

# Cold Labelling - the UK Experience of Energy Labels

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## Synopsis

The effect in the UK of the EU Energy Label for domestic refrigeration appliances on consumer decision-making, sales, model range and energy consumption.

## Abstract

Energy labels are an integral part of EU energy efficiency policy, both as a policy instrument in their own right and because they provide the basis for other interventions, such as rebates. The EU Energy Label on cold appliances came into force on 1.1.95 and it is doing so on wet appliances and shortly on light bulbs. Because of the size of the EU market, the requirement that a machine is labelled is influencing suppliers and countries external to the EU, particularly in Eastern Europe.

The effect of the label on individual purchasers of cold appliances has been examined and the characteristics and values identified of those who did and did not respond to the information provided on the label. In individual interviews, the reasons behind the decision were discussed. Thus, the parameters that determine energy efficient choices can be identified.

In addition, sales data for the label's first 24 months provide information on the effect on numbers of machines sold, their type, price, size and so forth. The analysis of these national data provides support, and challenges, for the individual interviews.

The picture that emerges from this combined analysis enables the effectiveness of an important policy tool to be identified, including the actual energy savings. The implications for future use of the label - its extension to both new appliances and new countries - will be discussed.

## 1. Policy Context

The European Commission has been discussing the role of energy labelling, particularly on traded goods, for several years (Table 1). The Energy Label became mandatory for cold appliances (refrigerators, fridge-freezers and freezers) throughout Europe on 1 January 1995, although this depended upon legislation being passed at national level to support the Directive. The United Kingdom was one of the countries that enacted the legislation promptly, so the labels were required at the point of sale on all cold appliances from the beginning of 1995. At this stage, in the UK there were no other competing labels. Therefore, studying the effect of the EU Energy Label in the UK is particularly appropriate as it can be assessed over two years, with no competing energy label.

As the above chronological sequence demonstrates, the EU Energy Label has been implemented at the same time as other policies, in particular the phasing-out of CFCs and the debate about the implementation of a mandatory minimum standard in September 1999. This makes it difficult, if not impossible, to identify the separate influences. In addition, the long drawn-out discussions have meant that there is no precise date from which to establish if there has been a new rate of change in the technical efficiency of appliances. A manufacturer that believed the

*Table 1: Timetable of discussions affecting EU policies on cold appliances*

1979	EU Directive (79/530/EEC) on voluntary energy labelling Department of the Environment produces a consultative document for UK
1987	Montreal Protocol passed requiring phase-out of CFCs (phase-out in the EU has been brought forward four times since)
1991	Electricity Association launch voluntary energy label under Directive 79/530, Electricity Board showrooms only (scheme ended after a few months)
1992	Mandatory energy labelling framework EU Directive (92/75/EEC)
1993	First CFC-free appliances on UK market First consultation draft of mandatory efficiency standards for cold appliances, mentions second set of standards GEA report on energy efficiency and cold appliances to the European Commission (GEA 1993)
1994	No CFCs in new appliances under regulation 3952/92 Directive on energy labelling of refrigerators and freezers passed (94/2/EC)
1995	Directive on energy labelling of refrigerators and freezers comes into force
1996	Directive on mandatory efficiency standards for cold appliances passed (96/57/EC), with a requirement to consider a second round of standards in 2000 Current Initial discussions on redrawing the categories of the Energy Label in 2000
1999	Mandatory efficiency standards for cold appliances to be implemented by July (96/57/EC)
2000	All HFCs and HCFCs to be replaced with hydrocarbons (propane, butane, pentane and derivatives) Discussions on second round of mandatory standards Redrawing of Energy Label categories

policy would come into existence would have responded much earlier than one who waited for final confirmation before remodelling the range of appliances.

The role of the Label is as an integral part of policies to transform the market for more efficient appliances (Hinnells and McMahon 1997). Most other policies, such as minimum efficiency standards, rebates and education initiatives depend on the ranking of individual appliances, on the basis of their energy efficiency. The Energy Label is therefore a useful policy tool in its own right and a prerequisite for other policies designed to transform the market for energy efficient products.

### 1.1. The Label

The EU Energy Label is primarily an energy-efficiency label, as the most important message is the relative ranking of the appliance on a scale from A-G (Figure 1). The information about the size of the machine (in litres) and the electricity consumption (in kWh) is given, but both of these are less prominent. The EU Energy Label is therefore similar to the Australian and New Zealand label, which is a combination of star rankings and electricity consumption, although the stars are the reverse of the EU approach - the more stars the better. The American label is more closely an energy label, as it identifies the machine within a range of electricity consumption and running costs. This range is solely for a category of machines (eg 24.5 - 26.4 cu ft fridge-freezers), so although the US label has no energy efficiency information, it does serve this purpose. The EU Energy Label is more colourful - and eye-

