Comments on Final Progress Report (Tasks 1-4)
Review study of Ecodesign & Energy Labelling for Pumps

March 2016

- **Scope**

In the previous studies (Lots 28 & 29), some pump types had been excluded from the scope, without assessing their energy impact. The current study follows a different approach, despite limited available data. This is something we had requested and we welcome it. We welcome that the scope of the study includes end-suction own bearing (ESOB) pumps, submersible bore-hole pumps and vertical multi-stage pumps with sizes larger than those covered by the current regulation, as well as the two swimming pool pump types. We support the proposal to **include self-priming pumps** and encourage the study team to collect data from manufacturers. If they were to be covered by the upcoming regulation, it could reduce their energy consumption (as confirmed by some stakeholders), and also solve the ambiguity issue of some pumps being sold both for self-priming and non-self-priming purposes.

An assessment of BAT options as well as a review of BNAT should also be done as it may reveal potential "low hanging fruits". BAT options need to be analysed taking into account their Life Cycle Costs. Without strong reasons for not regulating a product group, the basic approach should be their integration in the study scope. We disagree with the use of premature and arbitrary cut-off criteria like "0.5% of total energy consumption" in order to exclude product groups from the scope (see page 43).

The study scope does not address **pumps designed to comply with specific hygienic requirements** like for the food and beverages industry. This could create a loophole in future regulation, as all pumps designed with additional features (e.g. turbulence) for this sector (pumping liquids covered by the "clean water" definition, like soft drinks) would be out of scope. Manufacturers could then easily claim that their products are designed for special purpose. We invite the study team to reconsider this exemption, and assess the potential risks linked to it.

We very much support the intention of the consultants to discuss the entire **pumps nomenclature** with stakeholders. Future regulation can only be effective if Market Surveillance Authorities can easily identify the products covered by the scope of the regulation. A solution may be to have obligatory information published by producers on the internet, describing the classification of the pumps according to the regulation.

Chapter 2.2 of the report discusses several issues that could be improved, including on product information and categorisation provided by Member States, and the proposal to include obligatory information for planners and craftsmen. These points must absolutely be revisited in Task 7.

➔ **In general, the study scope is well-defined and justified. However, the risk of creating a loophole because of the hygienic design features exemption needs to be fully assessed. We also invite the study team to assess BAT and BNAT to identify potential low hanging fruits.**

- **BAT and BNAT (Chapters 8.2/8.3)**

The chapter on BAT and BNAT is too short and superficial. It should be elaborated, providing more detail, assessing technology options of the detailed product groups as well as their pros and cons.

BAT for Clean Water Pumps is set at the level of pumps that have MEI values above the benchmark level. However, the current performance of pumps and availability of pumps with higher MEI is not considered.

It is stated that VSD is available in all pump categories. An assessment should be done of those applications where it seems feasible to require a mandatory VSD when selling such pump types.

The study team concludes that opportunities for easy repair of waste water pumps are considered the most relevant factor for Ecodesign. Therefore, options should be assessed to define parts that regularly need repair as well as examples of good practice of producers already focussing on design fostering easy replacement. The availability of repair instructions including non-destructive disassembly, as well as mandatory availability of spare parts for 15 years should also be discussed.

We welcome that US and Australian ecodesign standards are proposed as BAT for swimming pool pumps. Comments of producers made at the stakeholder meeting stating that US regulation and energy saving potentials cannot be compared with Europe should only be accepted if the arguments are transparently put in writing and the justification is acceptable.

Regarding BNAT: 'regarding the application of motors and VSD' should read 'improvement of motors and application of VSD'. 'Optimal hydraulic design' is mentioned but not assessed regarding pumps already fulfilling optimal hydraulic design criteria.

An integrated system approach is seen as the best way to achieve energy savings. However, no examples are provided on how this could be included in the Regulation.

