Labeling programs for energy efficient appliances

National and regional approaches for implementation and testing

Ana Maria Carreño
Manager, Global Best Practices
April 14, 2015
Kingston, Jamaica
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.

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
Results from a transition to more efficient cooling appliances:
potential annual savings for the Caribbean

Reduce electricity use

→ by over 1.8 TWh
→ More than 5% of current electricity use

...equivalent to 3 100MW power plants

Save 342 million US$ on electricity bills

Reduce CO2 emissions by 1.4 million tonnes

...equivalent to 760,000 passenger cars
Energy Efficiency Labels

Comparative Labels

- Levels ("tiers") of efficiency
- Allow consumers to compare different products
- Display several kinds of information: cost per year, water consumption, etc.

Endorsement Labels

- Denotes that the product adheres to a set efficiency level
- Simple design
- "This product is efficient"
More than 60 economies have implemented a labeling program for appliances and equipment.

Source: CLASP Global S&L Database

*EU countries are accounted once (34+27 EU countries)
The Brazilian labeling program implemented by various agencies:

- **Programa Brasilero de Etiquetaje (PBE)** established in 1984
  - Comparative label, mandatory for 21 products

- **Programa Nacional para la conservación de electricidad (PROCEL)** established in 1985
  - Endorsement seal for electric equipment

- **Programa Nacional para el uso racional de combustibles y gas natural (CONPET)** established in 1991
  - Endorsement seal for equipment using natural gas
India S&L Program Evolution

2001-2002
Energy Conservation Act and establishment of Bureau of Energy Efficiency

2006
Voluntary Labeling program launched for refrigerators

2010
Mandatory Labeling for four products

2011
Endorsement Label Launched

2014
14 Products labeled & more to come
Recent studies estimate peak power demand from ACs in India between **40% and 60%** of total demand. Improving efficiency standards for ACs can result in **aveled carbon emissions** while simultaneously helping power companies **better handle peak load**.

Studies on contribution to peak demand by:
- Maharashtra Electricity Regulatory Commission (MERC);
- the Bureau of Energy Efficiency (BEE)

Cumulative mitigation from 2010 – 2030: 735 Mt CO₂

22% emissions reductions = 95 Mt of CO₂ in 2030

Source: BUENAS, LBNL
China Refrigerators Energy Efficiency Level Distribution by Model Type

Models of more efficient refrigerators on the market increased over time

It is time to revise the standard efficiency levels when nearly 80% are in the most efficient (Level 1)

Models of more inefficient refrigerators on the market decreased over time

Source: CLASP refrigerators benchmarking
ENERGY STAR helps businesses and individuals save money and protect the climate

A U.S. Environmental Protection Agency (EPA) voluntary program established since 1992

Defines criteria for eligibility (energy performance requirements, water usage, others) and requires third-party certification testing

Today, an ENERGY STAR clothes washer uses about 70% less energy and 75% less water than a standard washer used 20 years ago

Source: http://www.energystar.gov/
The first endorsement label for laptops will save 0.2 TWh of electricity and abate 0.2 million tons CO\textsubscript{2}e per year in 2020.

CLASP provides technical support to BEE for label design (references ENERGY STAR 5.2 specifications for computers).

**2010–2011**

**March 2011**

BEE launches India’s first endorsement label.
The virtuous cycle of appliance energy efficiency programs

Impact assessment
Program evaluation

Raise Energy Efficiency Standards
Market monitoring
Standards development
Benchmarking
Phase out inefficient products

Assess impacts and improve outcomes
Promote Efficient Products
Labeling
Awards programs
Financial incentives
Influence consumer behavior

Improve Compliance and Enforcement
Monitoring, verification and enforcement
Build test laboratory capacity
There are two main forms of verification testing:

**Screening tests**
Typically used to provide a preliminary assessment of products likely to fail a full verification test

**Full verification tests**
Full procedure verification testing carried out in accordance with regulation is typically the process followed in support of subsequent enforcement action

Value of market sampling and testing:

- Key steps to determine whether energy performance claims have been met
- Data used to provide a picture of compliance levels and/or market data on products
Other tools to support compliance

- Regional resource sharing
  - Sharing test results
  - Co-ordinated MVE planning
  - Establishing a regional registration database

- Product registries
  - Product registration/certification → initial compliance gateway
  - Information portal for stakeholders
  - Informs verification and testing programmes
Benefits of coordinating MV&E activities

- Improved compliance
- Accelerated adoption of MV&E best practices
- Reduced costs of data collection
- Coordinated compliance market intelligence
- Increased confidence & knowledge of MSAs
- Potential alignment of test reports and test methods

Improved Compliance
Asia Pacific Economic Cooperation (APEC): Regional coordinated MV&E activities

A strategic regional, cost-effective approach to reduce non-compliance

- A network for MV&E authorities (government to government collaboration)
- Focus on compliance intelligence-sharing and peer learning

Taking small steps towards regional coordination

**Step 1**
Establish economies’ willingness to participate and identify their needs

**Step 2**
Establish regular compliance information exchange & identification of best practices

**Step 3**
Establish bilateral or multilateral MOUs on sharing compliance testing information

**Step 4**
Develop formal, regional coordination of market surveillance activities, e.g. joint testing program
Australia’s E3 Energy Rating Label Tool

Regional co-funded collaboration between the Australian Government, Australian State and Territory Governments and the New Zealand Government

- All regulated products must be registered before being offered for sale
- Around 18,000 approved registrations
- Information on energy efficiency, MEPS and product star ratings
- Supports the verification testing compliance programme
- Around 70,000 visitors a month
CLASP improves the environmental and energy performance of appliances & equipment

- Policy design & implementation
- Promoting highly efficient products
- Monitoring & evaluation
- Resources & tools for practitioners
- Training & capacity building
- Off-grid & energy access
- Raising consumer awareness & comprehension

- Phase down of HFCs and high GWP refrigerants
...worldwide
CLASP Resources & Tools for Policy Makers

S&L Policy Toolkit

Product and Policy Analysis Tool (PPAT)

S&L Guidebook

MV&E Guidebook
Ana Maria Carreño
Manager, Global Best Practices
CLASP

acarreno@clasponline.org
+1 202-662-7292

www.clasponline.org