

ABB contribution to the ECHA consultation on PFAS

ABB Electrification Distribution Solutions (ELDS)

ABB ELDS is a part of the ABB group covering the segment of electrical distribution systems in medium voltage (MV) up to 52 kV. ABB ELDS is market leader in power distribution solutions. ABB ELDS serves the EU, as well as the global market, with products produced in both within and outside of the EU. For a wide range of products, the lead development centres and the lead factories are located in Europe. ABB ELDS factories in the EU are located in Germany, Finland, Poland, Czech Republic and Italy with a total of several thousand employees. In addition to direct jobs, we are connected to a wide supplier base in the EU, serving ABB with components and material.

The product portfolio of ABB ELDS covers a wide range of products required for the distribution of electricity. These products are important for the EU electrification by upgrading and extending the electrical networks. Due to the growing distributed energy generation in the medium voltage level by wind and solar power, we expect a significant growth of the segment in the coming years.

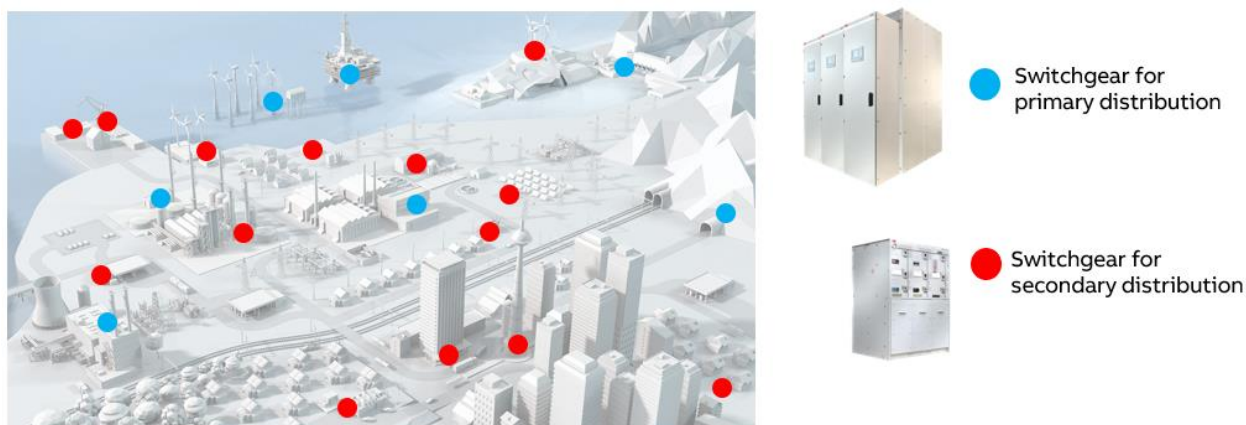


Figure 1: Location of products of ELDS in a typical electrical MV network

Medium voltage switchgear are the top product level in the distribution network. They are either air insulated (AIS) or gas insulated (GIS). Many of the components are designed and manufactured by ABB, such as circuit breakers, cable bushings, instrument transformers and control- and protection relays. These components are used to build ABB switchgear, but are also manufactured for other companies to be used and sold in their own products. In some markets, outdoor circuit breaker are used in the network without a switchgear. Special applications as railway use e.g. a circuit breaker on the train.

The main requirement for the complete product range is the high quality and reliability level, as the lifetime expectation from the market is extremely high (>40 years) and the maintenance effort for the customer has to be kept low. Failure rates of the products are expected to be extremely low. This requires the use of top quality materials with outstanding performance, reliability for a wide temperature range. All these requirements are supported by PFAS materials or PFAS additives in materials. A part of the complex ABB ELDS product portfolio and how they are linked together is shown in figure 2. The red arrows are pointing to the next level product of ABB, but these components are also sold to 3rd parties for their own products.