➔ **The elaboration on BAT and BNAT is very short and should be expanded with more information on current front-runner techniques and details on future options for increasing energy savings from pumps.**

- **End of Life (Chapter 8.4)**

No other metals apart from aluminium, copper and iron are mentioned. We invite the study team to take a further look at the specific case of rare earth materials. Rare earth elements have been identified as critical materials in the medium-term based on supply risk, demand growth, and recycling restrictions[1] . Devices with rare earth magnets are quite hard to identify as such without having very specific technical know-how or without conducting quite intensive testing/dismantling of devices[2]. Thus, a mandatory and standardised marking of products containing rare earth magnets above a certain minimum weight can significantly facilitate future recycling practices. It is believed that a marking giving information on the

[1] Aalborg University, Addressing resource efficiency through the Ecodesign Directive, March 2014 (p. 225)
[2] Source: Preparatory Study to establish the Ecodesign Working Plan 2015- 2017 implementing Directive 2009/125/EC, Task 2: Supplementary Report "Identification or resource-relevant product groups and horizontal issues", Andreas Manhart, Kathrin Graulich (Oeko-Institut), 15th September 2014 (Chapter 7.1)

presence of rare earth magnets as well as information on the applied type (e.g. SmCo, FeNdB) can positively influence the establishment of a European circular economy for rare earth elements. Several initiatives and projects stress the need to change design for future recovery of rare earths, e.g.: European Rare Earths Competency Network (ERECON)[3] and The RARE Platform[4] who organised e.g. "European Rare Earth Resources 2014" [5] and the MORE (Siemens) recycling project.[6] This information should be included and solutions discussed, especially since provisions have already been included in the fans and motors regulations reviews currently in discussion.

When the recycling of metals is discussed, the devaluation of iron metal fraction due to copper content is not addressed.

The problem of plastic content in secondary metal production, and the presence of copper catalysing dioxin formation is not addressed.

From our assessment, most small pumps (in particular for clean water) are disposed as iron metal scrap, meaning that it is introduced into electric arc furnaces without previous dismantling.

We would like to see more details on the statement from manufacturers that plastics are disassembled and used for energy recovery (as assumed in the study with the Grundfos example). From our experience, there is no dismantling but, in few cases, shredding of such products. We also wonder if better characterisation of the plastic parts would not enable addressing the recycling potentials of those plastics rather than only energy recovery.

It should be seen if:
- Plastics contain hazardous substances or not;
- Plastics could be made of single polymer or compatible blend for recycling.

Additionally, if several recycling possibilities exist, the manufacturer could provide information about the optimal route according to the design of products.

More information on recycling routes and problems relating from contamination in mixed metal fractions can be found e.g. in the UNEP report "Metal Recycling - Opportunities, Limits, Infrastructure" (2013) and is very well-explained in "The Life Cycle of Copper, its Co-Products and By-Products", published by Robert U. Ayres, Leslie W. Ayres and Ingrid Råde in 2003. See also (only in German) "Effizienzgewinne durch Kooperation bei der Optimierung von Stoffströmen in der Region Hamburg" published by Arnim von Gleich, Martin Brahmer-Lohss, Manuel Gottschick, Dirk Jepsen, Knut Sander in 2004 (BMBF research project).

➔ **The bill of materials is incomplete. The recycling issues are not sufficiently addressed: rare earth metal recovery, degradation of iron fractions by copper content, plastic contamination of iron scrap ending-up in electric arc furnaces where copper catalyzes PCDD/F formation. Provisions on rare earth materials included in the fans & motors review should be included, and more emphasis should be put on the need for specific design for dismantling high quality metal fractions to follow the Commission's Circular Economy Strategy.**

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[3] http://ec.europa.eu/growth/sectors/raw-materials/specific-interest/erecon/index_en.htm
[4] http://www.kuleuven.rare3.eu/
[5] http://ec.europa.eu/environment/resource_efficiency/events/upcoming_events/eres2014_en.htm
[6] http://www.isi.fraunhofer.de/isi-en/n/projekte/MORE_en.php

- **Editorial**

Despite the explanations included in the introduction, we think that following the established numbers and titles of MEErP for all study chapters (and include subsections, where necessary) would bring clarity and make it easier for readers to find information.

Some of the analysis in chapter 2.1 (Task A) does not fit under the title 'Ecodesign requirements for water pumps' and should be shifted accordingly: The last paragraph of that section is partly related to chapter 2.2 'Experiences from implementing the Regulation' and partly discusses technical proposals for the regulation (obligatory use of VSD for some applications) which better fits in chapter 8 (Task D4).

Important evaluations of the study cannot be found when looking at the index of the study because headings do not appear as numbered chapters. Under 'Suggested pump types and categorisation based on previous preparatory studies', important issues are assessed, in particular 'Total energy consumption at EU level' and 'Estimated energy savings potentials' which should be more visible under a numbered sub-section, as well as the chapter 'Definition of pump types'.

END

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