



# Next Generation Monitoring and Enforcement to Prevent Illegal Trade Under the Montreal Protocol:

## The U.S. AIM Act Allowance System

The Kigali Amendment to the Montreal Protocol is a global effort to phase down highly potent climate-polluting hydrofluorocarbons (HFCs) – synthetic gases used in cooling, foams, and aerosols – 85% by 2036. A successful global phasedown of HFCs depends on robust implementation and enforcement of the Montreal Protocol and associated domestic regulations by countries. The United States has recently joined 139 other countries to ratify the Kigali Amendment.<sup>1</sup> Parties under the Kigali Amendment are required to put in place domestic licensing systems controlling the import and export of HFCs, as well as allowance systems for phasing down HFCs. These systems are a fundamental cornerstone of domestic implementation of the HFC phasedown and a critical means of preventing, detecting, and deterring illegal production or trade in controlled substances, including HFCs and ozone depleting substances (ODS).

The illegal production, use, and trade in banned or controlled ozone-depleting substances and greenhouse gases used in the cooling sector remains a critical obstacle to international efforts to limit the worst impacts of climate change. In the 1990s, approximately 20,000 tons of ODS were being illegally traded each year.<sup>2</sup> A decade later in 2005, illegally traded ODS were still accounting for 10-20% of legitimate trade, an approximate value of up to US\$60 million. In 2018, EIA investigations uncovered the source of widespread illegal use of CFC-11 in China.<sup>3</sup> Even more recently, EIA research and investigations have identified staggering levels of illegal HFC trade in the European Union<sup>4</sup> where it has been estimated that smuggled HFC imports are up to 30% of the quota.<sup>5</sup> Illegal trade is also frequently underreported at the Montreal Protocol. Preventing significant black-market production and trade is essential to ensuring the climate benefits of the Montreal Protocol are realized.

This fact sheet examines the unique compliance and enforcement features of the 2021 allowance system developed to implement the Kigali Amendment in the United States. This serves as just one example for countries to consider as they improve and modernize previous domestic licensing and allowance systems designed for ODS, to ensure the successful phase down of HFCs. Ideally, these systems should also include a means of real-time verification of allowances and traceability of any illegal products through the supply chain.

## OVERVIEW OF THE U.S. EPA ALLOWANCE PROGRAM

The U.S. Congress passed the American Innovation and Manufacturing (AIM) Act in 2020, phasing down HFCs in alignment with the Kigali Amendment. The AIM Act directs the EPA to address HFCs in three ways: phasing down production and consumption; maximizing reclamation and minimizing equipment releases; and facilitating transitions to next-generation technologies through sector-based restrictions.<sup>6</sup>

Phasing down production and consumption to 15% of baseline by 2036 will be achieved through an allowance allocation and trading program. In 2021, EPA finalized a rule putting the allowance program in place, establishing the baseline for reductions, an overall methodology for allocating allowances, and the accompanying requirements to ensure compliance and enforceability.<sup>7</sup>

The allowance program contains regulatory requirements that affect entities that produce, import, export, destroy, reclaim, package, or otherwise distribute HFCs. Additional entities likely affected include producers using HFCs in their products, such as refrigeration, air conditioning, foams, aerosols, and fire suppression systems.

### KEY COMPLIANCE AND ENFORCEMENT ELEMENTS IN U.S. EPA'S ALLOWANCE SYSTEM



Preventative punitive measures



Tracking and real-time monitoring



Increased oversight of imports



Reporting and third-party auditing



Required use of refillable cylinders



Data transparency

## ESTIMATED BENEFITS OF U.S. ALLOWANCE SYSTEM RULEMAKING<sup>8</sup>

- Between 2022-2050, this rule will avoid cumulative emissions of **4,560 MMTCO<sub>2</sub>e of HFCs**.
- Cumulative net benefits of the rule: **US\$272.7 billion**
- Annual net benefits in 2022: **US\$1.7 billion**

### PREVENTATIVE PUNITIVE MEASURES

Violation of the allowance system, including illegal trade, mis-reporting, and others are subject to civil and criminal penalties, including fines and imprisonment. The EPA has also introduced additional punitive deterrents in the form of administrative consequences to prevent non-compliance. If a

company is suspected of violating any of the requirements under the allowance system, such as attempting to import HFCs without expending the proper allowances, EPA has the discretion to unilaterally retire, revoke, or withhold allowance allocations, and to potentially permanently ban companies from being eligible to receive future allowances. These consequences can be applied at EPA's sole discretion prior to completion of any subsequent prosecutorial or punitive legal enforcement action.

