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ENERGY SAVINGS IN PRACTICE

POTENTIAL AND DELIVERY OF EU ECODESIGN MEASURES

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December 2010

Summary

In the European Union, residential use of energy is responsible for the emissions of 1 ton of CO_2 equivalent per person and per year.

A large share of these emissions comes from the energy use of domestic appliances such as electric equipment (televisions, fridges, washing machines…) and heating and cooling products.

The EU Ecodesign directive (adopted in 2005) is supposed to address the environmental impacts of these products by setting mandatory requirements on all products put on the EU market. These minimum requirements are a key instrument to steer the market towards more energy efficient products. It is essential that the level of ambition is sufficient not to waste cost-effective energy saving opportunities.

This study was commissioned by the environmental NGOs SNM and BUND to assess to what extent the current implementation of the Ecodesign directive can be expected to reach this objective.

A first analysis using data from 2007 on the energy use and life-cycle costs of products shows that considerable energy savings are not only feasible, but also cost-effective. Top energy efficient products available on the market may often seem too expensive to purchase and with a long pay-back time. However, even while choosing to purchase the top performing products on the market, a European household would on the whole still save money compared to the base case.

In comparison, the assessment of the first adopted Ecodesign implementing measures and those in the pipeline shows that the regulatory ambition is below these top levels: the minimum requirements imposed on products do not grasp all the cost-effective savings.

Halfway through the adoption of the first list of Ecodesign implementing measures, this assessment shows that the bar can, and must be raised if the directive is to deliver maximised energy savings. The technology is already available and increasingly affordable for European consumers. In order to overcome the flawed price signals sent by cheap, inefficient products, the European legislators should adopt more ambitious requirements.

Objective of the study

In the European Union, residential use of energy is responsible for the emissions of 1 ton of CO_2 equivalent per person and per year.

These emissions are directly linked to our lifestyle: electric appliances such as computers, dishwashers or laundry dryers have become a common feature of European households, the average size of TV screens has dramatically increased and replacement rate of old, inefficient boilers and water heaters is hardly sufficient to compensate for the stock growth induced by the boom of individual houses.

The EU Ecodesign directive aims at addressing the increasing overall environmental impacts of products in the EU by setting minimum requirements on energy-using (EuP) and energy-related (ErP) products placed on the market. Its scope covers a variety of appliances that are responsible to more than half of the whole EU energy consumption.

The energy requirements set by the implementing measures of the directive are a very effective way to reduce energy use and CO_2 emissions in the EU, as they affect whole products classes (such as televisions, boilers, washing machines) and result in increasing the performance of mainstream products on the EU market.

The Environmental NGOs SNM and BUND commissioned the Ökopol and Wuppertal institutes to carry out a study of the energy and cost effects of the first EU Ecodesign implementing measures at the level of a typical European household, for a selection of iconic product groups.

For this report, the consultants analysed the consequences for a household of different options for purchasing a set of new products (base case option, most cost-effective option, most energy efficient option). Against these benchmarks, they assessed the expected impact of the Ecodesign regulations.

The study is mostly based on publicly available Ecodesign Preparatory studies and Impact Assessment studies, sometimes complemented by in-house analyses to develop three household scenarios: "base case (business-as-usual)", "most cost-effective" and "most efficient".

Major findings of these assessments are presented in the following. Details on the approach and specific data on the selected products are provided in the Annex[1].

[1] Available on www.coolproducts.eu

Study Approach

All assessments performed are based on information publicly available via the European Commission's Ecodesign preparatory studies[2], subsequent Working documents, draft implementing measures and (when available) Impact Assessment Studies[3]. Own in-house research has sometimes been necessary to fill some gaps and update outdated figures.

Benchmark setting: definition of the cases

In the Ecodesign preparatory studies addressing specific product groups, chapters are devoted to identifying different cases:

- "base case", corresponding to a "standard" or typical product put on the market for which energy efficiency is not a primary aspect,
- "Best Available Technology (BAT)", corresponding to the greenest options put on the market,
- "Least Life-Cycle Cost (LLCC) option", representing the product configuration which minimises the life-cycle cost for the consumer (including the purchase price and the costs over the theoretical lifetime of the product). This option guarantees the lowest possible expenditure for the consumer. However this option is not necessarily the greenest.

The three cases are presented and discussed for a number of iconic household products. As much as possible, the data from the Ecodesign preparatory studies (sometimes as old as 2005) have been updated to reflect current market situations. For simplicity, the three cases are respectively expressed as "standard", "most efficient" and "most cost-effective".

While interpreting the differences in life-cycle costs and energy consumption between the different cases, it is important to understand that:

- The "standard" case describes products put on the market in the recent years, and not the average of the products in use in households (the stock); the following study is restricted to comparisons between different purchasing decisions, it does not compare between a new purchase and the old product that is eventually being replaced in the household (and can be from a very old and energy inefficient technology).

[2] http://ec.europa.eu/energy/efficiency/studies/ecodesign_en.htm

[3] http://ec.europa.eu/energy/efficiency/ecodesign/legislation_en.htm

- The technical options considered correspond to readily available products at the time of the assessment. New developments called emerging techniques are mentioned but are not included in the calculations if they were considered not mainstream enough ;
- Cost figures used for the life-cycle cost assessments are based on assumptions on investment costs, energy prices and interest rates.

Choice of product groups

Six groups of home appliances were selected in order to provide a fair picture of usual products used in European households and get an idea of the consequences of varied Ecodesign implementing measures (already adopted or about to be adopted). These product groups account for a significant share of the energy use of average households.

Table 1: Product groups used for the assessment

Product group	Status of regulation
Televisions	Ecodesign regulation adopted in July 2009
Domestic Refrigerators	Ecodesign regulation adopted in July 2009
Domestic Lighting	Ecodesign regulation adopted in Sept. 2009
Domestic Washing Machines	Ecodesign regulation adopted in Nov. 2010
Water Heaters	Ecodesign regulation in final consultation stage
Boilers	Ecodesign regulation still not finalised

For the first four product groups, implementing measures have been adopted, therefore their level of ambition is clear. For water heaters and boilers, the measures are in various draft stages, so the latest available working document or draft measure has been considered.

In order to avoid the debate on the conversion factors from primary to final energy (when comparing gas, oil and electricity equipment), our assessments and results are split between purely electrical appliances (televisions, fridges, lighting, washing machines) on the one hand, and the heating equipment (boilers, water heaters) on the other hand.

Products considered and assessed

Televisions (2008-2009 market data)

Standard case: LCD screen (full HD) of 32" diagonal.
Power: 152 W (on-mode)/2 W (standby)

Most cost-effective case: LCD screen 32". 118 W/1 W

Most efficient case: LCD screen 32" with LED backlight and super-efficient components. 60 W/0.2 W

Refrigerators (2006 market data)

Standard case: Family fridge of 277 l and a frozen food compartment (****). Situated at the bottom of the energy class A (efficiency index of 54.3).

Most cost-effective case: Fridge of 277 l including cost-effective improvements (better insulation, improved processor and larger evaporator/condenser. Energy class A+.

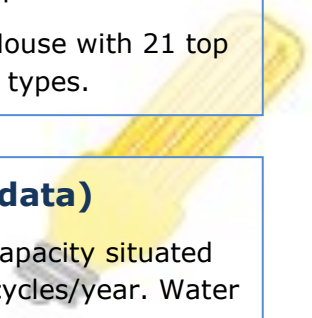
Most efficient case: Fridge including most innovative energy efficiency technologies. Energy class A++.

Lamps (2007 market data)

Assuming 21 lighting points in a house (EU average).

Standard case: House with 13 incandescent lightbulbs, 2 halogen spotlights and 6 compact fluorescent lamps.

Most efficient and most cost-effective case: House with 21 top efficient compact fluorescent bulbs of various types.



Washing machines (2006 market data)

Standard case: Washing machine of 5.36kg capacity situated at the bottom of energy class A and for 220 cycles/year. Water consumption of 11 m3 per year.

Most cost-effective case: Machine with cost-effective improvements (improved mechanics, improved rinsing, water and temperature control sensors). Energy class A and water consumption of 8.5 m3 per year

Most efficient case: Machine including most efficiency improvements. Energy class A+

Water heaters (2007 market data)

Electric water heaters:

Standard case: Electrical storage WH with poor system efficiency of 28%.

Most cost-effective case: Instantaneous WH with system efficiency of 38%.

