Transition times for a safe transition to SF_6-free alternatives

In April 2022, the EU Commission presented a draft for the new version of the F-Gas Regulation (EU Regulation 517/2014). VDE FNN, as a national rule maker and recognized platform for grid technology and grid operation, supports the Commission's climate protection goals especially with regard to a climate neutral energy system.

As many technical options as possible are needed to restructure the energy system while maintaining a high level of supply reliability. Clear criteria for weighing these options are important. In addition to local and technical requirements (including space requirements and installation situation), availability and price, minimization of the climate impact of the insulating gases used must also be taken into account in the future.

At the same time, the planned acceleration of the transformation of the energy system in Germany requires the greatest possible flexibility in the construction and replacement of new Switch gears and thus also in the technical options. The regulation of individual technological aspects planned by the EU Commission to minimize the climate impact of insulating gases must be evaluated in terms of its effects, particularly with regard to the restriction of technologies and availability, and weighed up in advance by the EU Commission against the goal of a rapid transformation.

In the sense of the most comprehensive consideration possible, the definition of steps towards climate-neutral grid operation with a commitment to an overall target in a suitable form, as well as additionally the carbon footprint of the entire plant from production through operation to disposal, should be taken into account.

About the Forum Network Technology/Network Operation in the VDE (VDE FNN)

The Forum Netztechnik/Netzbetrieb in the VDE (VDE FNN) develops the requirements for the operation of the power grids with foresight. The goal is safe system operation at all times with 80 percent renewable energies.

The draft regulation provides for a differentiated consideration of the areas of application and voltage levels, which VDE FNN expressly welcomes. Due to the importance of the switchgear for the electrical energy supply and the safe and reliable network operation, VDE FNN sees a need for adjustment in the following points:

- Adjustment of the transition times and market availability as a further criterion necessary
- The term "Placing on Market" must be defined more broadly for switchgear
- Assess the effects of classifying alternative solutions > 52 kV according to GWP limits
- It must continue to be possible to carry out repairs and extensions to existing switchgears

Adjustment of the transition times and market availability as a further criterion necessary

Planned change/new regulation:

Annex IV, number (23) in conjunction with Article 11 for the placing on the market of electrical switchgear bans differentiated according to voltage levels for the installation and replacement of electrical switchgear with insulating and switching media of certain GWP values. Exceptions are possible for technical reasons. The reasons must be proven by the operator of the switchgear.

Impact:

VDE FNN welcomes the fact that the EU Commission provides for differentiated transition times according to voltage levels for switchgear.

The transitional times provided for in Annex IV, number (23) are compared to the proposals of the associations of manufacturers and operators by 2 to 4 years for numbers (a) and (b) and by 2 to 4 years for numbers (c) and (d) by reduced by 1 year. The operators can deviate from this if no suitable alternatives are available for technical reasons.

In order to be able to achieve the goals of the Green Deal and the energy transition, it must be possible to procure the necessary switchgear for grid expansion and grid renewal without restrictions. The declaration of technical availability from individual manufacturers is not sufficient on its own. The switchgear must also have reached a high level of product maturity and be available in the required quantities at reasonable delivery times. Possible restrictions due to a lack of competition or insufficient production and delivery capacities (EU-wide) on the supplier side with regard to delivery capacity or delivery times are currently not taken into account in the EU Commission proposal and must also be listed as "non-technical grounds" in Annex IV, paragraph (23). be acknowledged.

The FNN information takes into account that both manufacturers and operators have meanwhile continued to push the introduction of alternatives and have thus gained experience. The transitional periods in the draft regulation, on the other hand, do not take sufficient account of the fact that switchgear manufacturers need more time to complete their product portfolios. The operators also need time to prequalify new switchgear and stations (in particular personal safety, safety against accidental arcing)

and to gather further operating experience. Longer transition periods are therefore required than the draft currently envisages.

Adjusted transition times ensure that exceptions only have to be applied in special cases and do not become the de facto standard case.

