

Qu. 1.16: According to the papers, the most important scope 1 emissions for transmission system operators are linked with SF₆. This gas being a very potent GHG contributor measures are taken to limit leakages in the atmosphere during erection, operation, maintenance, end-of-life management, and failure of gas insulated equipment. As shown in the paper from manufacturers, technical solutions exist to replace SF₆ in power equipment, even if the dielectric and arch switching characteristics of the gas are unbeatable. What are the development pathways to adopt SF₆-free equipment? What R&D and pre-normative activities are deemed important in view of the deployment of such technologies?

RTE is working closely with electrical equipment suppliers to meet the need to deploy alternative solutions to SF₆ and to anticipate them on the market.

For the alternative solutions available on the market and operationally validated (which today concern rather the low levels of high voltage), RTE has committed to implement them for all its new projects.

Validation, which involves a small evaluation market, consists in installing the new equipment on the network, testing it and comparing it to other solution models for the same need.

If the feedback validates the solution, it is then integrated into our general procurement framework contracts.

For alternative solutions not yet available on the market:

- for those in the R&D phase: RTE supports suppliers in setting up R&D projects financed by European research funds. RTE provides, among other things, letters of support
- for those close to the industrialization phase, RTE participates in pilot projects, enabling it to make an active contribution to the pre-normative phase.

In addition, RTE with 4 other European TSOs, have recently decided to accelerate SF₆ alternative technologies' validation efficiency by avoiding double TSOs effort on validation stage. They also lead to important cost and time savings. The main outcomes of this jointly work are:

- global view of pilots concerning SF₆ alternative solutions
- recognition of tests done by another TSO
- harmonized testing methodology and criteria
- proposed plan of distributed pilot's assessment between TSO.

Beyond the benefits in terms of CO₂ equivalent emitted into the atmosphere, it is necessary to verify that the alternative solutions to SF₆ do not have other significant impacts on the environment and/or health. Each solution must be the subject of preliminary study(s) to analyze the local impacts on the ecotoxicity of the environment and on human health (for populations near the alternative equipment or workers). Depending on the results, the solution may or may not be adopted, with adjustments to Personal Protection Equipment (PPE), minimum distances between the equipment and local populations, etc. All the means of preventing releases and impacts must be identified and implemented.