

## GWP and future SF<sub>6</sub> regulations

*D1 / PS2*

Q2.02: Some future legislation and utilities require a GWP below 1 or below 10, which can today be covered by some gases or gas mixtures only.

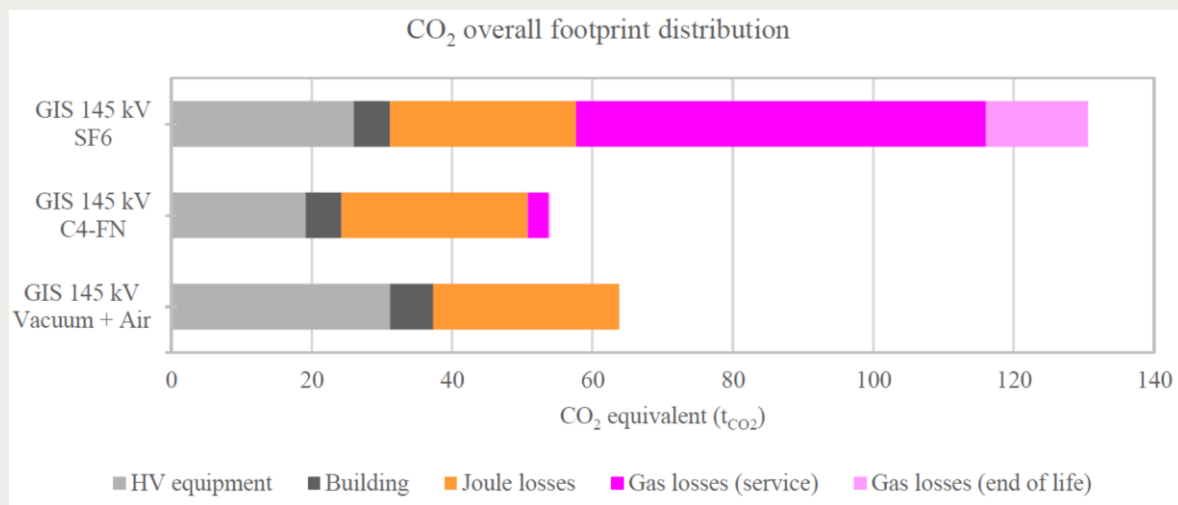
Are there emerging any further new alternatives?

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# Gas GWP & Switchgear carbon footprint

- Lowest gas GWP does not mean lowest **switchgear carbon footprint (LCA)**
  - Insulation gas → impact of the switchgear design
  - Lower dielectric performances → bigger switchgear → more embedded carbon
- Typical comparison from CIGRE paper B3-10674<sup>[1]</sup>



gas GWP

25 200

640 → **lowest switchgear carbon footprint**

0

[1] L. Treier et al, "Life Cycle Assessment comparison of different high voltage substation technologies using SF<sub>6</sub> and alternative insulation gases" in CIGRE Paper B3-10674, Paris, 2022.

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# Gas GWP and future SF<sub>6</sub>-free regulations

- EU F-gas **proposed** regulation [2] – Feedback from June 2022:
  - Proposal:
    - A **GWP<10** [2] threshold was proposed by the EU commission for SF<sub>6</sub> alternatives
  - Feedback: **Associations of users** have asked to **revise it to 1000 or 2000**
    - **ENTSO- E** [3]
      - „...recommend **keeping only the GWP limit <2000**”
    - **Eurelectric** [4]
      - “Revise the **GWP (Global Warming Potential) threshold from 10 to 1000** for voltage levels above 24 kV”

[2] 52022PC0150, Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on fluorinated greenhouse gases, amending Directive (EU) 2019/1937 and repealing Regulation (EU) No 517/2014, Strasbourg, April 5<sup>th</sup> 2022.

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0150>

[3] ENTSO-E response to EC feedback period regarding the legislative F-Gas Regulation proposal published on 5 April, June 29<sup>th</sup> 2022.

[https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12479-Fluorinated-greenhouse-gases-review-of-EU-rules-2015-20-/F3318600\\_en](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12479-Fluorinated-greenhouse-gases-review-of-EU-rules-2015-20-/F3318600_en)

[4] Revision of the F-Gas Regulation, A Eurelectric position paper, June 28<sup>th</sup> 2022.

[https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12479-Fluorinated-greenhouse-gases-review-of-EU-rules-2015-20-/F3318181\\_en](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12479-Fluorinated-greenhouse-gases-review-of-EU-rules-2015-20-/F3318181_en)

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## Gas GWP and future SF<sub>6</sub>-free regulations

- Target is to **mitigate climate change** and the accurate tool to assess it is LCA
- SF<sub>6</sub> alternative climate change benefits shall be considered over **the full product lifetime** and not only via the GWP of the gas
- T&D Europe (association of manufacturers) feedback <sup>[5]</sup> to the proposed EU regulation:
  - “... **Life Cycle Assessment (LCA)** method according to ISO 14040/44 is the **state-of-the-art** tool to evaluate the **impact of products and systems on the environment**. The **GWP** of the gas alone **does not enable to assess the global carbon footprint** of the electrical **switchgear** ...”
- Is it worth limiting SF<sub>6</sub>-free solution with a GWP<10 for **switchgear applications** ?

Answer is clearly **NO** and there is **no new alternative coming in HV**.

[5] T&D Europe feedback on EU Regulation proposal, June 29<sup>th</sup> 2022.

[https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12479-Fluorinated-greenhouse-gases-review-of-EU-rules-2015-20-/F3318603\\_en](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12479-Fluorinated-greenhouse-gases-review-of-EU-rules-2015-20-/F3318603_en)

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