

Update on the F-Gas Regulation negotiations: The shift to (very) low-GWP refrigerants

In March 2022 the European Commission published its proposal for a [Revision of the F-Gas Regulation \(2022/0099 COD\)](#) to replace the [current regulation from 2014](#). The key objective of the revision is to have a more ambitious phase-down of HFCs, meaning a much stronger shift to (very) low-GWP refrigerants in the coming years which will significantly impact the RACHP sector. In this article we'll provide a short recap of the Commission's proposal on the F-Gas revision, go more in-depth into certain amendments by the European Parliament and Council that impact the RACHP sector and compare them with each other. At the end we talk about the next steps and provide a short update on the proposal for the restriction of PFAS.



Commission's Proposal

The Commission released a revision of the 2014 F-Gas Regulation to align with the Green Deal ambitions of carbon neutrality and streamline with the Kigali Amendment of the Montreal Protocol by extending the HFC phase-down after 2030. Two provisions are important for the RACHP to keep in mind: **Product prohibitions** for air-conditioners and heat pumps that make use of refrigerants with a higher GWP, and a much **steeper HFC phase-down**.

COM: Product Prohibitions (Annex IV points 17 & 18)

Table 1 provides an overview of the AC-HP products that will be banned from the EU market based on their use of F-Gases. The Commission proposed to ban plug-in & other self-contained AC-HP systems that use F-Gases with a GWP of 150 or more from 2025 onwards, together with single-split systems that contain less than 3 kg of F-Gases with a GWP of 750 or more.

From 2027 onwards the prohibitions would become stricter for all split systems, those with a capacity of 12 kW or lower can maximum use F-Gases with a GWP lower than 150. Those with a higher capacity have to stay under 750 GWP.

This means that the popular R32, which has a 100-year GWP of 675 and gained popularity as a refrigerant in recent years due to its comparatively lower GWP to other HFCs and very high efficiency, can only be used in split systems that have a capacity higher than 12 kW from 2027 onwards.

COM: Steeper HFC Phase-Down Timeline (Annex VII)

As can be seen in **Figure 1** (see further), the Commission has proposed a much more ambitious HFC phase-down in comparison to what's currently in place under the 2014 Regulation. The end objective is to have a reduction of 98% HFCs by 2048 in comparison to 2015 levels.

Table 1. Prohibitions (bans) on AC-HP products within the Commission's Proposal. Source: Table made based on information in F-Gas Regulation Revision – Commission Proposal COM(2022) 150 final: Annex IV (points 17 & 18).

Type of AC-HP system	Capacity	Max. allowed F-Gas GWP	Enforcement date	Exemption
Plug-in & other self-contained	All	< 150	1 January 2025	None
Single-split	< 3kg F-Gases	< 750	1 January 2025	None
Split	≤ 12 kW	< 150	1 January 2027	Can be exempted through safety standards
Split	> 12 kW	< 750	1 January 2027	Can be exempted through safety standards

The new timeline will go into effect from 2024 onwards, with the largest decrease to occur from 2027–2029. While the 2014 Regulation allowed for a maximum quantity of HFCs equivalent to 42 MtCO_{2e} in this time period, the revised timeline decreases this amount to less than half of that, specifically to 18 MtCO_{2e}.

Keeping in mind this steep decrease and the abovementioned prohibitions, it's clear that the Commission has the aim to steer the RACHP market to very low-GWP refrigerants from 2027 onwards, with 2024–2026 as a transition period. Combined with the PFAS restriction that is being discussed (see further), there is a push towards a shift to natural refrigerants.

European Parliament Amendments

Dutch MEP Bas Eickhout of the Greens led the debates as rapporteur for the ENVI Committee, having previously served in the same role for the 2014 Regulation negotiations. He continues to champion for a more ambitious shift away from F-Gases and towards natural refrigerants, which is reflected in the [Parliament's final report \(P9_TA\(2023\)0092\)](#) that was approved with a large majority in the Plenary session on 30 March, mainly due to the support of the Greens, S&D and Renew with a more divided EPP. The margins were more narrow during the vote for some separate Plenary amendments to make the HFC phase-down and prohibitions more flexible (e.g. [amendments 175–179](#) and [amendment 185](#)), where especially Renew and EPP were strongly divided within their own groups.