Suggestion:

With regard to the planned transition periods, it is imperative that, in addition to the technical reasons, delivery times that are not customary in the market compared to SF_6 switchgear are also recognized as reasons for the verification.

Compared to the FNN information, the primary and secondary distributions have been combined. We welcome this simplification, but also suggest, taking into account the simplified proof (according to Annex IV, paragraph 2), that the times be adjusted in order to be able to implement the necessary introductory steps of the FNN information, especially in the secondary distribution:

Annex IV, number (23 a and b) Installation and replacement of the following electrical switchgear

(a) medium voltage switchgear for primary and secondary distribution up to 24 kV, with insulating or breaking medium using, or whose functioning relies upon, gases with GWP of 10 or more, or with GWP of 2000 or more, unless evidence is provided that no suitable alternative is available based on technical grounds or due to unreasonable delivery times within the lower GWP ranges referred to above	~~January 1, 2026~~ January 1, 2028
(b) medium voltage switchgear for primary and secondary distribution from more than 24 kV and up to 52 kV, with insulating or breaking medium using, or whose functioning relies upon gases with GWP of 10 or more, or with GWP of more than 2000, unless evidence is provided that no suitable alternative is available based on technical grounds or due to unreasonable delivery times within the lower GWP ranges referred to above	~~January 1, 2030~~ January 1, 2031

VDE FNN also proposes the following changes:

Annex IV, number (23 c and d) installation and replacement of the following electrical switchgear:

(c) ~~January 1, 2028~~ January 1, 2029

(d) ~~January 1, 2031~~ January 1, 2032

The addition of " or due to unreasonable delivery times " should also apply to Clauses 23(c and d).

2. The evidence pursuant to number 23 must contain documents showing that, after an open tender, no suitable technical alternative was available that could have met the conditions of number 23 due to the proven specifics of the application for technical reasons or due to unreasonable delivery times.

The term "Placing on Market" must be defined more broadly for switchgear

Impact:

In practice, switchgear takes several years for project implementation and approval. Due to the complexity and interdependence of projects, significant and unforeseeable delays can occur.

Suggestion:

VDE FNN proposes the following addition to Annex IV to number 23:

In the case of switchgear, the term "Placing on Market" must refer to the delivery date of a switchgear fixed in the purchase contract, so that the technology does not have to be changed at great expense during a project.

Assess the effects of classifying alternative solutions > 52 kV according to GWP limits

Planned change/new regulation:

Annex IV, number 23 provides for a distinction between several GWP limits.

Impact:

The transition periods proposed by the FNN are based on all alternatives considered in the European Commission's report as part of the Impact Assessment. This includes all currently available solutions with a GWP >10 but <2000. VDE FNN estimates that a restriction will have an impact on transition time and available capacity.

Suggestion:

The planned classification of available technologies according to GWP limits and the possible resulting impact on the availability of alternatives should be assessed in advance by the EU Commission.

In order to achieve the climate targets and to promote competition, the carbon footprint of the entire plant from manufacture to operation to disposal should additionally be introduced as a policy assessment tool. This carbon footprint over the entire life cycle of the plant is another factor for the overall optimization of alternative technologies.

It must continue to be possible to carry out repairs and extensions to existing switchgears

Planned change/new regulation:

Article 11, in conjunction with Annex IV, provides for restrictions on placing SF_6 switchgear and parts thereof on the market.

Impact:

Servicing, maintenance, repairs and extensions are necessary in order to maintain or restore the safety and functionality of existing switchgear and, if necessary, to eliminate leaks in order to avoid emissions.

Suggestion:

- VDE FNN points out the need for the maintenance, servicing, repairs and expansion of existing SF_6 switchgear to continue to be carried out using the original technology until the technical end of life of the systems. This includes the procurement and provision of the relevant components, spare parts and tools that are necessary for the continued operation of existing systems.

In addition to the gas, Article 11 (5) should also include parts of switchgears and components that are necessary for the continued operation of existing switchgears.

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