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REPORT FROM THE COMMISSION

assessing the quota allocation method in accordance with Regulation (EU) No 517/2014

1. Introduction

Regulation (EU) No 517/2014¹ (the "F-gas Regulation") aims to create an efficient and proportionate mechanism for reducing emissions from fluorinated greenhouse gases to help achieve the Union's climate targets.² It also stimulates innovation and facilitates convergence towards a global agreement to phase down hydrofluorocarbons (HFCs) under the Montreal Protocol.³

Since the adoption of the F-gas Regulation in 2014 the international negotiations have progressed well and in October 2016, 197 countries agreed to phase down the global consumption and production of HFCs under the Montreal Protocol (the "Kigali Amendment")⁴. This is a legally binding agreement which will help all countries achieve their commitments under the Paris Agreement⁵. Developing countries can obtain support through the "*Multilateral Fund for the Implementation of the Montreal Protocol*" (Multilateral Fund), to which the EU Member States contribute.

The F-gas Regulation is sufficiently ambitious to ensure that the EU can meet its global obligations under the Kigali Amendment. The main measure to achieve this is the "EU HFC phase-down", whereby the total quantities of HFCs that undertakings may import or produce in the EU (i.e. "place on the market for the first time"), are reduced gradually until 2030 (measured in CO₂ equivalent).

To stay within the annual HFC limit in a given year, the F-gas Regulation puts in place a quota system. Since 2015 undertakings need quota to legally place bulk HFCs on the market and the Commission allocates quotas to undertakings for free on an annual basis. The advantages and disadvantages of different quota allocation options were examined in the impact assessment for the proposal for the F-gas Regulation³ and the options to allocate quotas for free, against a fee as well as through auctioning were considered in depth during the co-legislative process. At the time, there was some support for having a quota fee or an auctioning system, *inter alia* because these options would generate revenue that could potentially be used to replenish the Multilateral Fund in case an HFC phase-down would be agreed under the Montreal Protocol and since these options could help effective implementation. However, the final decision favoured free quota allocation while agreeing to monitor the functioning of the method put in place and the (potential) costs in Member States.

¹ OJ L 150, 20.05.2014, p.195.

² Communication from the Commission to the European Parliament, the Council, the European Economic and Social committee and the Committee of the Regions: *A policy framework for climate and energy in the period from 2020 to 2030*, COM(2014)/015 final: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014DC0015>

³ *Commission Staff Working Paper: Impact Assessment – Review of Regulation (EC) No 842/2006 on certain fluorinated greenhouse gases*, SWD(2012) 364 final: https://ec.europa.eu/clima/sites/clima/files/f-gas/legislation/docs/swd_2012_364_en.pdf

⁴ http://ozone.unep.org/sites/ozone/files/pdfs/FAQs_Kigali_Amendment_v3.pdf

⁵ Communication from the Commission to the European Parliament and the Council: *The Road from Paris: assessing the implications of the Paris Agreement and accompanying the proposal for a Council decision on the signing, on behalf of the European Union, of the Paris agreement adopted under the United Nations Framework Convention on Climate Change*, COM(2016) 110 final: <https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-110-EN-F1-1.PDF>

Consequently, Article 21(5) of the F-Gas Regulation calls on the Commission to: "*publish a report assessing the quota allocation method, including the impact of allocating quotas for free, and the costs of implementing this Regulation in Member States and of a possible international agreement on hydrofluorocarbons. In light of that report the Commission shall submit, if appropriate, a legislative proposal to the European Parliament and to the Council with a view to: (a) amending the quota allocation method; (b) establishing an appropriate method of distributing any possible revenues.*"

This report is based on external technical work undertaken for the Commission and extensive consultations with stakeholders, including an online survey of affected undertakings as well as deliberations within the Consultation Forum⁶ established pursuant to Article 23 of the F-Gas Regulation.

2. Description of the quota allocation method

According to the F-Gas Regulation, the quotas are allocated:

- to "incumbent" undertakings on the basis of "grandfathering", i.e. for 2015-2017 the annual quotas were based on the activities of each EU bulk HFC producer and importer during the period 2009-2012, as reported under the previous Regulation (EC) No 842/2006 on certain fluorinated greenhouse gases. From 2018 and every three years thereafter, a re-calculation based on more recent data will be made.
- from a reserve on the basis of annual company declarations stating their need for quota. Until 2018, this reserve is *de facto* allocated to "new entrants" only, i.e. undertakings that did not report in the period 2009-2012. From 2018 new entrants and incumbents undertakings can acquire quota from the reserve on an equal footing.

