Energy Efficiency in Building Sector and HCFC Phaseout Management Plan

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Edward Hall, The Royal Plaza Hotel, 19, Ashoka Road, Janpath, Connaught Place, New Delhi, 110001

Workshop

Energy Efficiency in Building Sector and HCFC Phaseout

UN environment

EESL ENERGY EFFICIENCY SERVICES LIMITED
A JV of PSUs under the Ministry of Power

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Concept Note for Workshop on HPMP in Buildings Sector

The building sector in India is already consuming close to 40% of the electricity and this is expected to increase to 76% by 2040 (CSE, 2014). As per the Bureau of Energy Efficiency, residential building sector consumes 26% and commercial building consumes 11% of the total energy use (BEE). The International Energy Outlook 2016 report projects the growth in energy consumption in the residential sector by 3.2%per year and the commercial sector by 3.7% per year (EIA, 2016). Clearly construction activity is only to going to increase in India. The demand for air conditioners in India is expected to grow from 3.8 million a year to 6.2 million in 2020-21 (increase of 63% Cumulative Annual Growth Rate (CAGR) (Ozone Cell, 2017).

The refrigeration and air-conditioning systems in buildings account for significant amount of Hydrochlorofluorocarbon (HCFC) consumption and also energy use in buildings. HCFCs are used as foam blowing agents for insulation of buildings and also in firefighting equipment. Increase in real estate and infrastructure development activities across all major sectors in India leads to necessary push to the high demand of HCFC based solutions.

People are using their growing incomes to purchase air conditioners and other energy using equipment to improve their living standard. HCFC-22, for over 60 years, has been the predominant refrigerant in small, medium-sized and large air- conditioning systems, with the exception of centrifugal chillers where HCFC-123 is used. 77% of HCFC-22 in India was used as refrigerants in room air conditioners followed by 14% in ducted split systems.

Energy efficient building design takes into account climate and sunlight, making it possible to use smaller air-conditioning equipment & other ozone depletion substances, therefore consuming less energy and refrigerants. Thus, energy efficiency directly reduces the demand for refrigerants.It is felt that adequate awareness needs to be created among building owners, manufacturers of appliances, architects and even policy makers at state and central level on energy efficiency in buildings and its linkage to HPMP.

These four (4) regional workshops on pan-India basis shall help to identify building sector interventions and deal with issue of HCFC phase-out and energy efficiency in buildings. There are various Indian buildings codes like National Building Code (NBC), Energy Conservation Building Code (ECBC) and green building rating system which shall play an important role in phase out of ozone depletion substance (ODS) and achieving low global warming potential (GWP). To implement the building sector interventions under HPMP the Ministry of Environment, Forest and Climate Change (MoEF & CC) has collaborated with the Energy Efficiency Service Limited (EESL), a joint venture of public sector undertakings of Ministry of Power, Government of India.

The half day workshop is to be conducted in four Indian cities - Mumbai, Chennai, Kolkata and Delhi. The expected outcomes of this workshop are to introduce HCFC phase-out plan for building sector, receive feedback on existing regulatory framework in sector to support HCFC phase-out management plan, preparedness of various stakeholders, probable hurdles and drawbacks needed to overcome for successful implementation of HPMP in building sector and to find out the preparedness of sector for future phasedown of HFCs as per the schedule of Kigali amendment.

The main objectives of the workshop include introduction of India's HCFC phase-out management plan for building sector, deliberation on HCFC phase-out in building sector to get the perspective of different stakeholders on regulatory framework required for implementation of HCFC phase-out in building sector. The target audience for this workshop are members from construction industry, building developers, building owners, manufacturers, industry associates, consulting agencies, policy makers and relevant local

administrators academia and research institutes. The target audience are from the both direct and indirect stakeholders of building sector, members from construction industry and developers can provide perspective of ground realities, financial implications on building projects, obligations towards various regional and central regulations, and how HPMP can be integrated with existing regulatory framework. Manufacturers and industry associates will give their inputs on current status of industry, on-going R&D and future products in research to support the HCFC phase-out, preparedness of industry for phasedown of HFCs in 2028 as well as the support required for industry in terms of regulatory framework, Consulting industry representatives will be able to give the insight on building design practices and existing regulations for efficient building design for reducing demand of HCFC substance in building sector, cost implication of such interventions etc. Academia and research organizations can provide the overall perspective of HPMP implementation in building sector, in depth assessment future R&D requirements, and implementation of HPMP under various scenarios.

India being a signatory to the Montreal Protocol and its amendments is obliged to phase-out ODS including HCFC and HFCs as per the reduction schedule specified in the Protocol. The Union Ministry of Environment, Forests and Climate Change (MoEFCC) has launched Stage II of HCFCs Phaseout Management Plan (HPMP) for the 2017-23 periods with focus on HCFC phaseout in building sector. It aims to phase out use of Hydro chlorofluorocarbons (HCFCs), harmful ODS by switching over to non-ozone depleting and low global warming potential technologies. Under the Montreal Protocol, the accelerated phase out of HCFCs is underway with an aim to complete phase out by 2030 of these chemicals that result in ozone depletion and aid global warming.

India is undertaking phase-out of HCFCs through the implementation of HPMP. The Stage-I of HPMP has been already implemented in the country and has successfully met all the ODS phase-out targets. Stage-I of HMPM focused on phasing out HCFCs in the foam manufacturing sector, systems house and refrigeration and air-conditioning servicing sector. By 2015 total of 341.77 ODP tons of HCFCs were phased out through implementation of HCFC Phase-out Management Plan stage I. Sectoral phase-out consist of OPD tons of 310.53 HCFC 141b in foam manufacturing and 31.24 ODP tons of HCFC-22 in RAC servicing sector respectively. The reduction in HCFC consumption is higher than the required amount to meet the target of freeze in 2013 and reduction of 10% in 2015.
The phase II of India's HCFC Phase-out Management Plan is the next step in India's commitment to fully phase out the harmful Ozone depleting substances. In the second stage of phase-out management plan it is proposed to phase out 804.10 ODP tons. So the total phase out will be 1145.87 ODP tons against the starting point of 1691.25, leaving a balance of 545.38 ODP tons after completion of HPMP-II in 2023.

The building sector offers substantial potential to protect the ozone layer and the environment, but strategies need to be coordinated to achieve both simultaneously. India has a unique opportunity to leap frog the use of high GWP refrigerants (HFCs) as an alternatives for HCFC and plan ahead the phasedown of HFCs in accordance to the schedule of recent Kigali amendment.

Overall, awareness, information outreach and consultative discussion will enhance the understanding of various stakeholders. This will support in recognizing problem and promote efforts in proposing amendments for non-HCFC substances.