SEAD Technical Analysis

S&L Tools

Well-designed Standards & Labeling Programs Require Robust Technical Analysis

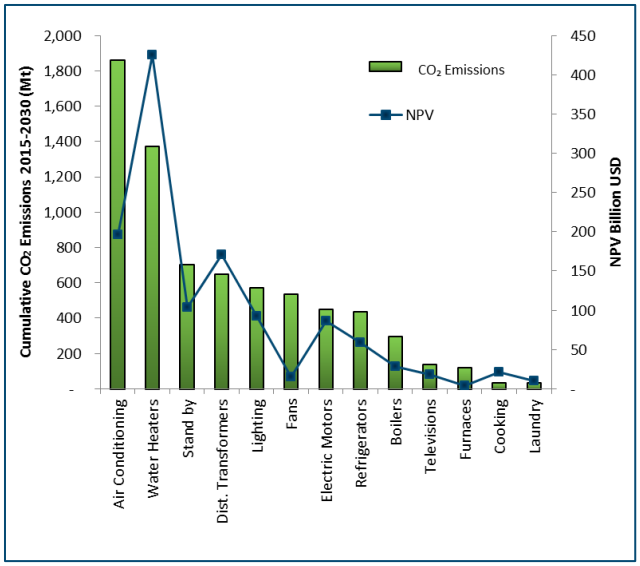
Robust, reliable analysis is critical to design and implementation of effective Energy Efficiency Standards & Labeling (EES&L) programs. Major programs in the United States and European Union, for example, are supported by teams of highly-qualified analysts and significant budgets. In countries with less-developed programs and institutions to support them, technical analysis is equally or even more important. Shortage of financial resources and lack of technical capacity therefore pose a barrier for countries wishing to develop effective EES&L programs. SEAD can help lower these barriers by providing access to high-quality technical analysis support through direct technical assistance.

Decision-making Parameters

Governments initiate appliance efficiency programs to meet a variety of goals, including peak load management, fuel import reduction, local pollution alleviation, consumer energy bill savings and climate mitigation. To maximize these benefits, the highest efficiency levels should be targeted. However, high efficiency can lead to higher equipment prices and potentially adverse impacts to domestic manufacturers and the jobs they provide. Well-designed programs prioritize appliances that yield high savings by setting targets that maximize net benefits to consumers.

Consumer Cost-Effectiveness Analysis

Good policy implementation optimizes trade-offs between energy bill reduction and consumer first costs through an analysis of consumer financial impacts. Consumer cost-effectiveness analysis is particularly important for mandatory standards and low-income households with high first-cost sensitivity. Cost-effectiveness analysis quantifies the net impact of each candidate efficiency level.



Main Results of BUENAS for SEAD Member Countries – Cumulative CO2 Emissions through 2030 and Net Present Value

Policymakers may then make an informed decision, for instance, to require the maximum cost-effective efficiency level, to maximize net financial savings to the consumer, or to align with international best practices.

National Energy Savings, Emissions Mitigation and Peak Load Impacts

Governments usually adopt appliance efficiency policies to support national energy objectives. National energy savings and related impacts of greenhouse gas emissions mitigation and peak load reduction are the primary measures for evaluating impacts of individual regulations as well as programs as a whole. These metrics help governments judge the value of efficiency programs and, ideally focus them on the appliances and technologies likely to have the most impact.

National Financial Impacts

National financial impacts represent the net benefit to society from EES&L programs. Usually expressed in terms of net present value (NPV), financial impacts are similar to those quantified by consumer cost-effectiveness analysis, but scaled up to the national level, typically for several decades according to sales of equipment and energy prices over time.

SEAD Analysis Tools

In order to help close the gap between the need for high-quality technical analysis and local capacity and financial resources, SEAD takes advantage of two main analytical products which facilitate determination of the decision-making parameters described above.

Bottom-Up Energy Analysis System (BUENAS)

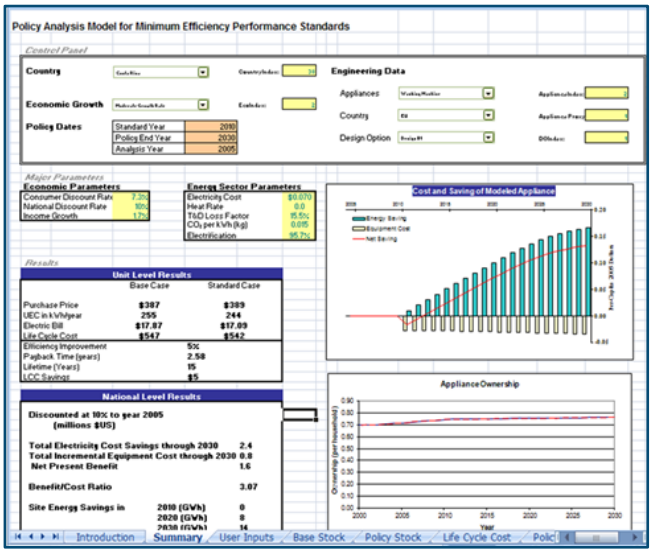
BUENAS was developed by the Lawrence Berkeley National Laboratory (LBNL) with support from CLASP, the US Government and the International Copper Association (ICA).

BUENAS is a multi-appliance energy demand model with several efficiency policy scenarios. This tool can be used to model multiple types of residential, commercial and industrial equipment at the same time, allowing for comparison among efficiency policy scenarios according to energy savings by product and sector. Demand scenarios have been included for 12 SEAD economies, as well as some non-SEAD countries and regions. BUENAS includes Cost-Effective Potential and Best Available Technology policy scenarios, and can also be used for retrospective impacts analysis.

Given a set of efficiency policy options, BUENAS determines national energy savings and related impacts, as well as national financial impacts. As it evaluates impacts of multiple appliances simultaneously, BUENAS analysis can serve as a prioritization and program planning tool.

Policy Analysis Modeling System for Minimum Energy Performance Standards (PAMS-MEPS)

Developed by LBNL with support from CLASP and the US government, PAMS-MEPS is a single-appliance analysis tool (in Excel format). PAMS-MEPS features a user-friendly interface and is pre-loaded with default macroeconomic and technology parameters, although customization is highly recommended. Consumer cost-effectiveness analysis is central to PAMS-MEPS, which allows for easy switching between efficiency design options, each of which implies a different energy savings and equipment cost impact.



PAMS-MEPS Summary Sheet, showing user pull-down menus for country and appliance selection, user input parameters and results

As PAMS-MEPS handles one product at a time with multiple targets, it is an ideal tool for determining optimal MEPS targets.

More Help

Workshops: SEAD provides access to a network of international experts with extensive experience providing workshops on critical steps toward successful EES&L programs, including regulatory frameworks, market studies, techno-economic analysis, enforcement and program evaluation.

Data Collection Training: Successful analysis is facilitated by training in the types of data necessary as input to the tools, potential sources for them, and methodologies for collecting or developing them.

Capacity Building: The ultimate goal of technical assistance is sustainable local capacity within the institutions responsible for policy development and implementation.

Additional Resources:

1. BUENAS Methodology Document
2. PAMS Methodology and User Guide
3. CLASP S & L Guidebook (2nd Edition)

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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.