This additional enforcement tool creates an immediate consequence and will be a strong deterrent for non-compliance. It will also incentivize allowance holders to submit timely and accurate reports, and adhere to the other measures in this rule. Actions that can result in allowance adjustments include: submitting inaccurate or false information; non-reporting; unlawful production or import of HFCs; and violating anti-dumping rules<sup>9</sup> by not providing sufficient proof of paying appropriate duties applied to prevent unfair pricing. The EPA publicly reports allocation adjustments, which have already resulted in over 2.7 million MTCO<sub>2</sub>e in allowances being retired.<sup>10</sup>

## ADMINISTRATIVE CONSEQUENCES FOR SUSPECTED NON-COMPLIANCE

<b>Withheld Allowances</b>	retained by EPA until a holder comes back into compliance with a missed requirement. If the holder does not comply within 30 days, the allowances could be retired or revoked.
<b>Retired Allowances</b>	taken back and remain unused, expiring at the end of year.
<b>Revoked Allowances</b>	taken back by EPA and redistributed to other holders.
<b>Banned from Holding Allowances</b>	a holder is no longer permitted to receive allowances through allocation or transfer - company is unable to produce or import HFCs. Any company allowances return to the general pool.

## REQUIRING THE USE OF REFILLABLE CYLINDERS

There is ample evidence that disposable, nonrefillable cylinders are predominant vehicles for illegal trade of banned substances. Of 500 incidents of illegal HFC imports reported to Montreal Protocol's Ozone Secretariat in 2018-2020, nearly 90% involved disposable cylinders.<sup>11</sup> Disposable cylinders are cheaper, difficult to trace, and made to be filled with refrigerant, used, and discarded. They cause significant amounts of solid waste and the 'heel' of residual refrigerant in an empty disposable cylinder emits into the atmosphere when it is crushed or cut during recycling or landfilling. In contrast, technicians are incentivized to return refillable cylinders by a deposit-refund system, meaning the cylinders are monitored and returned with the heel to distributors, which also reduces solid waste. Refillable cylinders are distinguished by having a serial number and must meet Department of Transportation specifications. EPA estimates the prohibition of disposable cylinders would prevent 29 million MTCO<sub>2</sub>e emissions of HFCs between 2022 and 2050.<sup>12</sup> Disposable cylinders have also already been banned in the EU, Australia, Canada, and India.<sup>13</sup>

Learning from the EU experience, the U.S. EPA ban on disposable cylinders does not provide any exemption for cylinders manufactured before a certain date, which allowed a potential loophole for their continued use. In the US, the prohibition on disposable cylinders will phase in over the next five years. Starting on July 1, 2025, no one may import or fill a disposable cylinder with HFCs. Starting in 2027, no one may sell or distribute HFCs in a disposable cylinder, providing additional time for existing inventories in the U.S. market contained in disposables to be sold.

### Phase-in timeline for Prohibition of Disposable Cylinders by U.S. EPA

**JULY 1, 2025**  
Prohibit Import or Fill of  
Disposables Domestically

**JANUARY 1, 2027**  
Disposable Cylinders for  
HFCs Prohibited in U.S.

### TRACKING AND REAL-TIME MONITORING

It is important to develop licensing and allowance systems that provide real-time verification of the legality of shipments and traceability through the supply and distribution chain. Labeling and tracking systems can provide buyers with a means to verify the legality of purchases and protect workers and consumers from safety concerns with mislabeled substances.

The U.S. EPA regulation creates a robust labeling, registration, and tracking system. Anyone who produces, imports, reclaims, repackages, or recycles HFCs must register with the EPA's certification ID system. The IDs link to EPA's allowance allocation tracking system and are assigned to containers of HFCs labeled with a unique scannable QR code, prior to importation or departure from a production facility. An entity in the U.S. expending allowances to import is liable if the QR code labels are absent. EPA requires reporting for imports on the name, address, contact person, email, and phone information of the responsible party where the substance was filled.

The QR code is required to be scanned each time the product changes hands from seller to buyer in the supply chain. When a QR code is scanned, it points to a tracking database that shows if the substance in the container is legally attached to a registered allowance ID, the date it was filled, the quantity, and which HFC or HFC blend it contains. Anyone filling a container or cylinder, including transferring HFCs from one container to another, must enter information in the system and generate a QR code. The QR code requirements will be introduced in a phased approach per the timeline below. Entities must register with the EPA's certification ID system six months prior to the relevant enforcement dates.<sup>14</sup>

### Phase-in timeline for QR code label requirements by U.S. EPA

**JANUARY 1, 2025**  
QR code label  
required for  
containers sold by  
producers or importers

**JANUARY 1, 2026**  
QR code label required  
for repackagers, cylinder  
fillers, reclaimers, & fire  
suppresant recyclers

**JANUARY 1, 2027**  
QR code required  
for ALL containers  
in U.S. market

## REPORTING AND THIRD-PARTY AUDITING

The EPA is enlisting comprehensive reporting requirements to ensure compliance with the HFC phasedown. Any company that produces, imports, exports, distributes, transforms, uses as a process agent, reclaims, or destroys HFCs must submit quarterly production and consumption data reports and conduct third-party audits annually. EPA will require producers and importers to test their product (already a common industry practice) for accuracy of the attached label, and to keep records of the batch testing results. It is expected that companies will find qualified CPAs and firms to develop industry-specific expertise to perform the audits – no company self-audits are permitted. EPA is requiring the first audits due by May 31, 2024. Auditors will be required to review a sample of 5% or of 10 batch testing records (whichever is higher).