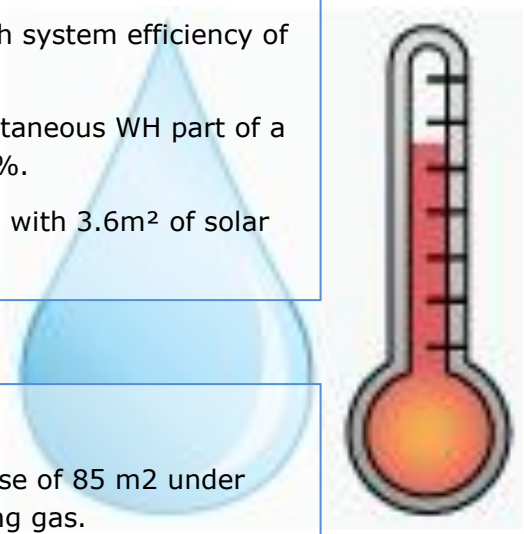
Most efficient case: Electrical heat pump with coefficient of performance of 3.8, system efficiency of 45%

Gas water heaters:

Standard case: Instantaneous gas WH with system efficiency of 37%.

Most cost-effective case: Optimised instantaneous WH part of a combi-boiler, with system efficiency of 43%.

Most efficient case: Solar-assisted gas WH with 3.6m² of solar panel and system efficiency of 54%.



Boilers (2007 market data)

Assuming a partially renovated family house of 85 m2 under average European climatic conditions, using gas.

Standard case: Low temperature gas boiler with 22kW power input and average system efficiency of 54%.

Most cost-effective case: Condensing gas boiler with most efficient controls, system efficiency of 81%.

Most efficient case: Good quality ground water heat pump, system efficiency of 134%.

Limitations and simplifications

In order to compare the cost and savings of different purchasing scenarios, the assessment considers as starting point the purchasing by a typical EU household of a set of 6 new appliances as described beforehand. In reality, consumers rarely buy all such appliances in a single row. However, this does not have major consequences on the main findings.

The study also supposes that the previous TV, fridge, lamps, washing machine, water heater and boiler of the household are being discarded. The analysis does not compare the new products with the old ones, nor does it look at the consequences of possibly keeping some of the old products in use.

The EU Ecodesign directive has a primary objective of setting minimum requirements *aiming at the least life-cycle cost for consumers*. In theory, the Ecodesign minimum requirements should then correspond exactly to the level which is called "Most cost-effective case" in our study. In reality, the situation is more complicated. Ecodesign Implementing Measures also take into account other criteria such as costs for industry, specific consumer interests, etc. when setting the requirements. In addition, the scope, metrics, calculations and measurement protocols are sometimes substantially modified between the preparatory study and the final regulatory text. Therefore, it is sometimes impossible to precisely compare the level of ambition of the Ecodesign measure against the 3 cases presented in this analysis. However, we provide in the second part of the study at least a narrative evaluation.

Assumptions used in this study are particularly sensitive when it comes to product prices (which are part of the life cycle cost calculations). A product price may vary according to manufacturing conditions, national specificities, marketing strategies, rebates programs, etc. A more in-depth analysis should probably use price ranges instead of an actual precise figure. However, this could not be performed under this short expertise. The prices given are thus to be considered with precaution.

Finally, the assessment is based on average duty cycles for the products, which does not allow to take into account the variety of possible user behaviour. Therefore, the calculations do not include potential energy savings coming from more responsible use of the products. Climate differences are also not considered in the assessment (for boilers and water heaters). As the aim of the study is to make product comparisons, the usage pattern and conditions had to be identical.

Comparison of cases

Electrical appliances: Assessment of the cases

For the four groups of electrical appliances, table 2 shows the yearly electricity consumption of the products under the three cases: the standard base case product, the most cost-effective product existing on the market and the most energy efficient product.

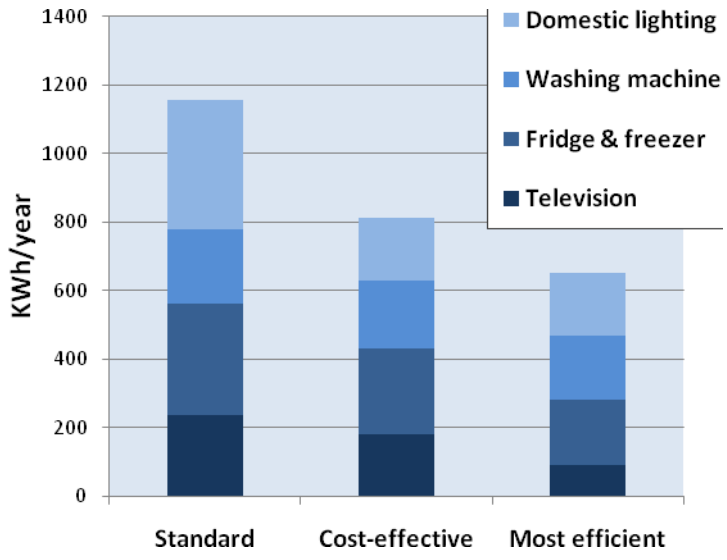
Table 2: Annual electricity consumption of electrical appliances (based on figures from 2007, 2008 and 2009)

Product group	Standard case	Most cost-effective case	Most efficient case
	Electricity (kWh/year)	Electricity (kWh/year)	Electricity (kWh/year)
Television	236	180	89
Fridge	324	251	192
Washing machine	220	198	186
Domestic lighting	378	185	185
Total for the 4 groups	**1158**	**814**	**652**
Electricity saving compared to standard	-	**-30%**	**-44%**

The detailed assumptions and case specifications are described in the annex.

This aggregation shows that by choosing to purchase the most efficient appliances in these four product groups instead of standard, inefficient products, a household could save up to 506 kWh annually. Figure 1 illustrates these potential energy savings.

Fig.1 – Yearly electricity consumption effects for the 4 product groups



Boilers, water heaters: Assessment of the cases

In the following, the results for both gas and electrical water heaters are presented, as these technologies have different challenges in terms of energy savings. However, the total provided is based on the gas model.

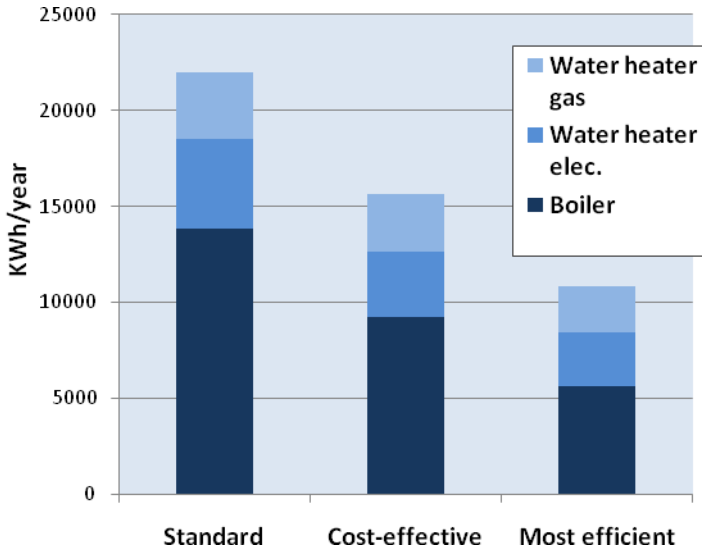
Table 3: Annual energy consumption of heating equipment (based on data from 2006 and 2007)

Product group	Standard case	Most cost-effective case	Most efficient case
	Primary energy (kWh/year)	Primary energy (kWh/year)	Primary energy (kWh/year)
Boiler	13827	9251	5592
Gas Water heater	3468	3015	2427
Electrical Water heater	*4669*	*3398*	*2830*
Total for the two products (boiler + gas water heater)	**17295**	**12266**	**8019**
Reduction of energy use compared to standard case	-	**-29%**	**-53%**

The detailed assumptions and case specifications are described in the annex.

This aggregation shows that by choosing to purchase a top-efficiency boiler and gas water heater instead of standard models, a household could save up to 8,909 kWh annually. The savings are even higher for electrical water heaters. Figure 2 illustrates these potential energy savings.

Fig.2 – Yearly energy consumption effects for heating equipment



Assessment of cost effects over the life cycle

The following table 4 gives the life-cycle costs of the product cases (based on assumptions explained in the annex).

Life-cycle costs include the purchase price, installation costs and energy (and for washing machine, water) costs that are paid by the user over a typical lifetime of the equipment. A discount rate is included in the calculation.

