

# Energy Labelling

## - State of play and conceptions for future



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It is no novelty that the EU is aiming for a 20% cut in Europe's annual primary energy consumption by 2020, but how we get there, seems to be a regularly reappearing novelty. Ecodesign and energy labelling have been key instruments in boosting the energy efficiency of appliances. While ecodesign cuts the least efficient appliances off the market, energy labels help consumers choosing products which save energy and thus money. They also provide incentives for the industry to develop and invest in energy efficient product design. However, the energy labelling landscape is changing. First, the introduction of new labels will guide, apart from consumers, also professionals such as system designers and installers. This is in particular the case with the new energy labels on air-conditioners, heaters, and water heaters. Second, many consumer products will reach the maximum energy efficiency classes during the coming years. Therefore, the future review of the Energy Labelling Directive will have to face the challenge of addressing these issues. This article sheds light on some of the key issues related to the future of energy label building on the first inputs available from stakeholders.

### Background in Brief

The European Community scheme on energy labelling of 1979 presented in Council Directive 79/530/EEC was the first approach on presenting energy efficiency to consumers on a European level. It gave Member States discretion to require labelling of some household appliances sold within their jurisdiction providing a common EU label format was used. This early label was of an information-only type, which presented technical details including energy consumption under standard test conditions, but not information about the appliance's relative energy performance or efficiency compared to similar models. Being text only, it was therefore quite different to modern labels and not very successful. In practice, this label was only briefly applied in few Member States (Denmark and Italy) for one appliance (household ovens) and hence had a negligible impact.

Following this first approach, Council Directive 92/75/EC was the first 'modern' piece of legislation in the EU to establish a common energy consumption labelling scheme. The directive was supplemented by further, implementing Commission Directives [1] on household washing machines, washer-dryers, lamps, cold appliances, electric ovens and air-conditioners during the period 1995-2002.

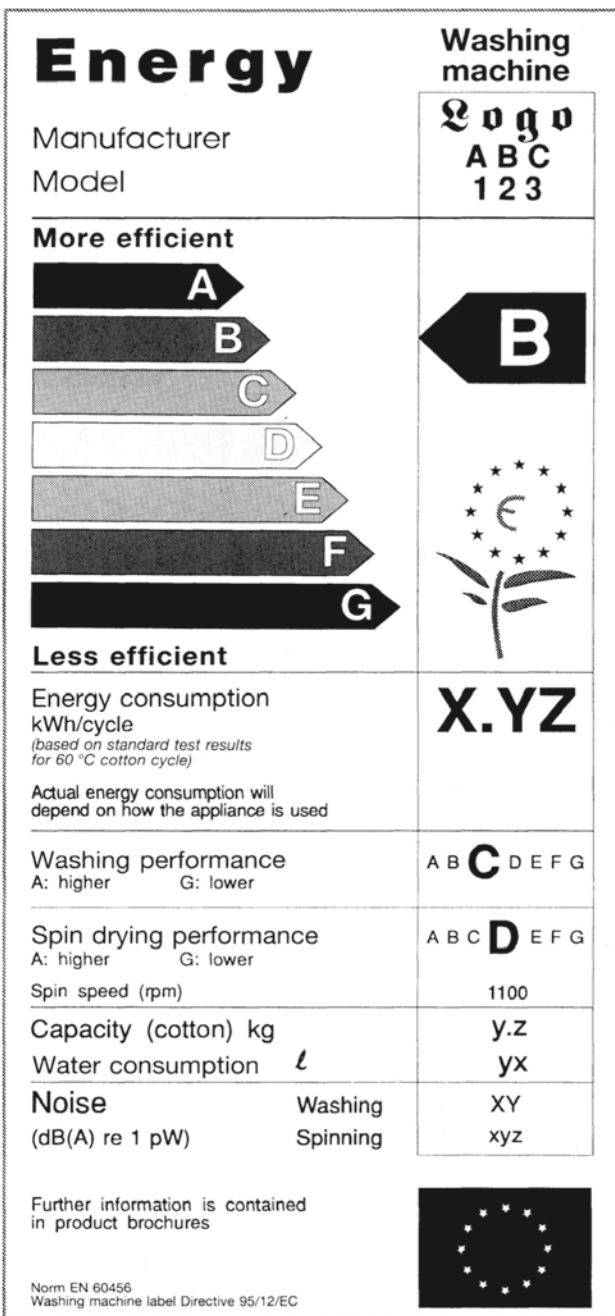
Household appliances offered for sale, hire, or hire-purchase had to be accompanied by a fiche and a label providing information relating to their consumption of energy and of other essential resources. The supplier had to establish technical documentation sufficient to enable the accuracy of the information contained in the label and the fiche to be assessed (including the description of the product, results of design calculations and where necessary, test reports).