## INCREASED OVERSIGHT OF IMPORTS

Measures to achieve increased oversight of imports include advance reporting on transshipments, expending of consumption allowances to import heels, petitions to import substances for transformation or destruction processes, and prohibiting import of virgin HFCs for disposal. For example, transshipments of HFCs do not require allowances, unless they're in the U.S. more than six months. Goods must not be repackaged, sorted, or otherwise changed in condition. Companies need to notify EPA of the details on transshipments at least 30 working days before the date of export.

## DATA TRANSPARENCY

Production and consumption data sent quarterly to the EPA will not be provided confidential treatment, with some exceptions. A condensed data set will be made available to the public, further incentivizing compliance and allowing for other entities to report noncompliance to EPA. This information will be easily accessible and convey performance by companies and the government. Much of these data elements were found to already be publicly available through various sources, but not freely accessible. This requirement will collect the data in a standardized, available format for all users. Data that is entitled to confidential treatment include sales, business relationships, pricing, and some elements reported to the QR tracking system.



## HIGH-LEVEL ENFORCEMENT TASK FORCE

High-level coordination between environmental agencies and various counterparts, including customs and border control, is essential to detect and enforce against illegal trade. The Interagency Task Force on Illegal HFC Trade is led by the U.S. Department of Homeland Security and EPA, in partnership with the Departments of Justice, State, and Defense.<sup>15</sup> The Task Force prevented illegal shipments equivalent to 889,000 MTCO<sub>2</sub>e in the first nine months of 2022. The EPA continues to take strong legal action, such as civil penalty actions which include settlements with major HFC importers violating reporting requirements.<sup>16</sup> This collaborative effort of federal agencies to prevent and detect illegal imports will be critical to realizing the full climate benefits of the AIM Act.

## CONCLUSIONS

The Montreal Protocol has successfully delivered ozone and climate protection for the past 35 years, thanks to the multilateral cooperation between countries. **As Parties discuss broader reforms to the Montreal Protocol's institutional processes for monitoring and compliance, EIA recommends three key points for consideration:**

- Develop a common definition of key elements of a 'comprehensive licensing system' to deter and detect illegal trade;
- Increase information sharing on best practices through a new multilateral enforcement initiative;
- Dedicate resources for capacity building efforts to support developing countries in implementing comprehensive licensing systems and accompanying high-level enforcement coordination at national and regional levels.

Valuable lessons on preventing illegal trade have led to the development of the elements and measures described here under the U.S. allowance system, and surely other novel approaches are being developed elsewhere globally. Not all of the described measures may be feasible or appropriate for every country phasing down HFCs, and some elements will need to be developed based on national circumstances.

**However, EIA urges countries to consider the following key aspects in defining best practices for a 'comprehensive licensing system' to prevent illegal trade:**

- Real-time monitoring of HFC quota usage;
- Inclusion of HFOs and quota exempt HFCs (e.g., feedstocks) in licensing systems;
- Audited reporting for any company that produces, imports, exports, distributes, transforms, uses as a process agent, reclaims, or destroys HFCs;
- Labeling and tracking system for identification and traceability;
- Banning disposable/non-refillable refrigerant cylinders and ensuring that definitions of disposable include adequate 'take back' requirements;
- Strong verifiable reporting and data transparency;
- High-level coordination on enforcement between relevant agencies;
- Data and intelligence gathering from multiple stakeholders including industry, trade experts, independent organizations, and civil society.

As this is a concerted global effort, information sharing and joint enforcement initiatives among the Parties will be vital. However, not all participants have access to the same resources for implementation. A5 Parties are now confronted with a concurrent HCFC phaseout and HFC phasedown while working to enhance energy efficiency in this critical decade of climate action to limit warming to below 1.5°C.<sup>17</sup>

Countries will also need to promote the adoption and safe use of low-GWP alternatives, modernizing safety codes and standards. Additional resources will thus need to be allocated toward initiating a next generation multilateral enforcement initiative, and additional funding made available for countries pursuing 'comprehensive licensing systems' with certain compliance and enforcement

features. The Multilateral Fund has an important part to play in supporting capacity building and regional collaboration around enforcement against illegal trade, particularly for low volume consuming countries.

Only with increased investment in robust prevention of illegal trade, rapid enforcement of compliance measures, and strong cooperation between countries will the successful implementation and full climate benefits of the Kigali Amendment be achieved.

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## ABOUT EIA

Environmental Investigation Agency (EIA) is an independent non-profit campaigning organization dedicated to identifying, investigating, and implementing solutions to the world's most pressing environmental problems. Our campaigns to protect endangered wildlife, forests, and the global climate operate at the intersection between increasing global demand and trade and the accelerating loss of natural resources and species.