The approved amendments push for a more ambitious phase-out of HFCs and for much stronger bans on products using F-Gases, banning the use of *all* F-Gases in different types of AC-HP systems. Three sets of amendments which are crucial for the RACHP sector are the possibility to allow additional HFC quotas for heat pumps to not endanger the RePowerEU objectives, additional prohibitions and a new timeline to phase-out HFCs.

EP: Coherency with REACH (art. 35 par. 1c)

A new paragraph has been added, requiring the Commission to reassess and update the F-Gas Regulation as necessary once the revision of the REACH Regulation is completed. This is to ensure that the F-Gas Regulation is coherent with any potential new restrictions on the use of PFAS within REACH.

EP: Flexibility for heat pumps under RePowerEU (Art. 17 par. 6a)

The Parliament introduced an amendment which should allow for more flexibility for the heat pump sector to not endanger the needed acceleration for their deployment under RePowerEU. The Commission will assess the impact of the HFC quota phase-down on the heat pump market on an annual basis, until 2029. If the assessment concludes that the phase-down is creating disruptions on the deployment, the Commission will be allowed to place a limited amount of additional HFC quotas on the market for heat pumps.

With this amendment the Parliament responds to concerns from the industry that a too ambitious phase-down would hamper the rapid deployment of heat pumps and create an additional barrier to reach the RePowerEU targets to roll out 10 million hydronic heat pumps by 2027 and double the deployment rate by 2030.

EP: Stronger product prohibitions (Annex IV points 17 & 18)

Table 2 shows the amendments from the Parliament on the product bans in comparison to the Commission's proposal in **bold and underlined** (again only the relevant bans for AC-HP have been included in this table). This is likely the most contentious set of amendments by the Parliament, where they've introduced strict bans on all F-Gases in different types of AC-HP systems from 2026 and 2028 onwards as you can see in **Table 2**.

Table 2. Prohibitions (bans) on AC-HP products within the Commission's Proposal. Source: Table made based on information in *F-Gas Regulation Revision – European Parliament Report P9_TA(2023)0092 : Annex IV (points 17 & 18)*. Amendments to the Commission proposal are **bold and underlined** while the Commission's original text is ~~striked through~~.

Type of AC-HP system	Capacity	Max. allowed F-Gas GWP	Enforcement date	Exemption
Plug-in, <u>monobloc</u> & other self-contained	All	<150 <u>All F-Gases banned</u>	1 January 2025 <u>2026</u>	None
Single-split, <u>including fixed double duct systems</u>	< 3kg F-Gases	<750 <u>All F-Gases banned</u>	1 January 2025 <u>2028</u>	None
Split	≤ 12 kW	<150 <u>All F-Gases banned</u>	1 January 2027 <u>2028</u>	Can be exempted through safety standards
Split	> 12 kW ≤ <u>200 kW</u>	< 750	1 January 2027 <u>2028</u>	Can be exempted through safety standards
<u>Split</u>	<u>> 200 kW</u>	<u>All F-Gases banned</u>	<u>1 January 2028</u>	<u>None</u>

EP: Revised HFC phase-out (Annex VII)

Figure 1 displays two significant changes that the Parliament intends to introduce to the HFC phase-down timeline, in comparison to the Commission’s proposal:

1. While the Commission plans to decrease the HFCs in the market by 98% by 2050, relative to 2015 levels, the Parliament suggests a complete phase-out of HFCs by 2050. The reasoning behind this proposal is not only environmental but also based on the belief that a complete phase-out sends a stronger market signal to move away from F-Gases instead of keeping a small part. However, some market actors fear that a complete phase-out without exceptions may not be feasible in some products (this doesn’t necessarily apply to AC-HP products however).
2. In the period 2027–2029 the Parliament increased the quota level to 12%, rather than 10% in the Commission’s proposal, compared to 2015 levels. One of the arguments supporting this proposal is that the cut-off point between 2026 and 2027

in the Commission’s proposal was too steep. During the Plenary session in Parliament, there was a widely discussed amendment to increase the allowed HFC level to 18% in this time period. However, this amendment was voted down by a fairly small margin.

