



SEAD AC STRATEGY

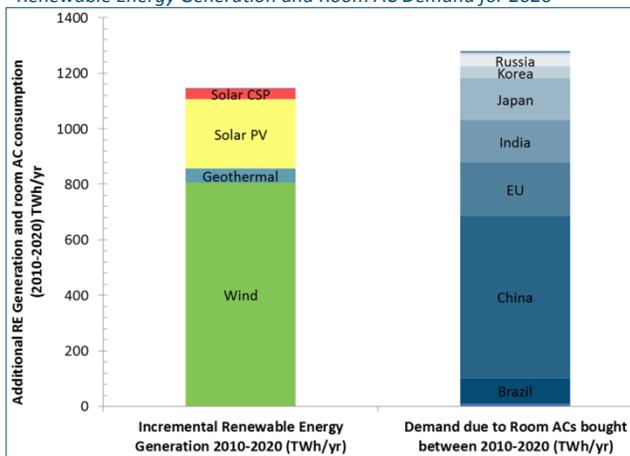
The Challenge

The additional electricity demand in 2020 from room air conditioners (ACs) bought between 2010 and 2020 is expected to be over 1,200 billion kilowatthours (TWh) 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, nearly 40-60% in some Indian cities in summer, which contributes to chronic electricity shortages. Around 87.5 million unducted split room ACs are expected to be sold per year in 2014, mainly in China, India, Brazil, Japan and the EU. These economies represent 90% of the room AC market in SEAD economies and China.

The Opportunity

Using the best technology that’s already available can significantly improve energy efficiency—reducing energy use by 35% to 50% compared to the market average—and potentially avoid the need for over 100 medium-sized (500-megawatt) power plants and reduce carbon emissions by about 240 MT CO₂e/year in 2020.¹ Using technology that is also cost effective—meaning the electricity savings over the lifetime of the AC unit would pay for any additional cost—can reduce energy use by 20% to 30%. Adopting AC technology that is both cost-effective and more energy-efficient could save more than 192 TWh/yr by 2020—avoiding the need for 64 medium-sized power plants. Widespread adoption of room ACs with variable speed compressors could further increase energy savings.

Renewable Energy Generation and Room AC Demand for 2020²



The Solution

The SEAD AC Strategy aims to engage policy-makers to tackle the AC challenge by:

1. Creating common foundations for identifying efficient products in different climates, including temperature bins and testing of fixed and variable speed ACs.
2. Developing draft efficiency specifications using technology and cost data collected by SEAD, to provide estimates of cost effective efficiency levels, also considering the contribution of AC demand to peak load.
3. Growing the market for highly efficient products, collecting information on existing market transformation programs, sharing and promoting best practices and providing technical assistance to create or enhance market transformation programs.
4. Hosting webinars on key AC related topics. The materials from the first AC Strategy Webinar on seasonal efficiency metrics and climate zones are available at: <http://www.superefficient.org/airconditioners>.

Possible future webinar topics include:

- Specifications for Demand Response ready or "Smart" Air Conditioners
- SEAD Analysis: Adoption of Seasonal Efficiency Metrics and Cost-effectiveness of AC Efficiency Improvement
- Replacement and Incentive Programs for Air Conditioner Efficiency Improvement: Case Studies and Program Design Insights
- Overview of Cost, Efficiency, Safety Trade-offs of Transition to Low-GWP Refrigerants for Air Conditioning Applications

For more information on getting involved with the SEAD AC Strategy and webinars, contact standards@superefficient.org.

¹ Cooling the Planet: Opportunities for Deployment of Super-efficient Room Air Conditioners, Lawrence Berkeley National Laboratory and Navigant Consulting, available at www.superefficient.org.

² Renewable energy generation: IEA World Energy Outlook 2012 (Current Policies scenario); Residential air conditioning consumption: Shah et al (2013); LBNL’s Room AC analysis for the SEAD initiative and Letschert, V. et al. (2012); LBNL’s BUENAS model.

The Super-efficient Equipment and Appliance Deployment (SEAD) Initiative of the Clean Energy Ministerial (CEM) and the International Partnership for Energy Efficiency Cooperation (IPEEC) helps turn knowledge into action to accelerate the transition to a clean energy future through effective appliance and equipment energy efficiency programs. SEAD is a multilateral, voluntary effort among Australia, Brazil, Canada, the European Commission, France, Germany, India, Japan, South Korea, Mexico, Russia, South Africa, Sweden, the United Arab Emirates, the United Kingdom, and the United States.