

Appliance Energy Efficiency and Climate Change

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Agenda:

- Global Overview of appliance energy efficiency and climate impacts
- Role of energy efficient appliances in energy savings and climate benefits
- Importance of standards and labeling and accrued energy savings
- Smart Appliances : case of air conditioners



The Challenge of Rising Appliance Use

Globally, the demand for appliances, lighting, electronic devices, and other equipment are growing at a faster scale than ever before, thereby driving an increase in global energy demand that is:

1. placing added stress on electrical grids,
2. raising energy costs, and
- 3. contributing to global climate change.**



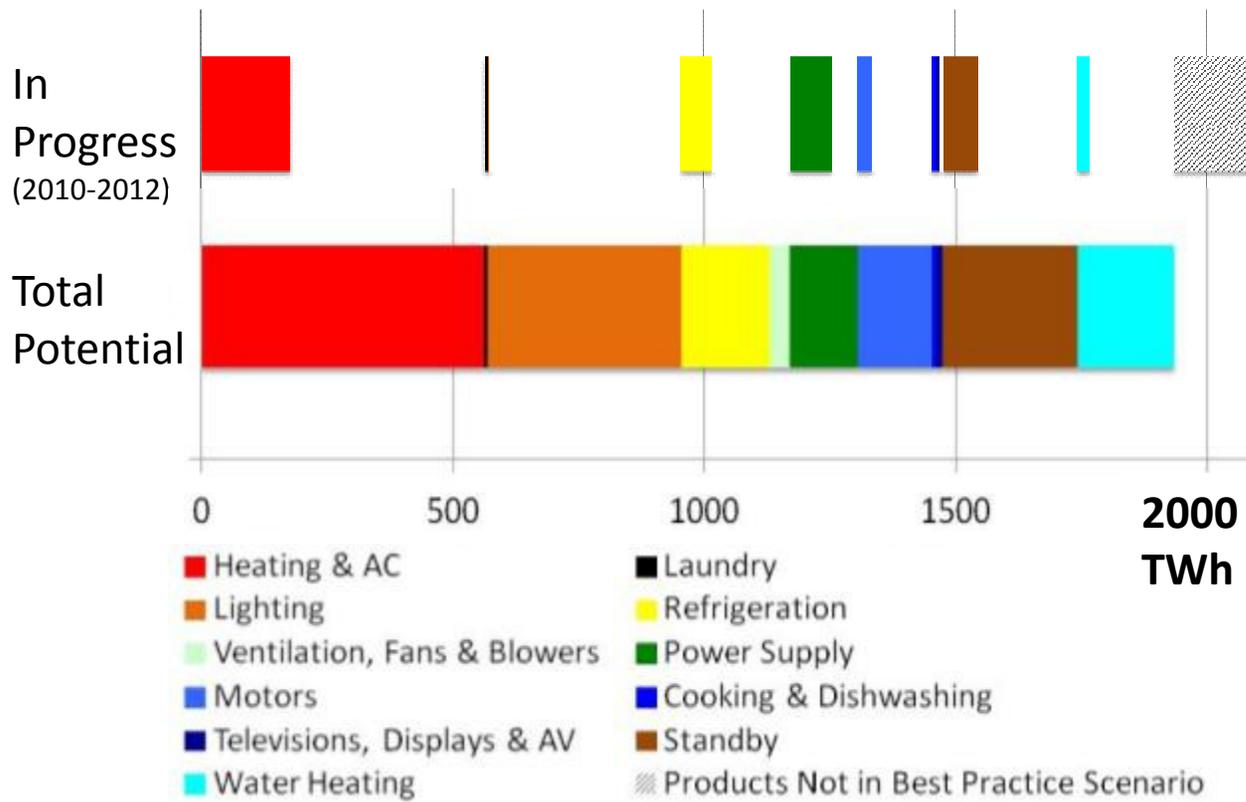
Appliance Energy Efficiency

- More energy efficient appliances and equipment – products that provide the same services using less energy – offer a fast, cost-effective route to lowering energy consumption and enhancing consumer welfare.
- Governments can help drive efficiency improvements in equipment and appliances by **incentivizing the development and accelerating the deployment of more energy efficient products.**