Council Negotiation Mandate

On 5 April, 5 days after the Parliament, the Council agreed its mandate to enter into negotiations (file 8162/23) with the other institutions with their own amendments.

Important to note that their amendments include a **distinction between air-to-air and air-to-water heat pumps in the product prohibitions**, which some industry actors have been asking for as the use of natural refrigerants is more complicated with the former when looking at heat pumps that are on the market today. Additionally, the Council propose a **limited exemption for heat pumps to the HFC phase-down** (similar to the Parliament’s amendment)

HFC Phase-Down: Comparison of Timelines

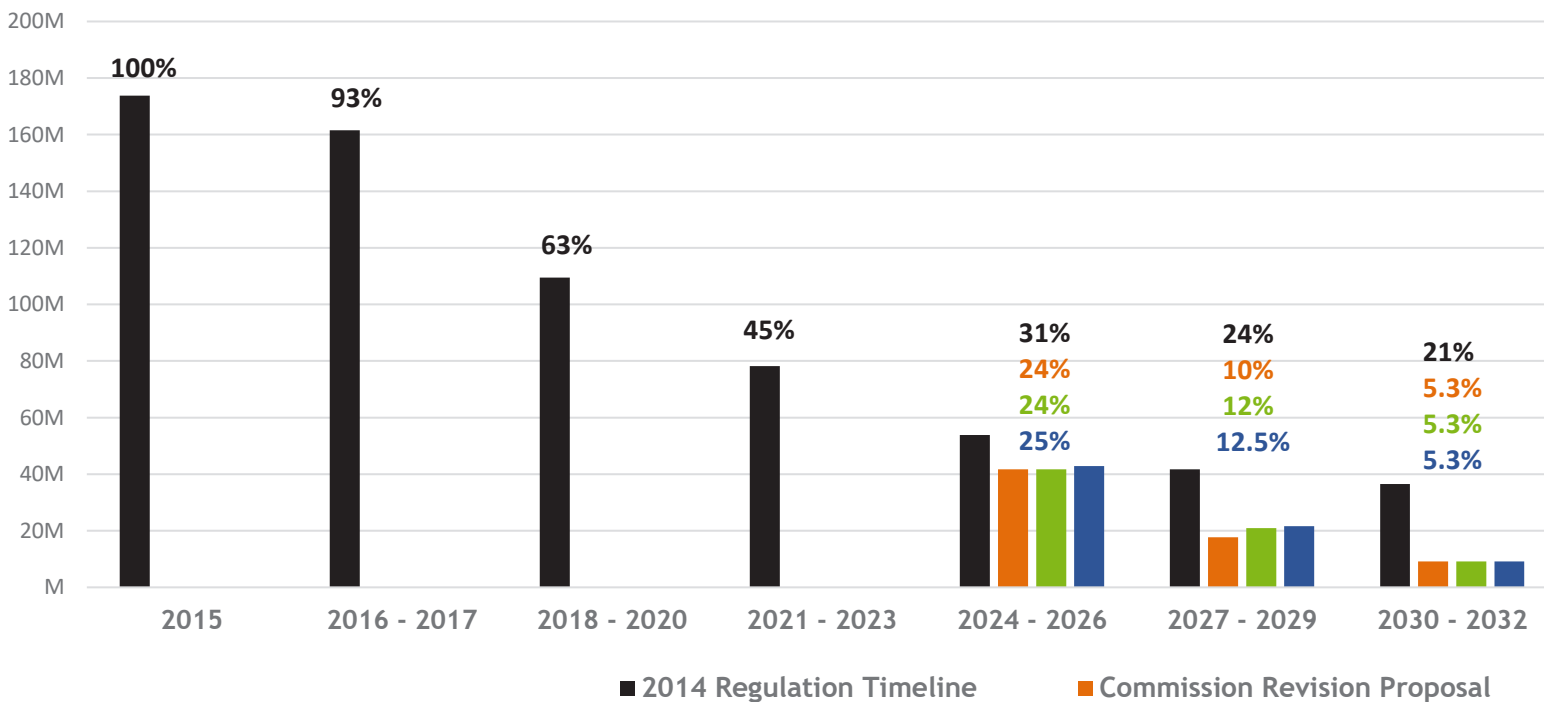


Figure 1. Comparison of timelines of the HFC phase-down(/out) between

and a **more lenient HFC phase-down timeline** in comparison to the Commission and Parliament.

