Comments on draft Tasks 1-2 of the preparatory study on the review of the Air conditioners and comfort fans' regulations (DG ENER Lot 10)

July 2017

Following the stakeholder meeting on 5 July 2017, we have identified a list of issues that the study team should carefully assess in their review study in order for the Commission to make a sound decision in the later stages of the process.

Product scope

We believe the current review should be taken as an opportunity to ensure that any product sold in the EU market with heating and/or cooling functions is covered by Ecodesign requirements.

⇨ **We suggest that the study team takes the following actions:**

- Include residential exhaust air-to-air heat pumps and air conditioners below 12kW into the scope
- Further assess the interest of regulating dehumidifiers and air purifiers in light of the expected market growth. The work undertaken by the Californian Environmental Protection Agency[1] for these products could serve as a basis
- Evaluate the overlap between EU regulation 327/2011 and EU regulation 206/2012 regarding fans included in air conditioners with cooling power below 12 KW and suggest adequate correction measures
- To avoid ping-ponging between regulations, we encourage the study team to resolve as many of the below points as possible in the current revision:
    - Include air-to-water reversible chillers within the scope of EU regulation 813/2013 for cooling function too
    - Regulate cooling generators in air handling units within the scope of EU regulation 2016/2281 or 2014/1253
    - Include information on the air movement function of residential fan heaters in the EU regulation 2015/1188

Test standards and product performance

Test standards must move closer to mirroring real-life use and conditions. We support the recommendation to continue the development of a compensation method as it could ultimately lead to seasonal figures better reflecting real-life performance. We invite the Commission to closely follow the developments made in this regard.

[1] https://www.arb.ca.gov/research/indoor/aircleaners/certified.htm

It is essential to have the energy performance of room air conditioners at different part-load conditions in addition to the aggregated figure under SEER and SCOP in order to have clearer information on the seasonal efficiency of the appliances. This can allow for better optimisation of the overall performance of the installed system, especially to implement a zero-energy concept for new buildings.

The study team clarifies that the revised version of EN 14511-3 should reinstate the 2010 correction formula to compare the ratings of non-ducted and ducted split air conditioners. We support to re-include this formula as it impacts performance, especially in part load conditions. We therefore recommend the Commission to follow-up on the upcoming developments regarding this.

In addition, the study puts forward a testing method used in the United States and developed by the DOE that considers the impact of air infiltration for single and double duct air-conditioning units. We believe it is beneficiary for the preparatory study team to further investigate this method.

The report underlines the current impossibility to test multi-split units with more than four indoor wall units. The report should include information of the actual market share of these products in the EU and suggest ways for the European Commission to solve this enforcement issue.

The study team highlights that even though most air conditioners now include a dehumidification mode, no information is required for this mode. We call for the provision of information on dehumidification so consumers, particularly those in hot and humid parts of Europe, can compare the dehumidification capability of ACs with dedicated dehumidifiers.

⇨ **We therefore recommend the following actions:**

- Accelerate the development of a compensation methodology to ensure that test standards move closer towards real-life conditions.
- Consider the development of a seasonal calculation and measurement method for all air conditioners in the scope for the cooling and heating seasons or at least compare all air conditioners on the same scale.

Market data and trends

The study team acknowledges the limitations of using PRODCOM to understand the EU market for the products in the scope of the study. In terms of completeness, we suggest updating the data presented using, for instance, the figures provided by JRAIA in its 2017 report[2]. In this report, Europe's overall AC demand in 2016 was estimated in 6.07 million units, with a 12.2% increase compared with the previous year.

The market data currently provided is not broken down by efficiency level. We highly recommend that the report gathers market shares per energy classes for each sub-family of products and make them publicly available. For instance, the Chinese National Institute for Standardisation (CNIS) has a more comprehensive database which provides policy makers with a better overview of what is on the market, and the Indian Bureau of Energy Efficiency (BEE) has a product database of existing products on the market sorted by energy class[3]. This will avoid considering low energy classes still present in the

[2] http://www.jraia.or.jp/english/World_AC_Demand.pdf
[3] https://beestarlabel.com/

market but no longer produced (only in stock) when setting the revised MEPS. Furthermore, the information breakdown per sub-family of products will allow analysing the real impact of existing regulations.

The study team provides a brief analysis of the sales distribution of ACs across Member States by size. We encourage the authors to research deeper into the reasons behind these differences as this is a crucial point to better understand consumer purchasing decisions in relation to the size of the appliances.

The current regulation does not set any efficiency requirements for comfort fans, though these are subject to information requirements. At the meeting, the study team urged industry to provide updated market data to be included in the report. We believe this information is essential to allow for a justified assessment of the need for minimum energy performance requirements for these specific products. Should industry not provide the required data, we invite the study team to carry on the work based on their own assumptions. Indeed, PRODCOM data for comfort fans shows that sales and trade of comfort fans reached circa 27 million units in 2015. We suggest that the preparatory study team updates the values on sales and trade of comfort fans to include the 2016 values. This is readily available on Eurostat.