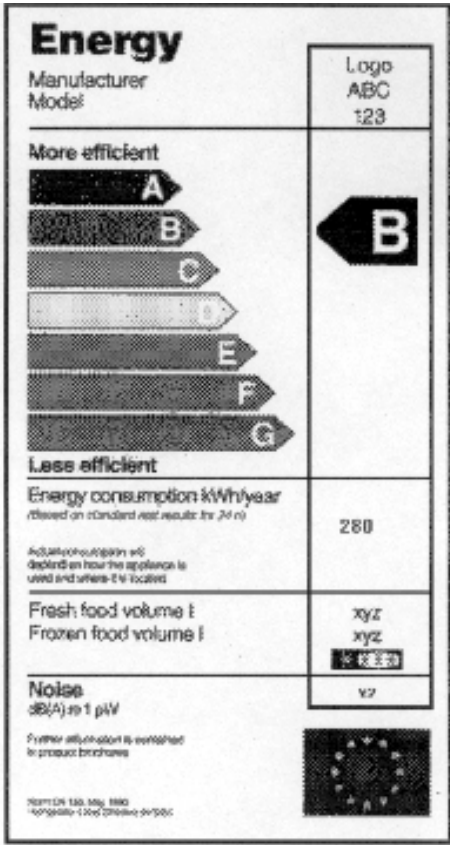


Figure 1: EU Energy Label for cold appliances

catching - than these other examples. These variations need to be remembered when comparing the way that consumers respond to the different labels.

The EU Energy Label is applied to every cold appliance at the point of sale and is therefore different from labels, such as the Ecolabel, that are awarded to a limited number of complying appliances. The type of label interacts with the policies that can flow from it: a minimum standards approach cannot be combined with an award label. In addition, some manufacturers prefer the universal approach of the EU Energy Label, as this does not discriminate between 'good' and 'not good' appliances as clearly as the award labels. Other manufacturers take the opposite view and prefer a voluntary approach to labelling. On the basis of the Ecolabel experience with washing machines, however, manufacturers are not convinced of the value of optional labels that cost them money and are challenging to achieve.

2. The UK context

The cold market has traditionally been sub-divided into the three main groups: refrigerators, fridge-freezers and freezers. These categories are becoming further sub-divided (Table 2) in the UK, based on GfK sales definitions (GfK are the market research company which supplied the sales data used in this paper). The frost-free appliance circulates dry air through the freezer compartment in order to avoid the build-up of ice and the need for manual defrosting. These appliances are standard in America and increasingly popular in the UK. They appear to be less common in the rest of Europe.

The market for cold appliances in the UK is substantial (Table 3), as the average household owns 1.4 cold appliances that last 12-16 years. The importance of the market means that both manufacturers and retailers have a substantial interest in the effect of the label.

Table 2: Cold appliance types

Fridge-freezer	2 doors
conventional fridge-freezer	
frost-free fridge-freezer	
Refrigerator	single door
standard refrigerator	contains internal ice-box
larder refrigerator	no ice box
Freezer	frozen space to -18°C
chest freezer	lid on top
upright freezer	door on front
conventional upright freezer	
frost-free upright freezer	

Table 3: Sales and value of cold appliances, UK 1994

	Units sold (000s)	Value (£m)
Fridge-freezer	836	277
Larder refrigerator	380	
Standard refrigerator	380	133
Chest freezer	404	
Upright freezer	330	190

Source: Mintel (1995)

### 3. Consumer response

Early in 1995, the DECADE team undertook a survey on one hundred households in Oxfordshire that had bought a cold appliance since the labels were introduced. At this time, there had been no coverage of the EU Energy Label in the major newspapers and magazines and no Government or other advertising campaign. The retail staff in shops were poorly informed about the labels, mainly because it was perceived that consumers were not interested in energy efficiency. The Department of the Environment provided an explanatory leaflet, which was displayed in some shops.

These 100 consumers, therefore, went into a showroom to purchase a cold appliance with no expectation of seeing an energy label and made their purchase on the basis of their own evaluation of the label and its importance to them. The sample was representative of UK purchasers of cold appliances, though with a slight bias towards the higher socio-economic groups. The retail outlets that they visited were a utility-owned chain, Powerhouse (50%), a large electrical chain, Comet (20%), and small independents (30%).

When asked, a couple of months later, about the reasons for their purchase, 52 of the consumers could remember seeing the label on the appliance and of these 35 said they had been influenced by it and 17 said that they were not. The actual ratings bought by those who saw the label are shown in Figure 2. There is no information on the

proportion of appliances accurately labelled in the shops, when the consumers made their purchases, nor on the range of models available. For instance, there were no A fridge-freezers in stock, and few Bs (Figure 4). The actual ratings bought by those who saw the label (subject to availability of models and the use of Energy Labels at the time) are shown in Figure 2."

