

Comments to Briefing paper on SF6 and alternatives in electrical switchgear and related equipment

Introduction

Power intensive industry has equipment at site level currently using SF6 and is directly impacted by the regulation. Increased cost for grid owners would increase our grid cost. In total, the industries cost may increase substantially and weaken our competitiveness.

The briefing paper focus on alternatives that can replace fluorinated greenhouse gases in new medium voltage (1 kV-52 kV) secondary switchgear. The paper also includes a section on the development of alternative solutions for high voltage (52 kV -220 kV) and extra high voltage (>220 kV) switchgear. IFIEC supports the effort for minimizing the emissions of SF6 in switchgear to reduce the climate impact, however a new regulation must be in line with the development and commercialization of alternatives to SF6 and ensure that continued cost efficient operation is possible. A new regulation must allow for continued operation and maintenance of existing switchgear containing SF6. New equipment may use alternatives if it is technically and economically viable as industrially available and as efficient as SF6. But extra costs must not be passed on to industrial consumers.

Below follows some comments to the briefing paper as well as some general remarks on the development of alternative technologies.

Briefing paper

For medium voltage switchgear there are, as described in the literature, several viable alternatives to SF6 as insulation medium and for breakers recently developed or under development without full industrial deployment. However, for some industrial applications with a high current and high short circuit capacity there are currently and shortly foreseen no alternatives, and as the paper points out there are a lack of demand for these niche applications and thus not the focus of manufactures for development. Extra costs due to possible future stricter regulation on the use of SF6 for such applications cannot be financed by increasing the grid tariffs. This is of high importance for the power intensive industry to ensure that continued operation is possible.

For high voltage and extra high voltage switchgear the availability of alternatives is very limited and there is a need for substantial new developments. The paper gives an impression that a lot of alternatives at this voltage level will be developed in the next 5 years without any evidence. This is a very optimistic assumption and should not be considered as a foundation for new regulation. As described in the literature, after the development period there will be a period for commercialization. Following commercialization, operational experience and experience from maintenance is needed before a widespread use of the new technologies. This means no alternative to SF6 is foreseen in the coming decade for high voltage applications.

General remarks

For the fleet of switchgear containing SF6 the focus should be on developing best practices for minimizing leakages during the lifetime and the decommissioning phase. The existing fleet has several decades of remaining lifetime and as there are substantial developments needed for alternative technologies, new installation containing SF6 will come on line in the coming years.

IFIEC calls upon the European Commission to provide appropriate support measures, incentives and boundary conditions to accelerate the transition to SF6-free solutions and development of technological alternatives. There should be a substantial focus on R&D for new alternatives to SF6 in switchgear also including high voltage and extra high voltage application. It is important to make funds available for these activities. These activities should include the whole chain towards widespread implementation: research, development, demonstration, homologation and implementation. IFIEC encourages the European Commission to ensure that the future Horizon Europe program supports research on these alternative technologies for new equipment.

A ban or severe limitations on the use of SF6 in switchgear before sufficient reliable and cost efficient technological alternatives are in place will have major consequences for the power intensive industry. Both with regards to the cost of operation including cost of internal high voltage systems and external grid costs and with regards to security of power supply.