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Indications of illegal HFC trade based on an analysis of data reported under the F-gas Regulation, Eurostat dataset and Chinese export data

Any amount of HFCs coming into the EU outside the HFC quota system has the potential to reduce environmental benefits and leads to unfair competition. Therefore, it is essential to maintain a good enforcement of the F-gas Regulation (FGR). At the same time, it is important to stress that despite illegal trade, HFC prices are 4-6 times higher than before the start of the quota system. Thus, the phase-down is working and promoting a shift towards more climate-friendly alternatives, which become more affordable.

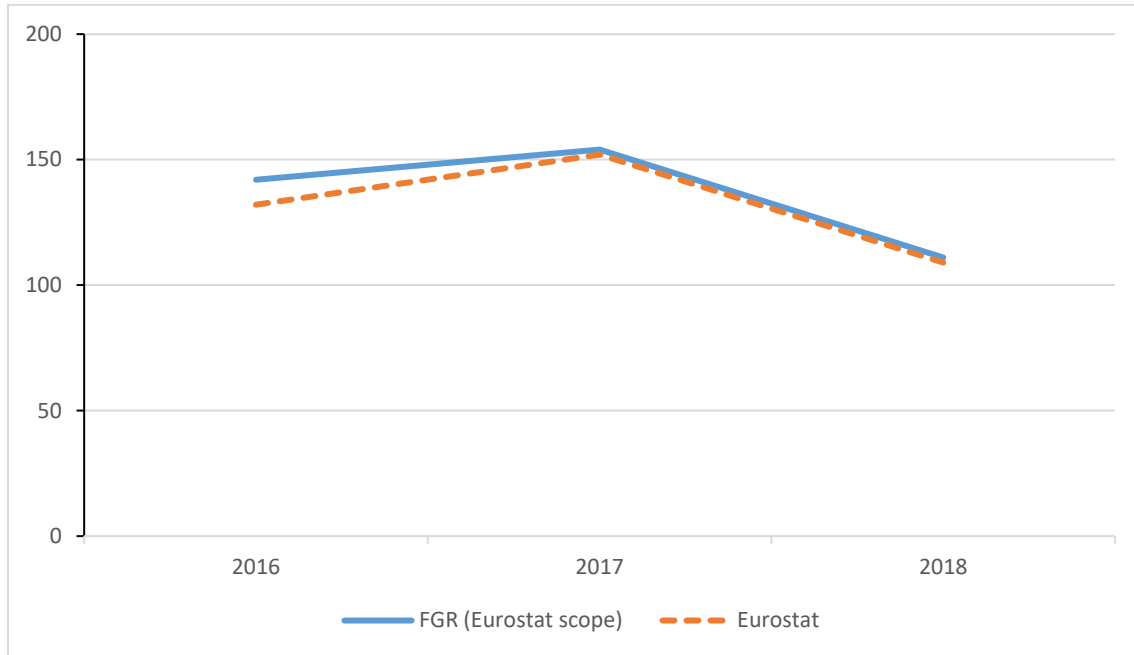
In the light of allegations of widespread illegal trade in HFCs in 2018, the Commission asked an external contractor to examine this issue. Data on the trade of HFCs available from company reporting according to the FGR was compared with other related data sets, in particular Eurostat trade data as well as Chinese export data acquired by industry from Chinese sources and provided to the Commission. In this analysis, it is useful to distinguish between two types of illegal trade:

- **Misreporting under the F-gas Regulation:** HFC Imports are under-reported under the FGR while correctly declared at customs, with the aim of staying within the restrictive quota.
- **Customs evasion:** Non-declaration of HFCs imports at customs (smuggling, mislabelling, misuse of transit procedures etc.) and no FGR reporting.

1. Misreporting to circumvent the need for quota

An indication of the level of misreporting can be determined by comparing the import data reported under the FGR and Eurostat.

Figure 1. Imports: F-gas Regulation reporting data vs Eurostat trade data (Mt CO₂e¹)



The figure² indicates that:

- FGR reporting on imports appears robust as it is very close to EUROSTAT data in recent years³. The FGR dataset even captures slightly more imports than EUROSTAT.
- At individual gas level there are some differences between FGR and EUROSTAT, easily explained by the fact that mixtures of gases are captured differently by EUROSTAT and FGR.
- There is a good match for R134a, which industry identified as the biggest concern for illegal trade activities.