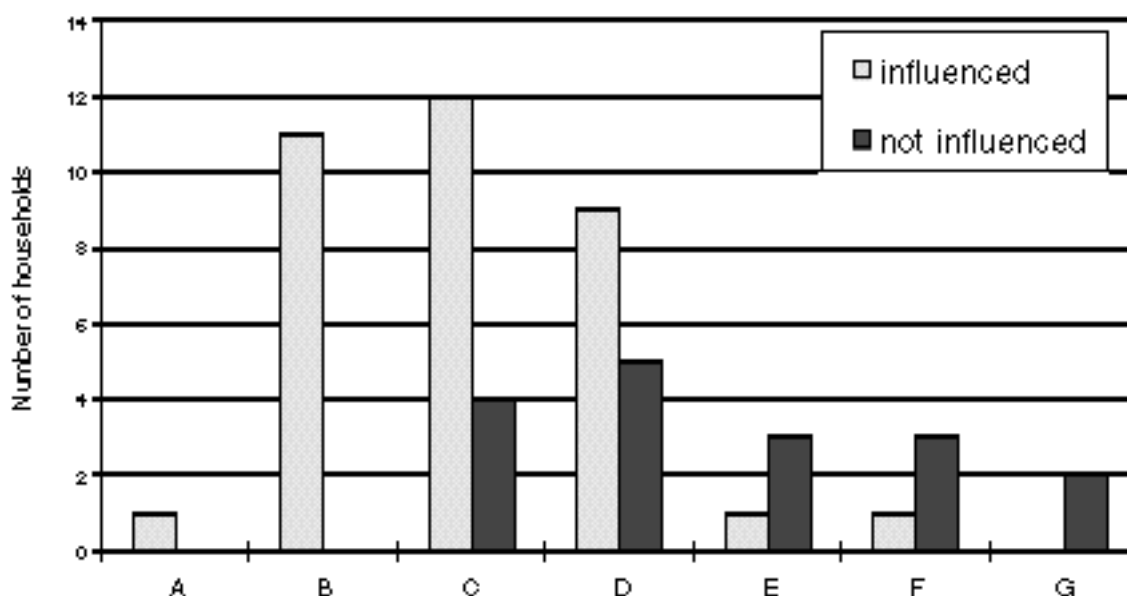


Figure 2: Efficiency of cold appliances bought, by influence of the EU Energy Label, Oxfordshire 1995

The distribution of models bought (a mixture of refrigerators, fridge-freezers and freezers) is strikingly different. None of the 'not influenced' bought an efficient (A or B) appliance, whereas none of the 'influenced' bought an inefficient G-rated appliance. On average, there is a 20% improvement in the efficiency of appliances purchased by those who were influenced rather than not influenced by the Energy Label. It is not possible to credit all of this 20% improvement to the effect of the labels, because of uncertainty about what the 'influenced' households would have bought in the absence of labels. However, these consumers credit the Energy Label with affecting their purchase and this is clearly true. The maximum effect on average consumption across all 100 consumers would be a 7% improvement in efficiency (20% improvement in efficiency x 35% of purchasers).

Thirty-five of the 100 households found the Energy Label provided them with new and useful information that influenced their purchasing decision. There was no need to ask them if they understood the Label, as they were able to respond to it positively. The other 65 purchasers did not report difficulty in interpreting the label when shown it in the interview. The Energy Label is, therefore, providing an important consumer service for at least a third of all households in the UK.

### 3.1. Profile group

Consumers may or may not purchase efficient appliances for any number of reasons. A realistic and useful analysis should attempt to find and quantify those combinations of factors that lead to the purchase of a more efficient appliance. In this respect marketing theory suggests that there are distinct patterns of consumption associated with relatively stable 'lifestyle' groups. The characteristics the DECADE team at the Environmental Change Unit felt might be important can be divided into five types as follows:

- .. values - including measures of materialism, nationalism, and environmental orientation;
- .. attitudes - to energy conservation, to individual responsibility, to protecting the environment and to the community;
- .. knowledge - of technical and economic aspects of domestic energy conservation and of the links between

- energy use and environmental impacts;
- .. behaviour - level of recycling, energy conserving acts in the home, environmental activism;
- .. demographic - age, sex, income, education and socio-economic group.

As a result of the answers on these five groups of characteristics, the personnel in the Consumer Response Survey divided into four distinct groups or segments.

### **3.1.1. Concerned Professionals**

The concerned professionals are the greenest, the most knowledgeable, the most successful of the groups. They seem to care about the environment and have the money to pay the extra cost that this sometimes entails. Accordingly, they are quite likely to take account of ethical or green issues when making purchases. This group constitutes 24% of the sample.

### **3.1.2. Strugglers**

This group are neither particularly well off nor environmentally concerned, at least on a global scale. Wider issues are of less importance than satisfying more immediate material needs. They are not likely to make purchase decisions on the basis of ethical or green considerations. However, they would respond to the opportunity to make financial savings using efficient technologies provided there was little or no additional capital outlay and they understood the concept of life cycle costing (pay now, save later). This group constitutes 24% of the sample.

### **3.1.3. Younger Aspirants**

The younger aspirants seem to have a fairly conventional ideas about the value of economic growth, the importance of technological innovation and so on. They seem unconcerned about energy use either as an issue or as something which, with care, could save them money. This group are not likely to respond to government exhortations to conserve, do not consider green issues nor even energy efficiency when making purchases. Instead novelty, quality and cost are likely to be more important. This group constitutes 22 % of the sample.

### **3.1.4. Elder Thrifties**

These individuals seem to be the most careful with their money (this is what 'thrifty' means), energy use and other resources. This is not simply because of their relatively old age. The strugglers have a similar average age and age profile, but quite different values, attitudes and behaviour. This fourth group attempt to save energy because they do not like the idea of waste and wish to save money rather than attempting to save energy for environmental reasons. However, given the relatively high preparedness to pay more to protect the environment and the right information, environmental reasons could prove an additional impetus to purchase efficient products for this group. This group constitutes 30% of the sample.