Council: Flexibility for heat pumps under RePowerEU (Art. 17 par. 6b)

As mentioned, this proposed amendment by the Council is similar to what the Parliament has proposed as well to allow for a limited flexibility on the use of HFCs in heat pumps to not cause disruptions with the RePowerEU objectives. The difference with the Parliament amendment, is that the Council asks for an assessment by the Commission after a substantiated request by a Member State and not on an annual basis.

They've also specified concrete additional quota that could be placed on the market. For the period of 2024 – 2026 this would be 4,410,247 (a 2.5% increase on the Council timeline for that same period compared to 2015 levels) and for the 2027 – 2029 it's 1,425,536 (0.8% increase).

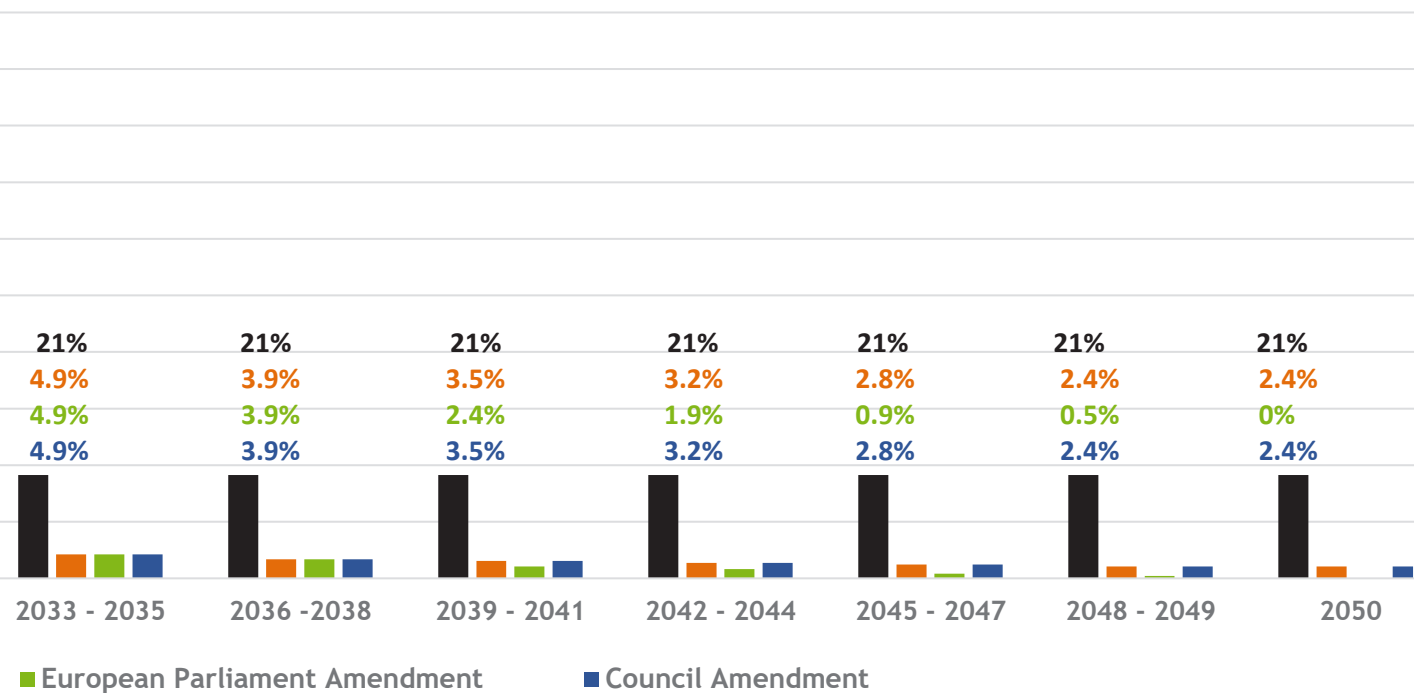
Council: More distinctions in prohibitions for heat pumps (Annex IV points 16 & 18)

As mentioned, in the product bans the Council has set a different timeline for air-to-air and air-to-water systems. This keeps in mind that air-to-air systems with a lower GWP currently have a much lower market penetration, especially HFOs are threatened to be strongly restricted under REACH. Same as above, the differences with the Commission's proposal are in **bold and underlined** in Table 3.

