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NOTE

From:	General Secretariat of the Council
To:	Delegations
Subject:	AOB for the meeting of the Council (Environment) on 25 June 2026 High-voltage switchgear - Action needed for a strong and secure European power electricity grid - Information from Italy, Bulgaria and the Czech Republic

Switchgears, which are subject to EU regulation through the F-Gas Regulation (EU) 2024/573 and the Ecodesign Regulation (EU) 2024/1781, will play a central role in the development of Member States' electricity grids and the achievement of climate neutrality targets by 2050.

The devices currently in use rely on a mixture of gases with a high global warming potential, which are set to be phased out gradually over the coming years in accordance with the F-Gas Regulation (EU) 2024/573 governing the use of fluorinated gases.

The only technology that will soon be permitted under the aforementioned Regulation will be that using dry air/vacuum, developed by a single European manufacturer and by non-EU operators, predominantly Chinese, preventing 2 out of the 3 existing EU-based manufacturers from further developing and selling their solution in the EU, creating industrial bottlenecks and raising competition concerns.

This would create supply constraints at EU level at a crucial time for strengthening our continent's industrial and energy independence, exposing electricity grids to delays in development and real security risks.

Italy, Bulgaria and the Czech Republic signed a non-paper dated 11 March 2025 and a joint ministerial letter in 10 April 2025, together with eight Member States (Hungary, France, Romania, Slovenia and Sweden) representing the need not to ban the use of switchgear with a lower climate impact than that of components permitted under the F-Gas Regulation.

Indeed, article 13(13) of Regulation (EU) 2024/573 on fluorinated greenhouse gases ("F-Gas Regulation") allows for the installation in the EU of electrical switchgear containing an F-gas when its life-cycle assessment (LCA) demonstrates lower CO₂-equivalent emissions over its entire lifetime than the one of the best available F-gas-free alternative, and only when those LCAs are carried out under Ecodesign requirements adopted in the framework of the Ecodesign for Sustainable Products Regulation (ESPR).

The request highlighted the need to include electrical switchgears in the Commission's first Working Plan to be adopted under the Ecodesign Regulation, in accordance with the derogation provided for in Article 13(13) of the F-Gas Regulation, and the simultaneous application of the derogation provided for under Article 11(5) of the same Regulation, in order to avoid market disruption by providing for an adequate transitional period.

Nevertheless, no such ESPR delegated act currently exists for high-voltage switchgear, and the Commission has postponed until 2028 – as part of the revision of the first 2025–2030 Work Plan adopted under the Ecodesign Regulation – the possibility of launching a study with a view to adopting specific requirements for electrical switchgears.

However, this timeline would not allow for action to be taken before the bans set out in the F-gas Regulation come into force in 2028. It is necessary to adopt measures to ensure regulatory certainty, industrial and supply chain security, and industrial competitiveness.

Following the publication of the standard IEC TS 62271-320:2025 High-voltage switchgear and controlgear - Part 320: Environmental aspects and life cycle assessment rules for high-voltage switchgear and controlgear (25/03/2025), Italy has worked on an assessment to compare the carbon footprint of products using fluorinated gases with those using dry air/vacuum systems.

The study, carried out using LCA methodology – that is, an analysis of emissions throughout the product's entire life cycle – revealed that the device using the C4-FN mixture, which is currently non-compliant under the provisions of the F-Gas Regulation, has a lower life-cycle impact than the dry air/vacuum system, which is permitted under the same Regulation.

Both solutions are more effective at reducing emissions than the SF6-based system, which is banned under the F-Gas Regulation.

In light of the above, Italy, Bulgaria and the Czech Republic rise the need to take pragmatic steps to deliver the delegated act on switchgears under the Ecodesign Regulation on time, providing also a stop the clock provision for the ban of SF6-free equipment containing fluoronitrile, in the Omnibus package or the Grid package. These actions would allow sufficient time to launch the preparatory study under ESPR, using the standard IEC TS 62271-320:2025 as the reference method, supported by the LCA analysis carried out.

Italy, Bulgaria and the Czech Republic stress the importance to initiate a dialogue on this issue with a view to protecting European companies and strengthening the electricity grid and its security, which is all the more crucial in light of recent international geopolitical developments.

NON-PAPER from Italy, Bulgaria and the Czech Republic**High-voltage switchgear: action needed for a strong and secure European power electricity grid****1. Context**

Article 13(13) of Regulation (EU) 2024/573 on fluorinated greenhouse gases (“F-Gas Regulation”) allows for the installation in the EU of electrical switchgear containing an F-gas when its life-cycle assessment (LCA) demonstrates lower CO₂-equivalent emissions over its entire lifetime than the one of the best available F-gas-free alternative, and only when those LCAs are carried out under Ecodesign requirements adopted in the framework of the Ecodesign for Sustainable Products Regulation (ESPR).

- No such ESPR delegated act yet exists for high-voltage switchgear.
- Without it, Article 13(13) cannot be applied and SF₆-free equipment containing fluoronitrile will be banned as of the dates referred to in art. 13(9) of the F-Gas regulation (2028, and 2032 for high-voltage) despite its potentially superior life-cycle carbon performance for many grid applications.
- This deprives grid operators from the SF₆-free solution with the potential lowest carbon footprint and the only solution with demonstrated scalability at all voltage levels. This also prevents 2 out of the 3 existing EU-based manufacturers from further developing and selling their solution in the EU, creating industrial bottlenecks and raising competition concerns.
- It was substantiated that the other F-Gas derogations, in particular the cascade planned in Articles 13(11)–(12), will not ensure further availability or create the needed legal certainty for fluoronitrile-based equipment in the short and longer term.

