

Development of a National strategy for implementation of phase down of Hydrofluorocarbons under the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer

CONCEPT NOTE

1. Background

- India, as Party to the Montreal Protocol on Substances that Deplete the Ozone Layer, a multilateral agreement to protect the stratospheric ozone layer, is mandated to phase out the production and consumption of ozone depleting substances (ODSs)
- India has been successfully implementing the Montreal Protocol and the Ozone Depleting Substances phase out Programme since 1992 when it became Party to the Montreal Protocol and has met all the phase out schedules of the Montreal Protocol.
- India has successfully phased out production and consumption of high-ozone depleting potential (ODP) ODSs like Chlorofluorocarbons (CFCs), Carbon tetrachloride (CTC), Halons, Methyl Bromide and Methyl Chloroform for controlled as on 1st January 2010.
- The phase-out of next family of ODSs is Hydrochlorofluorocarbons (HCFCs). The HCFCs are being phased-out with an accelerated phase-out schedule as agreed in September 2007.
- India has been phasing-out production and consumption of HCFCs by developing and implementing the HCFC Phase-out Management Plans (HPMPs). The two Stages of HPMPs have been successfully implemented and a large number of industries including MSMEs participated in these HPMPs and converted their manufacturing facilities to non- HCFC and low global warming potential technologies by accessing technical and financial assistance provided by Multilateral Fund (MLF) for the Implementation of the Montreal Protocol.
- Stage-III of the HPMP that will be the last of the HPMPs, to be implemented during the period 2023-2030 and will phase-out the production and consumption of all HCFCs by 2030.

2. Ozone Depleting Substances (Regulation and Control) Rules, 2000 and its Amendments

- Ozone Cell, Ministry of Environment and Forests (MoEF&CC) notified the Ozone Depleting substances (Regulation and control), Rules 2000.
- These rules have been amended from time to time to align with phase-out schedule of ODSs of the Montreal Protocol. The ODS Rules were amended in 2014 to align the rules with the accelerated phase-out schedule of the Montreal Protocol for HCFCs. As per this Amendment the manufacturing of all equipment and products shall not be allowed from 1st January 2025.

3. Hydrofluorocarbons (HFCs)

- HFCs are non-ODS chemicals and were introduced as substitute of ODSs for various applications including refrigeration and air conditioning, mobile air conditioning, polyurethane foam manufacturing, fire extinguishing equipment, industrial aerosols and pharma aerosols including metered dose inhalers used for treatment of asthma and COPD patients, solvents, etc.

4. Kigali Amendment for Phase-down of production and consumption of HFCs

- HFCs are non-ODS but have high global warming potential (GWP). Recognizing that the production and consumption of HFCs is growing exponentially that will have an adverse impact on climate. The Parties to the Montreal Protocol agreed for an Amendment to the Protocol for phase-down of HFCs at its 28th Meeting in October, 2016.
- There are 18 HFCs and several blends containing HFCs (commonly currently used) used in several sectors and sub-sectors. A list of 18 HFCs and commonly used blends containing HFCs are listed in Table 1.

List of HFCs and commonly used blends containing HFCs

| HFCs | Commonly used blends containing HFCs |
|--------------|--------------------------------------|
| HFC-134 | R-410A |
| HFC-134a | R-407C |
| HFC-143a | R-404A |
| HFC-245fa | R-449A |
| HFC-365mfc | R-449C |
| HFC-227ea | R-452A |
| HFC-236cb | R-454B |
| HFC-236ea | R-454C |
| HFC-236fa | R-426A |
| HFC-245ca | R-513A |
| HFC-43-10mee | R-514A |
| HFC-32 | |
| HFC-125 | |
| HFC-143a | |
| HFC-41 | |
| HFC-152 | |
| HFC-152a | |
| HFC-23 | |

5. Sectors and subsectors where HFCs are used

- Industrial Aerosols including cosmetics
- Meter Dose Inhalers
- Airconditioning Manufacturing including room AC, light commercial, VRF systems and Chillers

- Refrigeration Manufacturing including commercial refrigeration (cooling cabinets, freezers including vaccine coolers and freezers, water coolers, cold rooms, fishing vessels.)
- Process chillers (including food processing equipment)
- Mobile Airconditioning including buses, trains, etc.
- Foam Manufacturing
- Firefighting manufacturing