Also, Member States are comparing import surveillance data derived from customs authorities with the quantities reported by each company under the FGR and so far only relatively few cases of non-compliance concerning relatively low amounts have been detected.

Thus, it appears that illegal imports (without HFC quota) are likely to be mainly in the form of customs evasion rather than misreporting of imports.

¹ Mt CO₂e: million tonnes CO₂ equivalent

² FGR "Eurostat scope" - the set of HFC single gases and mixtures which can be identified distinctly in Eurostat data is not the same as under the FGR. The required scope correction is very small (uncorrected FGR data is ca. 1 MT CO₂e higher).

³ E.g. 2018: 111 MtCO₂e of imports reported under FGR vs. 109 MtCO₂e captured by EUROSTAT

Furthermore, the estimation of misreporting of imports in 2018 in the report “Doors wide open” of April 2019 (Environmental Investigation Agency (EIA)) could not be substantiated. The EIA estimated that 16.3 Mt CO₂e (or 16 %) were placed on the market above the available quota for 2018.

This EIA estimate of placing on the market of 117.4 Mt CO₂e for 2018 was, in the absence of actual 2018 FGR reporting data, based on a number of assumptions from data of previous years, which appeared reasonable at the time. However, the actual data from 2018, that are now available, shows that the placing on the market in 2018 was only 100.2 Mt CO₂e. The EIA overestimated, in particular, EU HFC production, and did not take into account a several other transactions relevant for the quota calculation, as explained in Table 1 below.

Table 1. Calculations of 2018 quota relevant Placing On the Market of HFCs estimated by the EIA and based on the data actually reported under the F-gas Regulation

Calculation item	Type of contribution ⁴	EIA estimate [Mt CO ₂ e]	Based on BDR reporting data [Mt CO ₂ e],	EIA overestimation [+] / underestimation [-] of quota-relevant POM [Mt CO ₂ e]
EU production	Plus	49.6	35.3	14.3
EU production, destroyed before POM	Minus	Not considered	4.6	4.6
EU bulk imports	plus	119.4	111.8	7.6
Imports of HFCs in pre-blended polyols	plus	Not considered	1.7	-1.7
Of both import categories: re-exported inside equipment prior to placing on the EU market	minus	Not considered	4,7	4.7
EU bulk exports	minus	48.5	47.9	-0.6
EU Exports of HFCs in pre-blended polyols	minus	Not considered	1.1	1.1
Of both export categories: exports from EU purchases, not covered by the quota exemption for exports of FGR Art 15(2)c	plus	Not considered	8.0	-8.0
1 Jan to 31 Dec increase in stocks of HFCs from own import or own production, not yet placed on the market	minus	Not considered	3.3	3.3
Quota exempted POM of FGR Art 15(2) a, b, d, e & f (i.e. not including the export exemption)	minus	14.2 (possibly meant to include the export exemption?)	14.3 (the export exemption amounts to additional 6.8 Mt CO ₂ e)	0.1
Quota authorisations issued by quota holders	plus	11.1	18.9	-7.8
Calculated quota-relevant POM for 2018		117.4	100.2	17.2

⁴ "Type of contribution" means how this data affects "placing on the market" and thus quota calculations: "plus" means that any such quantities require quota, while "minus" results in a quota credit

2. Customs evasion regarding HFC imports

The level of customs evasion is difficult to determine because inherently there is no consistent data set for this type of activity. Nevertheless, industry and the EIA have pointed towards a number of characteristics that could indicate the amounts of this type of illegal trade, in particular:

