

Position on the review of ENER Lot 38 (BACS) after the Consultation Forum of 15 November 2021

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EXECUTIVE SUMMARY AND RECOMMENDATIONS

The European Commission is assessing the possibility of introducing ecodesign requirements for building automation and control systems (BACS). The full ENER Lot 38 study on introducing such legislation for BACS was presented and discussed at a Consultation Forum on 15 November 2021.

EPEE, the voice of the air conditioning, heat pump, and refrigeration industry in Europe, supports the EU ecodesign and energy labelling policies, and agrees with the need to keep the legislation up-to-date and in line with the latest technological developments. Ecodesign is a tool that has delivered considerable energy efficiency savings across Europe. Nonetheless, we have strong concerns regarding the policy options that have been proposed for regulating BACS.

This paper provides EPEE's position following the Consultation Forum of 15 November 2021. In the first part, we highlight general concerns on the study's proposals. In the second part, we elaborate our views on the ecodesign policy options for BACS. The third part continues with our comments to the energy labelling proposals.

CHAPTER I: GENERAL

1. Avoid double regulation of products.
2. Adopt vertical approach for vertical systems.
3. Ensure a scope that is supported by the BACS standards.
4. Ensure a technology neutral approach.

CHAPTER II: ECODESIGN

1. Clarify definition for BACS and take product-specific concerns into account.
2. Clarify the unclear policy options for material and resource efficiency.
3. Avoid regulating sensor accuracy in ecodesign.
4. Avoid regulating internal power consumption of BACS incorporated in technical building systems.

CHAPTER III: ENERGY LABELLING – CURRENTLY INAPPROPRIATE FOR BACS

Introduction

EPEE, the voice of the air conditioning, heat pump, and refrigeration industry in Europe, welcomes the opportunity to provide comments to the ENER Lot 38 final study assessing the introduction of ecodesign requirements for building automation and control systems (BACS). We welcome the consultants' and Commission's considerations of the industry comments following the Consultation Forum of 15 November 2021.

Nonetheless, we have strong concerns regarding the policy options that have been proposed as for regulating BACS. Whilst we believe that BACS have a role to play in achieving energy efficiency targets and in improving comfort and wellbeing for end-users, the study indicates that there is not enough clarity to lead to mature, sound, measurable, feasible, or verifiable requirements. This paper outlines and elaborates on our concerns. Please note that our paper is divided in three different parts:

- Chapter I provides general concerns and recommendations;
- Chapter II deals with the ecodesign policy options for BACS; and
- Chapter III focusses on the energy labelling policy option.

Chapter I: General

1. Avoid double regulation of products

EPEE highlights the importance of avoiding double regulation of products. As such, the scope of ecodesign requirements for BACS has to be carefully considered as to avoid double or even different and nonaligned requirements for various product groups. As an example, controllers are also regulated individually for various vertical product groups (e.g., for space heaters, ventilation), and within their product groups individually the requirements for controllers have already been optimised.

2. Adopt vertical approach for vertical systems

If moving forward with policy pathways, BACS incorporated in TBS can only be addressed vertically. A vertical approach (on the level of a TBS system / component instead of the whole BACS) may lead to optimal results in terms of energy savings and better performance of the systems that will lead to fostering health, wellbeing, and comfort for the end-users. As such, EPEE strongly believes that a vertical legislative approach for products would be more appropriate than a horizontal (more general) one.

EPEE believes that a one-size-fits-all approach is suboptimal in terms of achieving energy savings, and that this also applies to BACS. As such, ecodesign requirements for BACS should not interfere with the logic and purposes of the individual product groups that are connected to the BACS system and fall within the scope of EN 15232.

3. Ensure a scope that is supported by the BACS standards

We support the fact that the potential BACS policy options are based on EN 15232. However, several product groups that are included in the ENER Lot 38 study on ecodesign requirements for BACS are not covered by EN 15232. The standard only includes functionalities related to ventilation and hydronic installations. As the standard is incomplete, only the product groups covered by the standard can be included directly in any BACS ecodesign requirements. In the meantime, should this pathway be pursued, a standardisation request would need to be developed for the update of EN 15232 to include the missing product groups.

This also means that a definition for BACS needs to be harmonised with a standardised BACS classification at EU level.

4. Ensure a technology neutral approach

At all times, ecodesign requirements must remain technology neutral. Therefore, EPEE strongly opposes the introduction of a list of pre-approved protocols. Moreover, the disclosure of proprietary protocols is totally unnecessary and commercially sensitive, and it is unacceptable to ask for such information from manufacturers. It is always possible to establish a standardised communication channel between the TBS and BACS without releasing the proprietary protocols.

Instead, increasing the information available on interoperability and compatibility would be sufficient today. However, since interoperability relates to different aspects other than environmental performance of a product, and mainly intends to enhance the communication between products and BMS systems, EPEE doubts whether ecodesign is the appropriate tool for the inclusion of such requirements. In addition, a better clarification is needed for the difference between interoperability and compatibility.

