

## Preparatory study on the Review of Ecodesign Regulation No 206/2012 and Energy Labelling Regulation No 626/2011 on air conditioners and comfort fans

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#	Task No.	Section	Page	Comment	Proposed change	Reply from study team
1	3	Conclusions regarding cooling loads	21	The simulations conducted by the consortium to estimate cooling needs do not take into account the EU target to decarbonise the building stock. The figures used for cooling demand in both residential and services sectors in Table 21 show a weighted average of ~45 kWh/m <sup>2</sup> .yr, as if there will be no evolution. This contradicts the agreed target at EPBD negotiations to make the overall building stock ZEB by 2050. Achieving this target means cooling demand has to go down to 15 kWh/m <sup>2</sup> .yr by 2050 instead of the 45 kWh/m <sup>2</sup> .yr figure used. The consortium should ensure consistency between their calculations and various EU targets.	Adjust the data taking into account the EU targets in this respect. It is proposed to gather data from best practice examples such as existing ZEB buildings and passive houses to correct the figures to what cooling load will actually be in the future.	
2	4	Existing products	9-31	The base case seems to be defined based on Eurovent-Certita catalogue. The catalogue available online includes products still in stock but no longer produced. This lowers the average efficiency level of the overall stock.	Define the base case by cross-checking Eurovent data with sales data based on efficiency levels.	
3	4	BOM	39-41	The review study assumes a similar material composition to the one of the previous preparatory study. However, it is hard to imagine that cooling products will not be impacted by the use of new materials and nanotechnologies.	Provide evidence behind the assumption of the use of the same material in 2030 like those used in early 2000.	

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4	6	Analysis of LLCC and BNAT	32-55	The difference between LLCC of different improvement options is too small (i.e. less than 1% between LLCC and BNAT in BC1). The curves are too flat.	Re-check the assumptions and the calculations behind the LLCC calculations of different improvement options considered in this section, the use of learning curves should be favoured.
5	7	Scenario analysis	23-35	The study assumes all efficiency and sound level improvement due to EU regulation.	Breakdown the impact of efficiency improvement into at least two categories, changes in technologies which occurred in the last 10 years and the impact of EU regulations.
6	7	Impact on industry and consumers	35-40	Tables included in this section do not allow to assess the impact of portable and non-portable units	Provide the breakdown of each of the impacts assessed in this section for portable and non-portable units
7	All	General		We believe that the preparatory study should present the technical basis to define future ecodesign and energy labelling requirements based on the existing Regulation (EU) 206/2012 and 626/2011 while avoid taking strong position unless substantiated.	We encourage the study team to use a more balanced approach throughout the assessment in order to avoid making decisions at this stage of the process. Some examples: " If the lifetime is improved the trade-off between resource efficiency and energy efficiency should be considered, in addition, <u>consumers may not be willing to repair their air conditioners due to high repair cost in comparison with the costs of purchasing a new equipment.</u> " "The affordability of repair could be improved due to design fro disassembly, but <u>manufacturers have indicated that they already are targeting to improve reparability so there is no need to include these requirements</u> " Etc.
8	All	Comfort fans	All	Inexistent review of comfort fans. The review process should be an improvement process. After the entry into force of the information and standby requirements for comfort fans in 2013, we could only expect more data to be available. However, since the 1 <sup>st</sup> stakeholder meeting, the study has not progressed with regards to comfort fans and their related data. The fact that industry is not providing any data should not determine the ambition level of this review process.	In the absence of industry data we call on the study team to carry on the work based on their own assumptions (as it is the case for the assessment of many other parameters within the review study) to avoid missing this opportunity. 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

