

Chillventa Specialist Forums 2022

Chillventa Fachforen 2022

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Regulatory drivers in North America affecting HVAC and Heat Pump technology transitions

Chillventa 2022

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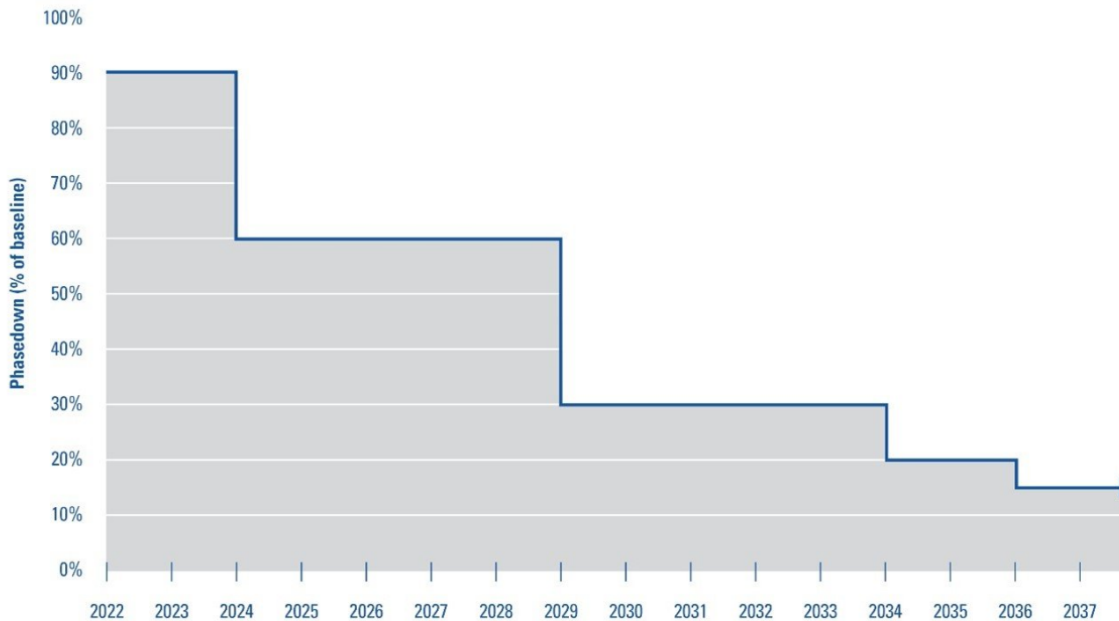
Agenda

- AIM Act Background
- US HFC Phasedown (AIM act) vs. FGas
- Technology Transfers
- Impact on HVAC
- US State Actions
- Canada / Mexico HFC Phasedown

AIM Act - Background

Phasedown Schedule

The following illustrates the HFC production and consumption phasedown schedule as outlined in the AIM Act.



Schedule consistent with the Kigali Amendment to the Montreal Protocol now ratified by the US in Sept, 2022.