### **3.1.5 Response to the Energy Label**

The test of these groups is whether they demonstrate different purchasing patterns, in terms of the efficiency of the cold appliances bought. Using the Energy Label, the appliances can be defined either as "efficient" - categories A, B, and C - or "inefficient" - categories D, E, F and G. The profile groups differed in the equipment purchased (Figure 3). Concerned professionals and elder thrifties buy more efficient cold appliances but for different reasons: respectively, concern for the environment and/or a desire for efficiency and to save energy and other resources. Younger aspirants and strugglers tend to buy less efficient cold appliances; yet the latter clearly value saving energy because of the financial savings. Given the marginal differences in purchase price, it is possible that strugglers and, to a lesser extent, elder thrifties are prevented from making use of the label either because they find it hard to interpret or, in the case of the strugglers, because they habitually do not heed official consumer information.

)The results show that the profile groups - 'concerned professionals', 'strugglers', 'younger aspirants' and 'elder thrifties' - differ significantly:

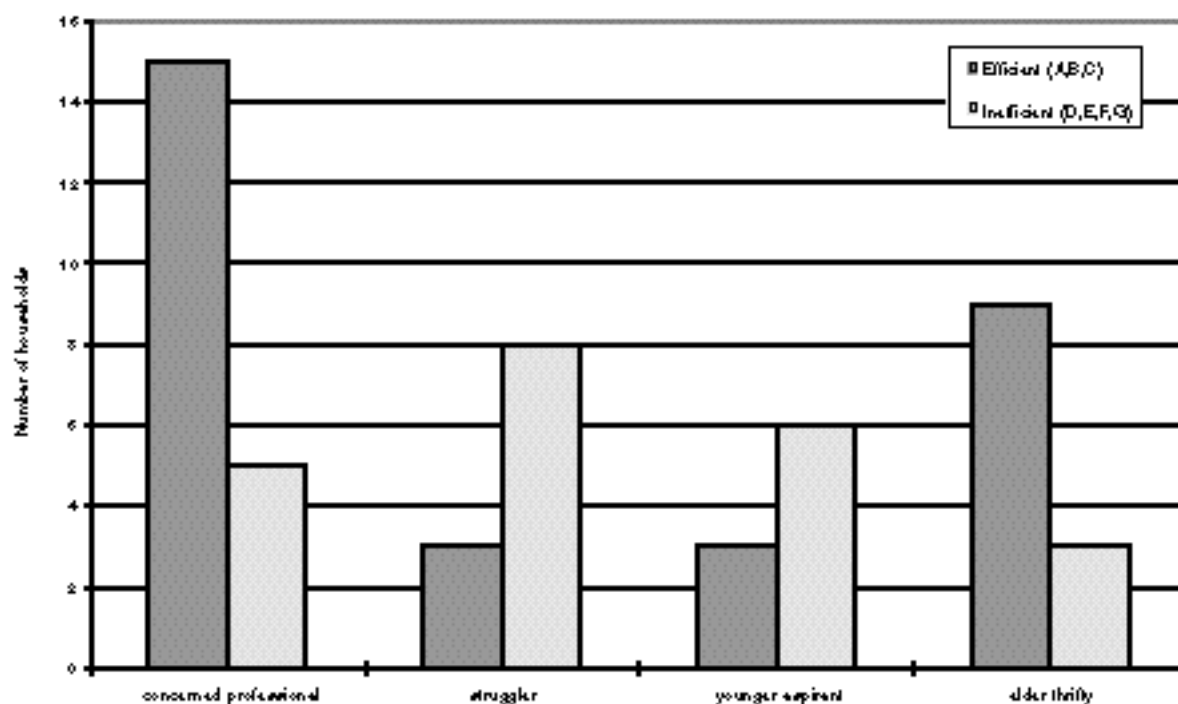


Figure 3: Efficiency of cold appliances bought, by profile group

- .. in the relative efficiency of the purchased appliances;
- .. in the amount of attention paid to the Energy Label and the influence that it has on subsequent purchase decision;
- .. in the priorities attached to certain features on the Energy Label and on the appliance itself.

The qualitative work on the CRS (Strang, 1996) and numerous other studies (eg Macnaghten *et al*, 1995) suggest that those who feel that they have a stake in their environment will give greater attention to information concerning that environment. Individuals are also more likely to heed information when they trust the source. Studies suggest that individuals in the lowest socio-economic grades neither trust official bodies nor feel that they have much stake in how the environment is managed. It may, therefore, be difficult to influence the strugglers through labels.

These suggestions are supported by recent analysis for the local energy advice centres in the UK, which shows a clear linear relationship between the amount of influence that the Energy Label had on choice and socio-economic grade. Individuals in the higher socio-economic groups are more than twice as likely to be influenced as individuals in the lower socio-economic groups (Sadler, 1996). However, energy saving (rather than efficiency) is important to the strugglers because it means financial savings. If efficiency can be linked with saving money, efficient alternatives are not more expensive and the label becomes trusted, then this group can be expected to respond well to labels in the future.