6. Salient Features for India as per the Kigali Amendment and phase down schedule of HFCs

| | |
|---|---|
| Baseline (Obligated to reduce the production and consumption of HFCs) | Average production and consumption HFCs for the years 2024, 2025 and 2026 |
| Freeze (The year in which the production and consumption of the refrigerant shall be frozen at the respective baselines) | 2028 |
| Reduction Steps | Cumulative reduction of production and consumption by 10% in 2032, 20% in 2037, 30% in 2042 and 85% in 2047 |

7. Ratification of Kigali Amendment to the Montreal Protocol by India

- India has ratified the Kigali Amendment to the Montreal Protocol on 21st September 2021 and is developing a National Strategy for phase down of HFCs in close cooperation with the industry stakeholders.
- The licensing system for import and export of HFCs and blends containing HFCs have been put in place in March 2022
- The National Strategy for HFC phase down is under preparation and will be finalized and submitted to the Union Cabinet by 2023.

8. Components of National Strategy

- Outreach and awareness raising among the stakeholders about HFC phase-down and collection of data on actual users and quantity of use.
- Collection of data on production, import and export of HFCs
- Development of sectoral strategies and tentative prioritization of sectors and sub-sectors for phase-down of HFCs
- Development of policy framework for the implementation of the Kigali Amendment and establishing a framework for implementing licensing, quota system, and reporting obligations related to HFCs, including amendment to the Ozone Depleting Substances (Regulation and Control) Rules 2000 and its amendments.

The work related to overall development of National Strategy including policy framework for HFC phase down under the Kigali Amendment has been entrusted to National Institute of Public Finance and Policy (NIPFP), an autonomous research institution under the Ministry of Finance, Government of India.

9. Role of Industry and Industry Associations

- The industry and industry associations being the key stakeholders for implementation of phase-down of HFCs and in this endeavor, the work related to outreach and awareness component has been entrusted to industry associations.
- The industry associations to appropriately create the required awareness on the Kigali Amendment and the HFC phase down but would also significantly contribute by providing the required information with respect to the sector and subsector using HFCs and their consumption pattern for developing the sound national strategy for HFC phase down through its members, the main stakeholders associated with HFC phase down.
- It would prove to be very useful for the industry while planning their future activities.

10. Outreach and awareness activities

As part of the outreach and awareness activities, stakeholder consultation workshops are being organized across the country by the concerned associations to provide information to the stakeholders on the following:

- Montreal Protocol framework including the financial mechanism of the Montreal Protocol, the Multilateral Fund, which provides technical and financial assistance to industry for phase out/phase-down of controlled substances and transition to alternative low global warming potential alternative technologies.
- Kigali Amendment and HFC phase down schedule applicable for India including the importance of the concepts of baseline and freeze
- Ozone Depleting Substances (Regulation and Control) Rules 2000 and its amendments
- HFC use in various sectors and sub-sectors
- Need for and importance of participation of industry in the development of national strategy as well as in the HFC phase down
- Type of HFC related data to be provided by the industry, the need for and importance of the data being sought
- Overview of potential non-HFC and low global warming potential alternative technologies considering availability, viability and safety related issues and the ongoing initiatives globally on non HFC and low global warming potential alternatives.
- Issues/concerns related to phase-down of HFCs which could be appropriately addressed while amending the ODS (Regulation and Control) Rules to align with HFC phase down.
- Information/inputs required from the industry and industry associations on HFC uses and consumption in various sectors and subsector.

11. Need for active participation of Industry in the National Strategy for HFC phase down

- India being Party to the Montreal Protocol and having ratified the Kigali Amendment, would be mandated to phasedown of production and consumption of HFCs
- The HFC Phase down would be through HFC phase down Plans by accessing financial and technical assistance from the MLF and the ODS (Regulation and Control Rules), to be amended to align with the HFC phase down schedule of the Montreal Protocol. applicable for India.
- Once these Rules have been framed and notified by the MoEF&CC, Government of India, the industry would mandatorily have to eliminate the use of HFCs and shift to non-HFC and low global warming potential alternative technologies even if they wish not to seek funding available from the MLF.
- It would therefore be in the interest of industry to come forward and participate in the development of national strategy as well as the sectoral HFC phase down plans, once HFC phase down beings for India from 2028.