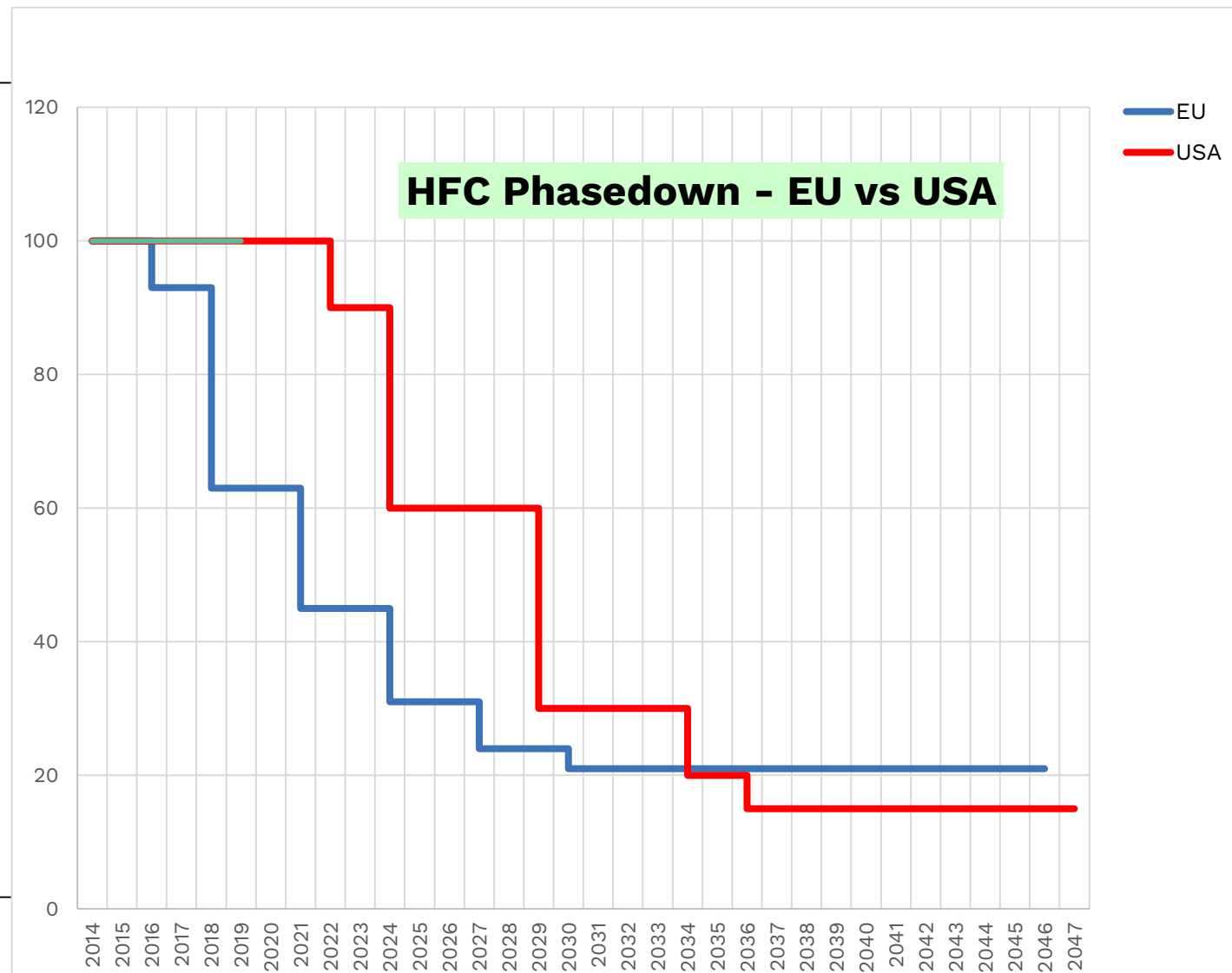
Final Rule - Phasedown of Hydrofluorocarbons: Establishing the Allowance Allocation and Trading Program under the AIM Act | US EPA

Phasedown based on 3 pillars:

1. Allocation of allowances starting in 2022, annual:
 - Supply progressively decreased
 - Not product specific, based on “GWP”
2. Technology Transfer
 - Sector controls, Use restrictions
3. Reclaim provisions
 - Subsequent Rules, related mostly to HVAC

There is no HFC production in the EU and quotas allow the holder to “place the product on the market”.