Table 4 - Purchase price and life-cycle cost of appliances

	Standard case		Most cost-effective case		Most efficient case	
Product	**Product price (€)**	**Total life-cycle cost (€)**	**Product price (€)**	**Total life-cycle cost (€)**	**Product price (€)**	**Total life-cycle cost (€)**
Boiler	2724	18971	4123	15886	9323	16884
Gas Water heater	560	4833	534	3987	2790	5427
Elec. Water heater	*343*	*4859*	*548*	*3720*	*5200*	*8141*
Television	369	666	369	603	579	691
Fridge	485	1144	585	1107	852	1277
Washing machine	443	1363	460	1237	546	1289
Lighting	46	654	99	398	99	398
TOTAL (with gas water heater)	4627	**27631**	6170	**23218**	14189	**25966**

Table 4 shows that although the price of more efficient appliances is frequently higher than the price of standard products on the market, the aggregate life-cycle cost is always lower in the case of the most cost-effective product case (which by definition is the cost benefit optimal for the user).

For the most efficient case (corresponding to the greenest technologies on the market), the life-cycle cost is sometimes higher on a product by product basis but it is interesting to note that **the total figure for the whole set of the 6 product groups is in the end below the standard case as well**.

This means that consumers purchasing the most energy efficient products for all 6 product categories will not only make the highest energy savings (thus best choice for the climate), they may also not lose money over the life-cycle of their products as compared to the purchase of standard products.

This contradicts usual assumptions that going radical green is in the end very costly for consumers. Then why do consumers not massively opt for these best products? An explanation would be the higher up-front cost: the investment cost (purchase price) for the most efficient option is high (three times the investment for the standard case);

hence the need for financial instruments to help consumers affording the greenest products.

It is also relevant to note that this conclusion does not work anymore when considering the electrical water heater. This is due to the fact that the most energy efficient water heaters working with electricity - high quality heat pumps - are still costly to purchase and install (although prices are expected to go down). In that case, the gap in the overall life-cycle cost is too high.

In practice, these results confirm the intuitive assumption that a European household can make substantial energy savings by choosing cost-effective products, as shown by the next figures.

Figure 3a – Energy savings in the "most cost-effective case" (electrical appliances)

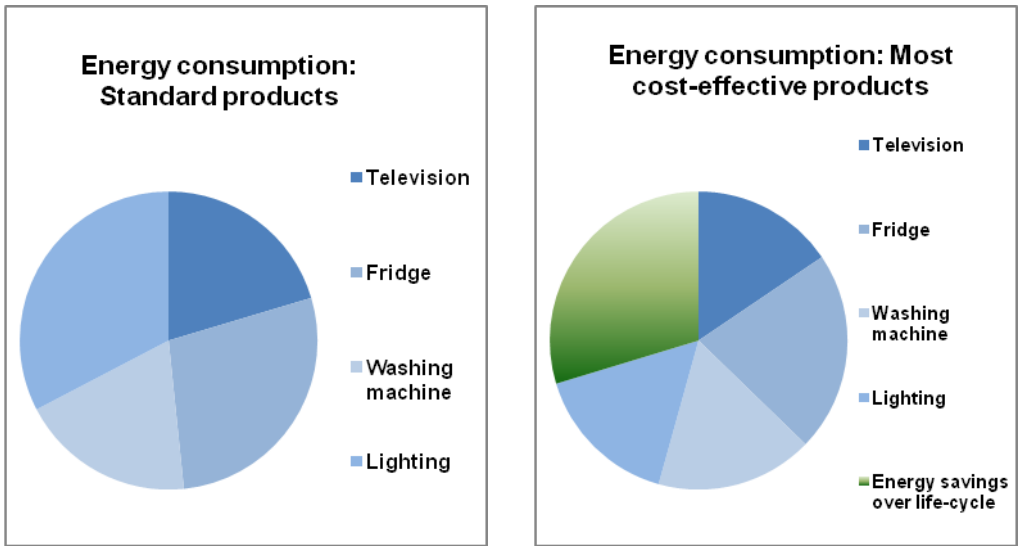


Figure 3b – Cost effects in the "most cost-effective case" (electrical appliances)

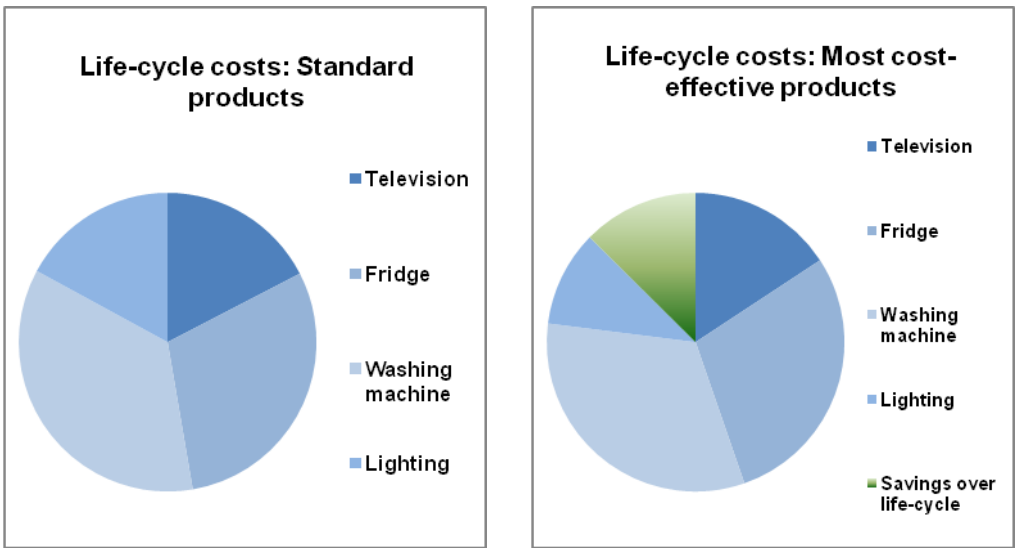


Figure 4a – Energy savings in the "most cost-effective case" (heating equipment)

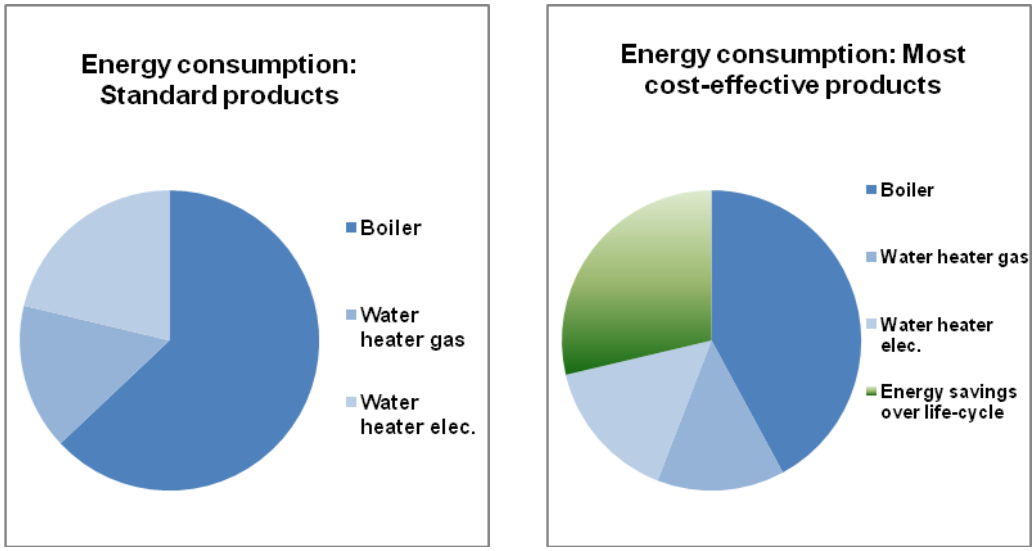


Figure 4b – Cost effects in the "most cost-effective case" (heating equipment)