Council: Revised HFC phase-down (Art. VII)

The revised timeline by the Council can be seen in Figure 1. It is worth noting that, in contrast to both the Commission and Parliament, the Council proposes slightly more leniency for 2024–2026. For 2027–2029, it also requests more leniency compared to the Commission proposal, which is similar to the Parliament's. From 2030 onwards, the Council maintains the same phase-down schedule as the Commission.

(expressed in tonnes CO2 equivalent)



2014 Regulation with different proposals for a Revision by the EU institutions.

Table 3. Prohibitions (bans) on AC-HP products within the Commission’s Proposal. Source: Table made based on information in F-Gas Regulation Revision – Council file 8162/23 : Annex IV (points 16 & 18). Amendments to the Commission proposal are **bold and underlined**.

Type of AC-HP system	Capacity	Max. allowed F-Gas GWP	Enforcement date	Exemption
Plug-in & other self-contained (<u>incl. monobloc</u>)	<u>≤ 50 kW</u>	< 150	1 January 2025 <u>2027</u>	<u>Can be exempted through safety requirements (not standards) with a limit to 750 GWP</u>
<u>Other self-contained AC & HP</u>	<u>All</u>	<u>< 150</u>	<u>1 January 2030</u>	<u>Can be exempted through safety requirements (not standards) with a limit to 750 GWP</u>
Single-split	< 3kg F-Gases	< 750	1 January 2025	None
<u>Split air-to-air</u>	≤ 12 kW	< 150	1 January 2027 <u>2029</u>	Can be exempted through safety standards- <u>requirements</u>
<u>Split air-to-water</u>	<u>≤ 12 kW</u>	<u>< 150</u>	<u>1 January 2027</u>	<u>Can be exempted through safety requirements (not standards)</u>
Split	> 12 kW	< 750	1 January 2027 <u>2029</u>	Can be exempted through safety standards- <u>requirements</u>
<u>Split</u>	<u>> 12 kW</u>	<u>< 150</u>	<u>1 January 2033</u>	<u>Can be exempted through safety requirements (not standards)</u>

Next steps

The Council and Parliament will now enter into ‘triologue’ negotiations with each to find an agreement on the final text. It is expected that the institutions will find an agreement in Q3 of 2023.

When considering the provisions discussed in this article, we can expect that the institutions can find a relatively quick agreement on the HFC phase-down between 2024 and 2029. A larger obstacle will be the discussion between the 98% phase-down by 2050 or the complete phase-out of HFCs by that date as the Parliament amended. The largest point for the discussion will be the product bans however, where the Council asks for more flexibility, the Parliament aims to introduce strict bans on F-Gases in several types of AC-HP systems from 2026 and 2028 onwards.

Important to note here is – of course – the PFAS restriction which has been proposed by the governments of Denmark, Germany, the Netherlands, Norway and Sweden to the European Chemical Agency (ECHA). The proposal aims to strongly restrict PFAS under the REACH Regulation, which would basically strongly restrict the use of certain HFCs and HFOs. Most notably HFC-134a and HFO-1234yf would be restricted under this proposal. The consultation round for the PFAS restriction is currently open and after the opinions by ECHA committees, the proposal will be handed over to the European Commission in Q3 2023 who will then consider adding it to the REACH Regulation. To find out more about the PFAS restriction and the consultation round, have a look at the webinar organized by ECHA on 5 April*. ■

Bibliography

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* <https://echa.europa.eu/-/restriction-of-per-and-polyfluoroalkyl-substances-pfass-under-reach>