

Concept Paper		
Webinar on “Future of Airconditioning in Buildings”		
Webinar		SEC

Background:

Airconditioning (A/C) systems in buildings contribute to GHG emissions both directly through refrigerant emissions, as well as indirectly through fossil fuel combustion for power generation. At present an estimated 15% of the global population uses air-conditioning. In many parts of the world air-conditioning is becoming a necessity amidst increasing global temperatures. Growth in global air-conditioning is likely to further cause the climate damage unless governments, businesses, and other organizations take steps to reduce direct and indirect impacts. According to the International Energy Agency (IEA), air conditioning represents about a \$100 billion industry, 100 million units per year global market, and accounts for 4.5 exa-joules energy consumption per year. Greater adoption of airconditioning is likely to be seen in developing countries in the future, especially those in hot and (possibly) humid climates with large and growing populations; such as South Asian nations, China, Brazil, and Middle Eastern nations. IEA projects that by 2050 energy consumption in air-conditioning will increase 4.5 times over 2010 levels for non-OECD (Organization of Economic Coordination and Development) countries versus 1.3 times for OECD countries.

Introduction:

Most air-conditioning systems operate using a vapor-compression cycle containing a refrigerant as a working fluid – an architecture that has not changed fundamentally in nearly 100 years. However, the global warming potential (GWP) of common refrigerants are 1,000s of times that of the most prevalent anthropogenic GHG, Carbon dioxide (CO₂). The A/C industry is working hard to innovate on the next generation of refrigerants with lower GWPs to reduce direct environmental impacts while also improving system efficiency to reduce indirect impacts.

New technologies to reduce direct and indirect climate impacts through reduction or elimination of refrigerants altogether and increase in A/C system efficiency are gaining popularity. The market-readiness of these technologies varies, ranging from detailed conceptual evaluation to commercial availability. Each of these technologies gives a glimpse at what the future may hold for the A/C industry and the global A/C market.

To discuss future interventions and upcoming technologies in A/C systems, SAARC Energy Centre (SEC) plans to organize a webinar on “Future of Airconditioning in Buildings”.

Objective:

The objective of this webinar is to discuss future trends in the global A/C market related to both direct & indirect climate impacts, technology options that may help achieve global goals,

including pathways related to low-GWP refrigerants, energy efficiency improvements, R&D initiatives, and regulatory actions.

Major Aspects/Topics to be covered during the webinar:

The Webinar will cover, but is not limited to the following aspects:

- 1) Next-Generation A/C Systems
- 2) Development of Low-GWP A/C Systems
- 3) Advances in A/C System Efficiency
- 4) Expected growth in Air-conditioning demand and Global warming contributions

Potential Professional Resource

Selected renowned Resource Persons from the Member States and advanced world will be sharing their knowledge and experience with the participants. SEC's in-house experts/professionals would also be contributing to the webinar by sharing their technical knowledge with the participants.

Venue of the Webinar

The Webinar shall be broadcasted from the office of SAARC Energy Centre (SEC), Islamabad.