



Incentive for change

How the appliance industry can contribute to EU targets to reduce CO₂ emissions

Thinking of you

 **Electrolux**

Drivers of change

With its 20/20 targets, the EU plans to cut energy consumption 20 percent by 2020. Electricity consumed in European homes plays a central role in reaching this goal. This has prompted the European Council to focus on reducing overall consumption levels of electrical products. A number of government proposals are therefore directed towards encouraging consumers to switch to the most energy-lean appliances through incentive programs.

Electrolux supports these efforts and advocates a concerted push to introduce consumer tax credit incentive programs for appliances over an extended period of time and throughout Europe.

While there is a clear business rationale for Electrolux to promote these programs, there are discernable benefits to the environment, consumer pocket books and for society. Above all, through them, we are best able to maximize our contribution to EU government targets to reduce carbon emissions.

1. From our life cycle analysis, we know that as an appliance manufacturer, our greatest potential to influence CO₂ emissions is to improve efficiency of products while in operation—more than 80 percent of our impact occurs during use.
2. One in three appliances—or an estimated 188 million products—are over ten years old in Europe. Replacing them with energy-lean models could save about 18 million tons of CO₂ emissions a year, equivalent to €3.6 billion spent by consumers annually on electricity.
3. The EU has channeled a mix of instruments to prompt efficiency improvements—including encouraging competition, introducing labeling and minimum energy efficiency performance standards. The industry has responded by, on average, halving energy use of its products.
4. The market is maturing into a new phase, requiring additional market mechanisms to stimulate demand for energy efficient products. Experience in both Spain and Italy demonstrate the advantages of incentive programs, which are considered among the most effective instruments to influence change.
5. Consumers are clearly concerned about climate change. But their buying habits are not always in sync with their keen engagement levels. When asked why consumers did not participate in particular climate-smart activities, the biggest barriers were to do with cost; not knowing what to do and doubting that the result would actually make a difference.
6. Recent consumer surveys point to the need for government to proactively engage consumers. More than any other stakeholder, the public wants to see strong leadership and guidance from government on the action they should take to tackle climate change.
7. Electrolux calls on policymakers to create the market framework to encourage adoption of energy-efficient technology. With the right consumer incentives in place, the appliance industry can make a significant contribution to achieving the EU's 20/20 climate change goals.

Incentive for change

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Executive summary

Appliances are present in every home in Europe; and one in every three of them is over a decade old. This corresponds to 188 million of the 630 million appliances currently in operation.

Upgrading these old, energy-thirsty products with the highest efficiency models represents a significant potential source of consumer-generated carbon (CO₂) savings. In fact, if every household replaces its ten year appliances with today's energy and efficient models, Europe would cut its carbon emissions by 18 million tons. This corresponds to six percent of the Europe's objectives as defined in the Kyoto Protocol.

Climate change has risen to the top of the EU agenda. The EU has defined a forward-thinking plan to achieve a 20 percent increase in energy efficiency as well as a 20 percent reduction in greenhouse gas emissions, as compared to projections for 2020. It intends to reach this by 2020; or in 13 years.

This presents a quandary for both governments and proactive manufacturers. Every new generation of appliances we put on the market is more energy efficient than the previous one. We developed state-of-the-art appliances which are widely available, but not yet widely adopted. At the same time, governments have a source of CO₂ and energy reduction that is not being effectively tapped into. At the current rate of replacing old appliances with new ones, it is estimated that it will take more than ten years to achieve the full environmental return on energy efficient appliances.

This report outlines how Europe's highly ambitious energy targets can be achieved through a faster, more stable and effective approach by stimulating the market.

Consumers seek guidance

Awareness of the social, environmental and economic implications of climate change is raising consumers' expectations on both governments and companies to take action.

Growing awareness should also translate into consumers' purchasing choices. Yet studies indicate that consumers feel at a loss over what they can do to actually make an impact. Addressing this is highly relevant to the household appliance sector. As an appliance manufacturer, Electrolux has an important role to play. Today's appliances consume on average 50 percent less energy than those ten years ago. Potential CO₂ reductions are not being achieved because inefficient appliances are not being replaced with energy-lean models at a fast enough rate.

Manufacturers have an important role in facilitating change - not least by helping societies leapfrog to the most efficient technologies.

Governments have a role in ensuring that the market prefers these cutting-edge alternatives.

Triggering change

As a consumer-oriented company, Electrolux supports market incentives that trigger change in consumer purchasing. It is the most effective way of achieving immediate reductions in household-generated carbon emissions and it effectively motivates consumers to choose the most climate-smart alternatives. Managed well, it can provide a sustained effect in consumer thinking.

In this report, we provide a pan-European perspective on how incentive programs for household appliances can stimulate markets and its potential to trigger change.

Upgrading to the most efficient models can make both economic and environmental sense. From the environmental perspective replacing a refrigerator with outdated technology by an efficient A+ or A++ rated product pays off in a few years, depending on the product. But the economic payback time is much longer.

Incentives can help to close this gap. The impact of ongoing incentive programs in Spain and Italy demonstrate their value. In the first half year in 2007 in Italy, sales of A+ and A++ rated products have more than doubled on 2006 sales records. If these measures were to be prolonged to nine years, it is estimated to produce the equivalent savings of 9 million tons of CO₂ for the entire period.

In Spain, meanwhile, the one-year 'Plan Renove' program will be extended to 2012 and will now also cover other appliances as well as refrigerators. Both examples illustrate that the cost of such a program is balanced by the socio-economic and environmental gains it generates.

If an average German family replaced its ten year-old refrigerator, freezer, washing machine and dishwasher with the most updated models, it would save € 85 in electricity and water costs in one year. Moreover, it would reduce energy consumption by about 370 kWh (and 325 kilograms CO₂ emissions) as well as 4,209 liters of water.

While incentive programs have the potential to significantly influence purchasing, their full effect is sometimes restricted to impacting local purchasing, or to a limited period of time. At Electrolux, we maintain that incentive programs have a role to play if widely-applied and given a sufficient length of time to induce a permanent change in consumer behavior.

Electrolux approach to tackling climate change

At Electrolux, we intend to be part of the solution to climate change.

Gauging the environmental impacts from a product life-cycle perspective is central to the Electrolux strategy. For durable goods such as household appliances, the greatest potential to influence CO₂ emissions is to improve efficiency of products while in operation. This holds especially true for large products like refrigerators and washing machines where the use phase often represents more than 80 percent of total environmental impact. The direct emissions of CO₂ from manufacturing are less than ten percent.

By investing in research and development, most modern appliances use only a fraction of the electricity and water consumed by their ten year-old counterparts. Today's best Electrolux refrigerator consumes 75 percent less energy compared to an average refrigerator of 1990.

An average washing machine of today uses 40 percent less electricity and 60 percent less water compared to an average washing machine of 1985.