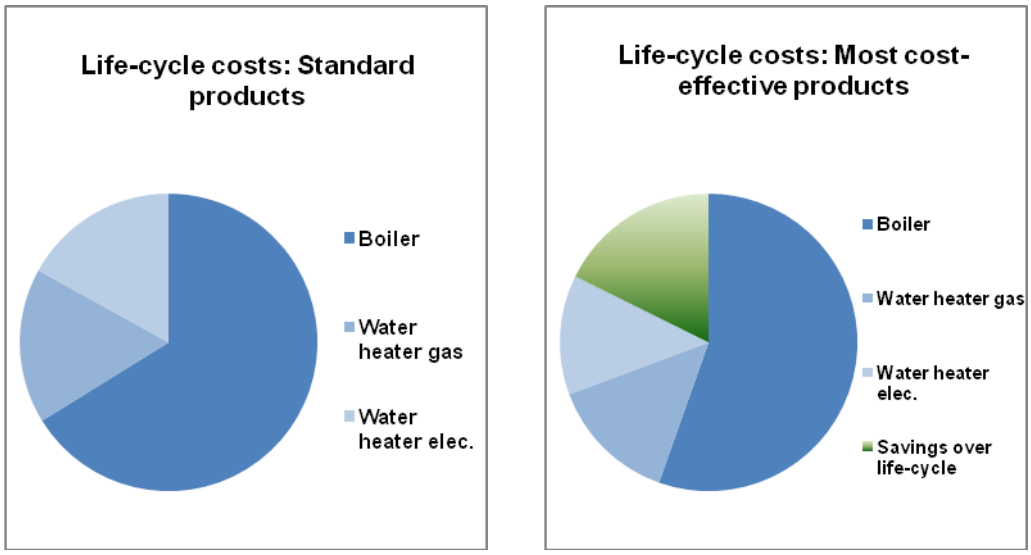


Figure 5a – Energy savings in the "most efficient case" (electrical appliances)

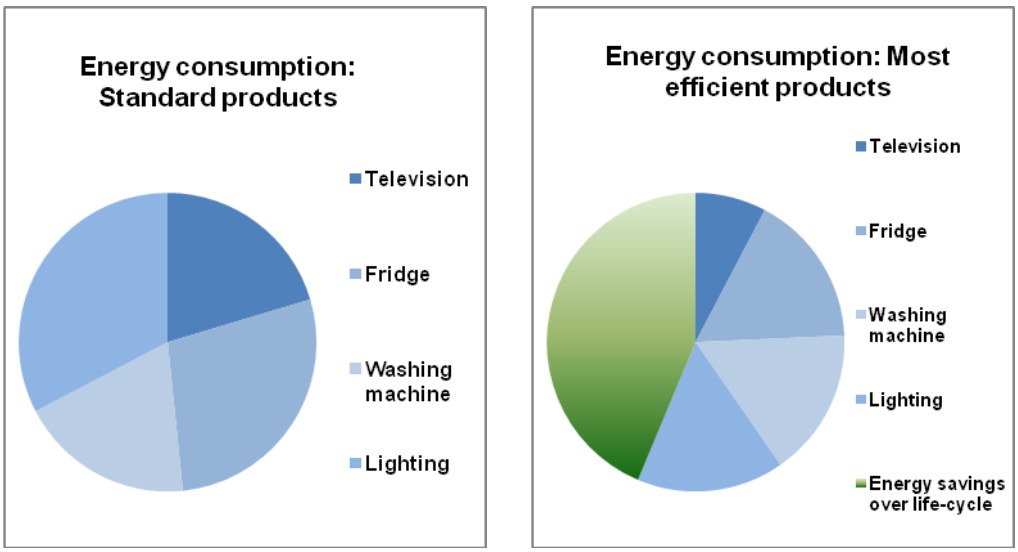


Figure 5b – Cost impacts in the "most efficient case" (electrical appliances)

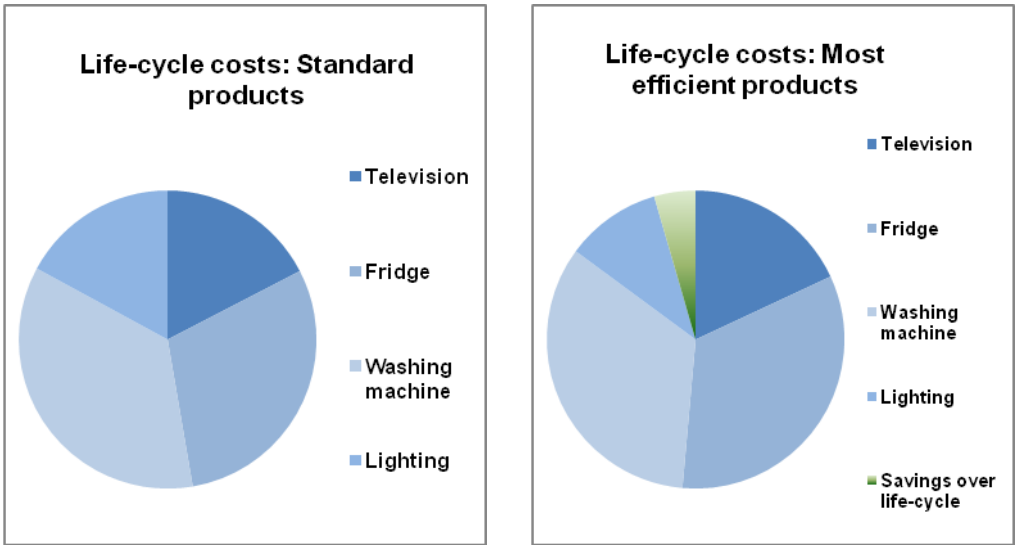


Figure 6a – Energy savings in the "most efficient case" (heating equipment)

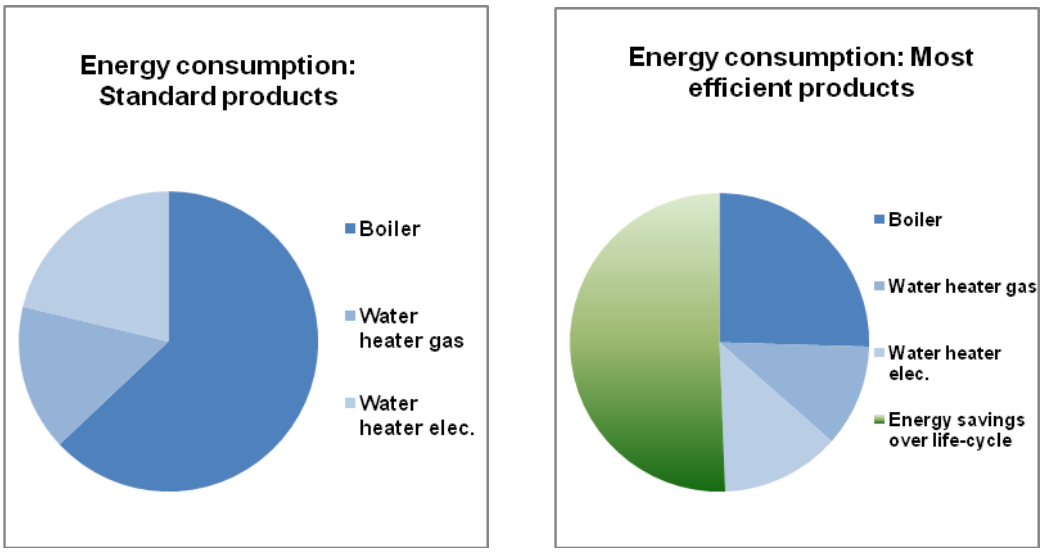
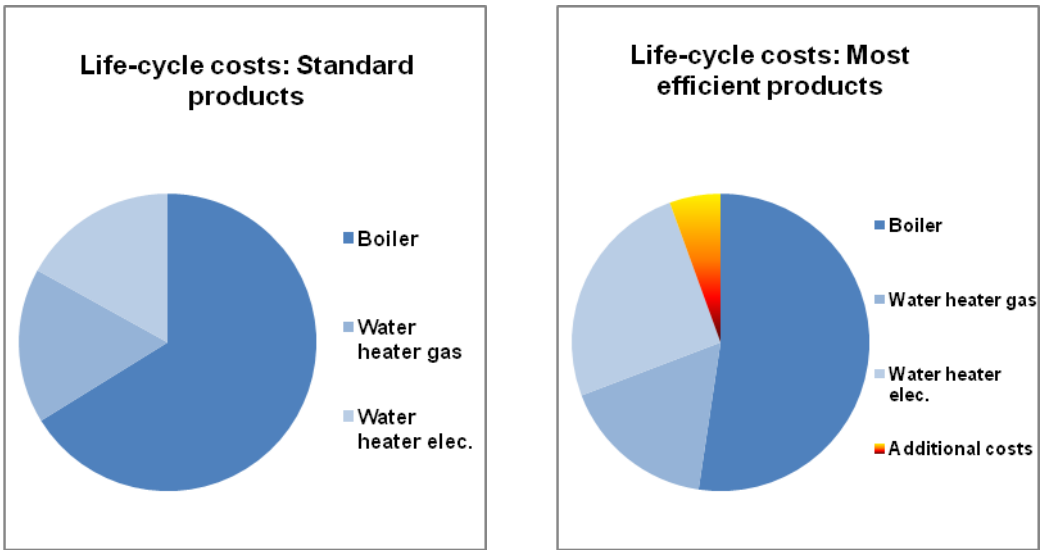
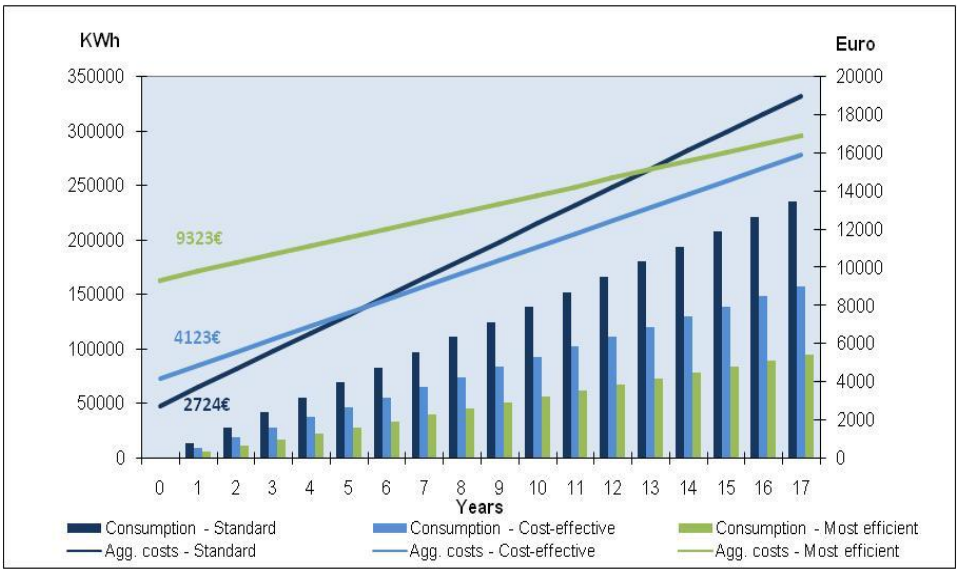


