

# ANEC/BEUC COMMENTS ON DRAFT ECODESIGN AND LABELLING REQUIREMENTS FOR VACUUM CLEANERS

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**ANEC-PT-2011-ErP-015draft**  
**BEUC X/2011/089 – 05/09/11**

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## Summary

In the context of the implementation of the Ecodesign of Energy-related Products (ErP) Directive, the European Commission is proposing ecodesign and energy labelling requirements for certain categories of vacuum cleaners.

This paper outlines the main consumer-relevant issues related to the possible ecodesign requirements and recommends improvement options. The paper updates our previous position paper of 22 June 2010<sup>1</sup>. We give specific, technical recommendations to increase the energy efficiency and at the same time guarantee satisfying cleaning performance of these products.

Our main points are the following:

- The suggested calculation formula could lead to difficult debates and does not allow straightforward market surveillance;
- We suggest setting a cap on input power rating to accompany and further encourage the development of less power-consuming appliances;
- We recommend coupling the cap on input power with ambitious minimum cleaning performance requirements to remedy to the sustained lack of improvement in that regard in the last years;
- We recommend aiming for more ambitious Ecodesign requirements on dust filtration efficiency, requirements to be communicated in a meaningful manner to consumers through the Energy Label. We also suggest establishing Ecodesign requirements on noise level as well as Energy Label requirements on consumables to be used with vacuum cleaners;
- We consider that extra-attention should be given by the European Commission to worrying developments on niche market such as robot vacuum cleaners, which our members' tests have found to be consuming several Watts when on their charging station after a complete charge.

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<sup>1</sup> You can find our previous position paper on our joint dedicated website [www.eupconsumer.eu](http://www.eupconsumer.eu):  
[http://www.eupconsumer.eu/download/17th%20CF%20meeting%2025%20June%202010\\_Lot16+17/Lot%2017\\_Vacuum%20cleaner/ANEC\\_BEUC\\_consumer-position/position%20paper%202010.pdf](http://www.eupconsumer.eu/download/17th%20CF%20meeting%2025%20June%202010_Lot16+17/Lot%2017_Vacuum%20cleaner/ANEC_BEUC_consumer-position/position%20paper%202010.pdf)

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## I. THE COMMISSION'S COMPLEX CALCULATION FORMULA: A LAUDABLE BUT IMPRACTICAL EFFORT

The European Commission currently suggests setting energy efficiency requirements and rating vacuum cleaners on an energy scale on the basis of a complex calculation formula<sup>2</sup>. The formula is a highly theoretical, "silver-bullet" approach attempting at covering several key aspects of energy consumption and cleaning performance<sup>3</sup> in a single shot. Although the effort is laudable and displays willingness by the Commission to include several consumer-relevant variables, it poses the following issues:

- No benchmark or overview of best available technologies were provided to enable all stakeholders to assess the practical implications of the formula in terms of number of models to be phased-out, distribution of models in labelling classes and risks that top classes become over-populated. This is problematic as **it will not be possible during the Consultation Forum to fully assess in real-time the implications and potential loopholes stemming from the modification of a given variable or value;**
- **Market surveillance will be all the more resource-consuming and difficult** to carry out as the number of variables to check will be high. Yet proper enforcement of the Ecodesign and Energy Labelling requirements is important as industry "self-control" procedures and projects are far from covering all appliances on the market, especially in light of the growing market shares of "no-name" or retailers vacuum cleaners (a phenomenon very acute on the bagless and robot vacuum cleaners' markets);
- Several variables in the calculation formula are based on undocumented assumptions regarding consumer behaviour with vacuum cleaners<sup>4</sup>. Hence, it is very likely that a debate focusing on the calculation formula would be much disputed. The Consultation Forum would thus be at risk of reaching a stalemate. Yet at this point in the process<sup>5</sup>, a stalemate is politically no longer an option.

That is why in the following chapters we suggest not basing the Ecodesign regulation for certain categories of vacuum cleaners on a complex formula, but rather on a simple **cap on rated input power** coupled with an **ambitious minimum cleaning performance level** for all vacuum cleaners.

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<sup>2</sup> Found in Annex II (page 8) of the Ecodesign working document circulated by the Commission in July 2011.

<sup>3</sup> Effective power, percentage of dust removal on different surfaces, maximum movement resistance of the head on different surfaces and width of the head.

<sup>4</sup> E.g. European average housing size, surface covered with carpets, number of cleaning cycles, etc.