Electrolux products are strongly represented in sales of the highest energy efficiency classes. In proportion to our total market share, sales for cold products are overrepresented in energy class A++ and 99 percent of the Electrolux dishwashers sold in Europe are energy class A labeled.

We are also committed to continuously improving processes to cut energy use in our manufacturing. Electrolux has set a target to cut energy use 15 percent Group-wide by year end 2009. The three year target equates to a CO₂ reduction of 100,000 tons by 2009. This is equivalent to the carbon emitted from about 22,500 cars.

In contacts with media and in the political sphere, Electrolux is actively engaged in raising awareness of the role energy efficient appliances have in tackling climate change. The Eco Savings¹ website is targeted to both media and the consumer in 22 countries in Europe and the US. Visitors can calculate the benefits that energy-lean alternatives generate for them, the environment, their local community and national economy. Both as independent initiatives and through the European appliance industry association, CECED, we advocate the value of consumer tax credits.

Climate change is the defining issue of our age. At Electrolux, we are committed to doing our part in our operations and through our products. We also want to help develop the right frameworks for change. While it makes business sense for us to be proactive on this issue, more than anything else, advocating this policy is on our agenda because it clearly makes sense from a sustainability perspective.

¹ www.electrolux.com/ecosavings

The role of appliances in tackling climate change

Electrolux has estimated that about two percent of the CO₂ emitted in Europe relate to the use of the 630 million appliances in operation. This is a significant drop of 50 percent compared with the mid-1990's. Despite the increasing presence of electrical products in people's homes, the CO₂ impact from appliances has continued to decline.

Industry-driven success story

Through a concerted effort to develop more energy-efficient products, coupled with the introduction of market mechanisms such as labeling systems and minimum efficiency standards, the appliance industry has made real strides in cutting power consumption. On average, energy and water needs have been halved in the last ten years in our appliances.

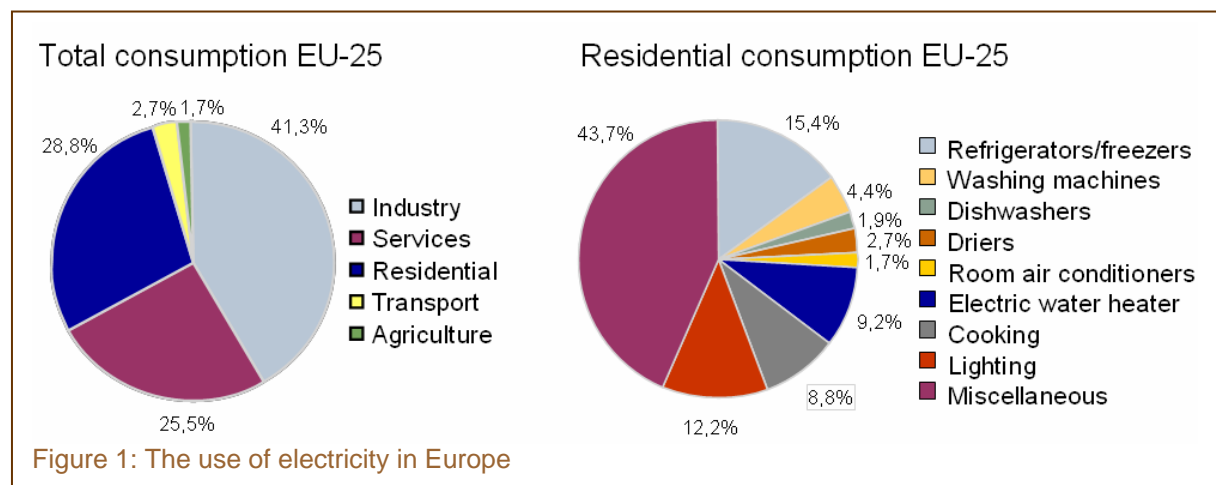
This success story has been hailed by the EU government. Meanwhile, overall household electricity consumption in the EU member states has continued to rise despite energy efficiency policies and programs at EU, national and local levels. In the period 1999 to 2004 electricity consumption in households has increased by 11 percent, from 690 TWh to 765 TWh in 2004. Indeed, electricity use has risen at almost the same rate as the economy (GDP).

Consumer carbon footprints

The carbon footprint of the average British citizen is around 11 tons of CO₂, and 17 tonnes for Americans. In analyzing the UK economy, recreation, heating, food and household emissions represented the greatest single impacts, with aviation as the fastest growing source. (The Carbon Trust)

- The residential sector consumed 768 TWh of electricity, or 29 percent of all electricity used in the EU-25 (2003), corresponding to 284 million metric tons CO₂ of emissions per year.
- Large household appliances consumed 207 TWh or 29 percent of all residential electricity in 2004 (EU-15). This corresponds to 2 percent (EU-15) of all CO₂ emissions in the pre-2004 EU member states.

Electricity consumed in the average European household produces approximately half the CO₂ generated by the average family car.



Life cycle studies similar to those used by industry have influenced national government energy policies. From these analyses, EU climate strategists have determined that reducing emissions deriving from the use of electrical equipment by consumers must be among their objectives. This has prompted the European Council to focus on reducing energy use in appliances².

The Netherlands has a population of 16.6 million. In theory, if all consumers in the Netherlands switched from inefficient ten-year-old appliances to the most efficient models, the country could reduce CO₂ emissions by 600,000 metric tons and save 7 million cubic meters of water.

Since the overall social, environmental and economic cost of energy is much greater than that which appears on consumers' utility bills, the value of accelerating the rate of replacement extends beyond individual benefit to add to wider savings for society.

Given current rates of appliance replacement, the potential CO₂ reductions embodied in new technology will take some ten years to achieve. At present, consumers are simply not sufficiently motivated to make the change. Given the relatively long economic payback time for appliance purchases, consumers only replace old appliances with new ones when they either break down or when homes are being renovated.

The payback time for replacing a 20-year old refrigerator with a state-of-the-art model, for example, is between eight and ten years.

This presents a quandary for both government and proactive manufacturer. State-of-the-art appliances are widely available, but are not yet being widely adopted. Governments have a ready-made source of CO₂ reductions, but their benefit is yet to be realized.

When it is time to upgrade

The greatest environmental impact of appliances lies when they are in operation, through consumption of energy and water. Because of the substantial gap in efficiency levels of the most modern appliances compared with their ten-year old counterparts, the environmental payback will have long expired by the time they meet their economic payback (see Figure 2).