In the U.S., there are separate production and consumption quotas where consumption is defined as $\text{Production} + \text{Imports} - \text{Exports}$



FGAS vs. AIM ACT



Overall Rule Making Structure	F-GAS	AIM ACT
<ul style="list-style-type: none"> Start Date Geography the rule applies to 	<ul style="list-style-type: none"> 2015 EU (27 countries) + UK 	<ul style="list-style-type: none"> 2022 US only, and preempts state law in 6 limited applications
<ul style="list-style-type: none"> HFC quota allocation method Quota Usage 	<ul style="list-style-type: none"> Quota given based on sales/imports Authorization required to import HFCs 	<ul style="list-style-type: none"> Quota give based on production + imports – exports, Avg 2011-19 Separate allowances Production + Consumption. Need both if you are a producer, or need only consumption to import.
<ul style="list-style-type: none"> HFC containing equipment... 	<ul style="list-style-type: none"> Requires quota in order to be imported filled 	<ul style="list-style-type: none"> <u>Does not</u> require quota to be imported filled
<ul style="list-style-type: none"> Enforcement Penalties 	<ul style="list-style-type: none"> Enforcement has been lax with up to 30% of market quota illegal imports. Penalties 100€ to 75,000€ per offence 	<ul style="list-style-type: none"> Enforcement mechanisms include regular reporting, QR code identification, border enforcement. \$102,638 per violation. Each Kg is a new violation. Loss of quota rights can also occur.
<ul style="list-style-type: none"> Package Limitations 	<ul style="list-style-type: none"> Disposable cylinders banned 	<ul style="list-style-type: none"> Disposable cylinders banned after July 1, 2025
<ul style="list-style-type: none"> Quota transfers 	<ul style="list-style-type: none"> Occur regularly with no penalties 	<ul style="list-style-type: none"> 5% transfer tax applied to every transaction with the 5% retired from the transferors quota in that year.
<ul style="list-style-type: none"> GWP or sector bans 	<ul style="list-style-type: none"> Many individual bans including on use >2500 GWP 	<ul style="list-style-type: none"> Many proposed, and in rulemaking now. Likely to be combination of GWP limitations and sector bans.
<ul style="list-style-type: none"> MAC (Mobile Air Conditioning) 	<ul style="list-style-type: none"> Under separate directive, ban on >150 GWP 	<ul style="list-style-type: none"> ??
<ul style="list-style-type: none"> Rule Changes 	<ul style="list-style-type: none"> Significant changes proposed recently Revision started Apr, 2022 	<ul style="list-style-type: none"> Allowance distribution subject to change in 2024 Petitions to change rules allowed in 2025

AIM Act - Allowances

→ Who needs HFC allowances:

Anyone who produces or imports bulk HFCs.

- HFC that need to be transferred to another container to realize their intended use
- Not manufactured foams or equipment containing HFCs

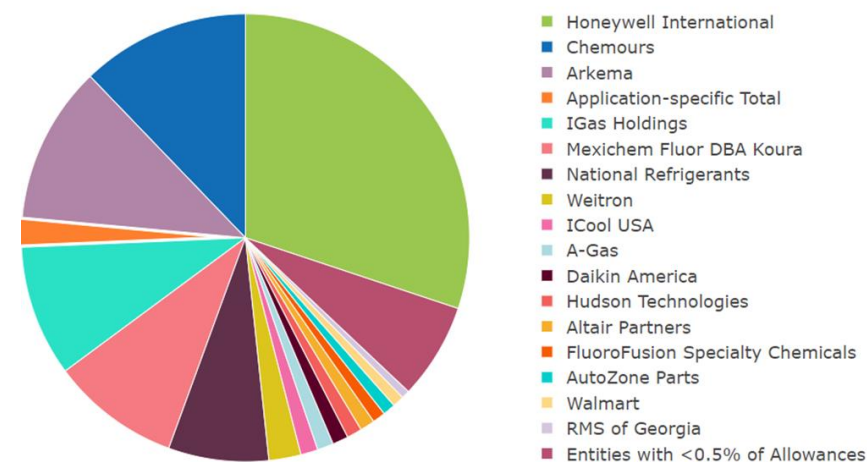
Allowances not needed to buy domestically or sell HFCs or HFC-containing products

Allowances can be transferred (5% penalty)

→ Who has HFC allowances:

Companies that have historically been producing or importing HFCs during a specified period

Distribution of HFC Consumption Allowances for 2022,
with Entities Receiving <0.5% Aggregated



<https://www.epa.gov/climate-hfcs-reduction>

AIM Act – Technology Transfer

Technology Transfer Rule – likely to be similar to SNAP (bans).