<sup>5</sup> The forthcoming Consultation Forum of 8 September will be the second Consultation Forum on the vacuum cleaners product group. It comes more than a year after the first Consultation Forum which took place on 26 June 2010.

## 1. A cap on input power: stop the unjustified “race to wattage”

- Why establish a cap on the rated input power?

We believe it is critical to focus on the most worrying development on the market: **consumers are led by marketing to believe that higher input power means better cleaning performance**. This development deliberately overlooks the very notion of energy efficiency<sup>6</sup>, at the expense of energy bills and the environment.

In fact, ANEC and BEUC members’ tests have shown that **already today, “eco”-branded vacuum cleaners achieve similar cleaning performance levels as typical canister vacuum cleaners, with a lower rated input power**<sup>7</sup>. This finding proves the feasibility of establishing a cap on the input power of vacuum cleaners. Such a cap would lead manufacturers to focus their efforts entirely on delivering energy-efficient yet performing solutions. It could be implemented by manufacturers very rapidly. In concrete terms, a cap on input power would guarantee that typical canister vacuum cleaners are gradually phased out of the market and already-existing, “eco”-branded models become the mainstream solution. That mainstreaming would bring the following benefits to consumers:

- Lower power intake and energy bills for similar cleaning performance;
- Lower prices of “eco”-branded vacuum cleaners stemming from greater market shares;
- Manufacturers’ resources freed up from the development of typical canister cleaners used to develop more performing vacuum cleaners.

- Which exact cap? Which energy efficiency labelling?

We believe that that a cap on the maximum rated input power<sup>8</sup> set at a maximum of **1200W** could be an adequate target for **2 years after entry into force** of the measure.

The energy scale displayed on the Energy Label could be based on the rated input power, e.g. (indicative values, to be refined in light of market data and projections):

- A:800W
- B: 900W
- C:1000W
- D:1050W
- E: 1100W
- F:1150W
- G: 1200W

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<sup>6</sup> Our members’ tests have proven that the rated input power can be highly misleading: different models of vacuum cleaners with similar effective power (from 303W to 317W) displayed rated input powers ranging from 1300W to 2200W. It has also occurred that models rated 2000W+ had smaller effective power than 1300W-rated models.

<sup>7</sup> In tests carried out by our members in 2011, the seven best-performing «eco»-branded vacuum cleaners had a rated input power of 1200 to 1250W. They achieved similar cleaning performance than most typical canister vacuum cleaners tested less than a year before.

<sup>8</sup> To be distinguished from “nominal input power”, a value more and more communicated by manufacturers.

## 2. Ambitious minimum requirements for cleaning performance and dust re-emission are necessary

- Why aiming for ambitious cleaning performance requirements?

It has been widely argued that there is a trade-off between effective power and cleaning performance. We do not question that such a trade-off will become more obvious ultimately. In fact, our members' tests show that **the average level of cleaning performance of vacuum cleaners has stagnated in the last years**<sup>9</sup>. "Eco"-branded vacuum cleaners consume less energy than their canisters cousins, but clean hard floors equally well and carpets equally badly.

Still, we argue that **both variables (cleaning performance and energy consumption) are not yet mutually exclusive: both can still be improved**. Our members' tests have shown that models with strictly identical effective power can display minor to significant differences in their cleaning performance.

The risk with only setting a cap on energy efficiency without backing it against a minimum cleaning performance requirement<sup>10</sup> is that manufacturers produce energy efficient but ineffective models.

We argue that although consumers are well aware that not all vacuum cleaners achieve identical cleaning performance, they still expect good cleaning performance from a newly-purchased model and consider that price differences between models are largely related to noise level, accessories shipped with the cleaner, brand, etc.

Hence, it is important to complement a cap on rated input power with an ambitious minimum cleaning performance requirement that all vacuum cleaners put on the market should achieve.

- Which exact cleaning performance requirements?

The crux of the matter is to agree on how to define what an acceptable minimum cleaning performance should be.

First, we believe that cleaning performance tests should be carried out on the basis of **realistic criteria**. Notably, we believe that tests should be carried out on vacuum cleaners with e.g. half-full bag/dust receptacle, instead of empty ones.

In the absence of data collected by the European Commission, it is very difficult to propose class boundaries for the cleaning performance. Our own suggestions are extrapolated from tests carried out by our members. We recommend that the energy efficiency and the cleaning performance be communicated to consumers on the Energy Label as follows:

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<sup>9</sup> Tests carried out by International Consumer Research and Testing tests of June 2010 and January 2011 on behalf of several consumer organizations.