In contrast to consumer practices, the German research organization Öko Institute contends that it is environmentally advantageous to upgrade an

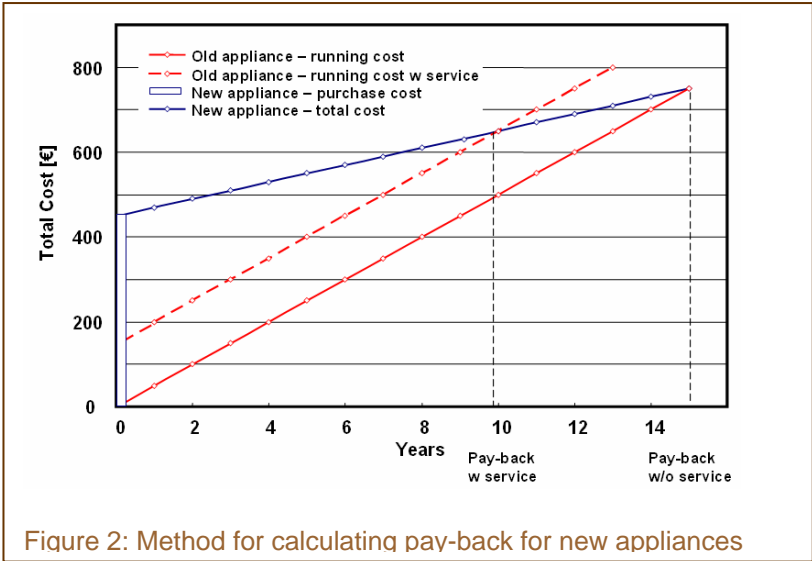
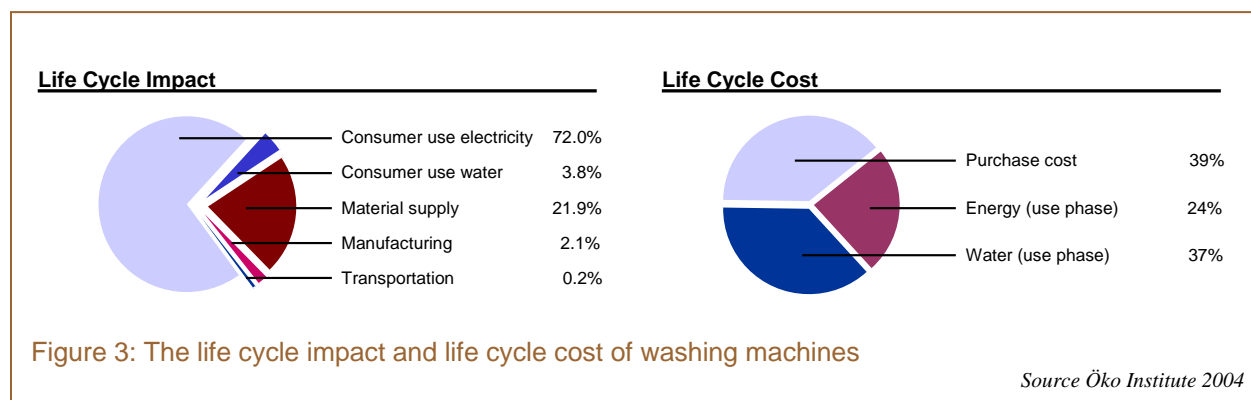


Figure 2: Method for calculating pay-back for new appliances

² The Presidency Conclusions of the Brussels European Council (8/9 March 2007), page 21

old washing machine or refrigerator after two and five years, depending on the product.



Washing machines

About 40 million of the 188 million obsolete appliances in use in Europe are washing machines. Obsolete appliances impact the environment through higher electricity (cumulative energy demand) and water consumption, costing considerably more to operate than their modern technological counterparts.

The break-even point for global warming potential when substituting a ten year-old washing machine is attained after four years. The cost break-even point will, however, not be achieved within its expected lifetime. When considering regular service charges, the picture changes and the cost break-even point shifts to five years.

Over 20 year period, the total use cost of an average machine at 175 washing cycles decreases about 60 percent from 1985 (€0.73/cycle) to 2004 (€0.30/cycle)³.

Refrigerators and freezers

In 2004, it was estimated that there were about 265 million cold appliances in Europe, 88 million of which were more than a decade old. Refrigerators and freezers are much more permanent fixtures in homes, and they are in continual use. The average lifetime for a refrigerator is 14 years and 17 years for a freezer. In 2004, cold products in Germany were responsible for 16 percent of the household energy bill, and emitted 11 Mtons CO₂⁴ from generation plants. The purchase of a new class A+ or A++ cold appliance pays off in one to six years.

When comparing the global warming potential payback period for cold products, the outcome is highly dependent on the energy efficiency class of the new appliance--the better the efficiency, the shorter the payback period. When replacing all cold appliances with an 'A++'-appliance, the payback periods are below five years for all outdated appliances.

³ CECED Energy efficiency. A short cut to Kyoto targets, p. 29. The results were computed assuming a cost of € 4/cubic meter for water (average figure for Germany 2004) and a cost of energy of €0.18/kWh (average figure for Germany 2004; linear cost increase in the past; forecast by Prognos-Institut to increase linearly to €0.249 by 2020).

⁴ VDEW (Der Verband der Elektrizitätswirtschaft) data on 2003; www.hea.de

The importance of recycling schemes

In Europe, whenever a consumer purchases a new appliance, a system exists to take back and recycle the appliance it replaces. An effective take back and recycling system is an integral part of a sustainable scheme to upgrade energy-consuming products.

The EU's Waste Electrical and Electronic Equipment (WEEE) Directive ensures that efficient recycling systems are in place. However, there is a risk that products being replaced are sold in the second-hand market, or in the case of refrigerators, end up as a back-up appliance in basements, which extends the life of inefficient products. That is why it is important to couple incentive programs for upgrading appliances with evidence that the outdated products are properly recycled.

Transforming the market

"Energy efficiency essentially depends on the technologies used. Improving energy efficiency hence means using the best technologies to consume less, either at the end-user consumption or energy production stage. This means, for example, replacing an old household boiler with a new one which consumes one-third less."

The EU Commission Green Paper⁵

The EU has adopted a mix of instruments to prompt innovation. This includes encouraging competition, introducing labeling and minimum energy efficiency performance standards. For the last decade, the appliance industry has responded proactively to these regulatory mechanisms.

To ensure that the innovations lead to de facto reductions in CO₂, a new mix of instruments that focuses on creating energy-efficient mindsets and behavior among consumers is required.

The energy label system is the foundation of any policy aimed at transforming the market. However, no mechanism has the greater opportunity to catalyze the market for new, cutting edge technologies as non-regulatory measures.

Electrolux advocates a concerted push to introduce incentive programs over an extended period of time.

By encouraging the replacement of old appliances Europe can potentially avoid emitting a total of about 18 million tons of CO₂.

At Electrolux, we support policies aimed at full market transformation, especially economic incentives for consumers to make wise purchasing decisions. This should be coupled with information campaigns to push for early replacement, consumer education on the importance of buying the most efficient models and take-back systems.

⁵ The European Commission' Green Paper on Energy Efficiency: "Doing More with Less", Brussels, 10 June 2005, COM(2005) 265 Final

Incentive programs

In order to achieve the desired change in consumer behavior, tax credits and rebates for the purchase of highly efficient products is central to guiding the market. To support the EU-wide 20/20 climate change goal, market instruments should be organized as more long term programs.

