the energy label was introduced	Yes, for salesmen about EU label and ESR, by EST	No	Yes, when the energy label was introduced	No	No

Box 6 – Lessons learnt from training retailer staff

The French experience covers the main issues to be considered when developing training for retailers.

Between 2000 and 2006 ADEME and regional energy agencies developed training kits for retailers, including key selling points for individual sales staff:

- Retailers were offered a full training session: half day or evening sessions were offered to small independent retailers who combined the role of manager and sales team and could not take time out during the day for training.
- Trainers visited the retailer's premises and provided training of between 15 minutes and three hours within the usual training framework. This was developed so that the information on the energy label could be used as part of the regular sales pitch
- A training kit was given to manufacturers, who, during their regular meetings with retailers to present their products, would promote the details of the energy label.
- A training kit was given directly to retailers' trainers, so that they would include the labelling theme in their own training sessions, and learn how to use labelling information in their sales pitches.

The very low level of demand for training – in whatever form – or feedback on the use of the training kits suggested that:

- Training for sales staff is effective only if the range of appliances offered in shops and commissions and/or bonuses is consistent with the labelling scheme. If a salesman is commissioned to sell a D-class model because the competitors are doing the same, he or she will not use the labelling debate.
- If the range is consistent with the label's message, top level management should attend the training sessions: there is less personal turnover and the management involvement is a sign to their employees that the energy label really matters to their enterprise and its strategy.
- Attending a training session does not automatically lead to the (correct) use of the label in shops. *Vice versa*, retailers not participating in governmental programmes but integrating the energy information in their own labels and training sessions may achieve better results in terms of awareness from their staff.

> Training salesmen is not effective because they just follow the strategy and there is a high turn-over. It would be better to get to the marketing people, but these focus on price – *Retailer Expert, UK*

4.4 – Other Instruments

4.4.1 - Data and market analysis

Description

Availability of regularly updated technical and sales data in order to analyse market transformation in the medium and long terms is crucial for governments implementing any policy instruments. Negotiation with market stakeholders can be more effective, the market can be more transparent and the choice of instruments can be more fully debated.

Implementation

Data and market analysis

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
✓	✓	✓	✓	✓	✓	✓	✓		✓
Access to data	Yes, structured	Some studies	Yes, structured	Some studies	Yes, structured	Some studies	Some studies	No	Some studies

4.4.2 - Public procurement

Description

Public procurement programmes target public authorities. Traditionally, public procurers were bound to choose the cheapest offer in order to save on the public budget. But today, procurement guidelines may contain requirements concerning the energy efficiency of appliances. Specific programmes provide advice to large-scale public buyers who can or may be obliged to buy good or best products on the market. In some countries, mostly in Northern Europe, public authorities are among the key purchasers of appliances and they can considerably influence the market.

Implementation

Public procurement

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
✓	✓		✓	✓	✓	✓			
Green Public Procure-ment	Yes, Topten and Energie Stadt	Not for household appliances	'A club' in the past, 'Break the curve' today	General advice to central administra-tion, several local initiatives	'Quick Win'	General advice to central administrati on	Not for household appliances	No	No

Discussion

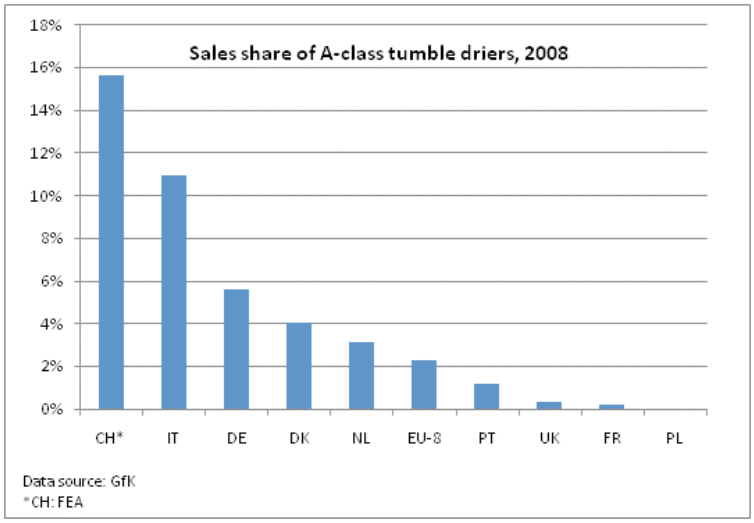
Even though domestic appliances may not often be bought by public procurers, it is worthwhile keeping them informed through targeted programmes. "Green" procurement does not conflict with international rules on trade, but is slow to become usual practice; mainly due to resistance from public procurers – who are not always specialised buyers, who do not have the right information, etc.

