

**Proposal for a revision of the regulation on fluorinated greenhouse gases (f-gases) (COM(2012)643 final)**

**In view of the new F-Gas Regulation, T&D Europe calls for a realistic and practically applicable legislation to the electricity sector**

**5<sup>th</sup> November 2013**

This position paper includes:

- Pages 1 to 3: a statement regarding the timeframe for an assessment on SF6 switchgear technology versus amendment 56 of ENVI report dated 21st June 2013
- Pages 4 to 16: Propositions of modifications regarding the draft of Council dated 4 October 2013 to make the application of F-Gas practical and/or even simply feasible taking into account specificities of medium voltage and high voltage electrical switchgear

**T&D Europe<sup>1</sup> Statement regarding the timeframe for an assessment on SF6 switchgear technology**

**versus amendment 56 of ENVI report dated 21<sup>st</sup> June 2013**

- **T&D Europe fully understands the necessity of periodically assessing the technological progress concerning SF6-free alternatives.**
- **However, any near-term deadline would not bring added value because the assessment of time that would be necessary for the European electrical switchgear sector (dealing with secure and reliable electricity supply as well as safety of personnel) to further evaluate safe and reliable alternatives and establish track records results in a timeframe around 2024 at such a time as proposed in the draft of Council in Article 19 (3) (b) .**
- **Claims about existing alternatives are misleading the discussion because the alternatives are technologically immature and financially uneconomic.**

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<sup>1</sup> T&D Europe ([www.tdeurope.eu](http://www.tdeurope.eu)) is the European association of the electricity transmission and distribution equipment and services industry, which members are the European national associations representing the interests of the electricity transmission and distribution equipments manufacturing and derived solutions. The companies represented by T&D Europe account for a production worth over € 25 billion EUR, and employ over 200,000 people in Europe.

## **T&D Europe member companies are technological leaders**

T&D Europe, as a key actor for the development of the European electricity grid is used to cooperating with grid operators and with European and National Institutions in order to optimize the transmission and distribution of European electricity in the interest of industry and the public.

The European electrical switchgear manufacturing sector (particularly the companies within T&D Europe) is a leader in the international market. This position is based on technological leadership and maintained by a systematic permanent programme of high level R&D projects.

## **Electrical switchgear's SF6 technology ensures secure and reliable electricity**

For many applications and particularly in public electrical power distribution, SF6 technology is essential to ensure a secure and reliable electrical network in Europe. Replacement of SF6 technology in electrical switchgear requires considering the huge number of different situations and applications in which SF6 is currently used, such as public power distribution in urban or rural areas, skyscrapers, wind farms and industrial applications (e.g. steel mills, oil & gas, mines, subsea substations, refineries and the paper industry).

## **Claims about existing alternatives are misleading the discussion**

In terms of search for alternatives to SF6, a certain number of SF6-free products were recently launched by T&D Europe companies, demonstrating the sector's commitment to continuous efforts and investments in R&D.

These technologies, however, cover only a selective number of applications and are therefore suitable only for niche, inconsiderable markets, unable to satisfy global demand for applications in electrical equipment. Alternative technologies which are currently being developed are immature and do not meet all the requirements related to reliability, pollution, climate and extreme weather conditions. Additionally, the assessment conducted by Öko Recherche for the European Commission demonstrates excessive abatement costs, making these alternatives uncompetitive and not economically viable.

## **Technologies must be duly proven**

The electrical equipment installed in the network is designed to operate for about 40 years with high requirements on the power supply's reliability and continuity as well as on the safety of people and sustainability of assets. Experience shows that technological innovation must be duly proven not only in laboratories but also in field applications. Bad experiences exist with significant mistakes that arose because technologies were deployed too early (such as polychlorinated biphenyl (PCBs) for transformers). Despite the huge investments made by the whole T&D sector in research, results demonstrate that no alternative technology in sight within medium term is viable, reliable and capable of fulfilling the required functionality in the relevant field conditions (flooding, atmospheric pollution, etc...).