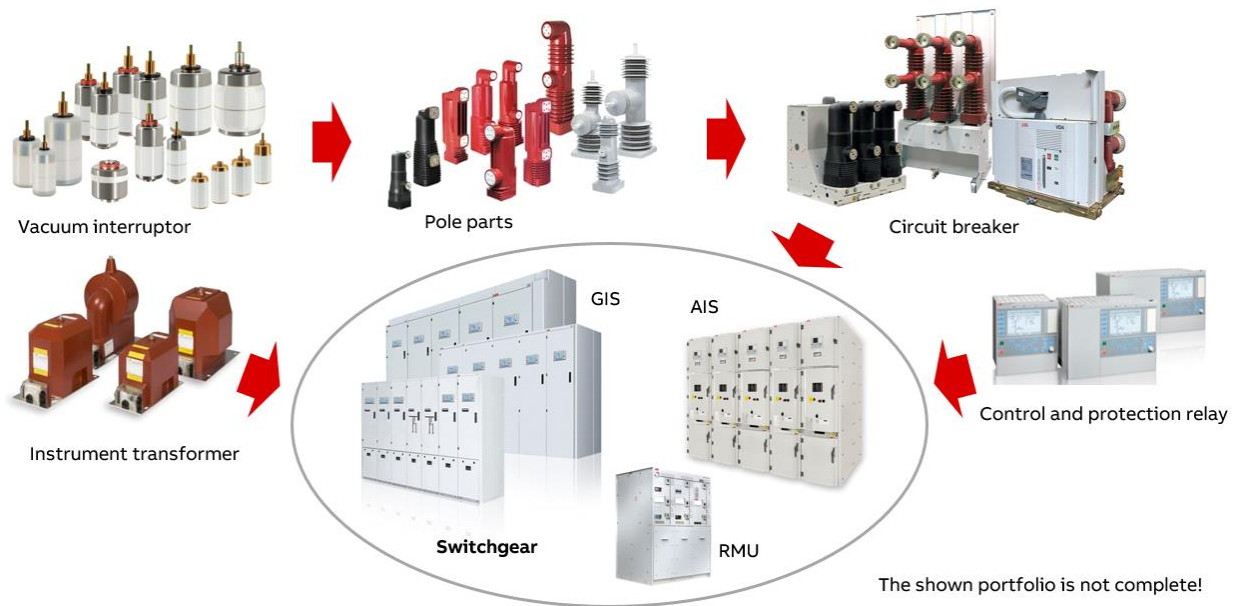


Figure 2: ELDS products and their use in ABB and non-ABB products

ABB Electrification Smart Power (ELSP)

ABB ELSP is a part of the ABB group covering the segment of electrical distribution in low voltage (LV) up to 1 kV in AC applications and up to 1,5 kV in DC applications. ABB ELSP is market leader in power distribution solutions. Thanks to a wide network of feeder factories located all around the world, ABB ELSP serves EU countries as well as the global market. Production is performed by several thousand employees and in addition to the direct jobs at ABB we are connected to a worldwide supplier network serving ABB with components and materials.

Most relevant products included inside ABB ELSP portfolio are:

- Circuit breakers
- Switches
- Fuse gear
- Contactors
- Manual motor starters
- Overload relays
- Arc guards
- Pilot devices
- Safety and control devices
- Enclosures
- Switchgears



Circuit breakers



Contactors



Switches



Manual motor starters

ABB Process Control Platform (PA PCP)

ABB Process Control Platform, an organization part of ABB's Process Automation Business Area, provides the divisions with future-oriented world-leading process control products and systems. ABB's distributed control system (DCS) is the main offering that the PCP organization provides. The DCS is at the heart of plant-level digitalization and is used for multi-faceted, 24/7 process operations. Distributed Control Systems are found across a wide range of applications including mining extraction, transportation and processing, chemical manufacturing plants, water and wastewater treatment, electric power generation plants, and pharmaceutical processing facilities. The ABB Process Control Platform organization has three core areas: Portfolio & Product Management, R&D and Technology, as well as Operations.

Why is ABB contributing to the ECHA consultation on PFAS?

As PFAS are widely used in electrical equipment, ABB, together with other manufacturers, will be strongly affected by the proposed restrictions, including the very broad ban at very low concentration levels.

ABB is committed to finding an alternative to replace PFAS in a realistic time frame, where it is technically possible, where it is advantageous for the environment and the society. For this we have prepared and uploaded specific contributions on the issue. We ask the ECHA technical experts to review these contributions carefully and consider them in the preparation of the final restriction, taking into account requested exemptions.

In case of additional questions, required background information or direct request for discussion, please feel free to contact us, using the contact details at the end of this document.

Contribution 2:

Topic: Spare parts and wear parts

Target: Exemption from the restriction unlimited in time

Electrical equipment generally has a long lifetime of 40 years or even more and are therefore well prepared for the sustainable targets under preparation by the EU. Technically, economically, and ecologically it is possible in many cases to further extend this lifetime, in some cases with some maintenance or refurbishment. On the other hand, the replacement of old equipment is always related to very high effort for the owner and operator and requires intensive planning of the work and related de-energization of the equipment or the complete substation. Based on the condition of the equipment, even service times of 50 or 60 years are possible and targeted by the network operators, for example of air insulated switchgear (AIS). ABB ELDS has a wide portfolio of products for distribution of electricity. Many of the products are maintenance-free, others require maintenance or service over lifetime. Both categories might be affected by defects based on internal failures or external reasons which require to be repaired.

Within the lifetime of the equipment, the repair or the replacement of components or assemblies is mandatory to keep the equipment running and to fulfil the required function. Maintenance and repair require spare parts to bring the product back in a condition to fulfil the technical requirements and performance needed for the task. As defects in electrical equipment are often linked to outages or at least to

preliminary network configuration to bypass the defect equipment, it is of high importance to repair defects in short time. For this manufacturer or even operators keep the most common spare parts on stock. In the majority of cases, it is required to use the “repair-as-produced-principle”, as otherwise the technical performance might change and/or test certificates become invalid, which will revoke the permission of use.