> A number of developments suggest that public procurement can play an important role in increasing product eco-performance and stimulating innovation. Green public procurement integrates environmental criteria into the procurement process. Because of the Sixth Recital of the Preamble to the WTO Agreement it is broadly accepted that the GPA allows including environmental aspects into technical procurement specifications. A number of Court of Justice decisions have supported authorities' 'green' choices. Both central and local authorities can play a role in green public procurement. Several networks among local authorities and international cooperation exist – *Charter, Evans, 2006*

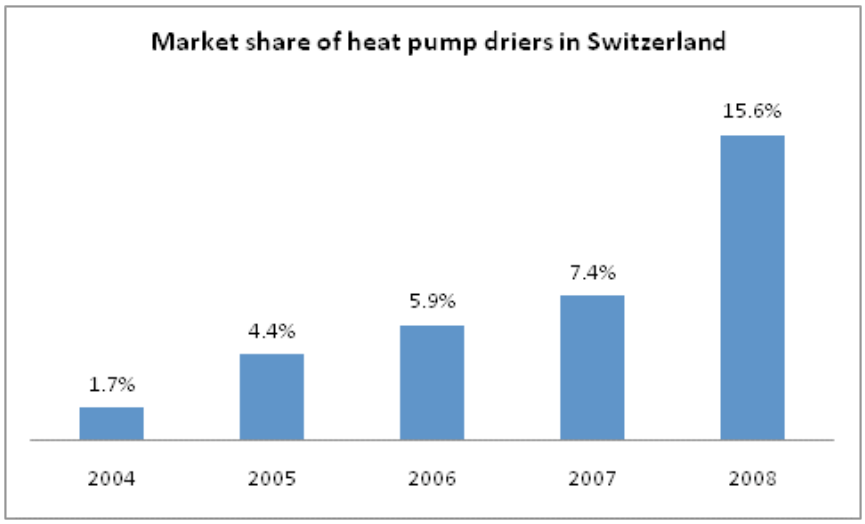
> Main obstacles to green public procurement are the custom of managing public procurement budgets on a least-(initial-) cost basis, the lack of whole life cost information in many cases, the separation of purchasing and operating costs, and the fact that the majority of staff with purchasing responsibilities are not trained procurement experts – *Charter, Evans, 2006*

Box 7 – Public procurement driving the development of heat pump driers in Switzerland

High-efficiency heat pump dryers have been on the European market for several years, and their market share is gradually increasing, although wide-scale market transformation has yet to be achieved (Niederberger, 2009). Switzerland is among the few countries where the energy efficient technology of heat pump driers has achieved breakthrough. The following figure shows the sales share of heat pump driers in European countries in 2008.



Since the introduction of the first heat pump drier onto the Swiss market in 2001, manufacturers (e.g. AEG, Electrolux, Blomberg, Schulthess, Merkel, V-Zug) have expanded their product ranges. Today there are eleven models from seven manufacturers. The product range is still small, but prices have decreased considerably. Having increased from 1.7% in 2004 to 7.4% in 2007 and even more than 15% in 2008.