Among government incentives already in place or being discussed:

- Italian consumers receive a tax deduction of 20 percent of the purchasing price (up to a maximum of €200), if they upgrade to the most energy-efficient model.
- Price rebate schemes have been implemented in Spain.
- White certificates⁶ have been introduced in France, UK and Italy to finance energy efficient activities.
- The EU is due to assess a possible EU-wide “white certificate scheme” next year under the terms of the 2006 end-use energy efficiency directive.

Country-by-country status report

Throughout Europe, there are a number of concrete examples that illustrate how incentive programs for household appliances have stimulated markets in the past, and their potential to trigger change in the future. In particular, programs ongoing in Spain, Italy and Belgium demonstrate their value.

Italy

The Italian government introduced incentives for A+ and A++ refrigerators and freezers. Consumers who make the upgrade benefit from a tax credit of 20 percent of the purchase price (up to €200). The incentives are an ongoing program for 2007 and during this year sales, A+ and A++ models have more than doubled compared product turnover in 2006. If these measures were to be prolonged to nine years, this is estimated to produce the equivalent savings of 9 million tons of CO₂ for the entire period. Consumers are required to substantiate that their outdated appliance has been recycled.

Spain

In Spain, an extensive rebate scheme, Plan ‘Renove de Electrodomesticos 2006’, has been running during 2006 and 2007 and will most likely be renewed with a long term target. More than €60 million have been devoted to its budget in 2007. The program offered a subsidy of between €85 and €185 for those upgrading to energy-lean appliances.

Belgium

In the Brussels region there is a local program of rebates to consumers when they purchase efficient appliances. The purchase of top-rated (A, A+ and A++ where applicable) refrigerators/freezers and tumble dryers are rewarded with a payment of €200 when providing evidence of purchase.

⁶ White certificates are documents certifying that a certain reduction of energy consumption has been attained. They are usually directed towards utilities companies that, in turn, provide incentives to end-users for energy efficiency measures.

The Netherlands

The Dutch EPR (Energie Premie Regeling) was implemented between January 2000 and October 2003. It offered cash rebates for the purchase of higher efficiency appliances and for the deployment of energy-saving home improvements (such as roof and wall insulation, solar boilers, heat recovery systems and high-efficiency windows).

The largest share (46 percent) of the subsidies was allocated to household appliances. Consumers received rebates of between € 50 and € 100. Since the program was ongoing for an extended period, (close to four years), it succeeded in creating permanent changes in purchasing patterns. As a result, the Netherlands still has the most energy-efficient appliances within the EU.

Lessons learned

While incentive programs have the potential to significantly influence purchasing, their full effect is sometimes restricted to impacting purchasing in limited regions or to a fixed period of time. At Electrolux, we maintain that they have a role to play when programs are ongoing for a sufficient duration:

- to enable both industry and retailer to adjust their communications and marketing strategies to the changed conditions,
- to enable government-sponsored communications programs to take effect,
- to enable consumers to act, since appliances are long-term investments that are seldomly purchased on impulse.

Although the program can assume many forms, tax credits are financially advantageous to the government since it ensures a better cash flow of expenditures compared with traditional rebates.

It is important that consumers understand the link between an incentive and its environmental benefit. The educational effect of the incentive will then go beyond a single purchase.

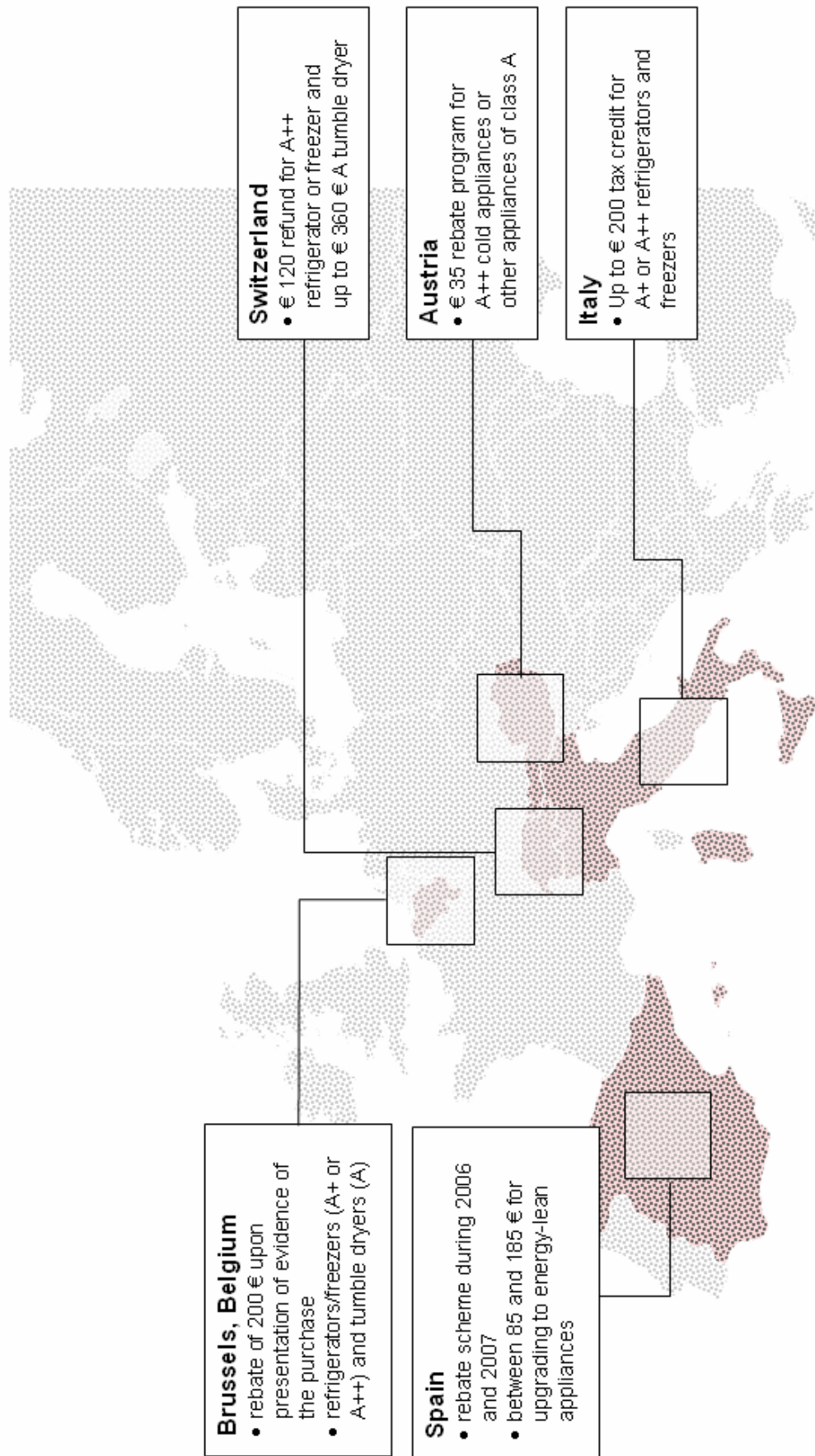


Figure 4: Examples of ongoing incentive programs in Europe.