Figure 6b – Cost impacts in the "most efficient case" (heating equipment)



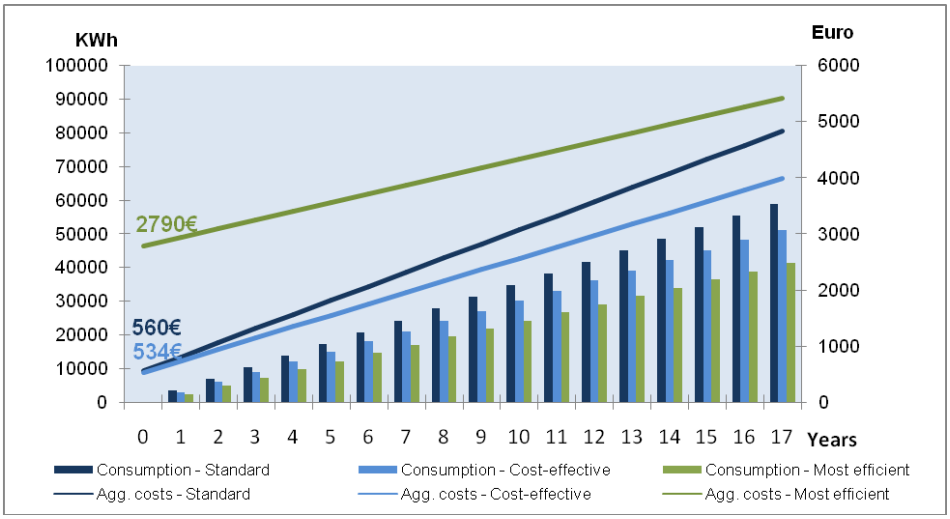
The next graphs illustrate in more details the difference in costs between the three cases.

Figure 7 – Aggregate costs and energy consumption for the 3 different cases – boilers



In the case of boilers, the "most cost-effective" option becomes more profitable than the standard option (i.e. the aggregated life-cycle costs become lower), after five to six years. For the "most efficient" case, this takes twelve to thirteen years.

Figure 8 – Aggregate costs and energy consumption for the 3 different cases – gas water heaters



For water heaters, the high theoretical purchase and installation cost (if no subsidies or tax rebates are available) of the most efficient product (a solar-assisted water heater) at the time of the assessment is not fully covered by the savings over the life-cycle compared to the standard product. This can of course change according to the climatic zone of the installation and the available financial mechanisms.

The most cost-effective product considered in our study is not only less costly over the life cycle, but is also cheaper than the standard product because we have selected a water heater part of a combi-boiler; usually the price, installation and maintenance costs of a

combi is more profitable than purchasing both products separately. The calculations would give slightly less favourable results in case of a stand-alone product.

Figure 9 – Aggregate costs and energy consumption for the 3 different cases – television sets

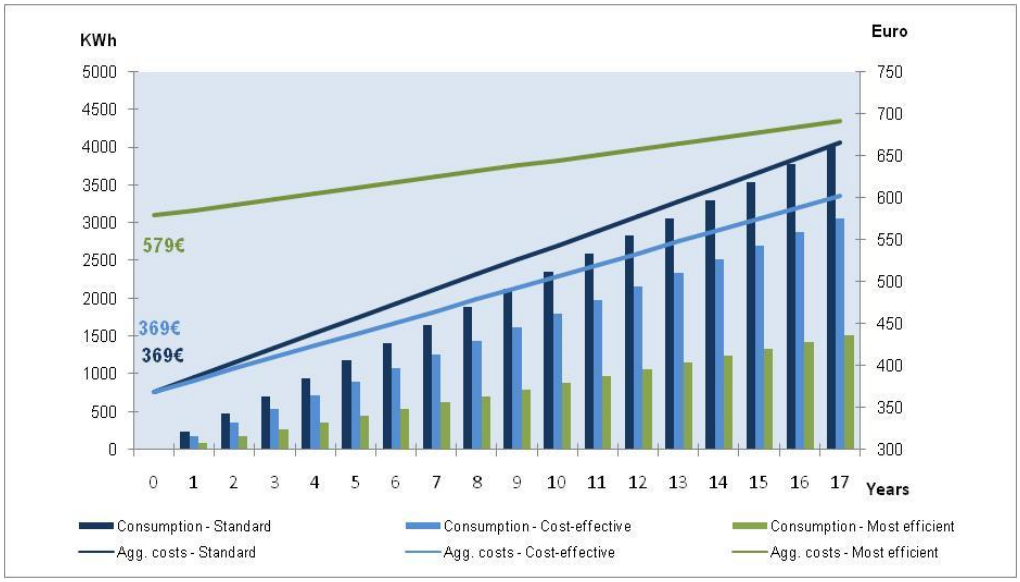
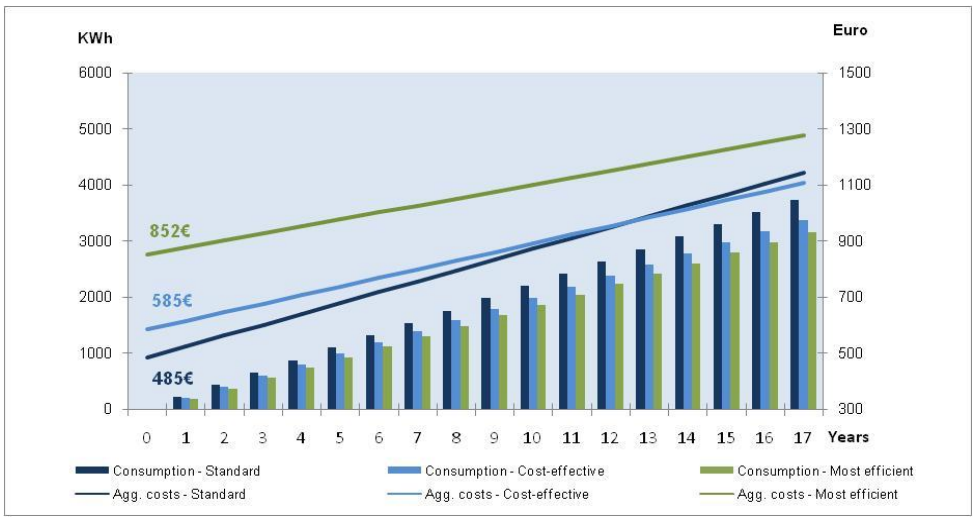


Figure 9 shows that the most cost-effective television set allows the consumer to save around 10% over the product life cycle. As for the most efficient model, although the initial price was much higher in 2009, prices are quickly going down for LED TVs and such products might already be in 2010 the most cost-effective option.