Extending the Energy Label's sphere of influence could probably be achieved by targeting the elder thrifties and explaining the Energy Label in terms of running costs and the energy savings that they could make by choosing an appliance that is cheaper to run. The Energy Saving Trust's new initiative in the UK is to sell energy efficiency to consumers as 'clever stuff', was launched on national TV in January 1997 and may influence the younger aspirants.

## 4. Changing sales

The DECADE team have analysed the sales of cold appliances in Great Britain, since the beginning of 1995, to establish if there are identifiable trends that would support the evidence from the Consumer Response Survey and identify how the manufacturers and retailers have responded to the EU Energy Label. The sales are of all branded goods, but exclude the equipment that is 'own brand' and specific to one retail chain. The data were obtained on a quarterly basis from GfK.

### 4.1 Manufacturers

One of the best indicators of manufacturer interest comes from the range of models being offered on the market. Using the same definition of efficiency (A-C category appliances), over the eight quarters (first quarter 1995 to fourth quarter 1996) there has been an increase in the number of efficient models being offered by manufacturers (Table 4). In the four categories, the proportion of efficient models has risen by 3-9% over the 24 months. It is not possible to state that this is faster than previously - it could not be judged before the existence of energy labels - but does demonstrate that more efficient appliances are continuing to come onto the market. The manufacturers are prepared for a growth of interest in energy efficiency.

*Table 4: Models on the GB market by EU Energy Label category, Q1 95 and Q4 96*

	<i>Models available in Q1 95 (%)</i>		<i>Models available in Q4 96 (%)</i>	
	A-C	D-G	A-C	D-G
Refrigerator	68	32	71	29
Fridge-freezer	33	67	37	63
Chest freezer	18	82	29	71
Upright freezer	41	59	45	55

### 4.2 Retail Outlets

Where the management of a retail chain are known to support the Energy Label, for instance through arranging staff training, the effect has been a considerable and rapid change in the sales profile. In the UK, the best example is in the 56 outlets belonging to Scottish Hydro-Electric (in the north of Scotland): the sales of efficient appliances started to increase immediately after the introduction of the Energy Label, supported by trained staff. This was a SAVE project, in advance of the formal introduction of the label. At the beginning of the period, in March 1994, one-third of the appliances stocked were A-D. One year later, this had increased to two-thirds (Table 5). The dramatic shift that occurred in the stock profile over a year demonstrated what can be achieved when the Energy Label is backed by senior management. Although the figures are for models stocked, SHE would only be purchasing those models that they are selling, so that there should be a strong correlation between models stocked and sales. A subsequent pilot in Oxford was not successful as it received support from local management, but was not backed by management at Head Office.

*Table 5: Efficiency of cold appliances in stock, Scottish Hydro-Electric shops, March 1994 - February 1995 (% of all models that are categories A-D)*

	March 1994	February 1995
Refrigerators	38	85
Fridge-freezers	49	60
Freezers	17	72



No other retail chain in Britain has supported the Energy Label so positively as Scottish Hydro-Electric. In most cases, the present commission structure for retail staff is assumed to work either in opposition to energy efficiency or, at least, not in conjunction with it. This will mean that retail staff may have no incentive to encourage the purchase of efficient appliances. The advice of retail staff is important for many customers, particularly with 'distress' purchases, such as cold appliances, where an immediate replacement is needed for a broken machine.

#### 4.2 Sales

The lack of retail training and of a supportive commission structure means that any change in sales pattern will depend upon those consumers who act independently of retail staff: for instance, the concerned professionals. Perhaps for these reasons, the sales patterns do not provide a consistent picture.

The sales information for the largest market - conventional fridge-freezers - shows that there has been an increase in the sales of Cs since January 1995 (Figure 4), largely at the expense of Ds. Although the average price of the Cs has dropped over the period, they are still slightly more expensive than Ds. There are still no As on the British market.

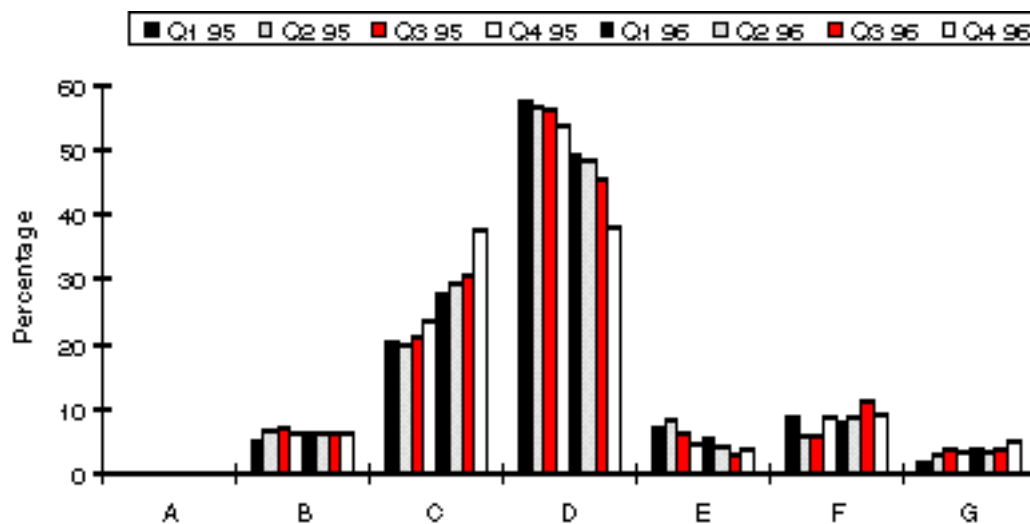


Figure 4: Sales of conventional fridge-freezers by EU Energy Label category, GB, Q1 95 - Q4 96