Product energy labeling

The journey towards greater efficiency essentially began in 1994 when energy efficiency labeling was first introduced. Every consumer seeking to buy an appliance in Europe receives information on energy-efficiency at the point of sale. The label is highly visible on every appliance, irrespective of make or model. By communicating performance to the consumer, energy use has become a relevant factor in purchasing decisions. It has helped convince consumers that the more efficient the product, the less energy it requires and the greater value they get for their money.

The label indicates the ranking of the appliance in its proper energy class on a scale of A to G, where A represents the most efficient equipment and G defines the worst performers. The label also provides performance data to support the product's claim that it complies with expectations.

A label should be issued or updated whenever all the following conditions are met:

- significant penetration in the household,
- significant energy consumption of the product category,
- existence of products with similar performance but different energy performance,
- possibility for the market to be realistically influenced by the label.

The EU Energy Labeling policy is broadly regarded as a success. In fact, it has also since been adopted by Australian, Chinese and North American markets for most large products.

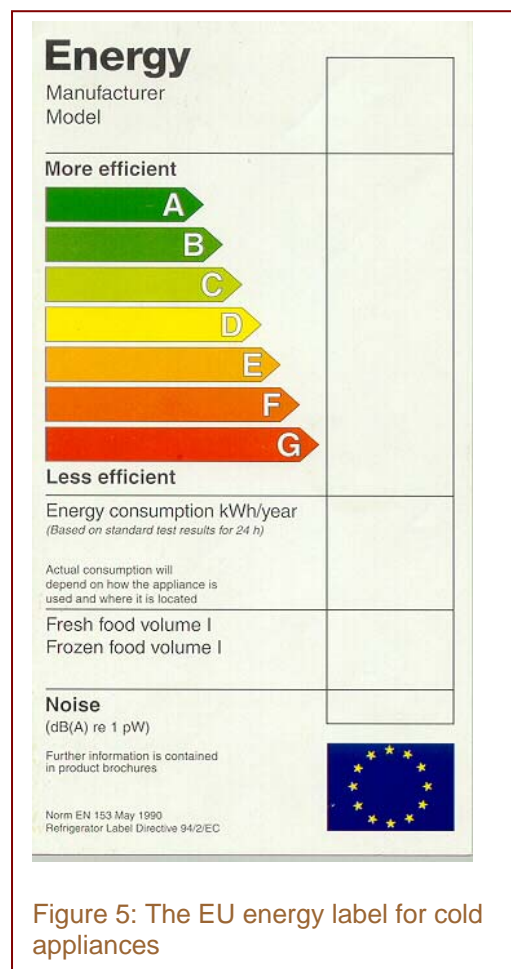
In Europe, energy labels are currently defined for the following products:

- refrigerators and freezers
- washing machines and washer dryers
- tumble dryers
- dishwashers
- air conditioners
- electrical ovens

They are also under evaluation at EU level for other product categories.

Time for new rules

Due to the rapid development of products, the current label has lost most of its relevance for guiding consumers to the most efficient products. Over time, products have clustered in the



highest efficiency classes. Since the label is not built on moving targets which track improvements in efficiency, the scale has, at times, been extended to A+ and A++.

It is time for a new generation of labels without an upper limit. This would enable the market to capitalize on product development, and also consider future development. To overcome this stalled situation, industry is calling for a revision of the label with an open-ended scale of numbers instead of letters--with highest digits identifying the most efficient products. In this way, new classes would be added every time more efficient products become available.

Labeling has to go hand-in-hand with rigorous market surveillance. At times, the market has been muddied by manufacturers whose labels claim better energy efficiency than actually delivered. A level playing field ensures that all producers maintain a common baseline for measuring product performance, hence safeguarding the integrity of the label among consumers.

Voluntary agreements

Voluntary agreements were launched in 1997, when Electrolux and other leading manufacturers (through CECED) agreed on unilateral industry commitments to improve energy efficiency for most large household appliances.

Built on the EU's energy labeling scheme, the initiative has succeeded in raising the performance levels of committed manufacturers. Its programs consisted of three targets:

- Hard target—to stop producing/importing products belonging to the lowest energy-efficiency classes,
- Fleet target—to improve the weighted average for energy efficiency of product sold,
- Soft target—join efforts with consumers to save energy.

CECED voluntary agreements saved 17 million tons CO₂ in ten years, or the equivalent to the CO₂ emitted by nine 500 MW generation plants.

Voluntary agreements are best suited for markets where a baseline for efficiency is uniformly enforced and where an industry commitment can raise the bar further. Although tangible results have emerged, the market has matured into a new phase. Further success rides on assuring that all members of the industry are committed to the agreements.

The European appliance industry decided in 2007 that it would not update existing unilateral commitments. However, ongoing voluntary agreements encompassing refrigerators, freezers and their combination (2002-2010) and the second commitment on washing machines (2002-2008) will continue.

Electrolux and other leading European manufactures have also called for the phase out of A class refrigerators and freezers by 2013, provided that this is done through legislation that will address all market participants.

Voluntary agreements—targets and results

The European appliance industry conducted several programs under the umbrella of voluntary agreements:

Washing machines (1996 - 2002)

- Target: 20 percent reduction (1994 – 2002)
- Result: 27 percent reduction

Encompassing 97 percent of manufacturers, 250 brands

Dishwashers (1999 – 2002)

- Target: 20 percent reduction (1998 – 2002)
- Result: 29 percent reduction in 2001

Encompassing more than 90 percent of manufacturers, 200 brands

Cold appliances (2002 - 2010)

- Target: Stop producing products with energy efficiency index >75 percent by March, 2004. Reduce weighted average EEI to < 57 percent by 2006
- Expected result: ~30 percent reduction

Washing machines II (2002 - 2008)

- Target: Production weighted average of 0.20 kWh/Kg for 2008

These programs were directly responsible for delivering an approximately 30 percent savings in energy consumption.

Achievements in the industry

The industry has succeeded in cutting energy use in appliances, resulting in substantial CO₂ savings. Between 1995 and 2005, the appliance industry achieved a CO₂ reduction of 12 percent, emitting an estimated 17 million tons less CO₂ into the atmosphere. In 1995, the electricity consumed by European household appliances amounted to 264 TWh. When considering the average fossil fuel mix used in European electricity generation, this equates to a discharge of about 130 million tons CO₂. By 2005 consumption levels had been reduced to 230 TWh.

Using 1992 data as a reference (Energy Efficiency Index EEI=100 percent), trends for cold household appliances also clearly point to progress. Sales of energy class A products were marginal in 1992 with a penetration of less than 5 percent. In 2006, however, class A appliance sales exceeded 65 percent. In addition, energy classes A+ and A++ were launched in 2003 and its market share has continually risen. In 2006, these two classes captured approximately 15 percent of the market.