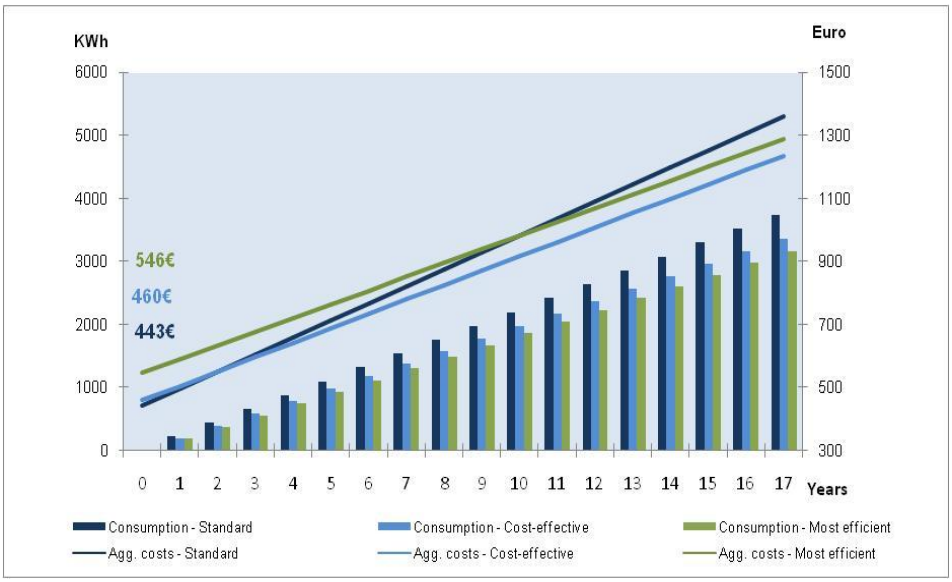
Figure 10 – Aggregate costs and energy consumption for the 3 different cases – fridges



In the case of fridges, the most cost-effective option becomes more profitable than the standard option in about 10 years, and the life-cycle cost of the most efficient product is only slightly higher than

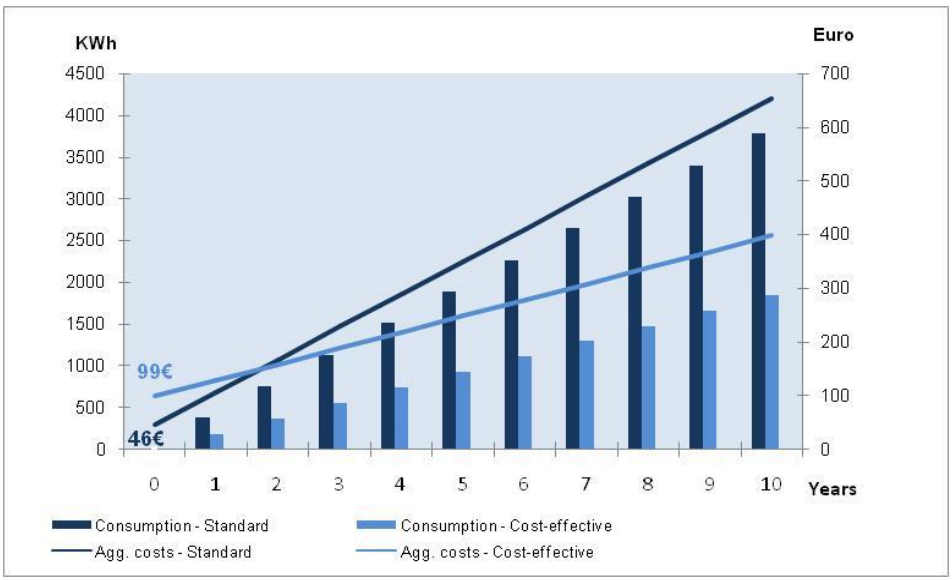
that of the standard product. Prices of the most efficient products are expected to go down, as was the case in the past.

Figure 11 – Aggregate costs and energy consumption for the 3 different cases – washing machines



For washing machines, purchasing the most cost-efficient product generates net savings in only 2 to 3 years, while it takes around 10 years for the greenest option to become more profitable than the standard product.

Figure 12 – Aggregate costs and energy consumption for the 3 different cases – domestic lighting



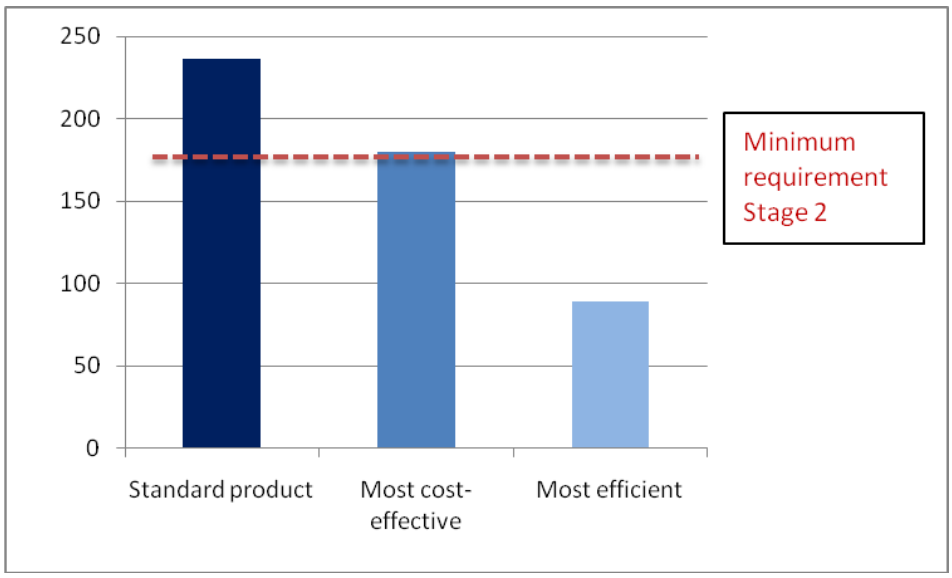
In the case of lighting, the most efficient and most effective cases are the same. To choose this option over the standard products will result in net savings for the consumer after only 2 years. With the ban of incandescent lightbulbs in the EU, the standard case will be progressively shifted to energy saving fluorescent lamps and halogens.

First Ecodesign Implementing Measures – electrical appliances

In comparison to these cases, the analysis of the first Ecodesign Implementing Measures shows that minimum requirements have usually been set somewhere between the "standard" and "most cost-effective" levels. This means consumers are not ensured to benefit from all cost-effective energy savings and many mainstream products on the market will remain far from the greenest options.

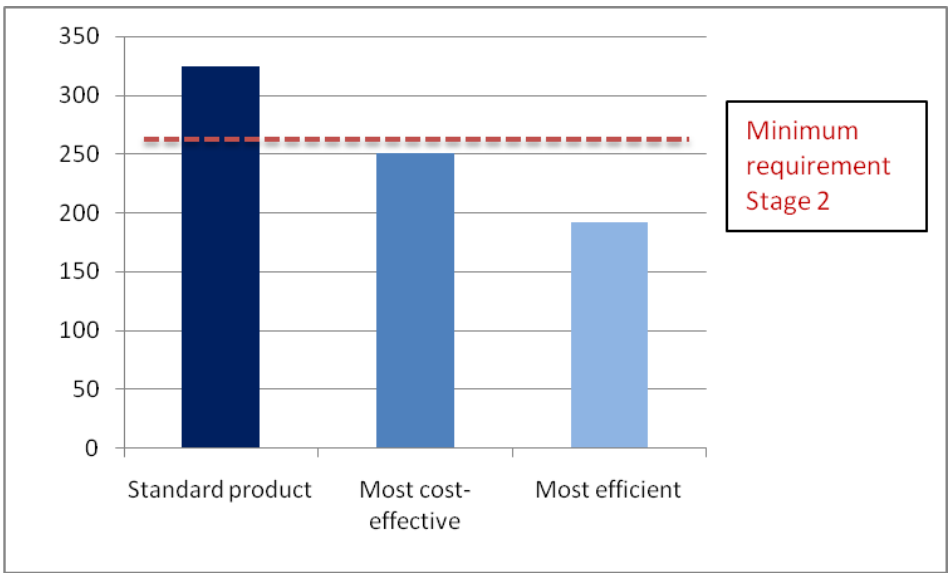
- For televisions, the regulation has started banning in August 2010 products that were performing less than the 2007 average. For 32 inch models, screens must have an on-mode power below 141 W, whereas the standard LCD product was in 2008 at 152 W. It seems that most (if not all) manufacturers could comply easily with this Ecodesign requirement, which remains far from the most cost-effective level. A second stage will start in August 2012, at 117 W (for a 32 inch model), which is this time at the most cost-effective level as calculated in 2008 (but still very far from the most efficient product on the market in 2009, which has a 60 W on-mode power).