The first labels were provided in eleven different languages with the Belgian label in two languages (see **Figure 1** for English language version). Suppliers provided a free label to retailers and include the fiche in the packaging of the product, and retailers attached the label to the appliance.

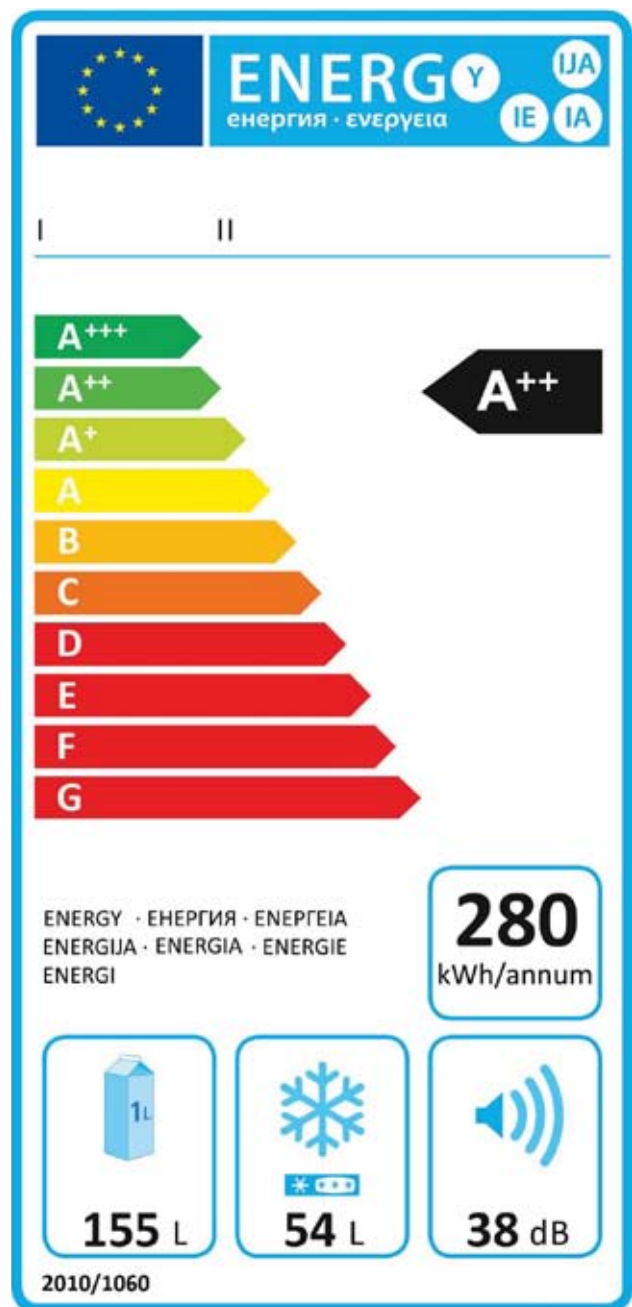
In 2005, Directive 2005/32/EC on ecodesign for energy-using products was introduced. It utilised a life-cycle approach, allowing the setting of minimum performance requirements on energy-using products. A result

was the phasing out of the most environmentally-harmful products from the market, with a *de facto* removal of appliances from the lower energy labelling classes.