Quotas allocated to incumbents can be transferred to other undertakings. Conversely, quotas from the reserve cannot be transferred. This is to prevent undertakings, which are not involved in the HFC trade, requesting free quotas with the sole purpose of selling these rights.

HFCs are not only entering the EU through the import of bulk gases. HFCs are also contained inside imported equipment. If HFC equipment could be imported without any restrictions, it would jeopardise the environmental integrity of the phase-down and would be unfair to EU manufacturers of equipment that use HFCs bought on the EU market being subject to the phase-down. Thus, the F-gas Regulation requires that HFCs contained in refrigeration, air conditioning and heat-pump equipment (the so-called "RAC equipment") that is placed on the market must be accounted for within the quota system from 1 January 2017. For importers of HFC equipment this implies that they need authorisations from quota-holders to use the latter's quota for their imports.⁷

At the time of the adoption of the F-gas Regulation, the option of allocating quotas directly to equipment importers based on grandfathering was discarded due to a lack of data. Both incumbent and new entrant quota holders can authorise the use of their quota to equipment importers, but new entrants must also prove the physical supply of the corresponding gas

⁶ https://ec.europa.eu/clima/events/articles/0106_en

⁷ Unless the HFCs thus imported were previously placed on the market in the EU, exported and charged into the equipment before its import

quantities to ascertain that they are active in the gas trade. An authorisation counts against the quota holders' quota in the year it is given. Conversely, for the equipment importer there is no time limit for using the authorisation. Thus an authorisation given in 2015 may be used in 2017 or later years.

3. Assessment of the allocation method

a. Quota holders and quota use

About 1 100 undertakings are currently affected by the quota allocation method, of which approximately two-thirds are HFC "quota holders" (bulk producers and/or importers), while the remaining undertakings are importers of equipment.⁸ 78 incumbent undertakings have received a quota every year based on their HFC related activities in the period 2009-2012.⁹ The number of new entrants is considerably larger and has been growing every year. In 2017, 579 undertakings were new entrants, representing an increase of 73% since 2015. Some of these new entrants seem to be linked to each other and/or to incumbent market players.

The allocation method for incumbent companies, based on historic consumption, grants existing undertakings a stable initial market position. Over time the share of quota available to these incumbents will decrease more quickly than the overall market (as it reduces following the phase-down steps), meaning the market share of quota allocated to present incumbents will decrease over time. The reserved amounts for new entrants comprised 11% of the overall quota at the start of the phase-down in 2015. Due to the procedure for determining quotas¹⁰, the *absolute* amounts available from this reserve will remain more or less stable over time. On the other hand, as the overall market is shrinking following the HFC phase-down, the *relative* share of quota allocated from the new entrant reserve will increase over the years. By way of example, over 50% of the total quota will be allocated from the reserve in the final phase-down year 2030¹¹.

It is apparent that the declarations of future need made by companies to obtain quota from the reserve are generally not based on a realistic assessment of expected sales. New entrant undertakings alone (bidding for 11% of the market initially) requested quota that exceeded several times the total amount available for the whole EU market. These excessive requests for quota by companies imply that only a few undertakings receive the amount requested. All other companies bidding for quota from the reserve all receive the same pro rata share¹². Since the number of requests has been increasing every year while the reserve amount remains largely the same, the maximum quota allocated per company from the reserve has been decreasing from year to year.

A re-calculation cycle for the allocation of the quotas based on consumption in previous years will turn new entrants into incumbents every three years. By way of example, new entrant

⁸ Estimation based on the yearly declarations for quota and annual ex-post company reporting from equipment importers pursuant to Article 19 of Regulation (EU) No 517/2014

⁹ Originally 79 in Commission implementing decision 2014/774/EU, but one company merged with another incumbent in 2015. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:JOL_2014_318_R_0008

¹⁰ Pursuant to Annex VI of Regulation (EU) No 517/2014

¹¹ This follows from the calculation method in Annex VI of Regulation (EU) No 517/2014

¹² Slightly more than the pro rata share as the allocation mechanism comprises several allocation rounds where left-over quota from the first round is redistributed in subsequent rounds (see Annex VI of the F-gas Regulation)

undertakings starting in 2015 will become incumbents from 2018 onwards and will receive quota on the basis of the HFC quantities that they have lawfully placed on the market. At the same time they will have the possibility to obtain additional quota from the reserve.