The electrical switchgear sector needs time to further evaluate safe and reliable alternatives and establish track records from applications in the field.

## **European manufacturer's leading positions are at risk**

T&D Europe fully understands the necessity of a periodical assessment of the technological progress as proposed by the European Parliament's ENVI Committee on 19th June 2013. However, any near-term deadline would not bring added value and would be politically misleading. It would create the risk of introducing irresponsible dangerous market distortions, jeopardizing the leading position of a European industry sector that is intensive in R&D, exports outside EU and ensures employment in the EU.

**In conclusion, taking into account the time needed to develop solutions, to industrialize, to test extensively and to establish track records confirming the viability of the solutions, an assessment by 2024 seems more reasonable and T&D Europe strongly advises against earlier assessment.**

Commission Proposal	EP Amendments	Presidency draft for a Council position	T&D Europe proposal and comments
<b>Article 1 – paragraph 1 – point 7</b>			
<p>(7) ‘hermetically sealed system’ means a system in which all parts that contain fluorinated greenhouse gases have been hermetically sealed during their manufacturing by welding them, brazing them or otherwise making them tight by permanently connecting them and for which the refrigerant circuit does not need to be opened for placing the system into operation;</p>		<p>(7) ‘hermetically sealed <u>equipment</u> [...]’ means equipment in which all [...] fluorinated greenhouse gas [...] <u>containing parts are made tight by welding, brazing or a similar permanent connection which may include capped valves and capped service ports that allow proper repair or disposal and which have a tested leakage rate of less than 3 grams per year under a pressure of at least a quarter of the maximum allowable pressure;</u></p>	<p><i>T&amp;D Europe proposal</i>            (7) ‘hermetically sealed <u>equipment</u> [...]’ means equipment in which all [...] fluorinated greenhouse gas [...] <u>containing parts are made tight by welding, brazing or a similar permanent connection which may include capped valves and capped service ports that allow proper repair or disposal and which have a tested leakage rate of less than 3 grams per year under a pressure of at least a quarter of the maximum allowable pressure;</u>  <b>For electrical switchgear, hermetically sealed means equipment for which no further gas is required during its expected operating life.</b>  <i>T&amp;D Europe comment:</i>            For electrical switchgear, this definition corresponds to “sealed pressure system” as defined in international standard IEC EN 62271-1 for switchgear that does not need any refilling during the whole life time (40 years or more).</p>

<b>Amendment 27</b>			
<b>Article 1 – paragraph 1 – point 16 d (new)</b>			
	<i>(16d) ‘Leakage’ means an abnormal release of fluorinated greenhouse gases from equipment, which is significantly higher than the leakage rate specified as part of the design of that equipment if any;</i>	Not acceptable	<u><i>T&amp;D Europe proposal</i></u> <i>(16d) ‘Leakage’ means an abnormal release of fluorinated greenhouse gases from equipment [...]</i> <u><i>T&amp;D Europe comment:</i></u> Equipment are designed for tightness.

<b>Amendment 34</b> <b>Article 2 – paragraph 3 – subparagraph 1</b>			
<p>3. Where a leakage of those gases is detected, the operators shall ensure that the equipment is repaired without undue delay.</p>	<p>3. Where a leakage of those gases is detected, the operators shall ensure that the equipment is repaired without undue delay <b><i>but no later than one week after detection and before any further use of the equipment.</i></b></p>	<p>Seek clarification from the rapporteur</p>	<p><u><i>T&amp;D Europe proposal</i></u>          Where a leakage of those gases is detected, the operators shall ensure that the equipment is repaired <b>as soon as possible and, in any event, within 14 days without undue delay of the detection of the leak.</b>  <b>By way of derogation, where a leakage of those gases is detected in electrical switchgear, the operators shall ensure that a robust management procedure is put in place to ensure that the equipment is repaired without undue delay and that the level of action taken is proportionate to the environmental impact of the emission resulting from the leakage, taking account of potential interruptions of service.</b>  <u><i>T&amp;D Europe comment:</i></u>          The requirement of repair before no further use will be impossible to meet for electrical switchgear and may cause black outs in Europe, because the continuity of electricity supply is endangered</p>

