

Science for Environment Policy

Production and imports of fluorinated greenhouse gases fall in the EU

Production of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆) decreased by 5% within the EU in 2011, compared with 2010, when measured in absolute, metric tonnes, according to a recent report from the European Environment Agency (EEA). Imports and sales of these powerful greenhouse gases (GHGs) also fell, by 6% and 12% respectively, but exports rose by 5%.

The fluorinated greenhouse gases (F-gases) HFCs, PFCs and SF₆ are used in a range of equipment as substitutes for chemicals that cause depletion of the ozone layer, including chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons. These ozone-depleting substances are being phased out under the Montreal Protocol¹.

Although F-gases are not ozone-depleting, they are potent GHGs that contributed 2% of the EU's total GHG emissions in 2010, measured in terms of CO₂-equivalent. Their contribution to climate change has been steadily growing since 1990. HFCs, PFCs and SF₆ are regulated under the Kyoto Protocol² and in the EU, F-Gas emissions (except those from air conditioning in motor vehicles) are controlled by the F-Gas Regulation (EC) No 842/2006³, which requires companies to reduce F-gas leaks, recover gases at the end of equipments' lifetime, and seek environmentally-friendly, cost-effective alternatives.

The report analysed data for 2011 from a total of 120 companies that produce, import or export more than 1 tonne of F-gases a year in the EU. These data are reported to the European Commission and other relevant bodies under the F-Gas Regulation.

The figures indicated that production, imports and sales within the EU, in metric tonnes, decreased by 5%, 6% and 12% respectively, and exports increased by 5% over 2010 figures. In particular, HFC sales decreased sharply, by 13%.

The gases were also assessed in terms of their global warming potential (GWP). GWP compares the warming effect on the atmosphere of a GHG with a similar mass of CO₂, and is measured in metric tonnes of CO₂-equivalent. When expressed in this way, data reveal that total exports rose by 12% and production increased by 1%, compared with 2010 figures. However, imports decreased by 8% and sales decreased by 11%. Sales of HFCs specifically decreased by 17%, when measured in CO₂-equivalents. EU sales, as well as exports of SF₆, increased by 17% and 16% respectively.

The contrasting results between the results for absolute quantities of the gases and the results for the CO₂-equivalent quantities is because there are large differences in GWP values of certain F-gases. For example, although the production, imports, exports and sales of SF₆ contributed a small share to the F-gas figures in 2011, when measured in metric tonnes, the high GWP of SF₆ means that it contributed to more than 40% of production, more than 50% of exports and more than 20% of sales, when expressed in CO₂-equivalents. SF₆ is mainly used as an insulation gas in electrical transformers and switchgear.

In 2011, HFCs contributed the greatest share to the production and trade of the F-gases. The main use for F-gases, primarily HFCs, was in refrigeration and air conditioning. HFCs were also significantly used in the foam and aerosol sectors.

Cutting 'non-CO₂ emissions' by 70-78% by 2050 will contribute to the EU's commitment to reducing GHG emissions by 80-95% (of pre-1990 levels) by 2050. To help achieve these targets, the European Commission proposes to review and strengthen the current F-Gas regulations.



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See:
www.eea.europa.eu/publications/fluorinated-greenhouse-gases-2011

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1. See: http://ozone.unep.org/new_site/en/montreal_protocol.php
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3. See: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:161:0001:0011:EN:PDF>