A **non-paper (11 March 2025)** and a **joint ministerial letter (10 April 2025)** already asked the Commission to act in order to put in to effect Article 13(13) of Regulation (EU) 2024/573. Although the first ESPR Work Programme (April 2025) did not set a clear date for the adoption of a delegated act about switchgears, it explicitly states that **the Commission may “at any stage” set Ecodesign requirements for additional product groups**, provided a preparatory study is undertaken.

2. Why the preparatory study on switchgears is urgent

Timely action is essential for regulatory certainty, supply security and industrial competitiveness.

- **Imminent F-Gas deadlines.** The 2028 phase-out date means Transmission System Operators (TSOs) must place orders in 2025-26 (today); they need legal certainty now on the long-term availability of fluoronitrile-based equipment to continue ordering it and avoid defaulting to SF₆ or to a single dry-air supplier (the EU market today consists of 2 EU-based suppliers of fluoronitrile solutions and 1 EU-based supplier of dry-air solutions – plus non-EU based suppliers trying to enter), with all the negative consequences it may have (on the climate, on the affordability of electricity, on the EU resilience and industrial leadership).
- **Derogation under Article 11(5) is transitional and inappropriate for long-term investments.** A four-year exemption cannot give investors or TSOs the decade-long certainty needed for such grid-expansion projects and R&D investment.
- **Industrial and supply-chain risk.** If fluoronitrile-based solutions disappear from the EU market, only one manufacturer of dry-air solutions remains with a manufacturing capacity lower than the European demand, creating bottlenecks, higher costs **and, ultimately, dependence on non-Europe-based manufacturers —opposite to the Net-Zero Industry Act and Industrial Acceleration Act goal of boosting the Union’s resilience and security of supply in net-zero technologies, including switchgear.**

- **Economic stakes.** The EU market for SF₆-free high-voltage switchgears already approaches €1 billion per year and could exceed €3 billion by 2030; most value is generated in EU factories and supports thousands of skilled jobs. Imposing a single technical solution and a single European manufacturer will reduce competitiveness on the market, resulting in higher prices for TSO and for electricity prices.

3. Technical foundations are already in place

The methodological and standardisation groundwork is finished, allowing the study to start without delay.

- **Ready-made LCA standard.** In March 2025, the International Electrotechnical Commission (IEC TC 17) published **IEC TS 62271-320:2025 ED1**, a product-specific rule compliant with the IEC horizontal standard PCR (Product Category Rule) IEC 63366 and fully aligned with ISO 14040/44. This technical specification defines functional unit, system boundaries and data-quality requirements for the LCAs of high-voltage switchgear.
- **Forthcoming EU harmonisation.** CENELEC, the European Committee for Electrotechnical Standardisation, has launched a fast-track parallel vote to adopt the same technical specification as a **European technical specification. IEC, and CENELEC standard when finally released**, will provide presumption of conformity with the ESPR delegated act on switchgears. A Life Cycle Assessment verified by third party for three 145 kV gas insulated switchgear (GIS) technologies is now available, compliant to ISO 14040 – Principles and framework for life cycle assessment, ISO 14044 – Requirements and guidelines for life cycle assessment, EN 15804 – Core rules for the product category of construction plants, IEC 63366 – Product category rules for life cycle assessment of electrical and electronic products and systems and the IEC TS 62271-320:2025 – Environmental aspects and LCA rules for high-voltage switchgear and control gear. This LCA highlights a substantial GWP reduction of fluoronitrile and air-insulated switchgear compared to SF₆ type and also **shows a lower GWP of fluoronitrile switchgear compared to air-insulated one.**

This means that the F-Gas Regulation will ban GIS characterized by the lowest GWP impact, forbid to maintain a robust and diversified production base for high-voltage switchgear in Europe, hamper the massive grid investments needed to accelerate the energy transition, make European TSOs dependant on Asian suppliers, also for service and spare parts, endangering the security of the European electricity grid.

4. Requests

Italy, Bulgaria and the Czech Republic invite the Commission to take four pragmatic steps to deliver the delegated act on time.

- 1. Launch the ESPR preparatory study as soon as possible.**
- 2. Use IEC TS 62271-320:2025 as the reference method for comparing life-cycle carbon footprints across technologies.**
- 3. Use the above mentioned LCA and the concerns raised by several European TSOs to trigger derogation under Article 11(5) of the F-Gas Regulation.**
- 4. Provide a stop the clock provision for the ban of SF6-free equipment containing fluoronitrile, in the Omnibus package or the Grid package. Article 13 (9, letters b), c) and d)) of F-Gas Regulation shall enter into force only after the delegated act under ESPR will be adopted and will enter into force for electrical switchgears for which it has been established according to IEC or CENELEC standard that its life cycle CO₂ equivalent emissions would be lower than those of equivalent equipment which comply with the global warming potential limits set in the same Article 13 paragraph 9.**

Adopting these four steps is the only realistic way to guarantee technological neutrality, preserve a reliable supply chain, secure European electricity grid, maintain the EU's industrial leadership and achieve the decarbonisation objectives of the Green Deal for electricity networks.

Italy is ready to provide Life Cycle Assessment report, data and technical expertise to support the Commission in this process.