

Who is ABB Electrification Smart Buildings (ELSB)?

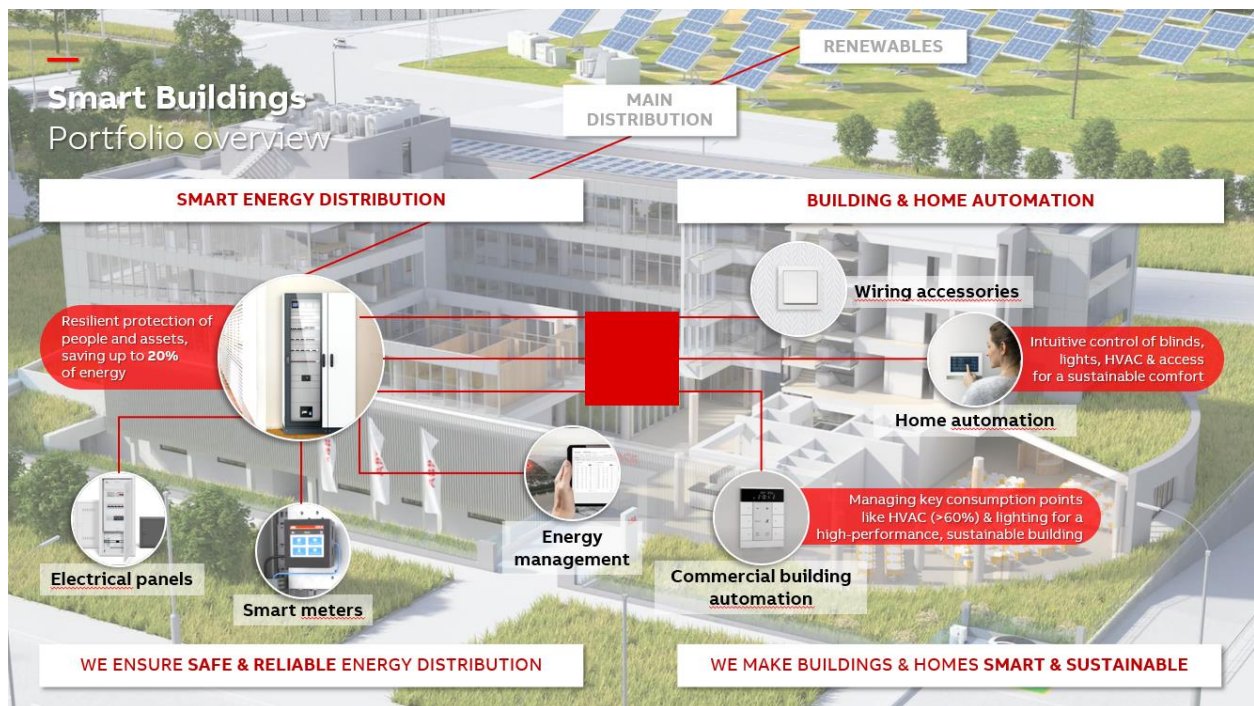
ABB ELSB is part of the ABB Group and covers the segment of electrical power distribution and data networking in buildings. ABB ELSB is one of the market leaders in building automation and smart building. ABB ELSB serves both the EU and global markets with products manufactured in the EU, but also has factories outside the EU. For a wide range of products, the leading development centres and the leading factories are located in Europe.

ABB's headquarters are in Switzerland. ABB has a total of about 105,000 employees.

ABB ELSB key facts:

- approx. 14,000 employees
- \$2.75 - \$3.25 billion revenues
- 34 production sites

ABB ELSB's product portfolio includes a wide range of products needed for the distribution and networking of power and data in buildings. These products are very important for the transition of our society today to a fully electric and digital society by the renewal and expansion of electrical and data networks. Given the importance of energy efficient buildings, we expect the segment to grow significantly in the coming years. All this strongly supports the Green Deal as one of the major EU initiatives.