<b>Article 2 – paragraph 4 – subparagraph 1</b>			
Persons and undertakings carrying out the following tasks shall be certified in accordance with Article 8:		<p><u>Natural persons [...] carrying out the [...] tasks referred to in Article 8(1) points (a) to (c), shall be certified in accordance with Article 8 and shall take precautionary measures to prevent leakage of fluorinated greenhouse gases.</u></p> <p><u>Undertakings carrying out activities mentioned in Article 8(1) point (a) shall be certified in Accordance with Article 8(4) and shall take precautionary measures to prevent leakage of fluorinated gases.</u></p>	<p><i>T&amp;D Europe comment:</i>          It shall be stated that persons need to be certified when handling or transfer of gas is involved during tasks. This shall be implemented for every similar statement.</p>

### Amendment 40

#### Article 3 – paragraph 1 – subparagraph 1

<p>1. Operators of equipment that contains fluorinated greenhouse gases with a <i>global warming potential</i> equivalent to 5 tonnes of CO<sub>2</sub> not contained in foams shall ensure that the equipment is checked for leakage. However, equipment with hermetically sealed systems which are labelled as such, containing fluorinated greenhouse gases with a <i>global warming potential</i> equivalent to less than 10 tonnes CO<sub>2</sub>, shall not be subject to leak checks under this Article.</p> <p>The checks shall be carried out by persons persons certified in accordance with the rules provided for in Article 8.</p> <p>This paragraph applies to operators of the following equipment that contains</p>	<p>1. Operators of equipment that contains fluorinated greenhouse gases with a <i>GWP</i> equivalent to 5 tonnes of CO<sub>2</sub> <b>or more</b> not contained in foams shall ensure that the equipment is checked for leakage. However, equipment with hermetically sealed systems which are labelled as such, containing fluorinated greenhouse gases with a <i>GWP</i> equivalent to less than 10 tonnes of CO<sub>2</sub>, shall not be subject to <i>leakage</i> checks under this Article.</p>	<p>Acceptable in principle, the text should read:</p> <p>1. Operators of equipment that contains fluorinated greenhouse gases in quantities of <u>5 tonnes of CO<sub>2</sub> equivalent or more and</u> not contained in foams shall ensure that the equipment is checked for leakage.[...] Hermetically sealed [...] <u>equipment that contains fluorinated greenhouse gases with a global warming potential</u> in quantities [...] less than 10 tonnes of <u>CO<sub>2</sub> equivalent</u>, shall not be subject to leak checks under this Article, <u>provided such equipment is labelled as hermetically sealed. Electrical switchgear with a tested leakage rate of less than 0.1% per year as set out in the technical specification of the manufacturer and labelled as such, shall not be subject to leak checks under this Article. Electrical switchgear with a tested leakage rate of more than 0.1% per year shall not be subject to leak checks under this Article</u> provided that it is equipped with an pressure or density monitoring</p>	<p><i>T&amp;D Europe proposal</i></p> <p>1. Operators of equipment that contains fluorinated greenhouse gases in quantities of <u>5 tonnes of CO<sub>2</sub> equivalent or more and</u> not contained in foams shall ensure that the equipment is checked for leakage.[...] Hermetically sealed [...] <u>equipment that contains fluorinated greenhouse gases with a global warming potential</u> in quantities [...] less than 10 tonnes of <u>CO<sub>2</sub> equivalent</u>, shall not be subject to leak checks under this Article, <u>provided such equipment is labelled as hermetically sealed. Electrical switchgear with a tested leakage rate of less than 0.1% per year as set out in the technical specification of the manufacturer and labelled as such, shall not be subject to leak checks under this Article. <b>Electrical switchgear with a tested leakage rate of more than 0.1% per year shall not be subject to leak checks under this Article provided that it is equipped with an online pressure or density monitoring</b></u></p>
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<p>fluorinated greenhouse gases:</p>		<p><u>device or contains less than 6 kg of fluorinated greenhouse gasses.</u></p> <p>[...]          This paragraph applies to operators of the following equipment that contains fluorinated greenhouse gases:</p>	<p><b><u>device or contains less than 6 kg of fluorinated greenhouse gasses shall not be subject to leak checks under this Article.</u></b></p> <p><i>T&amp;D Europe comment</i>          Sealed for life equipment are not refilled during their lifetime, typically 30 to 40 years.</p>
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**Article 4 - paragraph 1**