The EU Commission recognized industry efforts in its Green Paper on Energy Efficiency⁷:

“Experience with the European white-goods industry, which is the world leader as a result of best technology developed in accordance with minimum standards and a serious labelling programme, proves that in the longer term our car industry also could actually benefit, rather than suffer, from efficiency requirements in their home market.”

⁷ Green Paper on Energy Efficiency or Doing More With Less, COM(2005) 265 final, p.24.

Product energy efficiency achievements

Freezers and refrigerators

In 1995, there were almost no products in class A. One third of all products were rated in the lowest energy class G. By 2002, 47 percent were represented in class A, 35 percent in class B, and class G had since disappeared. The energy savings achieved by 2005 amounted to 8 TWh or roughly 4 million tons of CO₂. This corresponds to emissions saved by taking 1.2 million cars off the road.

Washing machines

Since its launch in 1994 until 2001, energy savings through voluntary agreements amounted to 5.7 TWh or 2.8 million tons of CO₂. In seven years, energy efficiency improved 30 percent. By 2001, the average energy consumption was 0.21 kWh/kg laundry, while in 1994 it was 0.30 kWh/kg. The market penetration of class A and B washing performance models was 76 percent in 2001, up from 38 percent in 1994.

Dishwashers

Within two years of its launch, the voluntary agreement resulted in an energy saving of 3.5 TWh or 1.8 million tons of CO₂. Combined with an upcoming second voluntary agreement, by 2010 the expected energy savings should result in a saving of 3 million tons of CO₂.

Savings in water consumption

Today, 5 kg of clothes can be washed using 62 percent less water than 20 years ago. The average dishwasher had also improved its performance in water consumption by 10 percent in 2002, compared to 2000 level.

Consumer engagement and expectations

Recent consumer surveys point to the need for proactive government action to engage consumers. More than any other stakeholder in society, the public wants to see strong leadership and guidance from government.

Consumer engagement levels are determined by convenience, cost, social acceptability of taking action and practical feasibility. More than half of consumers already make easy, close-to-home changes.

Seeking strong leadership

A global survey of 16,823 consumers in 15 countries conducted by Ipsos MORI in June 2007, examined consumer attitudes and behavior in relation to climate change. Over half of the respondents felt that government should take the lead in limiting the effects of climate change, with 47 percent citing national government and 11 percent citing international institutions as the key drivers in the environmental movement. Respondents worldwide felt that government has a major influence on other stakeholders. In fact, it was government policies, subsidies and incentives that were rated the most likely to change corporate environmental behavior.⁸

Another, equally recent survey (July 2007) conducted by Lippencott, and commissioned by the Climate Group gauged 2,000 respondents in the US and UK. Here, consumers emphasized that they are interested in contributing beyond the relatively easy, obvious and costless activities which are already done today, such as turning lights off and

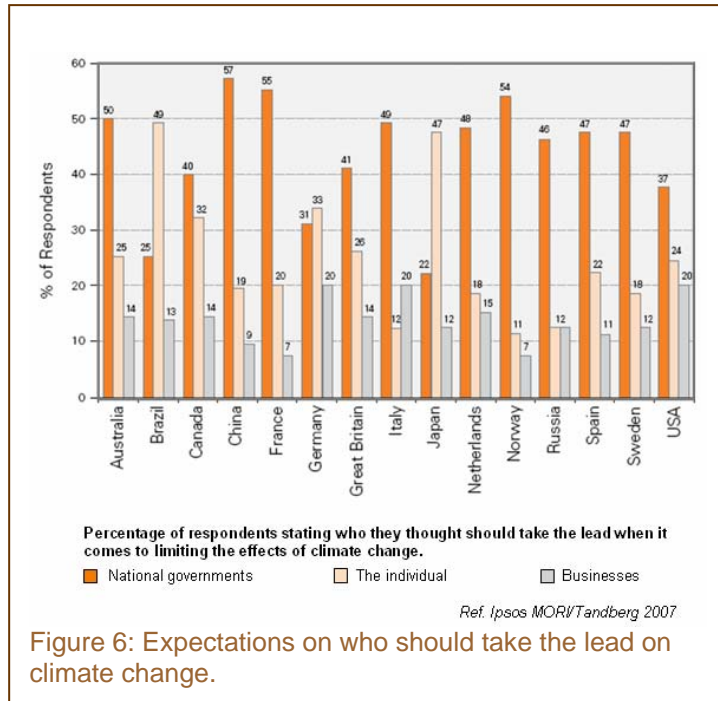


Figure 6: Expectations on who should take the lead on climate change.

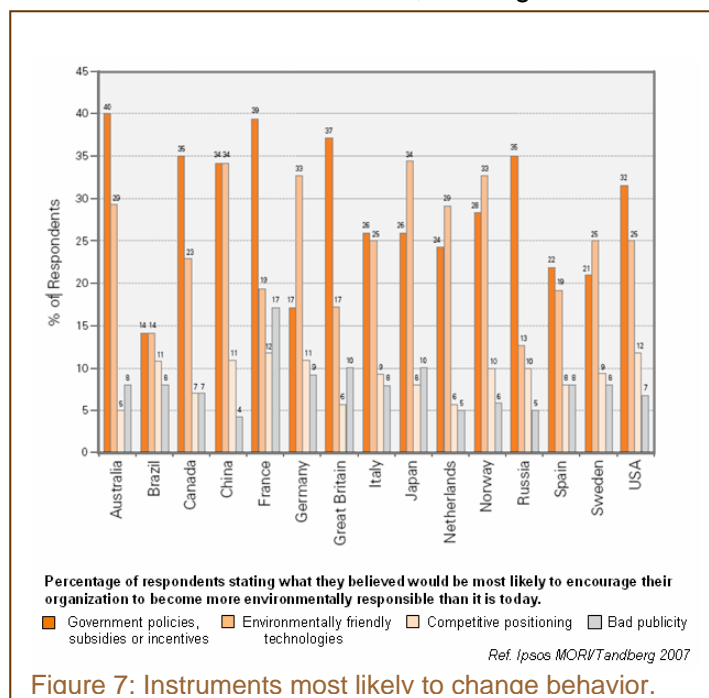


Figure 7: Instruments most likely to change behavior.