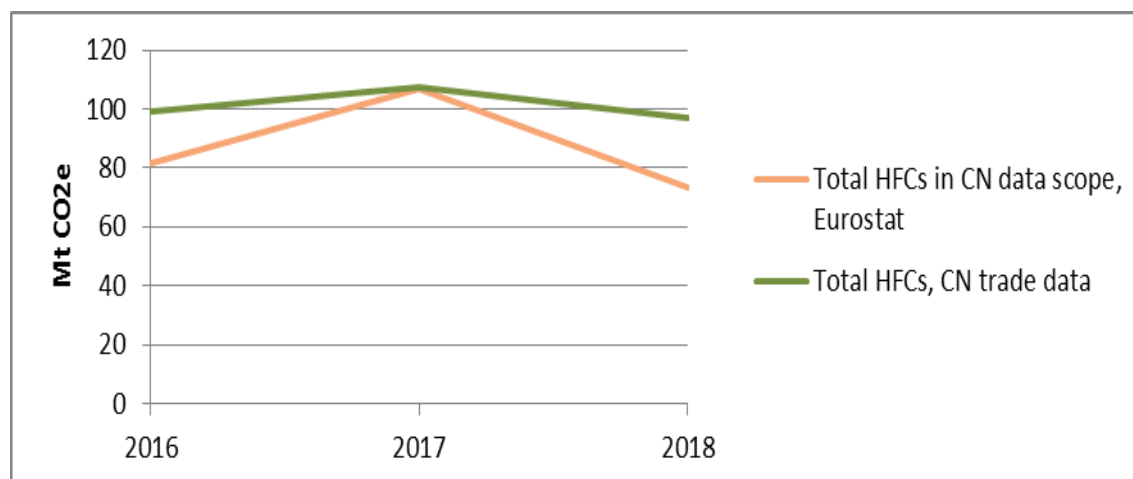
- discrepancies between Chinese export data and EU import data;
- shift in location of import entry points; and
- high growth of Chinese HFC export to EU neighbouring countries.

2.1 Discrepancies between Chinese export data and EU import data

Industry has provided the Commission with Chinese data reflecting the quantities of certain HFCs for which Chinese exporters have indicated that the expected export destination would be an EU Member State. Discrepancies between data from China on HFC exports to the EU (if taken at face value) and EU data on (declared) HFC imports from China could therefore indicate illegal trade in the form of customs evasion.

The figure below compares the data with Eurostat import data mirroring the HFC scope of the Chinese data for the period 2016 to 2018. It shows a significant gap between Chinese HFC exports to the EU and EU HFC imports from China for 2016 and 2018, whereas there is no discrepancy in 2017.

Comparison with Chinese export data provided by industry



Data sources: Eurostat 2019, China Trade Data 2019 adjusted for 1 month transit time⁵

It is odd that there is a significant gap in 2016, where the incentive to trade illegally was low. In 2016 the phase-down reduction step was 91% of the baseline and there was hardly any HFC price increases on the EU market. Also, it is odd that there is a discrepancy in 2016 but none in 2017, where the incentive to trade illegally would be

⁵ Assuming transit times of zero, one or two months do not greatly affect the findings; 1 month was taken in the analysis as a plausible transit time difference.

at least as high as in 2016. This may point towards an issue of data inconsistency. It may be that the comparison is somewhat flawed due to the following issues:

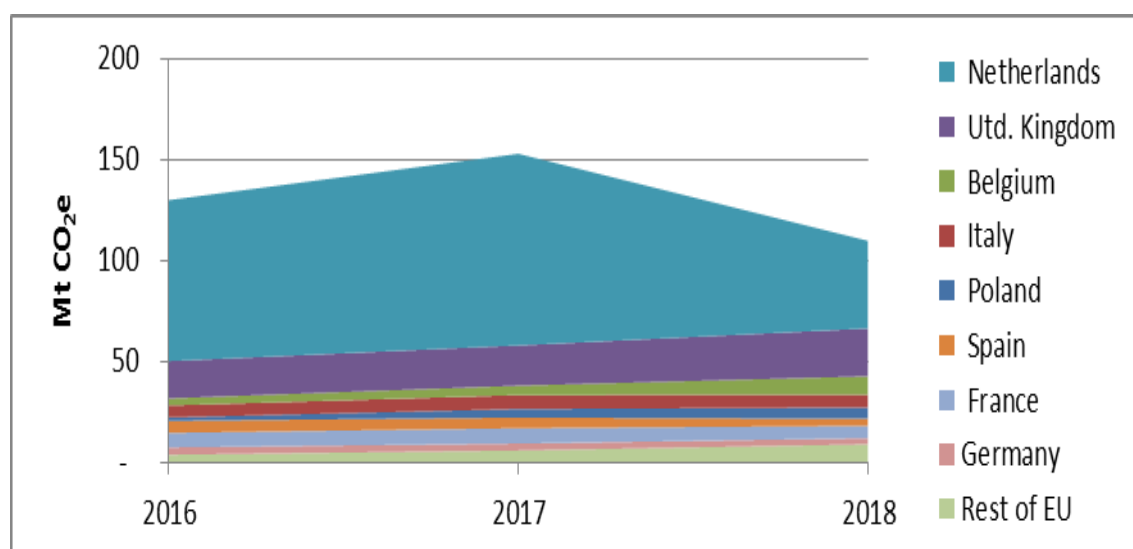
- Issues of data comparability and accountancy issues including scope, correct attribution of gases⁶, as well as systematic errors e.g. linked to custom procedures such as warehousing.
- Most importantly, the data quality for Chinese exports is unclear.⁷ No information on the data collection methodology or data quality checks is available. In particular, the attribution of destination country may be doubtful, as the Chinese exporter may be unable to correctly identify this parameter when exporting, e.g. due to the (re-)routing of trade. The attribution to single destination countries is uncertain (e.g. large fluctuations between years for single countries and landlocked countries such as Austria significantly underrepresented in Chinese data).