Standards & Labelling Best Practice Potential

2030 Electricity Savings Potential (terawatt-hours)



POTENTIAL SAVINGS:

12 billion tonnes CO₂



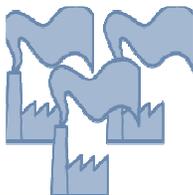
Reducing the energy consumption of a product...

on aggregate, reduces overall energy use.



This reduces power demand...

which reduces electricity and fuel consumption in existing power plants...



and reduces the need to build new power plants to produce more electricity.



Benefits of S&L

Resulting benefits include:

Reduced capital investment in energy supply infrastructure;

Enhanced national economic efficiency by reducing energy bills;

Enhanced consumer welfare;

Enhanced energy independence;

Strengthened competitive markets;

Reduced emissions to meet climate change goals;

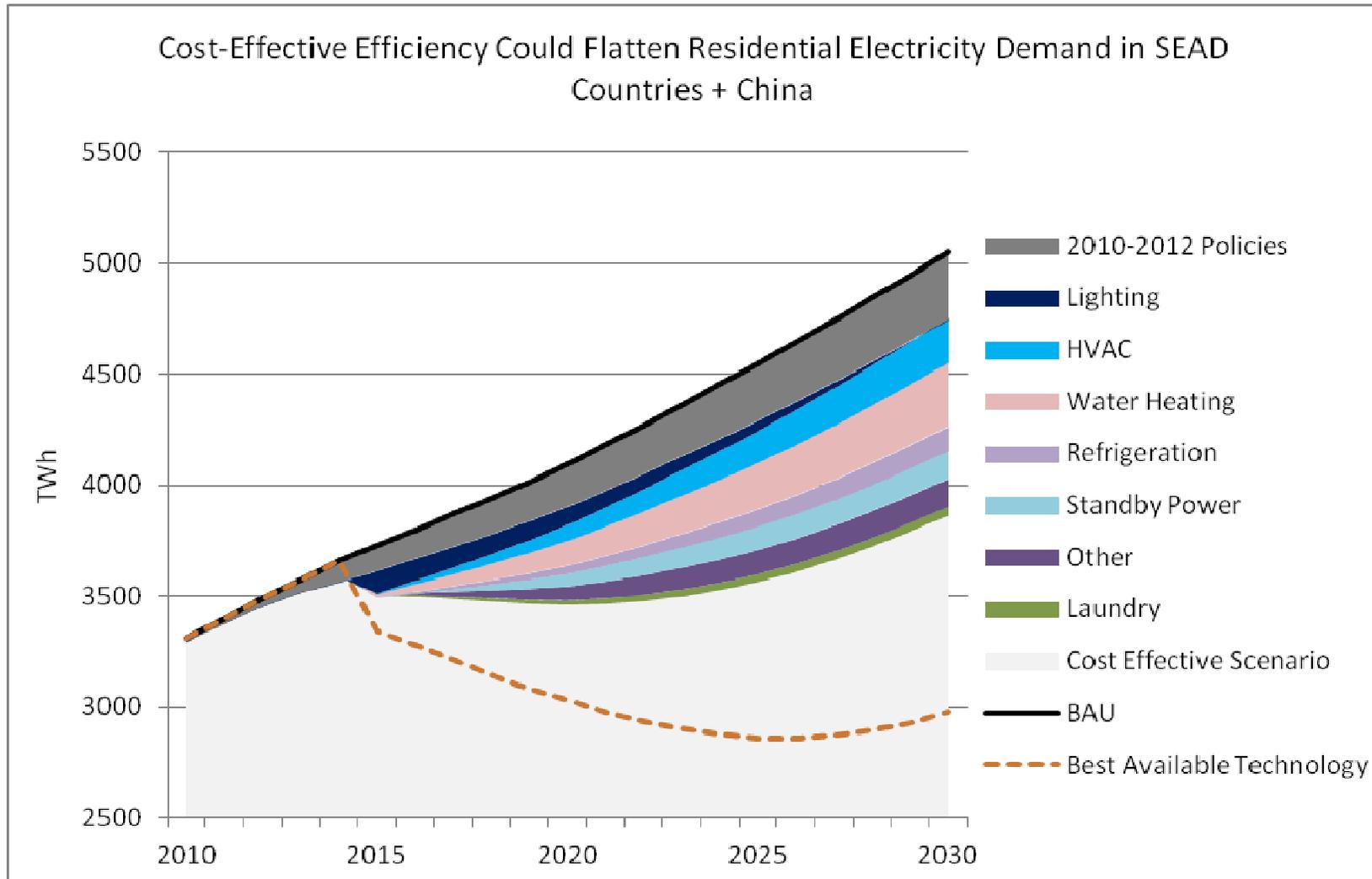
Averted urban/regional pollution.

