

HOW CAN DIGITALIZATION IMPROVE THE EFFICIENCY OF OUR GOVERNMENT EFFICIENCY PROGRAMS AND OUR BUSINESSES?



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Dr. Walia is a development professional with 23 years of experience on policy & program strategies in the field of energy and environment.

As Director-CLASP/India, she provides leadership and strategic direction to all programs to ensure the efficient use of resources and achievement of results and overseas India's participation in the Global programs under CEM.

Archana served as the deputy director, Energy and Environment, USAID providing intellectual leadership to programs on clean energy, sustainable landscape and water, which includes financial, institutional, technological and environmental costs and benefits analysis of various regulatory and policy measures. She has worked with DFID on Power Sector Reforms and British Council division on Environment programs.

Archana holds a Ph.D degree in environment.



Role of digitalization in appliance energy efficiency programs

Dr. Archana Walia
Director, India Program
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ACEF, Manila

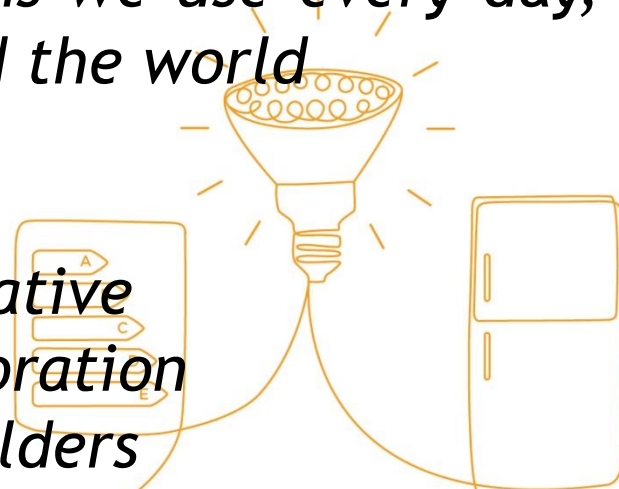


About CLASP

CLASP is an impartial and independent nonprofit organization, established in 1999 to mitigate the growing energy demand resulting from the use of appliances, lighting, and equipment with a mission:

“To improve the environmental and energy performance of the appliances and related systems we use every day, lessening their impacts on people and the world around us.”

CLASP develops and shares transformative policy and market solutions in collaboration with global experts and local stakeholders