The Energy Labelling Directive 92/75/EC was finally replaced by the recast Directive 2010/30/EU. Its main features were the introduction of A+, A++, and A+++ classes on top of the A-G scale, an almost language free label used across the whole internal market, and distance and internet sales added into the scope. **Figure 2** presents an example of such a new label.



**Figure 1.** First mandatory EU energy label in black and white.



**Figure 2.** Modern EU energy label for a fridge in colour and with additional information.

To date, seven energy labelling regulations [2] are in place and six new regulations [3] are planned to be adopted in 2013, including the regulations on heaters and water heaters.

## Impact of the Energy Label

Since its introduction, the energy label has been a story of success. It is well known (80% of citizens recognise the label), and has helped create offspring labels for buildings, cars, and tyres. European consumers trust the energy label and usually take it into account when they buy electrical household appliances with the undeniable effect of transforming the market towards more energy efficient products [4].

Much of the credit must be attributed to its design, which also helped in exporting the idea of the label to numerous countries abroad (see **Figures 3-6**). Today, over 70 countries have an energy label, allowing some 500 million people to make an energy efficient choice in buying products [5]. It has achieved this by being:

- Easy to understand: comparative information is presented without the need for technical knowledge, and it touches the heart of consumers: money (85% of consumers pay attention to cost while only 15% pay attention to environmental aspects)<sup>2</sup>;
- Language neutral, which is a prerequisite for an EU label with over 20 language zones within the internal market. Pictograms, however, limit the complexity of the message that can be passed and today's/tomorrow's products will be more and more complex.

## Result of the Success of the Label and Ecodesign

The success of the European Union's energy efficiency legislation created a fundamental issue hard to resolve. Energy labelling and ecodesign measures have removed products with low energy efficiency from the market. More and more products end up in the highest class with empty lower classes, and rapidly diminishing possibility to differentiate anymore between the efficiency of products.

This problem was first addressed in 2010 with the introduction of A+/++/+++ classes. However, the introduction of 'plus-classes' better than A was only seen as an intermediate step, because a further drive towards better products will lead to the same problem again. Furthermore, research [2, 6] has shown that consumers are liable to misinterpret the difference between the new classes (i.e. A+++ to A class) more than the difference

between the old classes (i.e. A class to D class), which leaves adding further 'plus-classes' as an inferior option. Other important aspects are:

- Many classes in the label are empty, which gives misleading information to consumers on the relative energy efficiency;
- It will be practically impossible to populate seven classes in the future, because there will be not enough difference in terms of energy efficiency between the worst and best appliance given the impact of tolerances and/or insignificant difference in consumer savings between models;
- Any attempt to 're-launch' an A-G scale replacing the current A+++ scale will require the downgrading of existing appliances, which will receive industry opposition when faced with a situation without return to investment (e.g. A appliances to be downgraded to e.g. class D);
- Due to increasing complexity of products and aspects labelled, more complex information is entering into the label making it more difficult for consumers to understand. Several labels will also include information for new target groups such as installers. However, a positive aspect is that some of this new information triggers useful questions from consumers to installers;
- Thus far only products have been labelled but the situation is changing. The current system does not allow for the labelling of important products and systems such as most modes of transport (aircraft...), services (holidays...), systems (other than buildings), or energy producers (nuclear, renewables...). The question is if we should be aiming towards savings through labelling within these new areas or are there other more suitable tools for this objective.

## Starting a Discussion on the Future Energy Label Review

The Energy Labelling Directive is foreseen for 2014 with a review study launched early 2013. The study will be open for participation to all stakeholders and interested parties of the society. The first contributions to the future of the energy labelling have already been launched by stakeholders. Consumers, environmental organisations, academia, Member States and the EU institutions are well aware of the key issue with the current label, each of them from their own view point. These views are still to be expressed and shared in a systematic review process.