⇨ **We therefore suggest the study team to research the following market information:**

- Sales data per energy class for each sub-family of products
- Differences in the size of products across Member States
- Collect updated data on comfort fans from industry

Other issues to be considered in the review

We take the opportunity to insist on topics we expect to see covered in the remaining sections of the report following Article 7 of Regulation 206/2012 which states that the Commission shall review this Regulation by assessing the following aspects:

- **The efficiency and sound power level requirements**

  - The report echoes a study from CLASP[4] on benchmarking main requirements and metrics which concludes that there is still a significant margin left to increase minimum performance requirements in cooling mode in the EU. It points out that the European Union is lagging behind compared to other parts of the world namely, US and Japan.
  With this regard, lessons can be learnt by setting target efficiency values based on the highest current efficiency levels, as done in Japan.
  - A review of the Energy Label has been necessary since 2014, roughly one year after the entry into force of the new Label for ACs when topten.eu[5] remarked that top classes A+++ (cooling/heating) of room air conditioners were already exceeded by around 20%.

- **The approach to promote the use of low-global warming potential (GWP) refrigerants**

  - In light of the forecasted sales in the upcoming years, we ask whether the regulation can set a more ambitious bonus system for refrigerants that will significantly outperform the F-Gas

[4] http://clasp.ngo/Resources/Resources/PublicationLibrary/2012/Cooling-Benchmarking-Study
[5] http://www.topten.eu/uploads/File/Aircon_recommendations_April_2014.pdf

regulation. A study by Lawrence Berkeley National Laboratory[6] indicates that ACs with R-32 (GWP of 677) are produced by a number of manufacturers in China, Indonesia, Japan, Thailand and other parties. ACs up to 5KW with R-290 (GWP of 5) are already commercialised in China and India, and are expected to enter the global market. In addition, R-1270, R-444B, R-446A, R-447A, R-452B, ARM71-a, and ARM20-b have also been considered as low-GWP refrigerant alternatives for ACs.

- Studies covering the AC sector at a global scale[7] underline that there is a significant opportunity to simultaneously raise the MEPS requirement and include low-GWP criteria for ACs. It is concluded that a simultaneous focus on, and transition to, the use of low-GWP alternative refrigerants in new ACs can maximise the reduction of energy, peak electricity demand, and GHG emissions associated with air-conditioning use and minimise the cost of doing so.
- Therefore, we call to further investigate the possible trade-offs which occur with a refrigerant switch and the feasibility regarding the compatibility between flammable refrigerants and the existing safety standards.

- **The appropriateness of the standby and off-mode requirements**

We suggest that the review follows the trend under the horizontal regulations on standby and networked standby modes.

- **Seasonal calculation and measurement methods, including considerations on the development of a possible seasonal calculation and measurement method for all air conditioners in the scope for cooling and heating seasons.**

- We believe that the shift to seasonal performance for all heating and/or cooling devices will foster competition on efficient technologies at part load. The SEER reflects the real consumption more accurately than the traditional EER as it shows the seasonal variations in climates that require ACs to run at part-load for a sustained amount of time. Therefore, this review may benefit from including considerations on the development of a seasonal calculation and measurement method for all air conditioners in the scope of the cooling and heating seasons.

Equally, Article 7 of the Commission Delegated Regulation (EU) No 626/2011 with regard to energy labelling of air conditioners states that the Commission shall review this Regulation paying particular attention to any significant changes in market shares of various types of appliances:

- We welcome the upcoming entry into force of the revised Energy Labelling Framework Regulation which will revert to the original A-G scheme (though by 2023 for AC) and keep posing an incentive for further efficiency developments.
- In addition, it is essential to move towards a single label for all air-conditioners and coolers, which is the fairest way to inform consumers. The existing labels are different for split, double duct and single duct products and are based on different measurements and scaling. This impedes end-users to accurately compare products at the moment of purchasing. As it stands, consumers are unable to understand through the labels that for instance a class A for single/double ducts corresponds to class F of split room air conditioners – which are 50% less efficient[8]!

[6] https://ies.lbl.gov/publications/opportunities-simultaneous-efficiency
[7] https://ies.lbl.gov/publications/opportunities-simultaneous-efficiency
[8] http://www.topten.eu/uploads/File/Aircon_recommendations_April_2014.pdf

- **Give resource efficiency aspects sufficient attention**

  In the Ecodesign Working Plan 2016-2019, the EU has taken a strong commitment to establish product-specific requirements to make products more durable, reparable, upgradeable, and designed for disassembly, reuse or recycling. This commitment also applies to the ongoing review and resource efficiency aspects need to be seriously looked into.

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