1. Operators of the equipment referred to in Article 3(1) containing fluorinated greenhouse gases with a global warming potential equivalent to 500 tonnes CO<sub>2</sub> or more, shall ensure that the equipment is provided with a leakage detection system which alerts the operator of any leakage.

The leakage detection systems shall be checked at least once every 12 months to ensure its proper functioning.

1. Operators of the equipment listed in the second subparagraph of Article 3(1) points (a) to (d) containing fluorinated greenhouse gases in quantities [...] of 500 tonnes of CO<sub>2</sub> equivalent or more [...], shall ensure that the equipment is provided with a leakage detection system which alerts the operator or a service company of any leakage. For operators of equipment, listed in the second subparagraph of Article 3(1) points (f) and (g), the above requirement to ensure that equipment is provided with a leakage detection system will apply from 1 January 2017. Operators shall ensure that leakage detection systems [...] are checked at least once every 12 months to ensure their [...]proper functioning.

*T&D Europe proposal*  
 1. Operators of the equipment listed in the second subparagraph of Article 3(1) points (a) to (d) containing fluorinated greenhouse gases in quantities [...] of 500 tonnes of CO<sub>2</sub> equivalent or more [...], shall ensure that the equipment is provided with a leakage detection system which alerts the operator or a service company of any leakage. For operators of equipment, listed in the second subparagraph of Article 3(1) points (f) and (g), the above requirement to ensure that equipment is provided with a leakage detection system will apply from 1 January 2017. Operators shall ensure that leakage detection systems [...] are checked at least once every 12 months to ensure their [...]proper functioning.  
**Leakage detection systems, permanently fixed on electrical switchgear that contains SF6 shall be checked at the same frequency as all other vital parts of the system.**

			<p><u><i>T&amp;D Europe comment</i></u>          For electrical switchgear the detection systems are based on densimeters. The probability of leakage combined to the probability of failure of the detection system is a negligible risk. Detection systems are permanently fixed on the equipment. Checking the detection system itself would need to remove it first from the equipment or decrease the pressure in the equipment and would provoke additional risk of leakages and emission of gas. To enable this, a shut-down of the equipment is necessary. Moreover, the probability of leakage combined to the probability of failure of the detection system is a negligible risk. That is why T&amp;D Europe proposes to check the detection system only when the vital parts (main electrical circuit) are checked, justifying the shut-down of the equipment.</p>

<b>Amendment 56</b>			
<b>Article 9</b>			
<p>Article 9            Restrictions on the placing on the market            1. The placing on the market of specific products and equipment listed in Annex III shall be prohibited from the date specified in that Annex, where applicable differentiating according to the type or <i>global</i> warming potential of the fluorinated greenhouse gas contained.            For the calculation of the global warming potential of mixtures of fluorinated greenhouse gases contained in those products and that equipment the method laid down in Annex IV shall be applied.</p>	<p>Article 9            Restrictions on the placing on the market            1. The placing on the market <b><i>and export</i></b> of specific products and equipment listed in Annex III shall be prohibited from the date specified in that Annex, where applicable differentiating according to the type or <i>GWP</i> of the fluorinated greenhouse gas contained.            For the calculation of the <i>GWP</i> of mixtures of fluorinated greenhouse gases contained in those products and that equipment the method laid down in Annex IV shall be applied.  <b><i>If stationary air-conditioning equipment contains recycled fluorinated greenhouse gases recovered from equipment of the same type, the date of the placing on the market prohibition shall be deferred by one year.</i></b></p>	<p>Not acceptable            Article 9            Restrictions on the placing on the market            1. The placing on the market of specific products and equipment listed in Annex III, <u>with an exemption for military equipment</u>, shall be prohibited from the date specified in that Annex, where applicable differentiating according to the type or global warming potential of the fluorinated greenhouse gas contained.             [...]</p>	<p><u><i>T&amp;D Europe comment</i></u>            See T&amp;D Europe position on pages 1 to 3 of this document. 2024 is a more reasonable timeframe to make a general review for alternatives in medium voltage.</p>