Sales of the other categories of cold appliances have not shown as significant a shift towards the more efficient categories:

frost-free fridge-freezers: these appliances are, by definition, less efficient than conventional fridge-freezers. The GB market is dominated by Es and Gs. Although the Es are about £100 (150 ecu) more than the Gs, they are now selling in greater numbers;

standard refrigerators: this market is declining, as consumers purchase more frozen space either in a fridge-freezer or as a larder fridge and separate freezer. Up to 85% of all sales are C and D-rated appliances. As the C-Gs are similar in price, one possible explanation is that consumers have moved to the most energy efficient category within the same price range. The As and Bs are, on average, nearly twice the price;

larder refrigerators: the market is still predominantly B-Ds; A-rated appliance sales have only increased from 1% to 5% of the market. The Cs have remained the same price and have gained sales from Ds. The prices of both As and Bs have increased, thus curtailing the growth in demand for these models;

chest freezers: the market is dominated by a few small, inefficient and cheap G models that are large sellers. This has been consistent over the whole period;

conventional upright freezers: a curious market with two different trends: a shift from E to the cheaper D; a shift from the cheapest, the Cs, to more expensive As and Bs. Overall sales are declining;

frost-free upright freezers: the market is dominated by G-rated appliances, the cheapest. B and C-rated appliances continue with up to 15% of the market, despite price increases.

The net effect of the various trends in sales is shown in Table 6. There has been a decline in the amount of electricity consumed by the average appliance, for all types except frost-free upright freezers. In several instances this is because the range within the G-rated appliances has been reduced, with no apparent link to labelling policy. The average is a drop of 4.4% in the electricity consumed, across all types. This is less than the 7% found in the Consumer Response Survey, perhaps because the latter had slightly above average representation from the higher socio-economic groups. For all appliance groups, except the larder refrigerator, this has been accompanied by no real increase in the price, demonstrating the competitiveness of the market: most consumers have been able to obtain more efficient appliances for a lower real cost.

*Table 6: Average annual electricity consumption for new appliances, GB, Q1 95 and Q4 96*

<i>Appliance</i>	<i>Average (kWh)</i>	<i>Annual</i>	<i>Consumption</i>	<i>Average Price*</i>
	Q1 95	Q4 96	% Change	% Change
Conventional fridge-freezer	540	532	-1.6	-1.9
Frost-free fridge-freezer	815	774	-5.2	0.0
Standard refrigerator	285	271	-5.2	-1.5
Larder refrigerator	269	238	-12.7	12.4
Chest freezer	426	410	-3.7	0.9
Conventional upright freezer	411	392	-4.6	3.5
Frost-free upright freezer	583	583	0.1	-3.9

\* Note that average prices have not been adjusted for inflation, so that any price change less than 5.1% (ONS 1997) indicates a drop in prices in real terms.

Despite the decline in average consumption indicated in Table 6, the overall trend has been for the highest consuming appliances - particularly frost-free - to increase market share. As a result, the demand from consumers for additional levels of service, such as this, has nearly offset the gains in efficiency. It does not take many consumers switching to machines that use 600-700 kWh a year to counteract the reductions achieved by a large number of people who have bought a slightly more efficient appliance, using the Energy Label. Over the whole two years, the average appliance sold was consuming 0.75% less electricity.

The trend in electricity consumption, prior to the Energy Label is difficult to establish as there is limited information about levels of efficiency. The summary given in Figure 5 is, at times, based on only 20% of the market. In addition, the confused history of policy discussions was highlighted in Table 1, showing the multiplicity of influences on energy efficiency levels from policies that are planned or being discussed. As a result, the effect of the introduction of the label is not clear - at best it has permitted the downward trends to continue, despite consumers obtaining higher levels of service, for instance through frost-free.