Considering these potential data problems, at this stage it does not appear possible to quantify the level of illegal trade on this basis alone.

2.2 Shift of import entry points

It has also been argued that a significant shift in the import entry point could indicate that illegal trade was happening in those Member States where imports have increased. The figure below shows imports of HFCs per Member State from 2016 to 2018. It indeed shows a relocation of entry points from the Netherlands to locations in Poland, Belgium and the UK. When looking at absolute quantities the level of imports in all other countries are still low compared to the Netherlands: e.g. the quantities imported into Belgium and Poland, where the largest increases have taken place (besides UK), are still 5-7 times smaller than in the Netherlands.

Imports by Member State (Eurostat trade data)



N.B. – Eurostat data only as there is no data on imports at Member State level from FGR

⁶ HFC gases have very similar industrial names, e.g. R134, R134a, R143a, which may be inconsistently captured in different data sets, which will give different result when converted to CO₂e

⁷ These data were commercially obtained by EU chemical industry from Chinese sources and provided to the Commission for the purpose of this study.

While a shift could indicate the presence of illegal trade, it may also be influenced by other factors, for instance:

- The proliferation of new market players with legitimate quota in many countries. The number of new quota holders in Poland was more than 5 times higher in 2018 than in 2016. The increase in declared HFC imports in Poland is fully covered by quota by such new quota holders.
- There is increased quota transfer activity in the F-gas Portal & Licensing System where new players are consolidating their quota share. This is adding new gas providers to the bulk gas market.
- The increases in the UK and IE are likely to be BREXIT related.

Consequently, it does not seem appropriate to assume that just changing destination ports would indicate illegal trade activities.

2.3 High growth in Chinese HFC exports to EU neighbouring countries

Another concern raised by stakeholders is that Chinese export data shows high growth rates for HFC imports into most EU neighbourhood countries. While noting the need to be cautious about drawing firm conclusions based on Chinese export data, the main concern, based on our analysis, would seem to be high import growth rates in Ukraine. Apparently, there are also high growth rates in some Balkan countries, especially Albania. However, in absolute terms the latter amounts are relatively small compared to the EU quota system.

It should also be noted that:

- Some growth is to be expected in most neighbouring countries due to economic growth and replacement of ozone depleting substances with HFCs.
- Also, considering the entry into force of the Kigali Amendment in 2019, some importers may have increased their stocks, as it was the case in the EU in 2014 before the FGR entered into force.
- Increases observed for Turkey and Russia were at ~10% per year, which is a plausible order of magnitude for domestic increase in use.
- Increased imports from China into Switzerland are more than counter-balanced by decreasing EU exports to Switzerland. Western European EU neighbours do not appear to be a hub for HFCs to be smuggled into EU.

Therefore, while the higher growth rates in some countries, taking Chinese data at face value, are a concern, more and better data would be necessary to follow up on these leads. COM is in contact with some third countries already in the attempt to get such data.

3. CONCLUSIONS

- Despite the apparent existence of illegal trade, the HFC phase-down continues to be successful in promoting innovation and a shift towards climate friendly solutions.
- Correctly declared imports of HFCs at customs appear to also be correctly reported under the FGR and thus accounted for under the quota system. Consequently, most illegal trade appears to be in the form of an evasion of customs.
- While it is apparent that such customs evasion is happening, at this stage it does not appear possible to quantify these activities based on the available data.
- Regarding estimations based on Chinese export data, there are questions as to whether these Chinese data are reliable or are consistent with the EU data.
- If taken at face value, Chinese data show that a few countries in the EU neighbourhood have unexpectedly high HFC import growth rates.
- Even if the data does not permit at this stage to quantify the extent of illegal activities, it is clear that custom controls are relevant and need to be intensified, because any amount of HFCs coming into the EU outside the HFC quota system has the potential of reducing environmental benefits and leads to unfair competition.