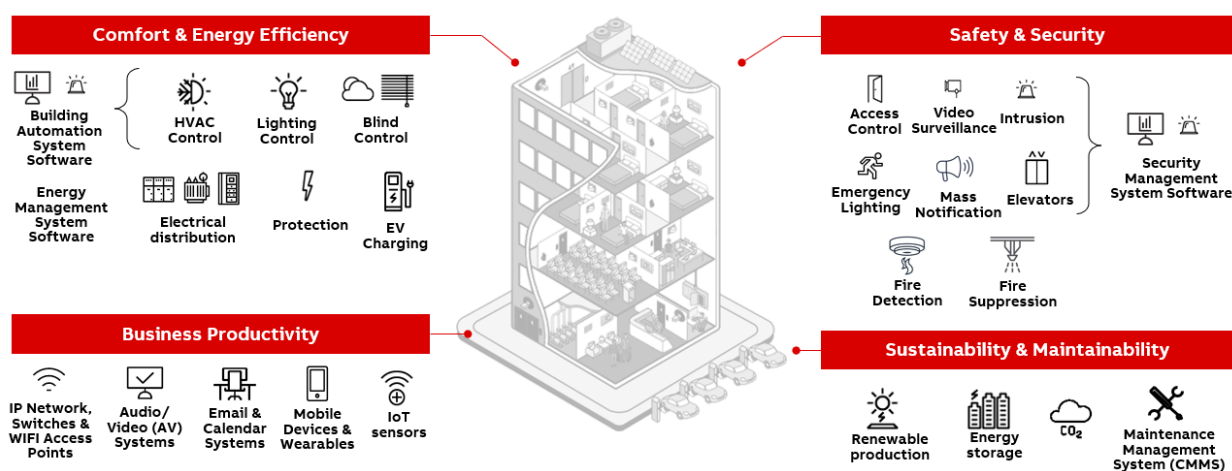
Low-voltage devices or electrical installation devices are the products in the energy and data network in the building with which end users come into direct contact and which must therefore meet special safety requirements. Almost all products and their components are developed and manufactured by ABB itself, e.g.

- Smart Home
- Building Automation & Control
- Door Entry Systems
- HVAC Control
- Access Control & Security
- Emergency Lighting & Battery Systems
- Wiring Accessories (Socket Outlets, Switches, Dimmers, ...)

- Industrial Plugs & Sockets
- DIN-Rail Products
- Distribution Enclosures
- Energy Management

The main requirement for the entire product range is the high level of safety, quality, and reliability, as the expected service life of the market is very high (>25 years). The failure rates of the products must be above average. This requires the use of highest quality materials with excellent performance, reliability and for a wide temperature range. All these requirements are partly well supported by PFAS materials or PFAS additives in materials.

Figure 2 shows the importance of our products for safety and sustainability and productivity in commercial buildings.



During their long time of use, electrical installation devices do not release any emissions. When electrical installation equipment has reached the end of its service life or even when the entire building must be demolished, it is regulated by law how these products have to be disposed of. Electrical installation equipment must be labelled and registered with the German EAR in accordance with the WEEE Directive 2012/19/EU and disposed of properly at the end of its service life. For batteries and accumulators, disposal is regulated by the Battery Regulation in the EU. National German laws such as the ElektroG and the BattG supplement the European legal acts and ensure that electrical installation devices are not disposed of in residual waste.

Why is ABB contributing to the ECHA consultation on PFAS?

As PFAS are widely used in electrical equipment, ABB ELSB, like all other electrical equipment manufacturers, will be greatly affected by the proposed restrictions on PFAS, including the ban at very low concentrations. Without changes to the regulation, this could result in a ban on the manufacture and sale of many building solutions products for ABB and other manufacturers.

ABB is interested and willing to find a compromise to replace PFAS in a realistic timeframe where it is technically feasible, reasonable, and relatively beneficial for the environment and society. To this end, we have prepared and uploaded specific submissions, this being one of them.

We ask ECHA's technical experts to carefully consider these contributions and take them into account when drafting the final regulation, especially regarding the exemptions we have requested.

Contribution topic: Electrical equipment for building installation and smart building

Target: Exemption from the restriction for additional 12 years

Low-voltage devices or electrical installation devices are very complex products with daily stress and a long duration of more than 25 years. To make this possible in combination high level of safety and quality, high quality materials are used. For some of the technical functions PFAS materials are intentionally used or they can be used as components of materials from other manufacturers. The materials used in electrical equipment are divided into the following groups:

- 1) PFAS-containing products or components that have been intentionally selected as a material or as a ingredient of a material mixture for a specifically defined function.

Example socket outlet - product for end user - use several times a day.

Production volume >50 million pieces p.a.

Rated voltage 230V, rated current 16A,

safety-relevant components: increased protection against contact, prevention of electric shock

Sliding properties required: Polyamide with PTFE

- 2) Material, that has been selected based on technical parameters. PFAS has not been specified by the equipment manufacturer but might be contained as ingredient of a material mixture based on the definition of the manufacturer of the material.