Source: S&L Guidebook, CLASP



SEAD | Super-efficient Equipment and Appliance Deployment





Source: Bottom-Up Energy Analysis System (LBNL and CLASP, 2012)



Smart, Energy Efficient Appliances: The Case of Air Conditioners (ACs)

Energy Efficiency increases the level of cooling provided by an AC for a single unit of energy.

Demand Response enables an AC to change its operating mode (e.g. On/Off) in response to different factors, such as electricity prices, the state of the electricity grid, or at the request of an electric utility.



Smart, Energy Efficient Appliances: The Case of Air Conditioners (ACs)

- Using technologies available today, more efficient AC units could provide the same level of cooling while reducing energy consumption by 60% - 70%.
- Smart ACs could lower energy costs while enhancing the reliability of grid operations, shifting energy demand for cooling away from those times when electrical grids are most stressed.

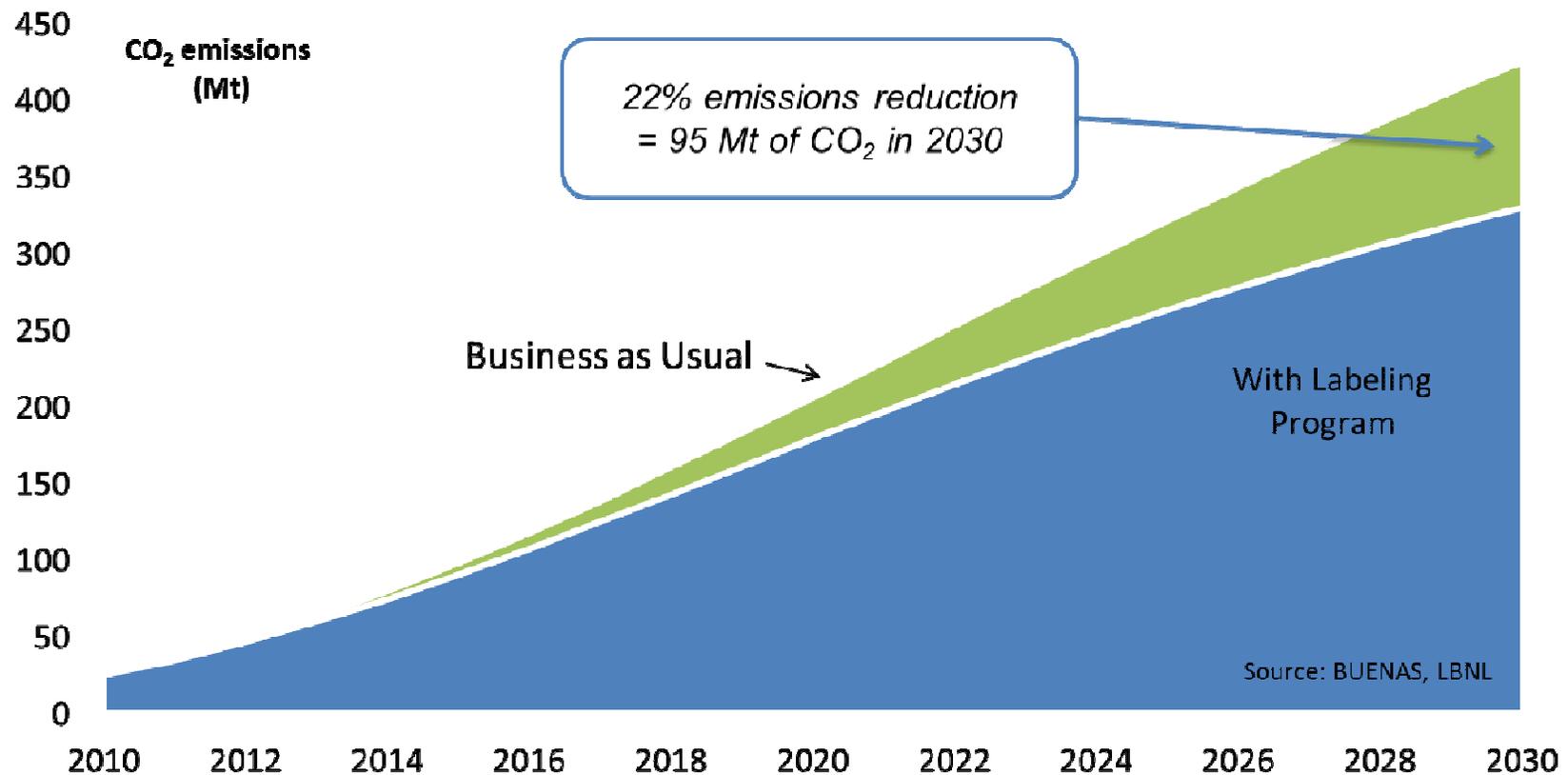


The Case of Air Conditioners (AC): Confronting Consumption and Climate Change

- Increasing energy efficiency, enabling demand response capability, and mitigating climate change are not discrete goals to be achieved through distinct and independent activity:
 - There are natural tensions between the goals of energy efficiency and the impact of “smart,” demand response features.
 - Using climate-friendly refrigerants can decrease AC efficiency.



Labeling of Room Air Conditioners in India



Peak power demand from ACs in India is between **40% and 60% of total demand**.
Improving EE standards can result in **averted carbon emissions** while helping power companies **better handle peak load**.



Thank you

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About the Clean Energy Ministerial

The Clean Energy Ministerial (CEM) is a high-level global forum to promote policies and programs that advance clean energy technology, to share lessons learned and best practices, and to encourage the transition to a global clean energy economy. Initiatives are based on areas of common interest among [participating governments](#) and other stakeholders.

Focus Areas

The CEM is focused on three global climate and energy policy goals:

- Improve energy efficiency worldwide
- Enhance clean energy supply
- Expand clean energy access



The [Super-efficient Equipment and Appliance Deployment \(SEAD\) Initiative](#) of the [Clean Energy Ministerial \(CEM\)](#) and a task of the International Partnership for Energy Efficiency Cooperation (IPEEC) is a voluntary multinational government collaboration whose primary objective is to advance global market transformation for energy efficient products. As the Operating Agent for SEAD, CLASP:

- Provides strategic advice to SEAD leadership and participating governments on the development and implementation of program activities;
- Documents and disseminates best practices for energy efficient product policies;
- Creates tools and resources to strengthen the knowledge foundation of appliance energy efficiency programs;
- Facilitates policy dialogues and collaboration to identify opportunities for additional energy savings from global market transformation initiatives.

Participating governments include 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.