<sup>10</sup> As is suggested by manufacturer Dyson.

- Models put on the market **3 years after entry into force** of the measure should all achieve at least 55% dust removal on carpet after 2 double strokes and 85% dust removal on hard floors after 2 double strokes;
- On the Energy Label, the cleaning performance scales should be as prominent as the energy (rated power input) scale;
- Ranking from A to G on a cleaning performance scale should be established as follows for carpets: (indicative values, to be refined in light of market data and projections):
  - G: 55-57% dust removal on carpet after 2 double strokes
  - F: 58-61%
  - E: 62-65%
  - D: 66-69%
  - C: 70-73%
  - B: 71-74%
  - A: 75%+
- Ranking from A to G on a cleaning performance scale should be established as follows for hard floors (indicative values extrapolated from test results from our members on 1 and 5 double-strokes; to be refined)
  - G: 85% dust removal on hard floors after 2 double strokes
  - F: 87-89%
  - E: 90-92%
  - D: 93-94%
  - C: 95-96%
  - B: 96-97%
  - A: 98%+

### **3. Requirements on dust re-emission must be strengthened; requirements on noise level and consumables must be included:**

#### ○ Dust re-emission:

The ability of a vacuum cleaner to prevent small particles from re-entering the atmosphere is an important performance aspect as insufficient filtration may negatively affect the cleaning performance and may have a negative health impact.

We regret that the **requirements** suggested by the Commission (3% maximum re-emission within 5 years after entry into force of the measure) are particularly **unambitious**. Already today, it is our understanding that most vacuum cleaners can achieve less than 1% re-emission of particles between 0.4 and 4 microns. We propose the following steps:

- **One year** after the implementing measure enters into force: **99% filtration efficiency** (=1% re-emission);
- **Three years** after the implementing measure enters into force: at least **99.6% filtration efficiency** (=0,4% re-emission).

Our members' tests point to a crucial element with regard to the test standard of dust re-emission: used vacuum cleaners will tend to perform significantly worse than new models usually tested for compliance and which contain no dust to start with. That is why it is important that:

- An ambitious Ecodesign requirement on dust filtration be established for new vacuum cleaners;
- Or that the measurement standard be based on used vacuum cleaners already (partly) filled with dust.

When it comes to informing consumers about the dust re-emission, we welcome the Commission's suggestion to display that information on the Energy Label. However, we argue that the **information conveyed on the label should be expressed on an A-G scale, instead of expressed in percentage points**. With most vacuum cleaners reaching more than 95% filtration efficiency at present, consumers might understand such high scores as being all very positive, when really there is a significant difference of cleaning experience between e.g. a 95% efficient and a 99.6% efficient vacuum cleaner.

In addition, the measurement methods should **define the size of the particles adequately**. Consumer organisations test dust particles of a size from 0.3µm to 20µm diameter. Extending the scope of particles to be filtered from 0.4µm to 0.3µm is all the more important as our members' tests have shown that some models re-emitted more than 5 million of the finest particles between 0.3µm and 0.4µm, while the best performing model re-emitted none.

We welcome the Commission's suggestion that dust reemission of a vacuum cleaner takes into account not only dust emissions leaving through the filter, but also these particles bypassing the filter and exiting the vacuum cleaner through other openings in the plastic housing. Our members' tests have shown that two models equipped with a similar "HEPA 13" filter re-emitted very different amounts of particles, precisely because one of the models was less carefully sealed than the other.

○ Noise:

**We regret that the Commission's Working Document does not set any ecodesign requirements for the noise level** of vacuum cleaners. A vacuum cleaner is an air-moving appliance that can generate excessive noise levels due to numerous mechanisms (e.g. fan, motor, inflow distortion etc.). High wattage usually means increased noise and upright appliances tend to be noisier than canister vacuum cleaners. Vacuum cleaners have an effect on consumers in a way that they emit noise that can be prejudicial to human health. Therefore noise is an environmental pollutant and the control of noise levels of vacuum cleaners should not be ignored.