The only year for which company *ex post* reporting data is currently available is 2015.¹³ These data show that the phase-down had been overachieved in 2015. The total quantities reported were 8% under the allowable limit.¹⁴ A number of companies did not fully use their allocated quotas, with new entrants being generally less efficient than incumbents. Stakeholders noted that this is possibly due to (i) a lack of understanding of the new rules including the difference between quotas and authorisations, (ii) the need to also ensure compliance with REACH obligations that some new entrants may not have realised when applying for quota as well as (iii) the fact that many undertakings had prepared for the phase-down by increasing their imports in 2014, just before the phase-down began (so they may not have needed the full quota anymore in 2015). A number of stakeholders also highlighted that efforts on all sides would still be needed so that all players on the market – especially pre-charged equipment manufacturers and their importers as well as new entrants – better understand their role in the phase-down.¹⁵

In 2015 only a few undertakings exceeded their quota limit. The Commission has followed up on non-compliance cases, supported by the Member State authorities, in view of imposing sanctions in line with the F-gas Regulation (deducting twice the amount of excess from the company's future quota) and ensuring that penalties are also imposed at national level. Non-compliance is detected by comparing the quota allocated and the reported values that have been verified by an independent auditor. In addition, customs can check if importers of bulk gases and HFC equipment are registered in the HFC Registry and have a quota or authorisations.

b. Quota transfers and authorisations

The possibility for incumbents to transfer quotas did not result in major changes as to how quota was distributed between companies. Transfers were to a very large degree limited to a few transactions between major incumbents, partly due to restructuring, as well as undertakings leaving the market. There seemed to be little willingness to trade quotas with other market players beyond these particular transactions.

Conversely, the option of issuing quota authorisations was widely used in 2015 and 2016, as a number of equipment importers were preparing for the obligation to have authorisations for importing refrigeration, air conditioning and heat-pump equipment from 1 January 2017. Of the total quota, 9% and 12% were authorised to equipment importers in 2015 and 2016, respectively. For comparison, the share of HFCs in imported refrigeration, air conditioning and heat-pump equipment of the total supply of HFCs to the EU in 2015 was 7 %, according to company reporting. Despite these preparatory activities taking place, some equipment importers expressed in the survey a number of reservations linked to proper understanding of the rules, difficulties in planning their demand or finding quota holders willing to sell authorisations as well as high prices for authorisations. In order to address these concerns, the

¹³ Pursuant to Article 19 of Regulation (EU) No 517/2014

¹⁴ DG CLIMA, October 2016: https://ec.europa.eu/clima/sites/clima/files/f-gas/docs/phase-down_progress_en.pdf

¹⁵ Consultation Forum, 1 December 2016. https://ec.europa.eu/clima/events/articles/0106_en

HFC Registry¹⁶ was modified to allow the delegation of authorisations, so that a company can coordinate the acquisition of authorisations for a group of importers. For instance, foreign equipment manufacturers can obtain the relevant authorisations and delegate them further to those companies importing the equipment. This new feature is expected to facilitate compliance, in particular for importers of small amounts, typically SMEs and micro-enterprises. This measure was widely welcomed by stakeholder organisations.¹⁴

c. Price developments

The sector using HFCs is quite complex and involves a number of different types of undertakings: HFC producers (global actors), manufacturers of various equipment or products (global), importers of equipment or products (EU), bulk gas distributors (EU), equipment installation and service undertakings (EU) and end-users of the various equipment(EU). In order to follow the impact of the quota system, price developments for different types of HFCs and at different levels in the value chain are monitored on the basis of data obtained from refrigerant producers, gas distributors and equipment manufacturers. Although it is not possible to draw definite conclusions at this early stage of the phase-down, it is nonetheless possible to observe a general upward trend of prices since 2014. This increase is most noticeable in the purchasing prices of gas distributors and to a lesser degree service undertakings, while not (yet) as apparent for gas bought by EU-based equipment manufacturers, possibly due to their longer-term agreements with gas producers. The observed price increases vary for different types of HFCs, and generally show a higher increase for HFCs with high global warming potential (GWP). It is also noteworthy that the costs of obtaining authorizations importing HFC equipment appear to be similar to bulk HFC price increases at distributor level, if converted into €/t CO₂eq.