- Will be sector-specific, but EPA can define sectors and subsectors differently.
- Could be product-specific or GWP controlled.
- EPA has indicated that they want to address pre-charged imported products through Technology Transfer Rule



Technology Transfer Rule expected 2023

Require GWP limit of 750 for residential a/c

- Effective date 1/1/25

Aim Act - Background

Granted Petitions

Room air conditioners without electric heat and a capacity of 25,000 Btu/hr or less	January 1, 2023
Room air conditioners with electric heat and a capacity of 25,000 Btus/hr or less	January 1, 2024
Portable air conditioners	January 1, 2023
Dehumidifiers	2 years after EPA approval of R32 refrigerant for dehumidifiers

End-Use/Subsector	New/Retrofit	GWP Limit	Effective Date
Residential and Non-residential	New	750 or greater	January 1, 2025
Variable Refrigerant Flow (VRF)	New	750 or greater	January 1, 2026
Chillers	New	750 or greater	January 1, 2024

TABLE 2		
Chillers ⁵	AR4 GWP Limit	Transition Date
Chillers (designed for chilled fluid leaving temperature > +35 ° F)	750	January 1, 2024
Chillers (designed for chilled fluid leaving temperature ≤+35 ° and > -10° F)	1500	January 1, 2024
Chillers (designed for chilled fluid leaving temperature ≤-10 ° to -50 ° F)	2200	January 1, 2024
Chillers (< 20lbs charge) (designed for chilled fluid leaving temperature ≤+35 ° F)	2200	January 1, 2024
Exceptions: Chillers <-50 F, Medical, Scientific and Research Applications		

A/C Category (new equipment only)	GWP limit	Date
Stationary A/C (residential and light commercial)	750	1/1/2025
VRF systems	750	1/1/2026

Reclaim w/EPA & States

- EPA is expected to issue a ruling on the use of reclaimed refrigerant, in summer 2023.
- The state of California is implementing its own requirements for reclaim.
- CA law will require 10% reclaim in all new AC equipment in 2023-24.
- Wide use of reclaimed refrigerant in HVAC-R is required to meet the phasedown schedule.

AIM Act – Allocation Rule & Other Requirements



Allowance transfer offset fee: For every transfer of allowances the transferor surrenders an additional 5% of the amount transferred.

