EuroWindoor position on scoping the Ecodesign preparatory study for Building Automation and Control Systems (BACS)

EuroWindoor welcomes the initiative for a Ecodesign preparatory study on Building Automation and Control Systems (BACS) implementing the Ecodesign Working Plan 2016-2019. We see the important role of BACS to pursue climate targets and reduce CO_2 emissions and we fully agree that BACS offer an impressive, cost-effective potential to reduce building energy consumption, which needs to be implemented by the Directive (EU) 2018/844 amending the Energy Performance of Buildings Directive (EPBD).

EuroWindoor took note of the Task report on scoping the Ecodesign preparatory study for Building Automation and Control Systems (BACS) and has discussed it intensively. We did participate in the LOT 32 Ecodesign preparatory study on Window Products where in the end no consensus could be reached for good reasons. The performance of windows depends on many factors, e.g. the climate, building type, orientation etc.

In line with this it is stated in the Lot 38 scoping report that the “complexity of estimating the energy impacts of BACS arises from the many components that influence the building energy balance in combination with a broad range of possible technical properties, climate conditions and usage patterns”. In addition it is stated that in “principle, a smart web based BACS energy saving calculator could take into account the interplay between the different potential building types and climate zones.” We sincerely fear that this will be a very difficult task to fulfill.

Having read the scoping study of Lot 38, it is not clear to us from the report which specific products are proposed to be covered by the scope of the Ecodesign preparatory study for BACS concerning possible future Ecodesign measures like minimum performance requirements or energy labelling for BACS.

We therefore would like to give input to the following BACS products from building application level, which are manufactured and distributed by the European window, door and facade (curtain walling) industry:

- Smart windows
- Smart doors
- Smart blinds & shutters
- Automatic sliding or revolving doors

These products are integrated into the building management system in a wide variety of ways, some of which are also operated as stand-alone actuators. We would like to highlight that the products are fundamentally different from e.g. “heat generator control system”. The function of our products is of key relevance to reduce building energy consumption by changing the performance of the building shell when needed, e.g. by controlling solar gains for reducing heating or cooling energy, by allowing natural ventilation and night cooling to reduce the potential need for air-conditioning etc. There is no need to have a permanent operation and most of the time the products are in stand-by mode. In the Annex exemplary extrapolations of the energy consumption for various products is calculated.

The following conclusions can be drawn from the projections and evaluations:

- Energy consumption of active operation of the mentioned products is usually smaller than in stand-by mode.
- All energy consumption of the above mentioned products is far below the data of other consumers (such as artificial lightning, heating, cooling, …).
- The energy consumption of automatic sliding or revolving doors is higher than that of automated windows or shutters, but is due to more frequent use (inspection) and safety aspects (e.g. escape routes, fire protection).

The function of the mentioned products is relevant for the performance of the BACS system, as highlighted above, and we propose to further develop the Smart Readiness Indicator with its focus on e.g. energy and indoor climate, well-being and health aspects.
For reasons of the above-mentioned evaluations and calculations (e.g. no significant savings in self-consumption) bearing in mind the proportionality of future possible measures, EuroWindoor proposes not to take these BACS products under further consideration for potential product measures according to Ecodesign Directive (ED) and Energy Labelling Regulation (ELR) in the "Ecodesign preparatory study for Building Automation and Control Systems (BACS) implementing the Ecodesign Working Plan 2016-2019".

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About EuroWindoor AISBL – EuroWindoor AISBL was recently founded as an international non-profit Association, in order to represent the interests of the European window, door and facade (curtain walling) sector. Our 17 national associations speak for European window, door and facade manufacturers that are in direct contact with consumers, and thereby having large insights on consumers' demands and expectations. We are at the forefront interacting with dealers, installers and consumers buying windows and doors, and the companies behind the associations cover selling all over Europe.

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1. Energy consumption of a Smart Window

Current consumption: 1 A

Voltage supply: 24 V

Movements per Day: $10\frac{1}{day}$

Duration of the movement: 30 s

Use on Days per Year: $300\frac{day}{year}$

Calculation of the Energy consumption

$$W = \frac{1\,A \times 24\,V \times 10 \times 30\,s \times 300\,day}{day \times year} = 600\frac{Wh}{year} = 0{,}6\frac{kWh}{year}$$

2. Energy consumption of a regular standby device

Power consumption: 0,5 W

Standby duration per day: $24\frac{h}{day}$

Standby duration per year:$365\frac{day}{year}$

Calculation of the Energy consumption

$$W = \frac{0.5\,W \times 24\,h \times 365\,day}{day \times year} = 4380\frac{Wh}{year} = 4{,}38\frac{kWh}{year}$$

3. Energy consumption of an automatic roller shutter

Power consumption: 90 W

Movements per Day: $10\frac{1}{day}$

Duration of the movement: 30 s

Use on Days per Year: $300\frac{1}{day}$

Calculation of the Energy consumption

$$W = \frac{90\,W \times 10 \times 30\,s \times 300\,day \times 1h}{year \times 3600\,s} = 2250\frac{Wh}{year} = 2.3\,\frac{kWh}{year}$$

4. Energy consumption of an automatic sliding door

Energy consumption during the day: 22 W

Energy consumption during the night: 19 W

Energy consumption in Standby: 5 W

Daytime operation mode: $13\,\frac{h}{day}$

Nighttime operation mode: $11\,\frac{h}{day}$

Active days: $300\,\frac{day}{year}$

Standby days: $65\,\frac{day}{year}$

Calculation of the Energy consumption

$$W = \frac{22\,W \times 13h \times 300\,day}{day \times year} + \frac{19\,W \times 11h \times 300\,day}{day \times year} + \frac{5\,W \times 24\,h \times 65\,day}{day\ \times year} = 156{,}3\ \frac{kWh}{year}$$