These price increases are an expected and desirable consequence of the phase-down measure, as the intention of this market measure was to restrict supply of high GWP gases in order to stimulate the innovation and use of lower GWP substances and non-HFC alternatives. At the same time, since the quotas are allocated for free, some actors may benefit from these price increases. Some stakeholders pointed out that quota holders were the ones profiting and that it would be more sensible to instead set up a system that would generate revenue which could be used for supporting domestic and international implementation of HFC reductions and where equipment importers could also get their own quota.¹⁴

4. Costs of implementing the Regulation in Member States

The F-gas Regulation relies, to a large degree, on obligations already put in place by the previous Regulation (EC) No 842/2006¹⁷, in particular as regards preventing emissions from equipment such as leak checks and repairs, certification and training schemes in Member States, labelling of equipment, reporting and end-of-life recovery. In an evaluation of the previous Regulation (EC) No 842/2006, the costs for the public administrations in the Member States of implementing and applying these measures were estimated at EUR 11.4

¹⁶ Pursuant to Article 17 of Regulation (EU) No 517/2014

¹⁷ OJ L 161, 14.06.2006, p.1.

million per year.¹⁸ This amount includes costs for personnel in authorities, measures to raise awareness and enforcement measures such as inspections.

The main novelty in the F-gas Regulation, the HFC phase-down, has not increased the costs for the public administrations in the Member States significantly. Due to the central management of the phase-down by the European Commission¹⁹, these costs are borne by its existing multi-annual administrative budget. The European Commission is, inter alia:

- managing the F-gas Portal and the HFC Registry for registration of undertakings, quotas, quota transfers and quota authorisations;
- managing ex-ante quota declarations for quota, recalculating new quota reference values every three years and uploading new quotas on a yearly basis;
- overseeing the yearly ex post reporting by undertakings in a system, managed by the European Environmental Agency;
- checking on the basis of ex post reporting if undertakings have complied with their quota limits and applying quota penalties in form of deductions from future quota allocations;
- checking on the basis of ex post reporting if importers of HFC equipment have the required quota authorisations; and
- providing guidance to undertakings on use of the F-gas Portal and the HFC Registry and obligations related to the quota system.

The costs for Member States in relation to the phase-down are therefore limited to providing further guidance to stakeholders, ensuring effective border controls including the training of customs officers as well as following up on non-compliance issues including illegal trade.

More generally, the costs to industry of implementing the measures already included in the previous Regulation (EC) No 842/2006 were estimated previously to be around EUR 1 billion in 2015, rising to EUR 1.5 billion in 2030²⁰. In addition, the costs related to the HFC phase-down were estimated to be around EUR 1.5 billion/year²¹. However, in reality the costs are expected to be lower. The first figure is based on the assumption that the use of HFCs would not decrease until 2030, but with the launch of HFC phase-down under the new Regulation their use will be drastically reduced. The second figure was conservatively based on available information in 2010 only. Thus, it does not take into account new technologies that have emerged since then and the declining trend in costs of climate-friendly technologies. Still, when comparing these numbers with the significant reduction in emissions achieved, the F-gas measures are very cost-efficient compared to potential actions in other sectors. Average abatement costs were estimated, based on technology available in 2010, to be €16/tonnes CO₂ equivalent.³ Energy efficiency gains are likely to offset additional upfront investment costs.

5. Costs of Kigali Amendment to the Montreal Protocol

The implementation of the Kigali Amendment is estimated to avoid a temperature increase of almost 0.5 degree Celsius by the end of the century, thus contributing significantly to the

¹⁸ Oeko-Recherche et al. (2011). https://ec.europa.eu/clima/sites/clima/files/f-gas/docs/2011_study_en.pdf

¹⁹ As well as the European Environmental Agency

²⁰ Oeko-Recherche et al. (2011). https://ec.europa.eu/clima/sites/clima/files/f-gas/docs/2011_study_en.pdf

²¹ European Commission COM(2012) 643 final Impact Assessment (2012).

https://ec.europa.eu/clima/sites/clima/files/f-gas/legislation/docs/swd_2012_364_en.pdf

goals of the Paris Agreement on climate. The F-gas Regulation will enable the EU to meet its commitments under the Kigali amendment until 2030, the last year for which a target is included in the F-gas Regulation. The Kigali Amendment will also guarantee that all other ratifying countries will take measures to reduce HFCs. This will put European undertakings on a more equal footing with their competitors abroad. Furthermore, the global transition to climate-friendly technologies is expected to result in increased investments in innovation and lower prices of alternative technologies due to economies of scale. This creates business opportunities for front runners, such as the EU industry.

The Kigali Amendment implies that Member States will have to contribute more to the Multilateral Fund in the future. Exact amounts cannot be calculated at this point in time. The amounts will depend on future negotiations, which are conducted on a triennial basis between developed and developing parties of the Montreal Protocol as well as detailed parameters such as cost eligibility criteria for phasing-down HFCs, which are still to be agreed.