Chapter II: Ecodesign

1. Clarify definition for BACS and take product-specific concerns into account

The Energy Performance of Buildings Directive 2010/31/EU (EPBD) provides in Article 2(3a) a definition of BACS:

‘building automation and control system’ means a system comprising all products, software and engineering services that can support energy efficient, economical and safe operation of technical building systems through automatic controls and by facilitating the manual management of those technical building systems.

This is a broad definition that does not necessarily reflect or take into account the needs and characteristics of the technical building systems that are connected to and regulated by the BACS. As such, ecodesign requirements cannot rely on this definition alone; we need a new and clear definition of BACS.

We are aware of the specific characteristics that BACS need to have in order to regulate our products. Typically, BACS are systems composed of one or more controllers, sensor, and actuators that aim to guarantee one or more user-defined setpoints for specific processes happening inside a building. It may directly drive actuators and field devices (e.g., motors, compressors, etc.) or drive and be affected by lower level BACS. It is common to have various layers of BACS in complex situations. A shopping mall, for example, may have various BACS for the various HVAC systems, refrigeration systems, lighting, etc.

As a direct result, the individual BACS within a building influence each other. Based on the hierarchy level of the BACS, the system reacts as a result of pre-programmed logic. However, this logic should not jeopardise occupant health and comfort, and/or the served processes, on the account of energy savings.

It is clear that the aforementioned means that regulating BACS is complex: what is being regulated, which of the BACS is controlling the other ones and under which circumstances, etc.? This means that a set of BACS is required to serve the processes running in a building to maintain them as close as possible to the pre-set targets, while considering acceptable tolerances for the scope of application. At the same time, the BACS is required to minimise the primary energy consumption, the running costs, and other eventual key parameters according to the process-specific hierarchy.

To take aforementioned into account, EPEE stresses the need for a better definition of BACS, including the following elements.

- A BACS structure and architecture based on the product group and application;
- The area field of the BACS application; and
- The functionalities based on the product group and application.

2. Clarify the unclear policy options for material and resource efficiency

Although EPEE is a strong supporter of balanced, measurable, verifiable material and resource efficiency requirements in general, introducing such requirements for BACS is exceptionally challenging. The reason for this is that the availability of spare parts for BACS highly depends on the availability of specific components. For example, microprocessors, PCBS, etc., can become outdated and phased out. So, the same controller/thermostat/etc. cannot be manufactured again. As such, to start with workable and implantable requirements, EPEE does not believe that any material efficiency and repairability rules for BACS could go beyond information requirements.

The warranty proposals are not in line with the current business practices. Furthermore, such warranty practices are already regulated in other EU regulations. A coverage of 15 years is only realistic if new versions of BACS are backward compatible and can be installed with existing versions, which means that replacing products that fail within 15 years is unacceptable and would increase the costs of products and even require product insurance.

The abovementioned also means that the proposed lifetime requirements are not realistic. Aside from the fact that they would increase costs for end-users and basically require a life insurance against the product's survivability, we also doubt the methodology on which the lifetime requirement period is established.

3. Avoid regulating sensor accuracy in ecodesign

Sensor and control accuracy is not standardised and would lead to issues on price and data privacy. As standards need to be improved, it is inappropriate to regulate the controller and sensor accuracy under ecodesign.

Application-dependent accuracy limits could be further investigated as this would allow the development of thermostats aligned to the required accuracy (lower accuracy and pricing versus higher accuracy with more expensive products). A 0.5 K setpoint accuracy in building applications is possible and partly already realised. However, < 0.5 K makes no sense here, although technically possible, due to the inertia of modern well-insulated buildings, the properties difference of the heat transfer media (air, water, refrigerant), occupant behaviour, etc., and is depending on the specific situation. Mandating excessive accuracy, regardless of the system, results in higher costs for the end-user without providing any obvious energy savings or comfort improvements.

Control accuracy depends on the application. Also, depending on the building envelope and the installations, the control accuracy needs to have varying degrees of preciseness. A too

high accuracy may lead to higher consumption and an inefficient product operation. As such, control accuracy can become the determining factor for the (in)efficiency of the system.

4. Avoid regulating internal power consumption of BACS incorporated in technical building systems

It is unclear how the internal power consumption of components can be measured, because they are often part of a complete product or a system.

Chapter III: Energy Labelling – currently inappropriate for BACS

EPEE believes that the study is currently not mature enough to support an energy labelling option for BACS. In order to establish an energy label, four questions need to be answered:

- 1) can an energy label apply to functionality instead of products;
- 2) what information will be showed on the energy label;
- 3) how will the energy efficiency be measured and classified; and
- 4) how are the market surveillance authorities enforcing the correct application and measurement of the labels?

ABOUT EPEE

EPEE represents the Refrigeration, Air-Conditioning and Heat Pump industry in Europe. Founded in the year 2000, EPEE's membership is composed of over 50 member companies as well as national and international associations from three continents (Europe, North America, Asia). With manufacturing sites and research and development facilities across the EU, which innovate for the global market, EPEE member companies realize a turnover of over 30 billion Euros, employ more than 200,000 people in Europe and also create indirect employment through a vast network of small and medium-sized enterprises such as contractors who install, service and maintain equipment. Please see our website (<https://www.epeeglobal.org/>) for further information.