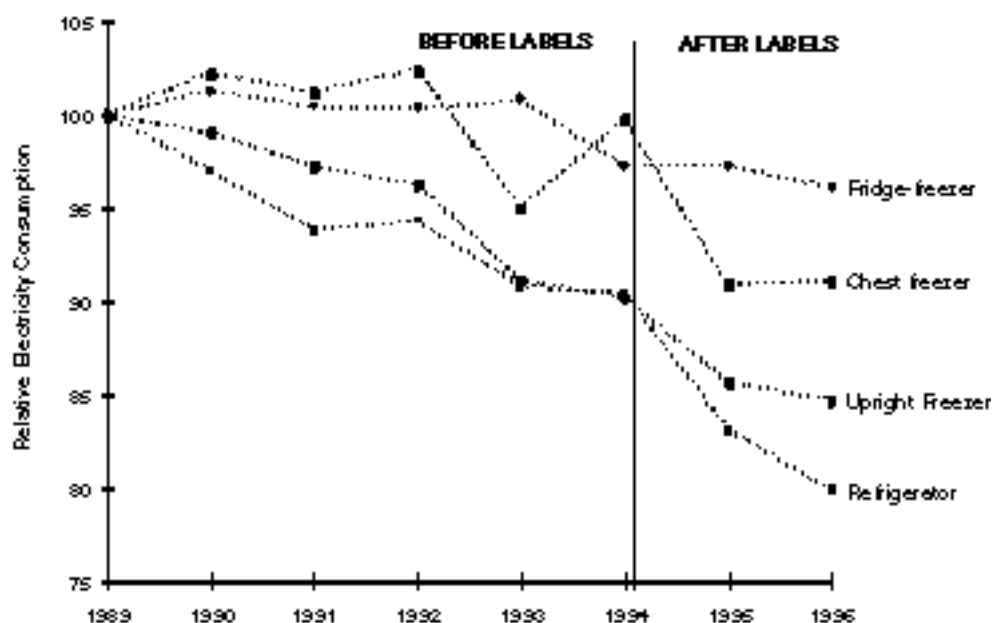


Figure 5: Relative electricity consumption in new cold appliances, GB, 1989 - 1996

## 5. Efficiency and price

The introduction of the Energy Label categories allows other forms of analysis, for instance the relationship between price and efficiency. Energy efficiency is, however, a difficult factor to isolate. It is frequently co-related with characteristics such as high-quality manufacturing and prestige brands. These latter two qualities often result in a higher price that is not, strictly, anything to do with energy efficiency levels. It may be this grouping of factors that has created the widespread perception that more efficient appliances are expensive.

There are several different dimensions to this comparison, both at a point in time and over time. The four main market prices are identified below:

- each appliance type, over time. The cold market is particularly competitive in the UK, as demonstrated in Table 6, so that the energy consumption per machine and the real purchase price are both dropping;
- for each appliance type, the average price per Energy Label category (discussed by Hinnells and McMahon): there is no relationship between price and efficiency in the cold market;
- for each appliance type, the range across each individual Energy Label category;
- the range of prices for a particular model, across stores or within the same store over time.

Looking at the third point above (c), there is a wide range of prices within any Energy Label category, as depicted for conventional fridge-freezers (Figure 6) and other types of cold appliance in (Boardman *et al* 1997, Appendix D). These data are normalised for size, through the use of an Efficiency Index. Within any Energy Label category, there are both cheap and expensive machines. The widespread public perception that the most efficient machines must be the most expensive is demonstrably incorrect: there is no correlation between price and efficiency at a point in time.

The fourth category (d) also varies considerably (Hinnells and McMahon, 1997) indicating that price is independent of efficiency and manufacturing costs and is more likely to be determined at the point of sale by bulk rates from the manufacturer and marketing initiatives by the retailer.

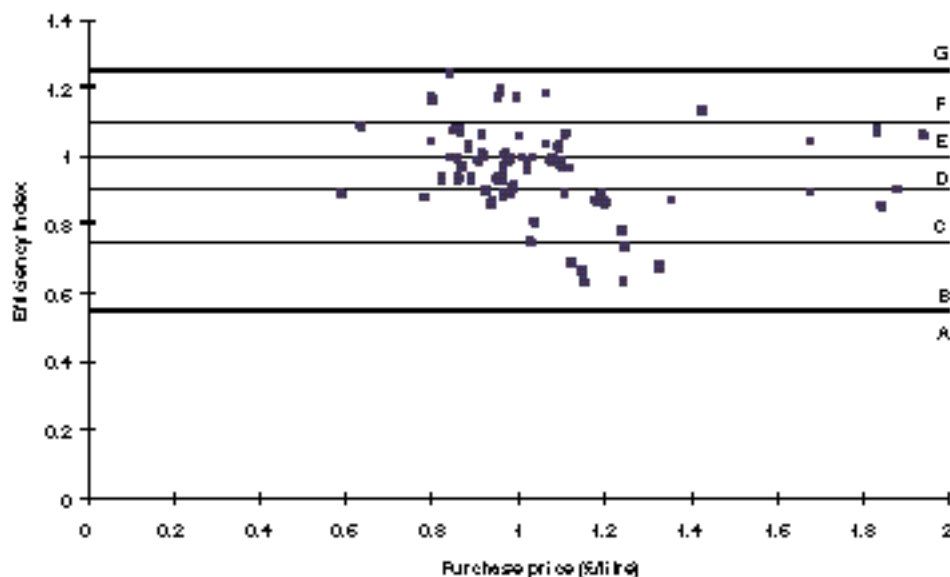


Figure 6: Efficiency index and purchase price for conventional fridge-freezers, GB, 1996

One expectation about the advent of the Energy Label was that the more efficient appliances would suffer additional price increases, as manufacturers and retailers responded to the preferences demonstrated by consumers. This has not happened. Manufacturers and retailers are not yet certain about the extent to which consumers care about energy efficiency, nor about the extra price that they will pay, if they are concerned.

