# SEAD Webinar: Low-GWP Refrigerants and Efficiency

## The Challenge

Air conditioning and refrigeration provide essential services. Demand for these services is growing rapidly: the additional electricity demand in 2020 from room air conditioners (ACs) bought between 2010 and 2020 is expected to be over 1,200 billion kilowatt-hours globally. In India, China, and Brazil alone, electricity to power room ACs is expected to equal the output of five 'Three Gorges Dams' by 2020. Air conditioning also accounts for significant peak electricity demand—a full 40 to 60 percent of the peak in some Indian cities in summer—which further contributes to chronic electricity shortages. Most ACs and refrigeration equipment also currently contain high global warming potential (GWP) refrigerants (mainly HCFCs and HFCs).

## The Opportunity

Analysis conducted by the Super-efficient Equipment and Appliance Deployment Initiative (SEAD)[1] indicates that widespread deployment of the most efficient AC technologies currently on the market could reduce energy use by up to 50% compared to the market average – and potentially avoid the need for over 100 medium-sized (500 MW) power plants and reduce carbon emissions by about 240 MT CO2e/year in 2020. The opportunity to achieve environmental benefits could be greater still if co-ordination is achieved between policies to promote energy efficiency and policies to promote low-GWP refrigerants in order to maximize net climate benefits while considering peak load impacts.

## Webinar Objective

Introduce SEAD participating government representatives to the AHRI Low-GWP Alternative Refrigerants Evaluation Program (AREP), including a summary of initial results and discussion.

## The AHRI Low GWP Alternate Refrigerant Evaluation Program (AREP)

The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) launched an industry-wide cooperative research program to identify and evaluate promising alternative refrigerants for major product categories, called the Low-GWP Alternative Refrigerants Evaluation Program (AREP). Phase one of the AREP is now complete, and the results of this program are available online. AHRI is now beginning phase two of the AREP.

[1] *Cooling the Planet: Opportunities for Deployment of Super-efficient Room Air Conditioners*, Lawrence Berkeley National Laboratory and Navigant Consulting, 2013.

# Agenda

**Date: Thursday, 30 October, 2014**
**Time: 8:00 EDT / 12:00 GMT | Duration: 1.5 hours**

1. **Welcome and overview of SEAD – *Gabrielle Dreyfus, U.S. Dept. of Energy* (5 min.)**
2. **Overview of SEAD AC Strategy – *Nihar Shah, Lawrence Berkeley National Laboratory* (5 min.)**
3. **Overview of AHRI Low-GWP Alternative Refrigerants Evaluation Program (AREP) – *Xudong Wang/Phillip Johnson* (30 min.)**
4. **AREP results presentation #1 – *Dutch Uselton, Lennox Industries* (15 min.)**
5. **AREP results presentation #2 – *Hung Pham, Emerson Climate Technologies* (15 min.)**
6. **Opportunities to move forward – *Discussion led by Gabrielle Dreyfus* (20 min.)**

### *About the SEAD Initiative*

The Super-efficient Equipment and Appliance Deployment (SEAD) Initiative of the Clean Energy Ministerial is a voluntary multi-national collaboration of 16 governments whose primary objective is to advance global market transformation for energy efficient products. With SEAD, participating governments have access to the resources and technical expertise needed to build and implement cost-effective product efficiency policies and programs, which lead to reduced energy costs to consumers, more robust economies, and typically represent the lowest-cost opportunities to achieve significant greenhouse gas emission reductions. The SEAD Initiative is led by the US Department of Energy and India's Bureau of Energy Efficiency. http://www.superefficient.org/

### *About the Clean Energy Ministerial*

The Clean Energy Ministerial is a global forum to share best practices and promote policies and programs that encourage and facilitate the transition to a global clean energy economy. Initiatives are based on areas of common interest among participating governments and other stakeholders. CEM initiatives help reduce emissions, improve energy security, provide energy access, and sustain economic growth. Participating governments account for 80 percent of global greenhouse gas emissions and 90 percent of global clean energy investment. The Clean Energy Ministerial recognizes the essential role of the private sector in leveraging its expertise, influence, and capital toward clean energy goals. To capture private-sector input, six high-level public-private roundtables were convened at the fifth Clean Energy Ministerial (CEM5). The roundtables brought together energy ministers, business leaders, and experts from nongovernmental organizations and academia to further identify the policies, technologies, investment, and skills needed to advance progress in cross-cutting topic areas, including Cooling and Demand Response. SEAD is an initiative under the Clean Energy Ministerial. http://www.cleanenergyministerial.org

### *About IPEEC*

IPEEC is an autonomous intergovernmental entity. In addition to member countries, non-governmental organizations, international organizations and private sector entities actively participate in the IPEEC work program. The CEM provides minister-level vision and guidance for SEAD, under IPEEC's oversight for implementation. SEAD is a task within IPEEC. http://www.ipeec.org

### *About CLASP*

CLASP is a non-profit organization with deep experience in supporting international appliance efficiency efforts, having supported standards and labels (S&L) for appliances, lighting, and equipment in over 50 countries on 6 continents since its founding 1999. CLASP serves as the Operating Agent for the SEAD Initiative, and in this capacity helps to facilitate interactions among the governments participating in SEAD activities and lends technical expertise and management support to the initiative. http://www.clasponline.org/

### *About LBNL*

Lawrence Berkeley National Laboratory (LBNL) is a US DOE National Laboratory. LBNL's International Energy Studies Group conducts product-specific studies to identify opportunities for energy efficiency improvement for products such as room air conditioners, ceiling fans, TVs and computer monitors. LBNL further provides bilateral technical support for appliance energy efficiency programs to SEAD participating governments. LBNL has actively engaged in as many as 40 countries and its work has been supported by US DOE, EPA, AID, State Dept., California Commissions, UN organizations, World Bank, and various foundations. http://ies.lbl.gov/