	<p><b><i>By 1 January 2018, the Commission shall assess whether effective, reliable alternatives exist which make the replacement of SF6 possible, at a reasonable cost, in new medium-voltage secondary switchgear. Based on the result of that assessment, the Commission shall be empowered to adopt delegated acts in accordance with Article 20 amending the list set out in Annex III to include medium-voltage secondary switchgear that contain fluorinated greenhouse gases.</i></b></p>		
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<b>Amendment 61</b>			
<b>Article 10 - paragraph 2 - point c</b>			
<p>(c) As of 1 January 2017, the quantity of greenhouse gases contained in the product or equipment, expressed in weight and in CO<sub>2</sub> equivalent.</p>	<p>(c) As of 1 January 2017, the quantity of greenhouse gases contained in the product or equipment, expressed in weight in CO<sub>2</sub> equivalent <i>and in terms of GWP</i>.</p>	<p>Acceptable in principle. In the context of an overall compromise package, the response could be (c) As of 1 January 2017, the quantity of <u>fluorinated</u> greenhouse gases contained in the product <u>or equipment or the quantity for which the equipment is designed</u>, expressed in weight and in CO<sub>2</sub> equivalent <u>and the global warming potential of those gases</u>.</p>	<p><i>T&amp;D Europe proposal</i>            (c) As of 1 January 2017, the quantity of <u>fluorinated</u> greenhouse gases contained in the product <u>or equipment or the quantity for which the equipment is designed</u>, expressed in weight <del>and in CO<sub>2</sub> equivalent</del> and the global warming potential of those gases.  <i>T&amp;D Europe comment</i>            Expression in CO<sub>2</sub> equivalent does not bring any added value and could be misleading as CO<sub>2</sub> equivalent often refer to emissions.</p>

**Article 10 - paragraph 2 - subparagraph 3**

3.The label shall be clearly readable and indelible and shall be placed adjacent to the service ports for charging or recovering the fluorinated greenhouse gas, or on that part of the product or equipment that contains the fluorinated greenhouse gas.

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The label shall be in the official languages of the Member State in which it is to be placed on the market.

*T&D Europe proposal*

3. The label shall be clearly readable and indelible and shall be placed adjacent to the service ports for charging or recovering the fluorinated greenhouse gas, or on that part of the product or equipment that contains the fluorinated greenhouse gas.

**Member States should be able to decide to use their own language on those labels.**

*T&D Europe comment*

For electrical switchgear, the proposed text is extracted from EC 1494/2007 and gives satisfaction for the sector, limiting burden.

**Annex III**

	<p>Point 12 (Ban on) foams containing fluorinated greenhouse gases</p> <ul style="list-style-type: none"> <li>- Extruded polystyrene foams from 2016</li> <li>- Other foams (including polyurethane, polyisocyanurate and phenolic) from 2020</li> </ul>		<p><i>T&amp;D Europe proposal</i></p> <p><b>Delete</b></p> <p><i>T&amp;D Europe comment</i></p> <p>Some foams contain SF6 and are used in high voltage switchgear bushings and save more than 75% of the gas used in purely gas insulated bushings.</p> <p>SF6 emission during normal service from these bushings is below measuring accuracy. Even in the case of a fault (break of bushing) only minimal amount of SF6 will be discharged compared to full discharge from broken SF6-filled ceramic bushings.</p>
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