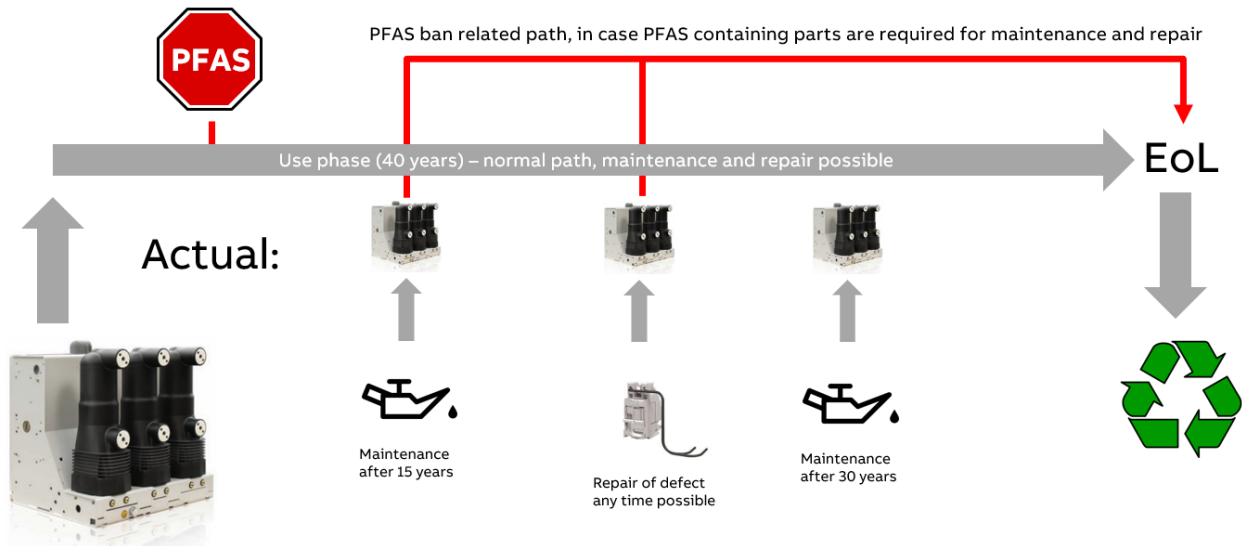


Figure 3: Lifecycle of ELDS products and impact on lifetime if maintenance or repair is blocked

For products manufactured many years ago and even discontinued since many years, it is impossible to have an overview about contained PFAS. Even in actual products, the extremely low threshold levels makes it very complex to identify PFAS. In case required, spare parts of the original design use PFAS, it might not be allowed to use PFAS-free alternatives as this change can invalidate the type tests. A change of material (in that case replacing PFAS containing materials by PFAS-free materials) would require, according to actual standards, that type tests have to be repeated using this new material. This is not possible for products already in use and especially if discontinued by the manufacturer, as the required test objects for type test cannot be manufactured anymore. Without a valid type test, the use of the equipment is no longer permitted, in many cases for safety reasons. In addition, it would be non-proportional to re-do type tests for discontinued products of the last 5 decades to be prepared for any possible defect. Taking equipment out of service because a very small component is not available, is non-proportional and the economic and ecologic impact of shortening the lifetime is very high. Keeping the “repair-as-produced-principle” is therefore mandatory for electrical equipment.

In addition, the current restriction proposal prevents the transition towards a circular economy and undermines fundamental sustainability goals, e. g. the “repair-as-produced-principle” constituted in EU product legislation such as Directive 2009/125/EC, which allows products already placed on the Union market to be restored to their original condition without undergoing a conformity assessment again. The exclusion of repair and spare parts from the PFAS ban is crucial due to the serious risk of a sudden end-of-life for a wide variety of long-living products after the restriction’s application date.

In the majority of cases, the affected article to be replaced by a spare part is only a very small portion of the overall top-level article (the product), as for example a nozzle of <100 g of a load break switch of a medium voltage ring-main-unit (total weight about 600 kg) or a few grams of grease in a circuit breaker mechanism. As these spare parts are often mandatory for the function and need to be replaced to continue the use of the equipment, it would not be proportional to limit the overall lifetime of an equipment to the time of the first defect or wear of a single component. Besides the financial impact of such a limitation, many products are not simple to be replaced by new products. This would lead to unacceptable interruption of use of the products with possible severe consequences as outages or limitations of electricity supply.

For this ABB asks for a time unlimited exemption for spare parts and wear parts used for the maintenance and repair of products already placed on the market prior to the validity date of the restriction, taking care of any exemption for components or technologies, until the equipment has reached its practical end of life.