## 6. Conclusions and Discussion

The EU Energy Label for cold appliances has been displayed widely in UK shops since the beginning of 1995 - after the first few months coverage was deemed to be close to 100% and to have stayed high. There were no other competing energy labels.

The EU Energy Label has been supported by leaflets at the point of sale, provided by the UK Government. The European Commission does not provide publicity. During the first year at least, there was no advertising through other sources, such as retail chains or manufacturers, nor editorial coverage in the main newspapers and journals. There have been two feature articles in the subscription magazine produced by the Consumers' Association, but the EU Energy Label has not been featured by campaigning groups, such as Friends of the Earth. The general public could not know about the label prior to entering the shop.

Once inside the shop, for most consumers the only information was that provided by the Department of the Environment. There were no accompanying posters or displays. The retail staff were, with rare exceptions, not trained to understand or support the EU Energy Label. Inside the shop, the consumer was dependent upon his/her own ability to understand the label and to use its information.

In a small retrospective survey, the ECU found that 35 out of 100 consumers had noticed the label at the time they purchased their cold appliance and said that their choice had been influenced by the label. The purchases made by these 35 consumers were 20% more efficient than those bought by the householders who had seen the label, but not been influenced. It is not possible to identify how much of the 20% can be credited to the label, but, based on the consumers' own comments, a large proportion. The consumers who responded were typically 'concerned professionals' who understood and were motivated by the environmental implications of energy efficiency. The 'elder thrifties' who bought efficient appliances with the aid of the label were more likely to be motivated by cost-effectiveness.

The EU Energy Label provides consumers, for the first time in the UK, with the opportunity to include the energy efficiency of the appliance in their decision-making at the point of purchase. The maximum effect identified is where the label is supported by informed retail staff and then the change in sales is substantial. There is no relationship between price and efficiency: for any cold appliance type it is possible to buy inefficient models that have a higher purchase price than efficient ones. The wise consumer can, therefore, purchase reduced running costs for free, by using the information on the EU Energy Label.

The national sales picture shows a continuing decline in the electricity consumption of the average appliance sold, but this is offset by consumer demands for additional forms of service, such as frost-free. The net effect is a drop of less than 1% in the electricity consumed by the average cold appliance, over the first two years since labels were introduced. The effect of the label in the UK (and the rest of Europe) is in the context of several other policy debates and changes - notably the phasing out of CFCs and the introduction of minimum standards of efficiency. Therefore, the extent to which the drop in average consumption of new appliance is due to the advent of the EU Energy Label cannot be distinguished, with present information, from background trends and other policies.

The proportion of models on the market that are efficient (A-C) has increased by 3-9% over the 24 months since labels were introduced. There are no comparative trends, as this information was not available prior to the introduction of labels. However, manufacturers are prepared for an increased demand in more efficient appliances from retailers and consumers.

The Energy Label is a necessary prerequisite for other policies, such as minimum standards and rebates. Pilot schemes to provide rebates on efficient appliances or to encourage low-income households to replace inefficient equipment are being introduced in the UK and the former will be mandatory across the whole of the European Union by September 1999. The cumulative impact of the EU Energy Label in the UK will probably take longer to reach full effect than the first 24 months. This effect will be greater if there is some retail support, so that a wider range of consumers can benefit from more efficient purchases. At the moment, the effect is dependent upon the third of the population that can work out for themselves the message of the label.

The EU Energy Label for washing machines, mandatory from October 1996, is expected to provide different benefits for consumers, as it includes information on wash performance as well. Consumer priorities over purchase price, energy efficiency and wash performance are not understood, but information from CECED (the European Manufacturers' Association) indicates that there is a good correlation between wash performance and energy efficiency. Other Energy Labels are gradually appearing: tumble dryers (October 1996), dishwashers (probably 1997), light bulbs (expected in 2000) so that consumers will become more familiar with the label and the concept of energy efficiency. This greater awareness should enhance the effect for each new type of appliance.

A further dimension is the influence that the EU Energy Label is having beyond Europe. As the label is mandatory at the point of sale, then any manufacturer wishing to export to the EU has to understand the test procedure behind the label categories and comply. That has an influence on the manufacturer's sales elsewhere and is combining with discussions about possible future membership of the EU in Hungary and other Central European states.

Training retail staff, providing in-store literature, advertising and targetting other groups than the concerned professionals would all be ways to enhance the opportunities created by the label. In the absence of these, the effect of the consumers who can use the label will be felt more slowly.

## Acknowledgements

This work has been based on *Transforming the UK Cold Market*, published in June 1997 and has depended on substantial contributions from many members of the DECADE team at the Environmental Change Unit, in particular Nick Banks, for his analysis of the CRS, Tina Fawcett and Andy Goodwin, for their analysis of the GfK data and my colleagues Kevin Lane and Mark Hinnells for their comments and support. The work of the DECADE team is

funded by the European Commission's SAVE programme in DG XVII and by the UK's Department of the Environment. Sarah Darby helped to find the space to complete this in an overcrowded diary. Last, but by no means least, I am indebted to PowerGen, who sponsor my Research Fellowship at St Hilda's College. Thank you.

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