

Disruptions & transformation: 'Innovations in the cooling sector'

Globally, cooling with optimum thermal comfort has become an inevitable need to many aspects of modern life in both residential and commercial sectors for better health and productivity. Reciting to the recent International Energy Agency report, the usage of air-conditioners and fans currently accounts for nearly 20% of the total electricity used in buildings around the world. If left unchecked, the global energy demand from air-conditioners will triple by 2050 that is equivalent to China's electricity demand today. In the environmental perspective, over 80% of GWP impact of refrigeration sector is associated with indirect emissions generated during the production of electricity used in the operation.

India's aggregate cooling related energy demand is expected to soar a 15 fold increase from 90 TWh (billion units of kWh) in 2015 to 1,350 TWh by 2050. On addressing the rising cooling demand, India released its 'India Cooling Action Plan (ICAP) Draft' on 17 September 2018. The ICAP appraises the action plans to reduce the cooling demand in the next 20 years. Thus, there exists an enormous need for cost competitive and efficient low GWP cooling solutions that provides thermal comfort to all the inhabitants.

Challenge:

The diffusion of energy efficient practices in cooling sector remains an intrinsic challenge for the nation, because of upfront capital cost, technological limitation, service competency, vendor network, institutional regulatory and lack of awareness. There is a pressing need to introduce efficient cooling technologies at affordable costs to cater to the large cooling demand. To understand the current applicability of such technologies, it is essential that they are piloted in the Indian Scenario. However, currently there is no such platform/forum that (i) receives; (ii) evaluates; (iii) submits a bouquet of options to the Nodal Ministry/Government of India to take forward as pilots.

Session 1 - Launch of the Platform:

With its background, TERI is organizing a high level discussion at the World Sustainable Development Summit (WSDS – 2019), to launch its new initiative program 'Platform for innovative cooling strategies in India' currently supported by Shakti Sustainable Energy Foundation, Natural Resources Defense Council (NRDC) and Honeywell – India. This session would focus on the deliberations over the platform objective, modalities of operation and evaluation process. The fourth edition of newsletter for servicing technicians 'News-TRAC' apprising capacity building of field technicians in air conditioning sector is released by eminent dignitaries. The session also discusses the challenges associated with cooling sector from the lens of national and global perspective.

Session 2 - Accelerating transitions to super efficiency & low GWP refrigerants:

Cooling sector requires integrated and holistic solutions for accelerating transitions to low GWP refrigerants and leapfrogging to super energy efficiency that has local, national and international benefits. The vital challenge for the introduction of super energy efficiency & low GWP refrigerants is the high upfront cost, which makes them less competitive as compared to existing (lower energy efficiency & higher GWP refrigerants) technologies. MEPS (Minimum Energy Performance Standards) linked with innovative business models can help to increase the penetration of the super-efficient low GWP cooling technologies in the markets through enabling them to overcome the price hump. Government policies are enablers of market change and holistic actions by them could quadruple the impact of any policy action take in isolation. Furthermore, creation of effective coalitions can address the most critical aspect 'affordability'.

This session is organized as a precursor discussion for the upcoming international conference 'One Planet Summit' under the leadership of President of France Emmanuel Macron.

Style: Open panel discussion with the Chair. The panel would contain a maximum of five speakers excluding the Chair. Each panelist would be allowed for an opening statement of five minutes. The Chair would then post specific questions (see below) to each of the lead discussants with a maximum of five minutes of intervention time. The last 10 minutes would be reserved for an open house.

Questions:

Session 1:

- How India could leapfrog current technology practices for new advanced energy efficient solutions that use low GWP refrigerants?
- What are the most interesting global technology practices, which can be piloted in India?
- What is the role of policy in driving market transformation?
- How can we create effective coalition of demand generators?

Session 2:

- What is the role of multilateral institutions and treaties in providing access to international markets?
- What are the opportunities for assessing the financial needs of refrigerant transition in an energy efficient world?
- What are the key challenges in improving the skillsets of servicing workforce of cooling sector?