⁸ Tandberg; Corporate Environmental Behavior and the Impact on Brand Values; Oct. 2007, p. 9

recycling. Activities that either require more effort or involve spending are much less tested, however, engagement is significant. Clearly, consumers are “interested, but don’t know what I can do”⁹ (Figure 9)

Changing behavior

In short, consumer’s buying habits are not in sync with their keen engagement levels. In Electrolux own fall, 2007 survey of a total of 2,400 individuals in 12 countries, an average of 70 percent of those polled were either concerned or extremely concerned about the impact human activities have on our environment. Interestingly, we also found that the age group most engaged are also the ones that are least likely to have bought a large household appliance in the last two years, (51

percent of the 50+ age group have recently purchased an appliance, compared to 60 percent in the ages 40-49. 72 percent of the 50+ age group were environmentally concerned). Also,

the same middle-aged and older consumers, are also more influenced by energy efficiency when choosing an appliance. (See Table 1)

In the Lippencott survey, when asked why consumers did not make particular gestures, the biggest barriers were to do with cost, not knowing what to do and disbelief; not trusting that business would do what they say and doubting that the result would actually make a difference. These issues of price, information and trust are all areas which consumer tax credit incentives can play an active part in addressing.

The challenge to change consumer behavior is not an easy one. With the

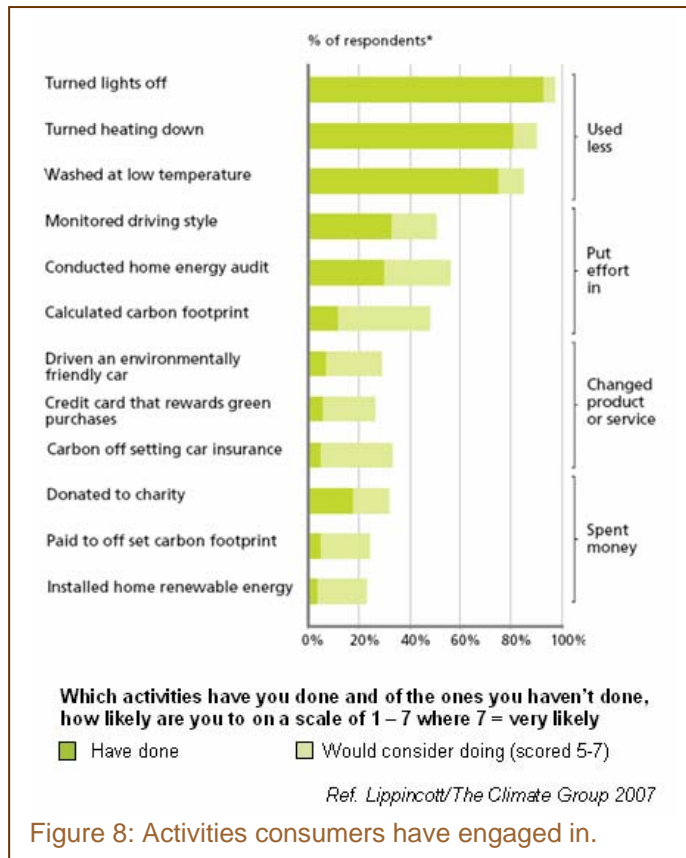


Figure 8: Activities consumers have engaged in.

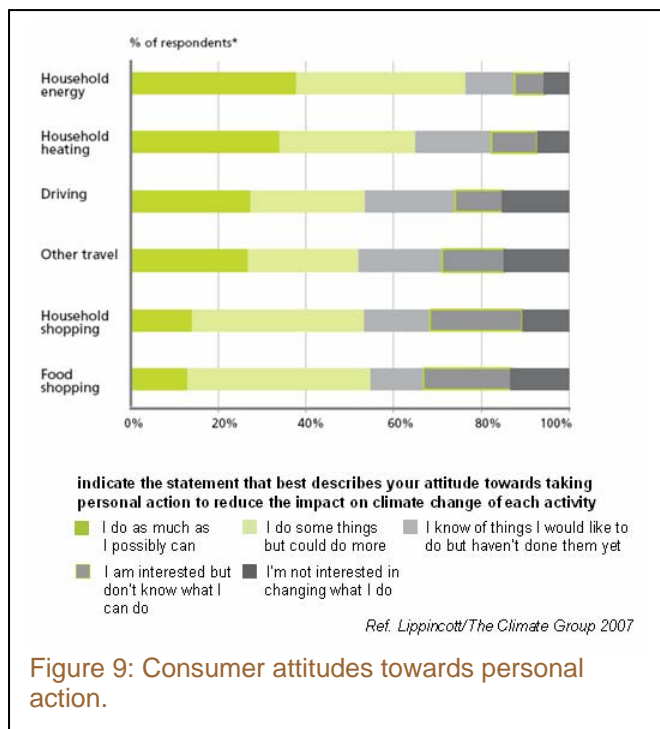


Figure 9: Consumer attitudes towards personal action.

⁹ Lippencott, Consumers, Brands and Climate Change, 2007, p. 15

current system used by utilities companies, it is impossible for households to link their actual consumption to the bills they pay. Consumers generally lack an awareness of the economic and environmental costs of the generation and use of the energy needed for an appliance. In short, energy-thirsty products continue to tax not only the environment; it also generates an invisible tax on consumers' energy bills.

In order to transform the invisible into the obvious, consumers have to be informed about the advantages of upgrading their products. For most consumers, costs will supersede both social conformity and environmental advantages—an energy-intelligent mindset is not quite sufficient an argument to trigger the decision to upgrade.

		Prepared to pay more for environmentally friendly products		
		No	Yes	Total
Level of concern for environment	High	53%	17%	69%
	Low	29%	2%	31%
Total		81%	19%	100%

Table 1; Consumer attitudes to environmental engagement and appliances.

Future scenario

Virtually every home in Western Europe has a refrigerator and a washing machine. Here, our market primarily fills the need to replace already existing appliances. In new member states in Eastern and Central Europe, however, growing per-capita income is sparking demand for products like dryers, air conditioners and cold appliances. This market is far from reaching its saturation point.

Growth surge

The economic growth of new member states is expected to continue to rise. By 2030, their GDP is projected to reach about 7 percent of the economic activity derived from EU-25. Per capita GDP in new member states will amount to 41.6 percent of the corresponding EU-15 figure in 2030.

	Euro per capita				
	1990	2000	2010	2020	2030
EU15	19 089	22 674	26 600	32 295	37 490
NMS	4 169	5 007	7 565	11 427	15 612
EU-25	16 549	19 754	23 589	29 101	34 198

Table 2: Per capita GDP in EU-25 (1990 to 2030)
Source: EUROSTAT, Economic and Financial Affairs DG, PRIMES.

In addition, by 2030, although our population will remain relatively stable, there will be 50 million more households in Europe, namely an increase of 25 percent. Both demographic and lifestyle changes towards smaller family units are the principal reasons for the rise. Managed well, we can help these households leapfrog to cutting-edge technologies. If we

collectively fail to make energy lean appliances sufficiently appealing, consumers will opt for refurbished old appliances, or new, inefficient ones. This will squander the savings generated by environmentally sound technologies.