Figure 13 – Indicative level of ambition of the 2nd stage of Ecodesign requirement – television



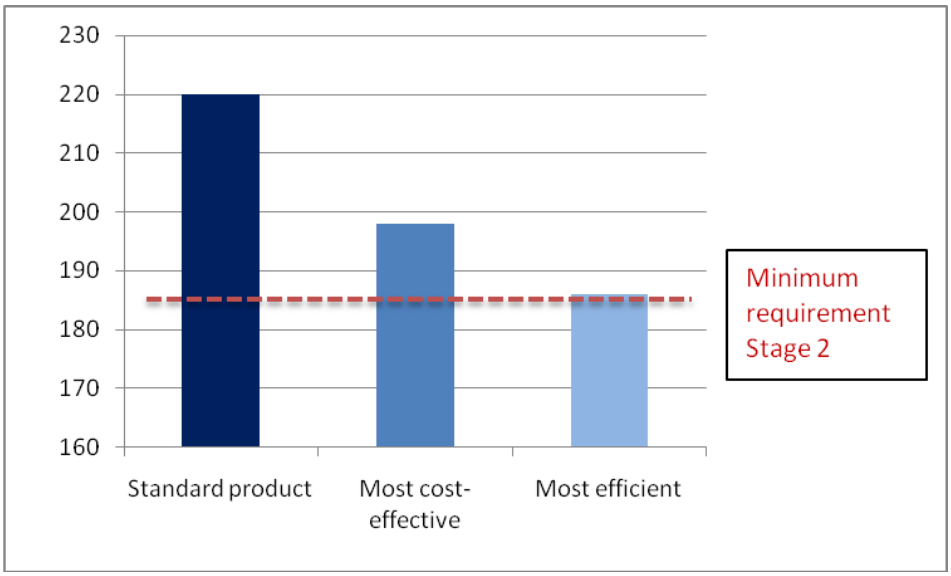
- Likewise, the first stage of the measure for domestic fridges and freezers has been rather limited. This requirement enforced in July 2010 has removed from the market the products of energy class below A, which were already very rare (the "standard" product in 2006 was already an A). The second stage of implementation in July 2012 will ban a significant part of the A class but this is still not at the most cost-effective level (which lies in the A+ class today), not to mention the more energy efficient products in the A++ and A+++ classes.

Figure 14 – Indicative level of ambition of the 2nd stage of Ecodesign requirement – fridge



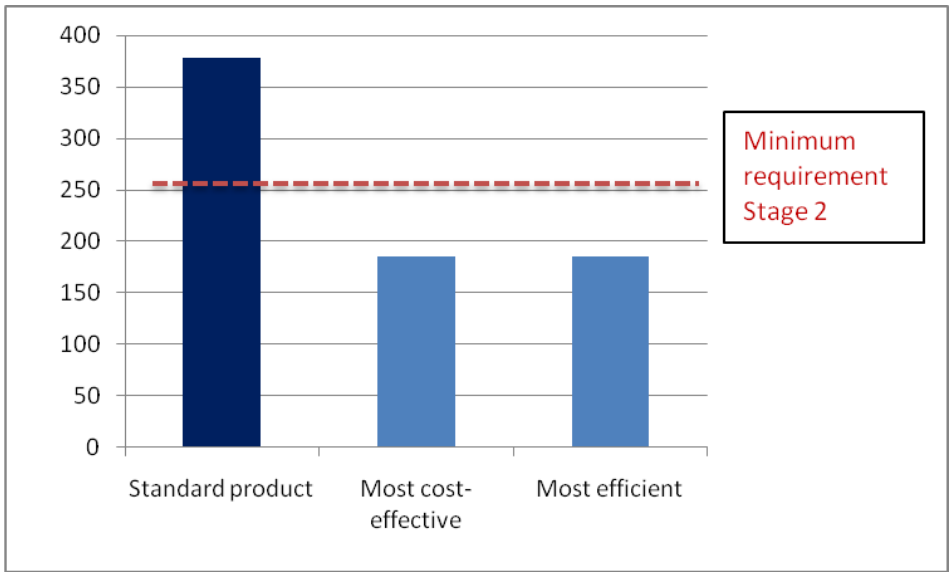
- The first stage of minimum requirements for washing machines (to enter into force in December 2011) is estimated to correspond approximately to a yearly consumption of 210 kWh (for a 5.36 kg machine), close to standard case and probably with limited market impact. The 2nd stage (in December 2013) is about 15% more ambitious, close to the most efficient product on the market in 2006. This can be considered an ambitious level, although it will be necessary first to assess the effect of the new way of measuring the energy consumption of washing machines introduced with this legislation.

Figure 15 – Indicative level of ambition of the 2nd stage of Ecodesign requirement – washing machine



- The Ecodesign measure on domestic lighting (adopted in 2009) will remove incandescent bulbs from the EU market in several stages until 2012, but is not at the most cost effective level for clear lamps (which happens to be also the most energy efficient level, corresponding to compact fluorescent and LED lamps). Alternatives such as halogen-based lightbulbs will remain on the market until at least 2016. A household which will be equipped mostly with the products corresponding to the Ecodesign measure level in 2012 for clear lamps (halogen bulbs), will consume as much as 285 kWh/year - better than the standard case by 25%, but still far from the most cost-effective option which corresponds to a 50% improvement.

Figure 16 – Indicative level of ambition of the 2nd stage of Ecodesign requirement – lighting



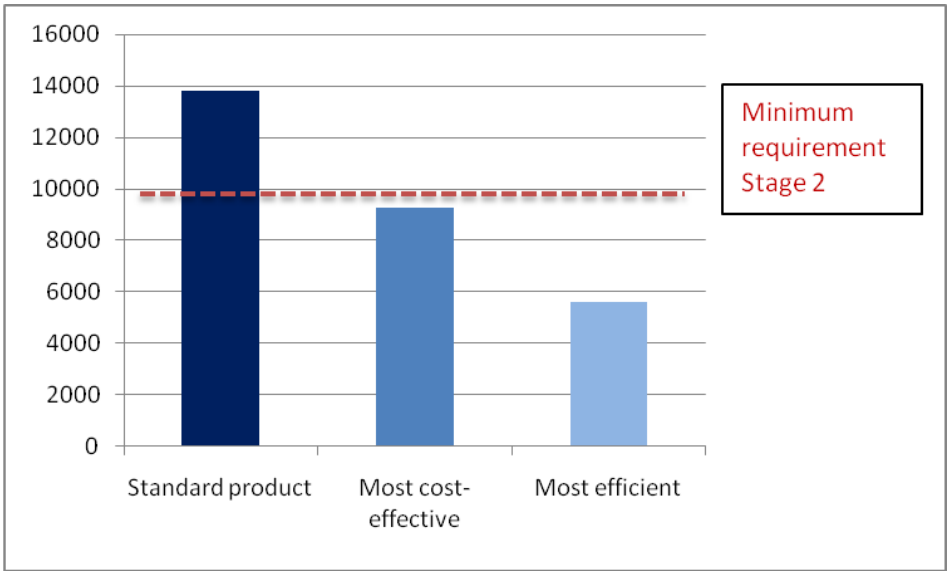
Note: This indicative level corresponds to the requirement for clear lamps. The ambition level is much higher for frosted lamps.

Draft measures for boilers and water heaters

Ecodesign measures for boilers and water heaters have been discussed since 2008, and the finalisation has been delayed several times. Important methodological issues make it complicated to capture the level of ambition in a single set of figures.

As of summer 2010, the minimum requirement for a medium-sized boiler (for a typical household) was to be set at a 56% efficiency level for the 1st stage (to enter into force during 2012). The calculation behind being very sophisticated, even manufacturers do not know yet exactly which of their products would comply. Our assumption is that this level is close to the standard product installed today. It is much better than old boilers installed 10 to 15 years ago, but it would not have a very significant impact on the market. And it would not drive consumers to the most cost-effective technologies. The 2nd stage for boilers (around 2014-2015) could be set at 75% efficiency, corresponding to a product whose primary energy consumption is around 10,000 kWh. This is still above the most cost-effective option as calculated in 2007 (and way above the best products on the market using renewable energy).