In order to identify typical noise emissions levels, we reviewed the latest vacuum cleaner tests carried out by Swiss TopTen, Austrian Topprodukte and our German member Verbraucher-Zentrale:

Table 1                      Overview of the evaluated noise emissions

| Tests                          | Number of models tested | Average noise emission in dBA | Best result | Worst result | Number of devices complying with the Eco-label criterion (<76 dBA) |
|--------------------------------|-------------------------|-------------------------------|-------------|--------------|--------------------------------------------------------------------|
| Verbraucherzentrale (2010/02)  | 19                      | 75                            | 66          | 82           | 10                                                                 |
| Swiss TopTen (2011/08)         | 18                      | 75                            | 68          | 79           | 7                                                                  |
| Austrian Topprodukte (2011/08) | 11                      | 77                            | 68          | 82           | 2                                                                  |

*The sound power test method used differed between the tests.*

- Consumables:

Consumables (bags, filters) to be used with vacuum cleaners usually account for significant annual costs for consumers. Although it is difficult to regulate their use and durability within the framework of the current Ecodesign directive, we believe that at the very least information on consumables should be made available to consumers for each vacuum cleaner without exception.

## II. SCOPE OF THE MEASURE: WHICH VACUUM CLEANERS SHOULD BE COVERED?

Although the Commission proposed to tackle several categories of vacuum cleaners, we argue that other categories should not be overlooked. Because of their potential to shape market developments in a direction favourable to consumers and their environment, European Ecodesign requirements should be applied to booming markets (robot cleaners) as well as apathetic markets (wet vacuum cleaners).

- Robot cleaners are a booming market:

Robot cleaners are increasingly gaining market shares in Europe. In France alone, it is estimated that 31 000 units were sold between March 2009 and March 2010, a 300% increase over the previous year<sup>11</sup>. Yet, robot cleaners display **abysmal cleaning performance**. Implementing Ecodesign rules for robots would allow “harnessing” the savings potential in this burgeoning market before too many non-efficient appliances are in circulation in Europe.

A major source of concern comes from evidence from our members’ tests that **robot vacuum cleaners consume from 3,5Wh to 7,7Wh while in stand-by** (on the charging base after complete charge)<sup>12</sup>. At the very least, that issue should be tackled in priority.

<sup>11</sup> Market data obtained by our members.

<sup>12</sup> UFC-Que Choisir, 2010

- Wet vacuum cleaners: differentiated Ecodesign rules are necessary to instil dynamism in the market:

The market of wet vacuum cleaners is not dynamic: the same models have been on the market for years and are expected to remain on the market for at least another couple of years more. Moreover, the durability of wet vacuum cleaners has been found to be very problematic by our members' tests, in comparison with typical vacuum cleaners.

Ecodesign measures on wet vacuum cleaners are necessary to trigger a cycle of development of appliances consuming less energy for these consumers who may want to use wet vacuum cleaners on top - or instead - of typical vacuum cleaners.

Our members' tests show that several characteristics of wet vacuum cleaners tend to become aligned on the characteristics of typical canister vacuum cleaners. Weight, traditionally a consumer-friendly criterion of purchase of vacuum cleaners, is one such characteristic, with average difference in weight between wet and typical vacuum cleaners being of only 600 grams<sup>13</sup>. As a result, it is very likely that **some consumers tend to use only wet vacuum cleaners**. That is why it is important that Ecodesign requirements apply to the later category.

However, wet vacuum cleaners remain too different from typical canister models to be subjected to identical Ecodesign requirements.

- Commission suggestions welcomed:

We support the inclusion of **commercial appliances** into the scope of the draft implementing measures (especially in light of green public procurement where the energy labelling criterion is important).

We also support the suggested inclusion of **hybrid vacuum cleaners** (which can be both mains and/or battery powered) in the scope of Ecodesign measurements.

As far as **battery-operated vacuum cleaners** are concerned, we ask for clarification on whether they are intended to be left in or out of the scope. The Working Documents on Ecodesign and Energy Labelling should be consistent in that matter.

Battery-operated cleaners are currently left out of the Ecodesign scope, but left in the Labelling scope. Our understanding is that the labelling of battery-operated vacuum cleaners can be chosen on a voluntary basis by the supplier. A clear motivation (e.g. different functionality/application, low market share, low total environmental impact) should be presented by the Commission on why battery-operated vacuum cleaners should be excluded from the scope of Ecodesign requirements.

Should the Commission have identified a trend towards floor-cleaning vacuum cleaners being replaced by battery operated appliances, **we strongly believe that the latter should be covered by both Ecodesign and Labelling measures**.

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<sup>13</sup> Average found on models tested by our members.