

How do European TSOs deal with the new EU rules in their long-term asset (component) planning

Lisa Schäfer, 50Hertz Transmission GmbH
Paul Leemans, Elia Transmission Belgium



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The EU F-Gases Regulation At a Glance – Electrical switchgear

Strategic Items	New Rules
Phase-out date* for switchgear < 24 kV	All F-Gases are forbidden from 1 January 2026 .
Phase-out date* for switchgear 24 < 52 kV	All F-Gases are forbidden from 1 January 2030 .
Phase-out date* for switchgear 52 < 145 kV,<50kA	F-Gases with a GWP > 1 are forbidden from 1 January 2028 .
Phase-out date* for switchgear > 145 kV or >50kA	F-Gases with a GWP > 1 are forbidden from 1 January 2032 .
Exemptions / deviations	Switchgear with GWP <1000 (=C ₄ FN) is allowed if no GWP <1 is available. Switchgear with GWP >1000 (= SF ₆) is allowed if no GWP <1000 is available.
Spare parts & extensions	Spare parts allowed for repairs and maintenance, under certain conditions. Extensions are allowed if alternative leads to replacing the whole substation (slide 6).
Control of gas use	From 2035 , only reclaimed SF ₆ is allowed for servicing and maintenance, except for emergency repairs. Operators must recover gas after decommissioning.
Leakage checks	Equipment containing F-Gases with >500 t CO ₂ -equivalent to be checked every six years.
Training	Renewal of certificates for servicing, maintenance, recovery every 7 years.

Key take-aways from a TSO perspective

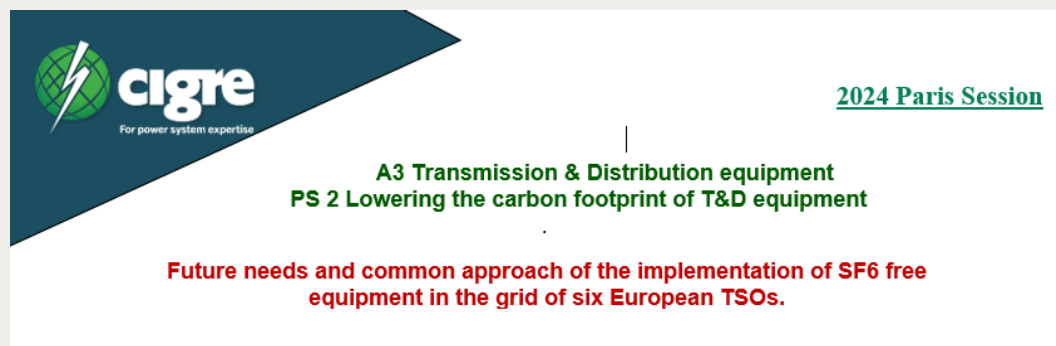
- Very ambitious market signal for manufacturers and system operators
- On many critical issues, sensible compromises have been found (spare parts, extensions, leak checks)
- The responsibility for compliance with the F-Gases Regulation has been shifted from manufacturers to system operators
 - from “placing on the market” to “putting into operation” as decisive date
- To ensure compliance, use preventive tenders at entry into force, respecting the cascade (GWP <1 → <1000 → >1000).

Remaining risks with view to TSO responsibilities

- In general, speedy delivery of infrastructure projects vs. phase-out dates
 - Long lead times for planning and procurement are a risk to compliance as F-Gases Regulation provides no flexibility once a technology has been selected
 - Availability at tender vs. availability at planned installation
 - Insecurity during transition time
- Lacking definition of “putting into operation”
- Risk of stranded assets in view of unexpected project delays
- Risk of stranded assets due to the need to comply with the cascade principle versus the possible future PFAS restrictions
- Costs of the energy transition

Way forward

- In light of the European Green Deal and related targets for renewable energy, there is a massive need for grid expansion and updates
- TSOs need as many manufacturers of alternative solutions with GWP<1 as possible
- TSOs can provide more transparency needs regarding key technologies that manufacturers should focus on, especially in the upcoming years



- Intensify cooperation between manufacturers and TSOs on innovation and funding opportunities



Thank you

lisa.schaefer@50hertz.com

paul.leemans@elia.be



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