To avoid a conflicting and stalling discussion between stakeholders, green NGOs (EEB and ECOS) and household appliance manufacturers (CECED) have initiated an informal discussion platform in view of the 2014 re-

view. They have identified a set of shared general principles to take into account when exploring future options for revising the energy label.

Following these principles, the label should be based on a reasonable number of indicators, usually three or four, with the main focus on energy. Balance between energy, other resources, and performance shall be ensured, especially when they are correlated.

All the necessary information should be displayed within the same label in order to allow the consumer easy access to comparison between models. The energy information should be available both in absolute value and relative value. The level of prominence of display should be determined on a product-by-product basis to ensure best consumer understanding. The absolute value in-

forms about the actual impact of the product, while the relative value informs about the efficiency of the product in its category.

As previously, the calculation methodologies behind the parameters should be clear, credible, and sufficiently close to real life use of the products, provided that uncertainty and complexity remain acceptable. When energy use is substantially influenced by regional variations in the EU (e.g. for heat pumps and air-conditioners), the label should help consumers evaluate the performance for their geographical situation.

Future layouts should follow current examples and be as uniform as possible across product groups; visual simplicity should be a priority. The main parameter(s) should be displayed in a way that allows clear differen-



Figure 3. Example of two Chinese energy labels following the European class system.

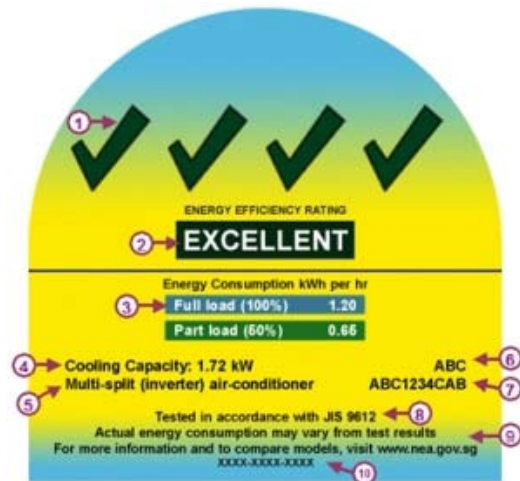


Figure 4. Example of an energy label from Singapore using a slightly different approach.

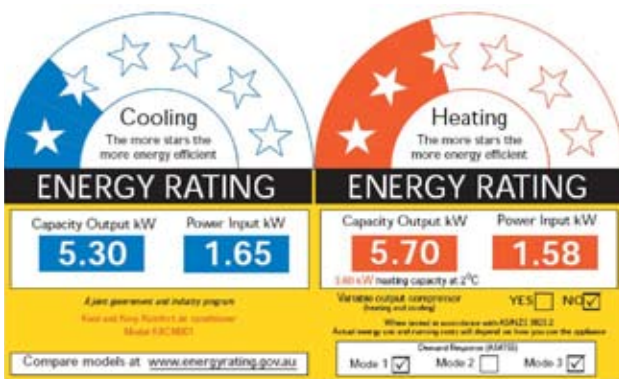


Figure 5. Example of an energy label from Australia.

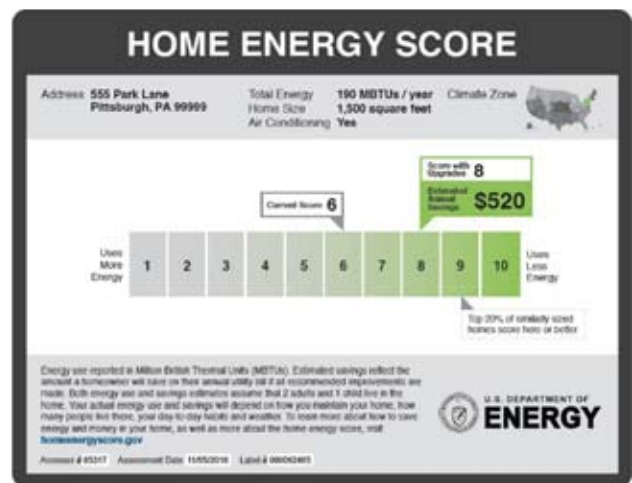


Figure 6. Example of an US energy label with estimated savings in US Dollars.