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					<p>comfort fans to include the 2016 values using the readily available data from Eurostat.</p> <p>In addition, Topten.eu is conducting an assessment on comfort fans for a rebate program in Switzerland collecting available information which is part of the information requirements (initial data from the review shows that there are significant differences in the energy efficiency of the fans).</p>	
9	7	Proposed tolerances and uncertainties	22	<p>The consortium proposes two options for the revised tolerances, the first one is about increasing the tolerances and the second one is about decreasing them. Assuming that the quality of test methods improves, any increase in verification tolerances should be clearly justified. Therefore, we believe that the only valid approach should be the second proposal, to reduce standard individual test uncertainties and limit the tolerance. This in turn will improve the quality of test methods and provide more accurate information to consumers via the energy labels.</p> <p>ECOS firmly believes that the prescribed tolerance value for products should not exceed the established measurement uncertainty value. If the decision is still to introduce a tolerance any higher than the measurement uncertainty, this action must be clearly justified.<sup>1</sup></p>	<p>Revise the tolerances so that they are lower than the current ones.</p>	
10	7	Material efficiency	All	<p>Material efficiency is not properly analysed in the study. The Ecodesign Working Plan 2016-2019 has clearly indicated that investigation of resource efficiency options was to be part of each and every review study. The Commission has recently proposed a number of requirements related to circular economy and resource efficiency, over and above those related to energy efficiency for household appliances, i.e. washing machines and dishwashers and electronic products. Those requirements include:</p>	<p>We urge the study team to do a proper analysis of possible resource efficiency requirements for air conditioners, getting inspiration of policy options foreseen in the washing machines and dishwashers working documents, as well as the displays and servers' proposals.</p> <p>We invite the review team to revise the approach on the need of only horizontal requirements on</p>	

<sup>1</sup> <http://ecostandard.org/wp-content/uploads/ECOS-Testing-Methods-Paper-Final.pdf>

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			<ul style="list-style-type: none"> <li>- Design for dismantling for the purposes of depollution, material recovery and recycling.</li> <li>- Spare part availability horizon time declaration</li> <li>- Spare part maximum delivery time</li> <li>- Unrestricted access to repair and maintenance information</li> <li>- Etc.</li> </ul> <p>We invite the study team to thoroughly assess which ones would make sense for air conditioners.</p> <p>Furthermore, the lack of measurement methods should not delay the setting of resource efficiency requirements. Postponing regulatory measures that address material efficiency aspects until after the M/543 standards are made available is neither necessary nor justified.</p> <p>Contrary to what is highlighted in the review study, we are convinced that material efficiency is not only a horizontal issue, but this needs to be combined with product-specific requirements; and that is the political will as indicated in the Ecodesign Working Plan.</p>	<p>resource efficiency, and the absolute need for testing methods to regulate.</p>	
11	7	Single and double duct products	<p>Treating local air coolers separately means giving them an advantage, an approach we reject.</p> <p>LACs are problematic products, they require leaving a window or door open, thus deteriorating the efficiency of the system. They are usually an impulse purchase and the consumer does not necessarily get proper advice in shops (in opposition to RACs where generally, an installer may ensure a well-fitted and designed installation). Not perpetuating the favourable situation for this type of products should be an objective of this review.</p> <p>The Energy label should bring transparency and allow consumers to compare the efficiency of single and double duct to room air conditioners. The current label</p>	<ul style="list-style-type: none"> <li>- The same labelling scheme, test method and ecodesign requirements should apply to single/double ducted as for the rest of the ACs.</li> <li>- A thorough assessment of the implications of including the infiltration in the calculation is crucial.</li> </ul>	

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				with a different classification scheme protects these inefficient products instead of making their low efficiency visible: the proposed labelling is rather confusing as the consortium proposes to declare SCOP in the energy label but without proposing an energy class scale nor SCOP minimum ecodesign requirements. Although we support the change into seasonal metrics, the proposal to include infiltration flow in the calculation of the SEER cannot be properly assessed at this stage.	
12	7	Energy label requirements		It is essential to move towards a single label for all air-conditioners and coolers, which is the fairest way to inform consumers. The current situation impedes end-users to accurately compare products at the moment of purchase. 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 – 50% less efficient.	We invite the study team to put forward the options for a single energy label system in order for all the air conditioning appliances to be fairly comparable.
13	7	Energy labelling requirements		<p>The Energy Label should be updated to keep creating an incentive for further efficiency developments. It is worth noting that 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<sup>2</sup> remarked that top classes A+++ (cooling/heating) of room air conditioners were already exceeded by around 20%.</p> <p>The proposed labelling requirement is based on BAT (as identified in Task 6) but this does not apply to single/double duct units (another exception in the treatment of these products). By doing so, the BAT in the market when the regulation will be implemented would be in Class B. However, past experience on energy classes show that when regulation is in place, we</p>	To set more ambitious energy classes. Today, without any regulatory incentives, products outperform class A+++ by 23%. We believe that for this product category, class and A and B should be empty at the introduction of the label. This would enhance innovation and boost competition for more efficient products. It will also ensure that the revised energy classes will have a real impact on the market during the decade of their implementation.