Figure 17 – Indicative level of ambition of the 2nd stage of Ecodesign requirement – boiler



The minimum requirement for a medium-sized water heater could be set at the level of 30% energy efficiency in 2012. This very cautious value would only impact a small fraction of the market (electric storage water heaters). It would not drive consumers to the best systems. The 2nd stage for 2014 would raise the ambition to 36% efficiency. This would ensure that electric water heaters must be optimised and using smart controls, however it would still have very lim-

ited effects on other technologies (such as gas water heaters), and would not particularly promote renewable energies.

Figure 18 – Indicative level of ambition of the 2nd stage of Ecodesign requirement – water heater (gas)

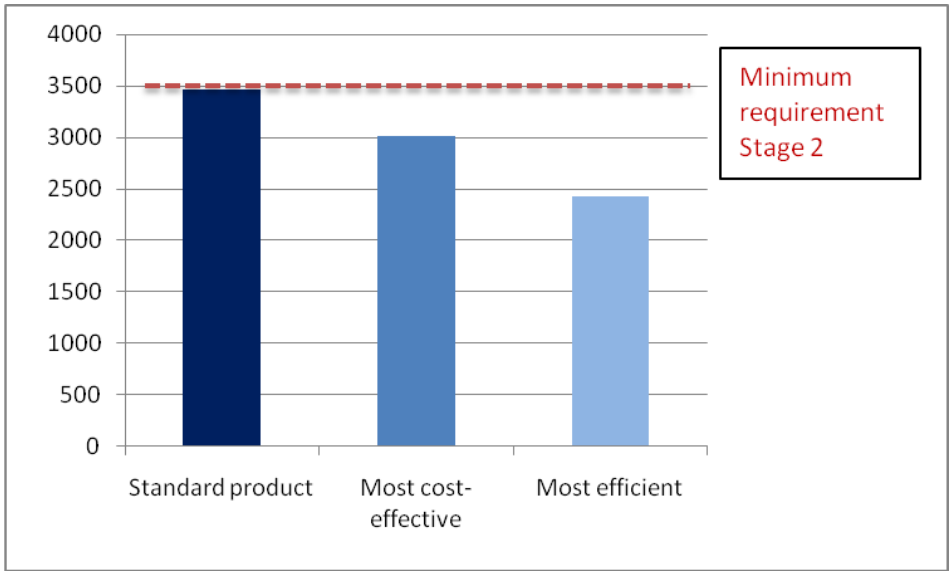
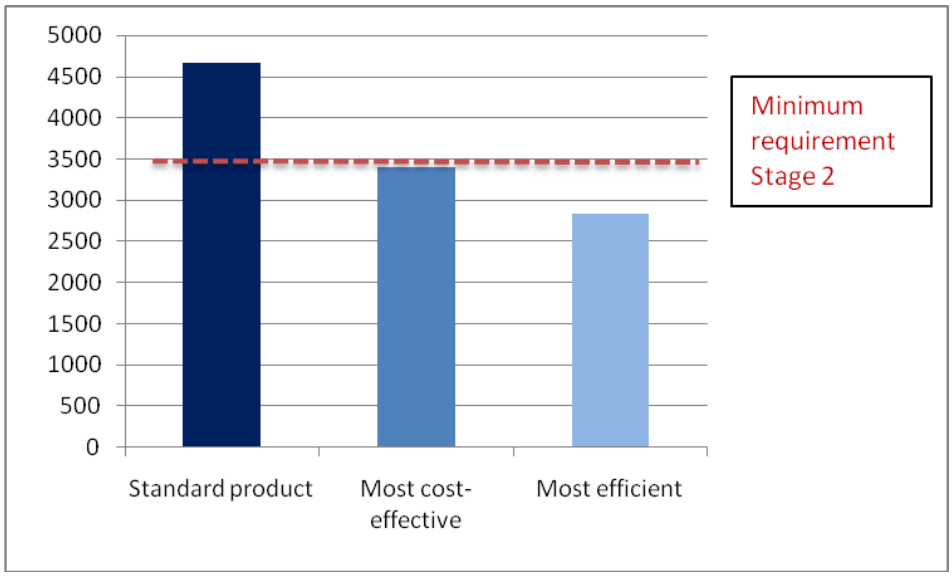


Figure 19 – Indicative level of ambition of the 2nd stage of Ecodesign requirement – water heater (electrical)



Note: these remarks and graphs are based on drafts of the legislation, and might prove inaccurate when the final implementing measures are adopted. In particular, the methodology to calculate the energy efficiency of these products might be further modified.

First stage requirements far from ambitious, second stage not enough market drivers?

For nearly all Ecodesign regulations adopted or about to be adopted, the first stage requirements are suspected to have limited impacts on the market. None of these requirements are at the level of the most cost-effective option for the consumers. Probably, these requirements should be seen as transition periods leaving time for manufacturers to get used to the regulation and for market surveillance authorities to ramp-up their testing capacities.

Therefore, the meaningful requirements are those of the 2nd stage (to enter into force around 2012-2014).

One important remark is that the "most cost-effective" and "most efficient" cases are based on market data from 2006 to 2008, meaning that these will be more than 5 years-old when the 2nd stage requirements actually enter into force. In 5 years, technologies and prices will have evolved, and the most cost-effective and most efficient options at that moment will probably be different. If we speculate that they will correspond to a higher level of efficiency, then it should be considered that the 2nd stage requirements of the Ecodesign policy might be even less ambitious and influential on the market than it is assumed today. Hence the need to regularly revise the Ecodesign requirements in a dynamic way.

As can be concluded from this assessment, (even if it does not capture all the details of the requirements and some methodological sophistications), **the 2nd stage requirements of Ecodesign are usually not as stringent as the most cost-effective case but are a big step in that direction** (with the exception of water heaters where there are political pressures not to fully ban electric storage water heaters, and clear lamps where it may be at a further stage in 2016 that the level of ambition is further increased).

However, **the regulatory levels remain considerably far from the best technologies today available** and which may on the whole (as we have seen in the previous section) still be a more cost beneficial option for consumers than standard products.

Conclusions

Purchasing today very energy efficient products is not always but often economically rational for a typical European household and could allow consumers to save a large part of the energy use of their domestic appliances. While opting for the most cost-effective products seems to be the easiest approach, the assessment of life-cycle costs of the most efficient products on the market show that consumers can purchase the greenest products available and still eventually save money in an overall budget estimation.

In this context, the assessment of the level of ambition of regulatory measures adopted in Europe to save energy is interesting. The already adopted and currently discussed Ecodesign implementing measures show that the ambition of the 1st stage of requirements (to enter into force from 2010 to 2012) is very far from exploiting this potential. The minimum requirements are generally close to the 2007 standard models and a large part of the energy saving potential is missed.

The 2nd stage of requirements (to enter into force from 2012 to 2014) show higher levels of ambition, not so far from the cost-effective levels (except for medium-sized water heaters and clear lamps). Nevertheless, in the meantime technologies and prices will have evolved and an updated calculation of the most-cost effective case at that moment would probably show that these requirements are again away from the optimal life-cycle cost for consumers. There is therefore a risk that the Ecodesign directive is lagging behind technological and energy trends and failing to reach its main aim in a timely manner.

The implementation of the Ecodesign directive should more prominently and aggressively promote energy efficiency by requesting from manufacturers to put on the market products that are at least close to the most cost-effective solutions at the time of the entry into force of the measures. And the middle and long term requirements could be based on the level of the best available technologies of today.

Glossary

Ecodesign directive: The 2005 EU directive on the Ecodesign of Energy-Using Products establishes a framework to set minimum environmental requirements on products placed on the EU market. The product groups covered by this directive represent around half of all EU CO_2 emissions. The directive has been revised in 2009 to add other products to the scope.

Implementing measure (IM): The Ecodesign directive is implemented through both specific and horizontal IMs, setting minimum requirements on product groups. All models have to comply in order to be allowed onto the EU market.

Least Life-Cycle Cost (LLCC): Product configuration in which the overall costs of a product through its whole life cycle are reduced to a minimum, meaning that the additional investment costs are more than outweighed by reduced energy and water costs during the estimated product lifetime.

Specific energy efficiency: energy output (heat) provided by a heating system (boiler or water heater) for a given energy input. In the case of heat pumps or solar-assisted systems, the specific efficiency rate can exceed 100%.

Why coolproducts?

coolproducts for a cool planet is a campaign to set ambitious minimum requirements for energy efficiency and other environmental aspects of products sold in the European Union.

It was launched in March 2009 by a group of European environmental NGOs.

For more information on the campain and EU product policy, go to **www.coolproducts.eu**.

This study was commissioned by BUND-Friends of the Earth Germany and Natuur en Milieu and supported by the Deutsche Bundesstiftung Umwelt.