tiation and comparability between products, and encourages innovating towards the top. However, the scale and reference should be designed in a way that ensures that consumers are not encouraged to buy products with high absolute impact even if they are efficient in their category. Furthermore, continuous or class scales should be used in a way that minimises the need for complicated reclassifications or scale modifications such as experienced in the moment. Colour codes are a fundamental component of the layout. They should be used in a simple and understandable way that helps identifying the top performing products on the market.

Following these principles would allow very different label designs ranging from keeping the existing structure, using further classes and removing unused, old ones up to using a continuous scale with a numerical value without fixed classes including any mixture in-between (i.e. using classes with numerical values), which is in-line with ECOS, EEB, and CECED intention to investigate as many different designs as possible. In addition, the information provided on the paper label displayed in shops should be systematically complemented by more refined information available through internet and smart phone tools.

The overall expectations for the new label are to transform the market with a drive towards best appliances while being transparent to the consumer and conducive for innovation.

## Insights from Research

Research provides useful information on the impact and acceptance of the energy labelling policies, and should therefore be seen as a valuable resource in the review process.

In contradiction to some proposals, research has shown that the colour coding should be consistent, but is much less important than the numerical or alphabetical value presented (such as A class) [7]. Furthermore, the coding with a specific value should be clear and follow concepts familiar to consumers (i.e. the difference between an A and a D is much faster for consumers to process than A+++ to A) [2].



Another important insight is that the main criterion for a label should be the actual money saved by the consumer, or a value in a direct and easy-to-understand relation to it [2, 5]. For most consumers, saving money is the number one reason for choosing energy efficient products, and the energy label is seen as valuable information to achieve this task.

## Conclusion

Overall, it is vital to base the review process on research findings to ensure a successful energy label, which is accepted by all stakeholders while achieving its goals towards greater energy efficiency. Consumers are at the centre of these considerations. Only an energy label which can easily be understood by consumers, gives reliable and accurate information, and offers preferably information on direct financial benefits to consumers will be able to increase the energy efficiency of products.

While this article aimed at shedding light on some of the key issues and the energy labelling issue to be addressed in the coming years, it reads from the nature and level of challenges that that success in tackling the challenges ahead can only be ensured with broad and transparent cooperation involving the relevant actors, industry, consumer and environmental organisations, academia, Member States and the European institutions alike.

## References

- [1] 95/12/EC household washing machines and 95/13/EC household electric tumble dryers, 96/60/EC household combined washer-dryers, 98/11/EC household lamps, 1999/9/EC household dishwashers, 2003/66/EC household electric refrigerators, freezers and their combinations, 2002/40/EC household electric ovens, 2002/31/EC household air-conditioners.
- [2] List of adopted regulations: [http://ec.europa.eu/energy/efficiency/labelling/labelling\\_en.htm](http://ec.europa.eu/energy/efficiency/labelling/labelling_en.htm)
- [3] Ecodesign Working Plan 2012-2014: [http://ec.europa.eu/enterprise/policies/sustainable-business/ecodesign/product-groups/index\\_en.htm](http://ec.europa.eu/enterprise/policies/sustainable-business/ecodesign/product-groups/index_en.htm)
- [4] AEA (2012). Consumer research on EU product label options. Final report for the European Commission.
- [5] Amann, JT (2007). The effectiveness of energy labelling. ACEE Conference presentation
- [6] Heinze, SL, and Wüstenhagen, R (2012). Dynamic adjustment of eco-labeling schemes and consumer choice – the revision of the EU energy label as a missed opportunity? *Bus Strat Env*, 21(60-70).
- [7] Heinze, S (2012). Consumer response to energy labels - insights from choice experiments. Doctoral dissertation at Uni St. Gallen.