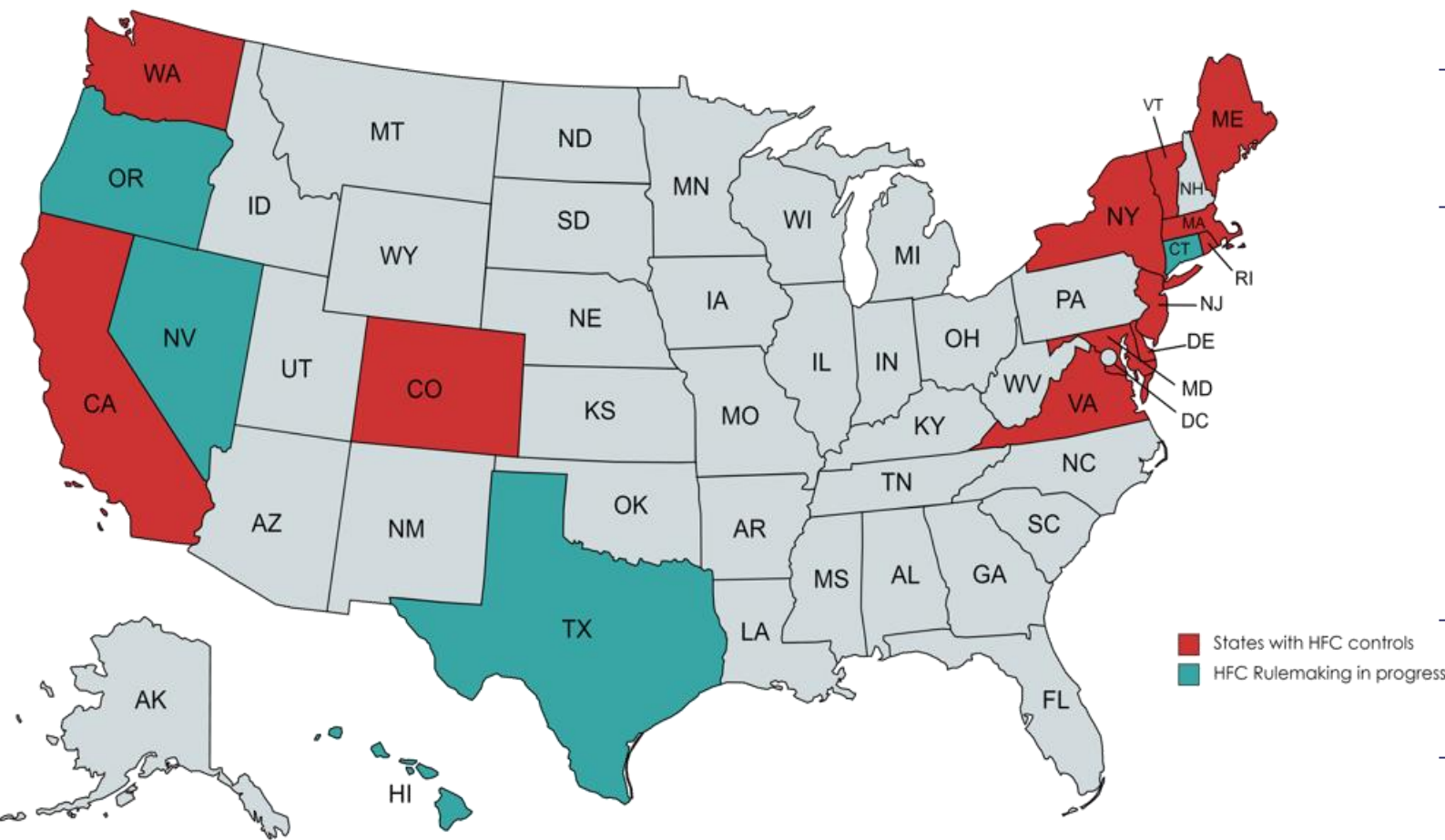
HFC in imported products: Excluded from phasedown. Appliances and foams can be imported or exported without consideration of the amounts of HFC they contain.



DOT39: EPA is banning disposable cylinders (except small automotive cans) from being filled or imported by 7/1/25 and from commerce completely on 1/1/27. This provision is being challenged in court by Worthington Industries, as well as ACCA and HARDI who are also challenging EPA's requirement to institute QR code tracking systems for cylinders.



HFC Regulations in the states



- Some states have suspended their HFC activities in anticipation of the AIM Act implementation.
- The AIM Act has no state preemption, except for 6 niche applications including marine foam.
- California law has GWP limits for the sale of refrigerants, including for servicing equipment.

Year	Currently Proposed Limits
2025	2200 GWP
2030	1500 GWP
2033	750 GWP

- New York proposed implementation requires the use of 20yr GWP values.
- 20yr GWP of R-32 =2,400, R454B=1,675
- Proposes to ban R-32 / R-454B from new equipment on 1/1/27.