Example socket outlet- product for end user - use several times a day.

Production volume >50 million pieces p.a.

Rated voltage 230V, rated current 16A

safety-relevant components: increased protection against contact, prevention of electric shock

Lubrication required: Lubricant with PFPE

- 3) Components or assemblies, which are supplied from 3rd party suppliers, which have designed them on their own. PFAS has not been specified by the equipment manufacturer but might be contained as ingredient of a material mixture or as material based on the definition of the component manufacturer or of the material manufacturer for materials used in the component.

Example: electronic parts and electronic components

- capacitors

- relays

- printed circuit boards

- Displays, Liquid crystal displays

- 4) PFAS is a contaminant from the production process, e.g., as release agent used in a cast moulding process to allow easy demoulding. Also surface treatment using PFAS or PFAS containing substances can result in such an effect. Contamination because of PFAS components in the production machine or due to manufacturing of PFAS containing products close to the production line of intended PFAS free products can lead to contaminations. Due to the extremely low threshold level of 25 ppb, contamination is hard to control, especially if the manufacturing of parts or components are outside the EU, where no restrictions on PFAS exist.

Example:

- Semiconductors

- Injection molded parts

- Stamped and bent parts

For 1) the manufacturer of the electrical equipment (e.g. we as ABB) is called to identify and search for alternatives. This process has already started.

For 2) it is already more complex, as materials are used in many applications and changes of a material recipe might have impact on the technical parameters. A change might result in that the material can no longer be used. Then another material has to be qualified. Alternatively, the supplier might decide to stop the production of the material. Then a new supplier for a similar, PFAS free material needs to be identified.

At 3) it becomes even more complex and time consuming, as the process is not under control and can barely be influenced by the electrical equipment manufacturer (e.g. ABB). The responsibility is on the supplier. An example for this group could be electronic equipment as control and protection relays requested from our customer to be used from 3rd party. They contain semiconductors or other electronics, where it has been announced from the industry that it is almost impossible to offer PFAS free solution in short to mid term.

For 4.) it is actually unclear how a declaration of PFAS-free could be achieved.

The identification processes 2) to 4) have one problem in common: The vast majority of the about 10,000 individual substances covered by the restriction proposal are currently not classified as hazardous in accordance with the CLP Regulation (EC) No. 1272/2008 nor identified as substances of very high concern (SVHCs) under REACH Regulation (EC) No 1907/2006. Thus, information on PFAS contained in mixtures and articles is usually not communicated along the supply chain. In addition, the extremely low threshold level of 25 ppb is not only limiting the identification process to intended ingredients, but extends it to contaminants during the production process, which can result in that concentration. Analytical processes to proof if an article is PFAS-free will be extremely challenging taking the huge number of related articles into account, especially for polymers. Without a preceding, sufficiently long mandatory information phase based on legal requirements, during which information on PFAS in articles and mixtures had to be communicated in the supply chain, e. g. via safety data sheets or according to REACH Art. 33, it is not possible to determine all PFAS uses.

ABB has the target to replace PFAS in products wherever possible by PFAS-free materials. There might be some applications where this is not possible, which will be addressed separately. In all other cases, where a replacement is possible, the complex way of identification, finding a replacement, implementing them in products and finally repeating type testing of related products will by far exceed the given transition time of 18 months, taking into account that only the time required for full type testing of products can be one year or more. As this would not only affect ABB but all manufacturer of electrical equipment, due to the limited number of accredited test laboratories, this will create a bottleneck in type testing, which could cause shortage of electrical equipment with huge financial impact and a delay of the green deal. Type tests are mandatory for most markets, including EU and any material change with impact on the test result, requires type tests to be repeated. As these tests are very time consuming and some specific tests are extremely expensive, the tests have to be done after all(!) PFAS replacements in the specific product to be tested have been completed, to avoid repeated testing of the same product for each identified PFAS again and again.

For this ABB ELSB asks for an extended transition time of additional minimum 12 years to complete the transition to PFAS-free solutions. As the investigation along the whole ABB ELSB supply chain is still ongoing, we still see the risk that this might be challenging, especially if the low threshold level is kept and the identification is not limited to intentionally added PFAS. For this either the possibility of a further exemption after the 12 years should be offered, if it is proven that the replacement projects are not completed.

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