	Million households				
	1990	2000	2010	2020	2030
EU15	141	157	175	190	202
NMS	26	28	30	31	31
EU-25	167	186	205	221	233

Table 3: Number of households in EU-25 (1990 to 2030)

Source: Global Urban Observatory and Statistics Unit of UN-HABITAT, PRIMES

Our challenge lies in placing in homes products that reduce our total impact on emissions, even as the market grows. To ensure that this market is effectively managed, it is important that its mechanisms keep pace with, and respond to, its changing nature.

Demands for energy

According to the report European Energy and Transport Trends to 2030, energy related CO₂ emissions (including international air transport) sank between 1990 and 2000; only to return to 1990 levels in 2005. In future, emissions will rise significantly in homes, exceeding the 1990 levels by 3 percent in 2010 and 5 percent in 2030.

In turn, energy consumption from households is expected to rise by 29 percent from 2000 to 2030 (see graph), due in part to the increase in the number of households.

The report also projects an increase in the use of electric appliances and air conditioning, which will impact rising electricity demand. As a result, CO₂ emissions from households increase at a significantly slower pace (+ 8 percent) than energy demand.

	Million ton CO ₂				
	1990	2000	2010	2020	2030
Power generation	1 264	1 250	1 328	1 304	1 393
District heating	98	45	34	30	32
New fuels, e.g. hydrogen	0	0	0	1	2
Energy branch	142	145	124	113	98
Industry	699	568	577	595	570
Residential	506	452	483	495	487
Tertiary	274	245	262	276	282
Transport	793	970	1 075	1 116	1 093
Total	3 776	3 674	3 882	3 929	3 955
EU-15	3 068	3 127	3 291	3 301	3 311
NMS	708	547	591	628	644

Table 4: CO₂ emissions by sector in EU-25 (1990 – 2030)

Source: PRIMES

The Electrolux approach to tackling climate change

At Electrolux, we are committed to contribute to the climate challenge.

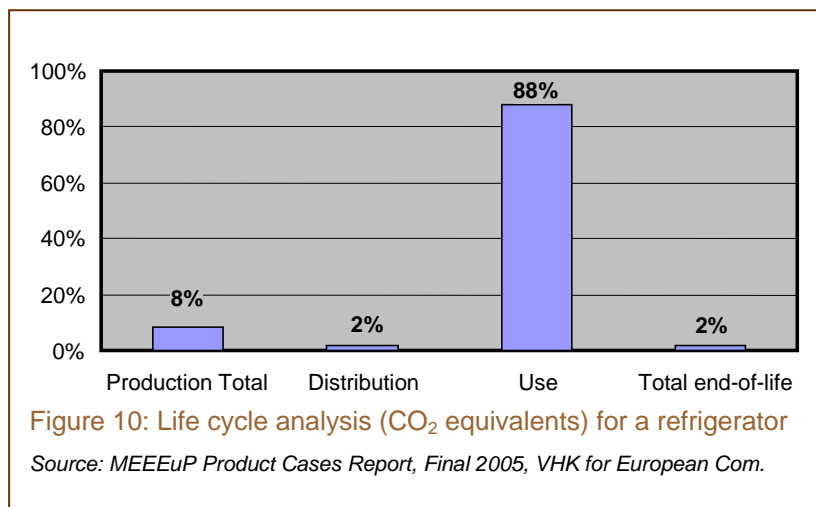
We have been aggressively tackling energy use in our products. As a manufacturer, we are serious about our responsibility to provide ever-more efficient and better performing products. We have adopted a three-pronged approach to contribute to climate change:

- through a focus on developing and promoting efficient appliances;
- by streamlining our own energy consumption;
- by raising awareness on how energy-efficient appliances are critical to creating a sustainable society.

A product-led strategy

Developing products based on a life-cycle approach is most central to our strategy. For durable goods such as household appliances, the focus is on a product's performance during use. This holds especially true for large household appliances like refrigerators and washing machines where the impact of the product in operation represents approximately 80-95 percent of its total environmental impact—compared to just under ten percent of the direct CO₂ emitted from manufacturing.

Household appliances can also help consumers be CO₂ smart. Appliances today are more energy efficient and consume less water compared to washing dishes and clothes by hand. Food can be preserved for extended periods of time, thereby reducing transport for purchasing supplies on a daily basis and wasting less food.



For Electrolux in Europe, the products with the most optimal environmental performance accounted for 11 percent of total units sold in 2006. Sales for cold products are over-represented in energy class A+++. Almost all (99 percent) of Electrolux dishwashers sold are energy class A labeled. In addition, Electrolux consistently demonstrates a relative improvement in energy efficiency for most product groups every year.

Since water efficient appliances can also help reduce energy use, by cutting the amount of energy used to treat, pump and heat water, water efficiency is a cornerstone of our product development.

We are developing new solutions--such as Sensidry, a heat pump tumble dryer that consumes 50 percent less electricity than a conventional dryer and was the first A-rated

tumble dryer in the world. Other innovations are the Jet System and Automatic Level Control technologies for washing machines, which have reduced water and electricity consumption.

Streamlining operations within Electrolux

Electrolux is also stepping up efforts to improve energy use within operations, thereby saving measurable CO₂ emissions and operational costs. Electrolux has set a target to cut energy use 15 percent Group-wide by year-end 2009. The three-year target equates to a CO₂ reduction of 100,000 tons by 2009. It is based on Group consumption levels of approximately 1.8 TWh of energy (2005 consumption data), and is equivalent to the carbon emitted from about 22,500 cars.

Raising awareness

Through product information, marketing campaigns as well as other communications vehicles Electrolux communicates the importance of energy efficiency to consumers.

In contacts with media and in the political sphere, Electrolux is actively engaged in raising awareness of the role energy-efficient appliances have in tackling climate change. Through Eco Savings¹⁰, a website targeted to both media and the consumer in 22 countries in Europe and North America, visitors can calculate the benefits that lean alternatives generate for themselves, the environment, their local community and national economy. Both through independent initiatives and through CECED, we advocate the value of consumer tax credits. We also support appropriate standards for product energy consumption and air emissions and advocate the use of energy labeling.

¹⁰ www.electrolux.com/ecosavings

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Electrolux and sustainability

Electrolux is a global leader in home appliances and appliances for professional use, selling more than 40 million products to customers in 150 countries every year.

The company focuses on innovations that are thoughtfully designed, based on extensive consumer insight to meet the needs of consumers and professionals. Electrolux products include refrigerators, dishwashers, washing machines, vacuum cleaners and cookers sold under brands such as Electrolux, AEG-Electrolux, Eureka and Frigidaire. In 2006, Electrolux had sales of SEK 104 billion and 55,500 employees.

Supported by extensive experience in environmental issues, Electrolux believes that it can contribute to a more sustainable society. In fact, sustainability is central to business strategy. The Group's approach starts with how it designs and markets its products and how it ensures the integrity of its business practices. Electrolux insists on the same level of excellence among both employee and supplier.

With an innovative approach, global presence and consumer interface, Electrolux is in a position to contribute to positive change. Electrolux clearly has a responsibility, role and opportunity to engage.



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