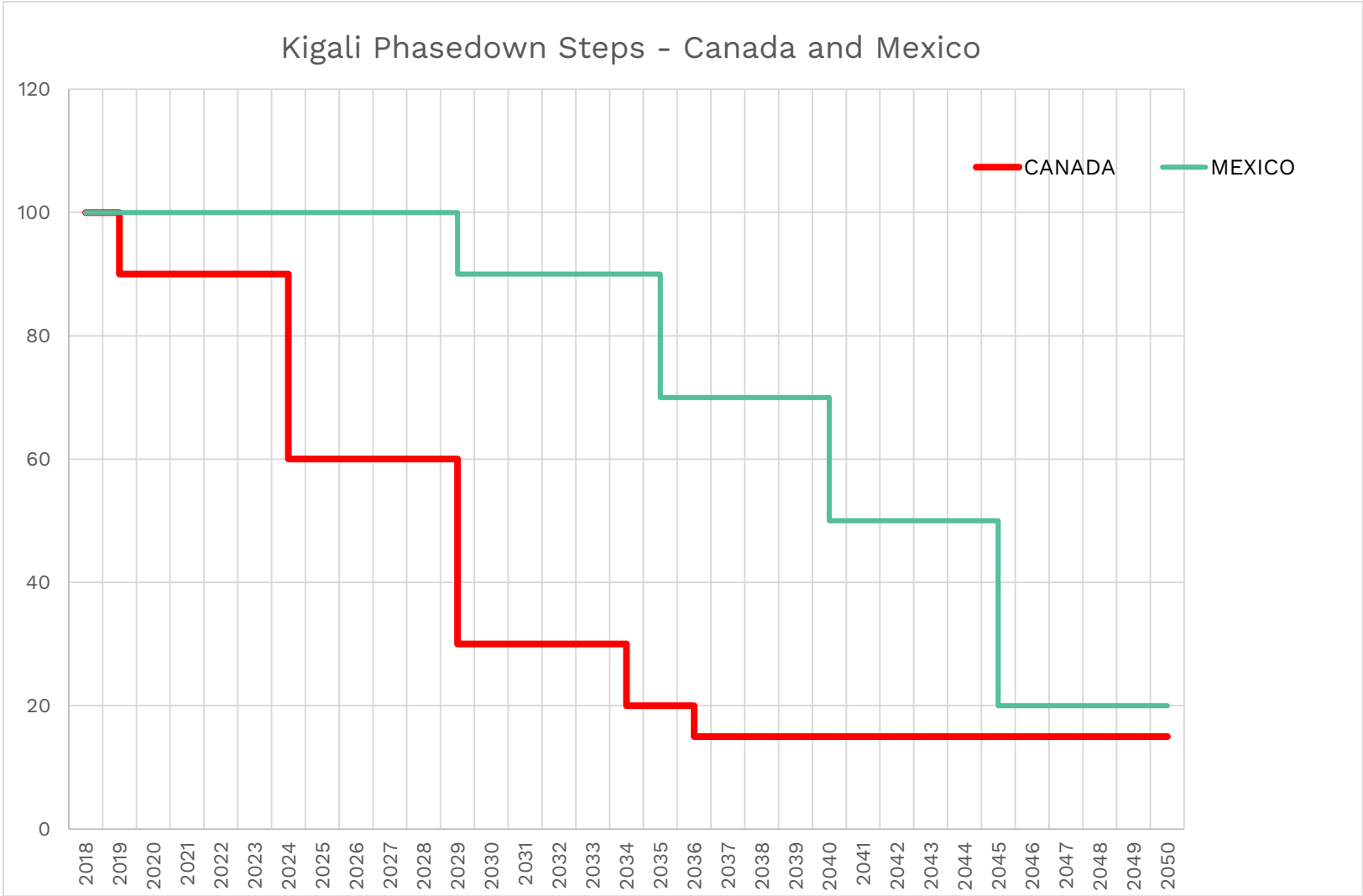
Canada and Mexico

Canada follows the same phasedown schedule as EU, USA, Japan, Australia (A2 developed countries)

Chillers <750 GWP by Jan 1, 2025

Mexico follows the A5 Group 1 schedule for developing countries (same as China, Latin America and Africa)

Rulemaking is underway.



Thank You

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