A market breakthrough based on large-scale public buyers

Initiatives on several levels, including with all-important stakeholder groups have lead to the breakthrough of this new technology:

- Laboratory tests of all models available on the Swiss market were carried out and consumer satisfaction in everyday life was analysed (Bush, Nipkow, 2006). Topten and the city of Zurich organised focus groups with manufacturers and professional landlords at the same time, where usage properties such as filter cleaning of heat pump drier models were discussed. Manufacturers used the results of these workshops to optimise their existing models.
- The Topten website (see below) selected heat pump driers and still presents them online. Additionally, Topten has been undertaking media work in several magazines.
- Since 2003, the city of Zurich has officially endorsed heat pump driers. The city of Zurich, (the largest Swiss city with a population of 360,000), owns around 10,000 flats and is therefore a large purchaser of appliances. This has contributed substantially to the prevalence of heat pump dryers in Zurich (Bush, 2006).
- To overcome the initial obstacle of the higher purchase price, Zurich's electricity provider ewz launched a rebate programme in 2005, which ran until December 2008. As well as the direct incentive for the individual purchaser, an important indirect influence can be observed: retailers and manufacturers refer to the subsidies in their publicity, other organisations and utility providers have emulated the campaign for their own use, and buyers and end users communicate their positive experiences to others.
- Manufacturers have continued to develop and market heat pump drier models.

These concerted initiatives, based on large scale public procurement, have proved to be successful: the heat pump drier market share is expected to increase further.

4.4.3 - Technology and cooperative procurement

Description

Cooperative and technology procurement programmes do not necessarily rely on public buyers. They aim to build bridges between the demand-side and the supply-side of efficient products.

For buyers, the aims of such projects can be to obtain good products at a cheaper price by exerting purchase power through a collective, and/or to obtain improved or new products, with new functionalities but lower energy consumption.

For manufacturers, a demand for efficient products is identified, instigating the development of new products. They then benefit from a competitive advantage if they are the first to deliver these products - as well as potentially benefiting from technical support and financial premiums.

Sweden developed several technology procurement programmes in the 1990s and started a European test with the Energy+ project, which led to the identification and initial production of today's A+ and A++ cold appliances.

Implementation

Cooperative and technology procurement

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
✓	✓	✓	✓	✓	✓	✓	✓		✓
Support through several IEE projects	Participation in Energy+	Participation in Energy+	'A club'	Coordination of the Energy+ project	Participation in Energy+	Participation in Energy+	Coordination of the Energy+ project	No	Participation in Energy+

Discussion

Several technology and cooperative procurement projects have targeted domestic appliances. They have all been based on detailed market analysis, the coming together of a buyer group expressing users' preferences, publicity mentioning participating manufacturers, and often appropriate timing (e.g. helping manufacturers to prepare for a new regulation).

> Cooperative technology procurement, manufacturers are stimulated to develop and market new, more efficient solutions. Future-oriented customers, who draw up challenging performance requirements, indicate a coming market. Creation of buyer groups, formulation of criteria and real purchasing, combined with support and promotion activities are important steps in co-operative or technology procurement. Often, the buyer groups are formed by public organisations, but they may also consist of private companies, individuals or combinations of public and private organisations - *Westling, 1999*

> A successful project on international co-operative white goods procurement was Energy+, which ran from EU-wide 1999 to 2004. The supply side created demand via retailers, wholesalers and other supporting organisations and expanded the existing market, while at the same time manufacturers were stimulated to develop more energy efficient products. Energy+ also adapted the criteria of the 'New Label Directive' and put forward the A+ and A++ cold appliance

categories. Energy+ resulted in a permanent change in the involved manufacturers' product range. At national level, the project resulted in a large amount of new energy efficient cold appliances available. The level of success depended on national circumstances such as policy, economy, financial incentives, market structure and cooperation of local distributors - *Lechtenböhmer et al., 2006*

The Energy+ project showed that procurement approaches could be developed at international level, provided products were targeted (as opposed to systems involving a lot of users' particularities), consumers' preferences and distribution channels well analysed – *Energy+ final report, 2001*

4.4.4 - Identification of most efficient products

Description

Products can be ranked with or without an informative or endorsement label present on the product. Where efficient infrastructure exists, it is not always necessary to have a label present, as long as another vehicle – such as a website – is available. Websites have certain advantages in that ranking or lists of efficient products can be very easily updated to reflect changes in the market.

These tools allow consumers to make informed choices. They rely on the existence of available or easy to develop test procedures and on constantly updated market studies.