Nonetheless, the technical body of the Montreal Protocol, the Technology & Economic Assessment Panel (TEAP), calculated cost ranges until 2050 for the four HFC amendment proposals before the Kigali meeting to aid the negotiations²². These rough estimates may give an indication of the magnitude of funding needed. The TEAP analysis²³ showed cost ranges for the proposals between EUR 3 200-5 000 million for the cheapest and EUR 8 800-13 400 for the most expensive proposal. Considering the obligations agreed in the Kigali amendment, the costs are likely to be higher than the lowest estimate and considerably lower than the highest estimate. While stressing the high uncertainty linked to these approximations, the annual funding need would be likely to be a least EUR 100 million per year of which Member States would have to contribute about 50% in accordance with the contribution scale determined by the United Nations.²⁴

This amount appears rather moderate in comparison with the commitment of developed countries in the context of the Paris Agreement to make USD 100 billion available for climate finance per year until 2025.

6. Conclusions

At this point in time only one full "annual" cycle of the phase-down has been completed²⁵ and the inclusion of refrigeration, air conditioning and heat pump equipment under the phase-down has only begun very recently, on 1 January 2017. There are also indications that the

²² Decision EX.III/1 Working Group Report UNEP TEAP, 2016: On the climate benefits and costs of reducing hydrofluorocarbons under the Dubai Pathway. http://conf.montreal-protocol.org/meeting/mop/mop-28/presession/Background%20Documents%20are%20available%20in%20English%20only/TEAP_ExIII-1_Report_Sept-2016.pdf

²³ Note the calculations are not based on the exact obligations of the Kigali Amendment proposals. In addition to uncertainties related to producing such long-time projections, further limitations are that a number of costs such as for project preparation, capacity building, institutional strengthening etc. were not included in the analysis and current MLF cost guidelines for conversions from hydrochlorofluorocarbons (HCFCs) were employed, which may be set differently for HFCs.

²⁴ UN (2015) Resolution adopted by the General Assembly on 23 December 2015: 70/245. Scale of Assessments for the apportionment of expenses of the United Nations http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/245

²⁵ One "annual" cycle of the phase-down comprises quota allocation, quota use, *ex post* company reporting and subsequent compliance checking by the Commission. It takes roughly two years to complete the cycle.

data currently available is still affected by an initial lack of understanding by stakeholders. It is therefore **too early for an in-depth assessment of the functioning of the phase-down mechanism** and to thoroughly appreciate all possibly impacts of the chosen quota allocation method.

Nonetheless, the analysis undertaken and the consultation of stakeholders indicate that **the phase-down is functioning as it should**. The price development is fully in line with expectations and there is good compliance with the total EU HFC limit. The chosen allocation method allows on the one hand for stability in the market and, on the other hand, flexibility for new market players to enter the market.

While noting that undertakings will have to reduce their sales of HFCs under the phase-down, **the allocation of quotas for free may benefit some actors on the market more than others**. In addition, the availability of free quota on simple request from the reserve has significantly increased the number of players with only small quota amounts. It will require further monitoring to see how this situation for small and for new gas importers develops in the coming years. In addition, the market situation of equipment importers which, in the current allocation system, depend on quota holders to obtain authorisations for their imports, also requires continued monitoring.

The current method allows, based on the online F-gas Portal²⁶, to implement the quota system by the European Commission with little extra burden on, or costs to, Member States. It is in this way enabling a successful implementation of the phase-down and safeguarding environmental ambition. Most of the recurrent costs in Member States are a result of obligations already established by the previous Regulation (EC) No 842/2006. However, Member States will be asked to make increased contributions to the Multilateral Fund in the future to finance the Kigali Amendment, in line with their obligations under the Montreal Protocol.

In light of the above findings **the Commission does not intend to amend the quota allocation method at this time**. The Commission will instead focus on enabling a smooth implementation of the existing method and helping all stakeholders better understand and comply with their obligations, in order to make the EU HFC phase-down a success. At the same time **the Commission will continue monitoring the functioning of the allocation method and its impacts closely** while noting that a comprehensive review of the F-gas Regulation is required by 31 December 2022.

²⁶ The F-gas Portal includes the HFC Registry according to Article 17 of Regulation (EU) No 517/2014 and provides the link to the reporting tool according to Article 1 of Commission Implementing Regulation (EU) No 1191/2014. <https://webgate.ec.europa.eu/ods2/resources/home?domainKey=fgas>