<sup>2</sup> [http://www.topten.eu/uploads/File/Aircon\\_recommendations\\_April\\_2014.pdf](http://www.topten.eu/uploads/File/Aircon_recommendations_April_2014.pdf)

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				<p>always have products in class A and very quickly most products catch-up with the best energy class.</p> <p>As the Review Preparatory Study states, the market seems to be well ahead of the regulation. Furthermore, this is a clear indication of the need for better consistency between the EL and the ED requirements to avoid empty bottom classes soon after the proposed Tier 1 and Tier 2 enter into force.</p>	
14	7	Refrigerants		<p>Although refrigerants have been identified as a significant aspect for AC, the study doesn't not propose any proper measure to promote the use of natural refrigerants.</p> <p>In fact, the proposal is not only to get rid of the current bonus system, but to leave this issue to be dealt with solely under the F-Gas Regulation. We understand and welcome the F-Gas Regulation, however, in the light of rising and forecasted sales for ACs, additional drivers would help support the successful implementation of the F-Gas Regulation and transition to climate-friendly alternatives.</p> <p>The F-Gas Regulation is a very ambitious regulation that is used as a model within the Montreal Protocol framework, however there are still gaps that need to be addressed in this revision (e.g. as the review study underlines in Task 1-2, the F-Gas regulation affects only single split products, risking leaving multi-split unregulated in terms of the use of high-GWP refrigerants).</p> <p>A study by Lawrence Berkeley National Laboratory<sup>3</sup> indicates that 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</p>	<p>We invite the study team to take the opportunity of this review to further assess requirements to encourage a more widespread use of low-GWP refrigerants as it was the objective included in Article 7. Here some suggestions:</p> <ol style="list-style-type: none"> <li>1. Efficiency bonus for appliances using GWP &lt; 3;</li> <li>2. Malus scheme to penalize on the energy efficiency requirements those appliances using refrigerants with the highest GWP allowed in the market;</li> <li>3. The Energy Label to include a pictogram indicating if a product contains a natural refrigerant and/or lower-GWP or a higher-GWP refrigerant;</li> <li>4. Restriction of use of HFO.</li> </ol>

<sup>3</sup> <https://ies.lbl.gov/publications/opportunities-simultaneous-efficiency>

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				<p>ARM20-b have also been considered as low-GWP refrigerant alternatives for ACs.</p> <p>Studies covering the AC sector at a global scale 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.</p> <p>Additionally, we are in favor of restricting the use of HFO. These refrigerants – which are not covered by Annex I of the F-Gas regulation nor affected by the Kigali Amendment to the Montreal Protocol - do not have an ozone depletion potential and their GWP is in the same order of magnitude as that of natural refrigerants. However, HFOs pose substantial potential risks which should not be neglected<sup>4</sup>. These can include environmentally harmful and toxic by-products on production and decomposition, environmental persistence, toxic flammability and potential recycling challenges.</p>		
15	7	Energy labelling requirements	15, 44	For fixed ACs, class F and G are not proposed in heating mode (SCOP).	We urge the study team to revise the proposal for the new label scheme for SCOP to allow products to populate all the classes available in the label. An option could be to recalculate the width of the classes.	

<sup>4</sup> Oeko Institut. Refrigerants and foam-blowing agents in household refrigerating appliances – Facts and policy recommendations. 30/11/2017