For example, in 1999 the UK government made efficiency data on boilers available in the public domain via the internet (www.sedbuk.com), Topten (www.topten.info) displays a wide range of efficient products, and the Danish website Consumer products shows the availability of models and retail price (www.savingtrust.dk/consumer/products).

Implementation

Identification of most efficient products

EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Support through several IEE projects	Coordination of Euro-Topten project + national www.topten.ch	Strong governmental support since 2000 www.ecotopten.de	www.savingtrust.dk/consumer/products	Coordination of Euro-Topten project + national www.guide-topten.com	www.energysavingtrust.org.uk/Energy-saving-products	Participation in Topten with national www.eurotopten.it	Participation in Topten with national www.top10.hier.nu	Participation in Topten with national www.topten.info.pl	Participation in Topten with national www.topten.pt

Box 8 – Topten: Market pull through identification of best products

Topten is a voluntary, non-profit international project to create a dynamic benchmark for the most energy efficient products in national markets and works in partnership with market players to stimulate demand for the highest-efficiency products (www.topten.info). Topten is a transparent organisation that continuously identifies the top 10 energy-efficient products available across many categories and makes the results freely accessible via a user-friendly internet website.

Their main focus is to lower barriers in order to find the best available energy efficient products. Topten is one tool in the market transformation toolbox, working in synergy with the other instruments: Topten focuses on market pull of new efficient products, while mainstream products are covered by instruments such as energy labelling and timely replacement activities, and while low-end products are removed from the market (Minimum Efficiency Performance Standards, MEPS).

Topten was launched in Switzerland in 2000 by the Swiss Agency for Efficient Energy Use (S.A.F.E.). www.topten.ch and is supported by 25 partners who provide research, communication and funding. In 2008, Topten Switzerland developed 140 lists of products, across 45 categories and eight fields: household appliances, office equipment, consumer electronics, building technology, lighting, mobility, green electricity and leisure.

There are four main vehicles through which the Topten project operates:

- Internet: Topten attracts more than 1 million visitors with 40 million hits per year
- Media coverage: 25 million media contacts per year (print, radio and TV)
- Services to “Multipliers” (influential intermediaries): Large buyers, manufacturers, retailers, associations, support for rebate programmes and campaigns. The Topten benchmarks reference research and standards (best available technology values)
- International Multipliers: Topten International Group (TIG) with www.topten.info, EU-Project Euro-Topten (16 countries) and Topten USA and Topten China to be launched in 2009.

(Source Euro-Topten final report (2008) and Bush 2006)

Appendix A – Cross country matrix

		EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
Contextual elements	**Population (in Moi - Eurostat)**	338.6	7.7	82.1	5.5	64.1	61.6	60.1	16.5	38.1	10.6
	Purchasing power (price level in relation UK's)	-	High (71)	Average (95)	High (70)	Average (92)	Average (100)	Average (94)	Average (95)	Low (141)	Low (114)
	Sensitivity to Environment	-	High	High	High	Average	Average; low willingness to pay, priority to financial argument	Average	Average - High	Low	Low - priority to financial arguments
	Electricity prices in Euro/100kWh (Eurostat)	Average	13.5	21.5	26.35	12.13	14.58	23.77	17.3	12.59	14.8
	Electricity prices in Purchasing Power System Eurocent/kWh (Eurostat)	18.1	-	20.5	17.7	11.3	13.9	23.3	17.3	23.5	18.3

		EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
White goods - Product specificities	**Cooling Appliances**	p.c. sales 3.2/100. 2% A++, 28% A+, 63% A, 8% less efficient. Popular: combi > table top > 2door.	Mostly built-in; high A+ share (63%) especially of built-in models. Only 0.8% A++.	7% A++, only 4% less efficient than A	Rel. high p.c. sales rate. Popular 1door. Only A+ and A, no A++	Popular 2door. Similar as EU, a bit more A instead of A+. No A++.	High p.c. sales (4.1/100). Twice the share of US type (8%) of EU. Mostly A. no A++, only 7% A+, 12% less than A.	Low p.c. sales. Strong increase in A+ sales in 2007 and 2008 up to 45%, even if more expensive than in other EU-countries.	Classes as on average, only less inefficient (2% less eff. than A).	Low p.c. sales, very popular combi refr. Relatively high A+ share (38%), even higher in combi appliances. No A++.	Quite low p.c. sales rate. Rel. high share of A (68%), the rest is 15% A+ and 15% below A. No A++. Popular 2door.

		EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
	Freezers	p.c. sales 0.9/100. 2/3 upright. 6% A++, 29% A+, 41% A, 24% less efficient	Relatively high p.c. sales. 14% A++, 36% A+, 12% less than A	87% upright. 15% A++, 38% A+, only 3% less than A. Nearly 90% A+ and A++ chest freezer.	High p.c. sales rate (1.6/100). High A+ share (42%), only 4% less than A. (Chest freezers: 84% A+)	Less upright than EU (57%). High share of inefficient (38% less than A), especially in chest freezers. A++ and A+ similar as EU.	p.c. sales dropped by 20% between 2004 and 2008. Mostly A, high share of inefficient (35% less than A), especially in Chest freezers (high share of C). No A++.	Low p.c. sales. Chest more popular than upright. High A+ share (57%), almost no A++.	9% A++, and 9% less efficient than A. Untypical class distribution of chest freezers, but they account for 14% only.	Low p.c. sales (1/3 of average), but growing, especially upright. Yet more popular chest. High share of inefficient (50% less eff. than A), no A++. Uncommon distribution of chest freezers (mostly B).	Popular chest freezers (2/3). Low share of efficient freezers, 55% less efficient than A. Better figures in unpopular upright freezers than in chest.

		EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
	Washing Machines(in this study, "small" refers to under 6 kg and "large" to 6 kg and more)	p.c sales 3.2 /100. Clear trend towards large WM, now 50/50. Only 5% combi washing-drying machines. 43% A+, rest A.	Low p.c. sales rate. 94% A and A+	> 50% A+, the rest A	Rel. high p.c. sales rate. Sales + 30%, 3/4 large WM, 30% A+ (quite low)	37% A+	High p.c. sales (4/100.). High share of large WM (75%), and 3x higher share of combi washing-drying machines (15%). 31% A+.	Same trend as EU, but yet small washing machines sold twice as many as large ones. 48% A+ and A.	Large WM are popular (> 2/3), 50% A+.	Same trend as EU, but yet only 20% large WM. Average share of A+ (45%).	Rel. low p.c. sales rate, popular large WM (2/3). A+ share comparable (39%).
	Driers	p.c. sales 0.9/100. 60% condenser dryers. 2.3% A , 66% C, 7% D	7.4% A	High proportion of condenser driers (82%), 5.6% A class	High p.c. sales rate (2/100). Sales +50%, 2/3 condenser, 3.7% A, 9 A models	Almost no A, 3/4 C. 9 A models	Relatively high p.c. sales (1.8/100). More evacuation than condenser dryers. More D (15%) and C (80%) than EU, almost no A. 7 A models.	Low p.c. sales, but increasing. Almost only condenser driers. Very high share of A class (10.8%) 8 A models.	High p.c. sales (twice the EU-average), popular condenser driers (3/4)., 3.1% A class.	Low p.c. sales (0.03/100), but quickly increasing. Mostly condenser type. Only B and C.	Growing popularity of condenser driers (63%). Mostly class C.

		EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
	Ovens & Cookers	p.c. sales 1.5/100. Ovens on the rise, now 54%, cooker sales are decreasing. 77% A ovens, 60% A cookers.	Relatively high p.c. sales rate. 92% A	Oven : cooker = 1:3.	High p.c. sales rate (2.3/100). Oven sales +130%, high A class share in both O&C	Ovens +30% 75% A.	52% ovens, on the rise. Low A class shares: ovens 59%, only cookers 27%	Many more ovens than cookers (9:1). A class shares slightly below average.	Low p.c. sales, though increasing, especially cookers, which are more popular (60%) than ovens. Low A share of cookers (55%), even decreasing.	Ovens sales increasing faster than cookers, yet more cookers sold. 3/4 A class in both, A+ class since 2007 (8%).	Rel. low p.c. sales rate, increasing (+50%). High popularity of ovens (90%). A class ovens comparable (72%), low in cookers (36% only).
	Dishwashers (in this study, "small" refers to under 12 place settings and "large" to 12 ps and more)	p.c. sales 1.6/100, +20%. Mostly large dishwashers (86%). 95% A class.	Relatively high p.c. sales rate. 99% A	92% A	High p.c. sales rate (2.9/100). Sales +36%, 96% A	Sales +25%, 99% A	Sales are not increasing. 94% A class.	Low per capita sales. 97% A.	98% A	Low p.c. sales, increasing quickly (x3). 50% small dishwashers. 97% A.	Large dishwashers almost exclusively. 95% A class.

		EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
	Air conditioners(no data available in three countries)	p.c. sales 0.2/100. Sales grew + 44%. Split and mobile about 50/50, inconstant sales. 64% A class, in split twice the share of mobile a.c.	Classes B and C only	High sales growth (x5), mostly mobile, class A, B and C app. equally	-	Mostly B and A	Almost mobile a.c. only. Class B > A > C+D	High per capita sales (0.7/100). More split than mobile (> 2/1). High A class share (80%).	-	Low sales, inconstant . Mostly split (3/4) a.c., where mostly class A and C are sold.	-
White goods - Price specificities	**Cooling Appliances**	-	Rather high purchasing prices	Somewhat lower purchasing price difference than EU-average for A+ and A++ (Table Top, Combi)	Rather low A+ purchasing price difference (1door and Combi)	Rather high A class purchasing price (2door)	A and A+ combi equal price. Combi and Tabletop: low PP prices up to A+, high additional (but not significant) A++ prices	2door and Combi: among the highest purchasing prices	Average A+ purchasing prices (Combi and Table Top)		
	Freezers	Chest: A cheaper than B	Rather high purchasing prices	Average PP price for upright A+ and A++ freezers	Low PP price difference for A+ upright freezers, intermediate PP prices for A+ and A++	Average price structure	Lowest PP prices for A+ and A++ upright freezers; intermediate price difference to A+ and rather low difference to A++	Rather low PP A+ price difference, high A++ difference; rather low PP prices	Price differences for upright freezers below average, but not for chest freezers	High A+ price difference, high PP price for upright A+ and A++ freezers	High PP A+ and A++ price difference, high PP prices

		EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
	Washing Machines		Rather high purchasing prices		Small price difference A - A+		Large WM: Lowest A prices, rather low A+ difference				
	Driers	Ventilation driers: funny price range (A<C<B)	Rather high purchasing prices	Rather low PP price for A class condenser driers, but relatively high price difference	Low PP A class condenser drier prices and price difference (with class below)	Average PP A class condenser drier price and price difference (with class below)	Lowest (PP) A class condenser drier prices, and smallest A class price difference (with class below)	PP-corrected: highest A class difference, and high price	Rather low PP A class condenser drier price difference, intermediate price	PP-corrected highest A class condenser drier price, intermediate price difference (with class below)	High PP A class condenser drier price and especially price difference (with class below)
	Ovens & Cookers		Rather high purchasing prices								
	Dishwashers		Rather high purchasing prices								
	Air conditioners		Rather high purchasing prices					Lower prices for split, higher prices for mobile a.c. than			

		EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
								in EU.			
General aspects of national policy strategy		-	Many activities, but not in a comprehensive framework	Many activities, but not in a comprehensive framework	Comprehensive approach	Many activities, but not in a comprehensive framework	Comprehensive approach	Many activities, but not in a comprehensive framework	Many activities, but not in a comprehensive framework	Fewer policy measures or more limited scope	Fewer policy measures or more limited scope
Policy instruments covering white goods — **Regulatory measures**	**Informative label**	EU energy label	EU energy label	EU energy label	EU energy label	EU energy label	EU energy label	EU energy label	EU energy label	EU energy label	EU energy label
	Minimum Efficiency Requirements	European MEPS	European MEPS and national consultation	European MEPS	European MEPS	European MEPS	European MEPS	European MEPS	European MEPS	European MEPS	European MEPS
	Enforcement activities: product testing and correct labelling in shops	-	Regular tests of products, shop testing in the past (good implement-tation)	Few product and shop tests – label present and correct in shops	Regular tests of products including negative publicity, regular shop tests - label present and correct in shops	Very few products tests, 2 studies on shops – label present and correct in shops	Regular tests of products by TSO, EST tests 5% of ESR labelled products. Regular shop tests – label present and correct in shops	Very few tests and shops' verify-cations – label present and correct in shops	Some shops testing label correctly present in shops	No product test, very few shops' verification - problems with labels in shops	Very little shop testing

			EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
		Energy saving and CO2 reduction obligations on energy suppliers		Some local obligations from public owners	No	Yes, but recent changes in the scheme influenced utilities away from measures on appliances	Yes, Certificates d'Economie d'Energie, appliances covered but almost no measure implemented	Yes, EEC / CERT, appliances covered but almost no measure implemented	Yes, Certificati Bianchi, appliances covered but almost no measure implemented	No	No	No
	Financial incentives	**Subsidies**	-	Some local on-going rebate programmes: A++ cold, A-driers	Local operations, very limited scope	Short rebate programmes to kick-start markets (A tumble driers in 1999, A+ in 2003, A++ in 2005)	No	EST limited rebate in 1999 Various one-off operations: to retailers from utilities (within CERT)	On-going rebate for consumers: tax deduction for A+ and A++ cold appliances (2007 - 2009)	Large rebate programme from 2000 to 2003/04, on all most efficient main appliances	No	Limited scope utility rebate programme for cold appliances in 2007 and 2008
	Voluntary measures	**Endorsement labels**	Eco-Flower	No	No	Danish Energy Label	No	Energy Saving Recommended	No	No	No	No
		Information campaigns	Support through several IEE projects	Yes, 'SwissEnergy' programme	EnergieEffizienz' national campaign and various regional activities	Yes, regular, informative leaflets	Yes, regular, informative leaflets 'Faisons vite ça chauffe'	Yes.	Yes, punctual, informative leaflets	Not by government but Climate programme by	No, except a recent production of leaflet but limited	Not by government but Climate

			EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
										NGOs (Hier)	scope	programme by NGOs (Quercus)
		Voluntary agreements and programmes	EC with CECED	Topten with retailers	dena with retailers	Electricity Saving Trust with retailers	Ademe/EDF with retailers	No	No	Retailers	No	Retailers (limited)
		Voluntary target programmes		Yes, in the 90s								
		Training campaigns	Support through several IEE projects	No	Yes, when the energy label was introduced	Yes, when the energy label was introduced	Yes, when the energy label was introduced	Yes, for salesmen about EU label and ESR, by EST	No	Yes, when the energy label was introduced	No	No
	Other instruments	**Data and market analysis**	Access to data	Yes, structured	Some studies	Yes, structured	Some studies	Yes, structured	Some studies	Some studies	No	Some studies
		Public procurement	Green Public Procurement	Yes, Topten and Energie Stadt	Not for household appliances	'A club' in the past, 'Break the curve' today	General advice to central administration, several local initiatives	'Quick Win'	General advice to central administration	Not for household appliances	No	No
		Cooperative and technology procurement	Support through several IEE projects	Participation in Energy+	Participation in Energy+	'A club'	Coordination of the Energy+ project	Participation in Energy+	Participation in Energy+	Coordination of the Energy+ project	No	Participation in Energy+

			EU-8	CH	DE	DK	FR	UK	IT	NL	PL	PT
		Identification of most efficient products	Support through several IEE projects	Coordination of Euro-Topten project + national www.topten.ch	Strong governmental support since 2000 www.ecotopten.de	www.savingtrust.dk/consumer/products	Coordination of Euro-Topten project + national www.guide-topten.com	www.energysavingtrust.org.uk/Energy-saving-products	Participation in Topten with national www.eurotopten.it	Participation in Topten with national www.top10.hier.nu	Participation in Topten with national www.topten.info.pl	Participation in Topten with national www.topten.pt

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Europe
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Poland
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