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

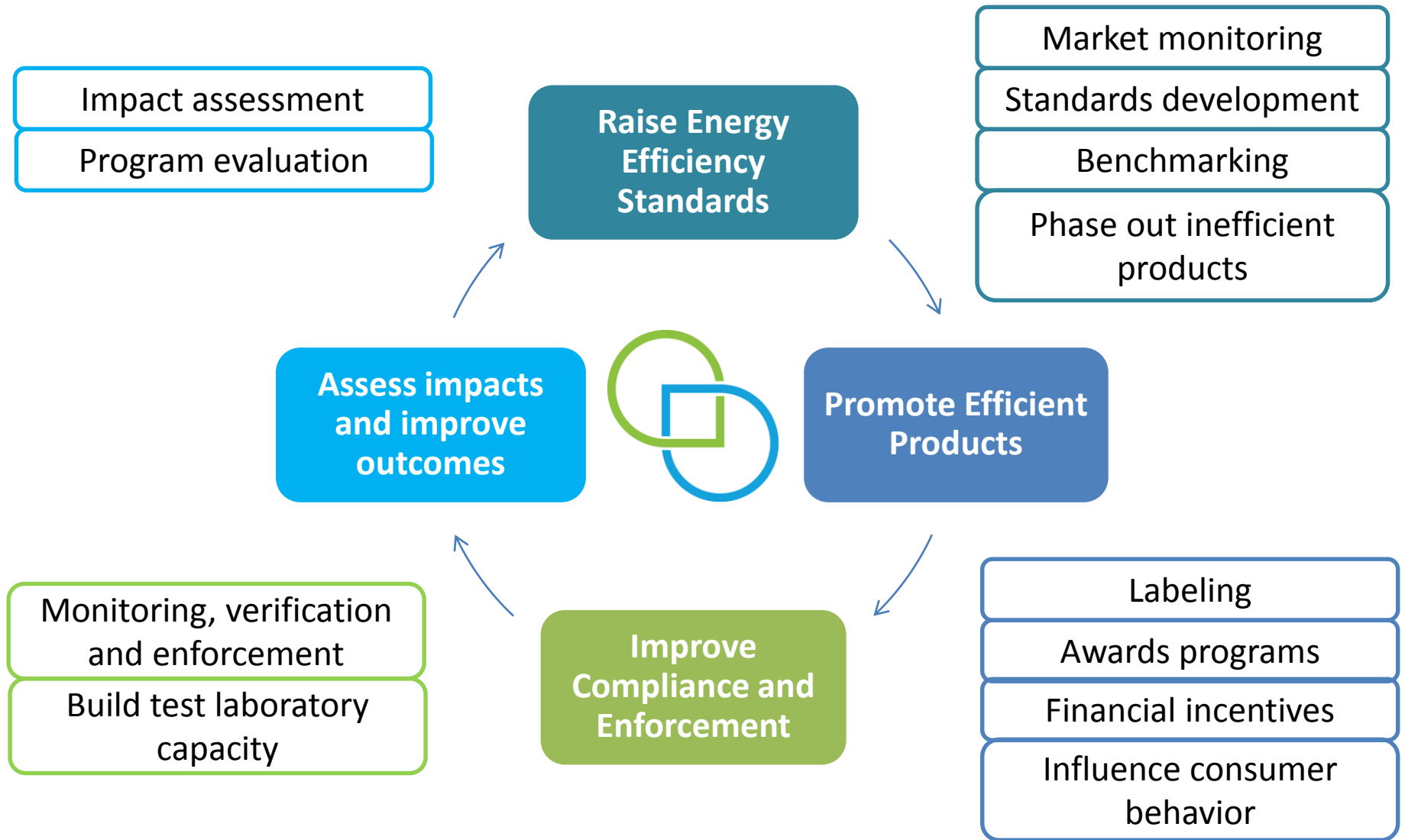
Off-grid & energy access

Phase down of HFCs and high GWP refrigerants

Raising consumer awareness & comprehension



The virtuous cycle of appliance energy efficiency programs



Digitalisation and its importance

- **Digitalization** is the adoption or integration of digital technologies into everyday life by the digitization of everything that can be digitized

Vision of Digital India : a programme to transform India into a digitally empowered society and knowledge economy.

- Digital technologies are therefore emerging to become integral to 21st century low-emission energy systems as these can play a major role in delivering effective solutions
- Enable policymakers to meet the energy efficiency targets
- They have a huge potential to reshape the consumer perceptions on the services and interactions.



Relevance to appliance energy efficiency

| Data collection and management | Sales, stocks, usage patterns, energy use |
|-------------------------------------|---|
| Tools for data analysis | Trends, policy impact, market changes, energy savings |
| Product Registration | Transparency, streamlining processes, information for consumers |
| Monitoring and Compliance | Effectiveness of policy measures, transparency and accountability, |
| Awareness and Outreach to consumers | Information and education, Access to relevant information for informed decisions, engaging consumers to provide feedback , complaints redressal |

India as case study

- Product registration system
<https://beestarlabel.com/Home/Searchcompare>
- Information on energy savings and number of appliances in each star rating band for all appliances under labeling program on the website
<https://beestarlabel.com/Home/EnergySavings>
- PPAT tool for prioritization of products for labeling program and policy analysis
- Mobile application for informed purchased decision making and features such as information on monetary savings and product related feedback
<https://beestarlabel.com/Home/MobileApp>
- Consumer behaviour study to get real time data on appliance usage pattern and behaviour to support policy decision, revision and evaluation

Product registry and database

- Product registration is a key component of appliance energy efficiency programmes
- Works as an initial compliance gateway wherein manufacturers and importers register eligible products with the regulatory authority prior to market entry
- Products registered with required documentation to demonstrate product compliance
- Aspects of product registries and databases
 - Record of registered products in public domain
 - Alerts/notifications of regulatory announcements and changes
 - database of the stakeholders (manufacturers, test labs, monitoring agencies) and products with all the required information



Product Registration System



Bureau of Energy Efficiency
Ministry of Power, Government of India

helpdesk@beemil.in 011 - 26179699
 4th Floor, Sewa Bhawan, R.K Puram, New Delhi - 110066 - India



SEARCH AND COMPARE

Appliances And Equipment

Here you can Search the equipment based on various search criteria.

खोज एवं तुलना

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[Login](#)



Manufacturers

[Click Here](#)



BEE

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IAME

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Laboratory

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CALCULATE YOUR STAR LABEL



SEARCH AND COMPARE



CALCULATE YOUR SAVING



Check Testing Result



SURVEYS & STUDIES

About Standards & Labeling Program

The Objectives of Standards & Labeling Program is to provide the consumer an informed choice about the energy saving, and thereby the cost saving potential of the marketed household and other equipment. This is expected to impact the energy savings in the medium and long run while at the same time it will position domestic industry to compete in such markets where norms for energy efficiency are mandatory.

The scheme was launched by the Hon'ble Minister of Power in May, 2006 and is currently invoked for equipments/appliances (ROOM AIR CONDITIONER, CEILING FAN, COLOUR TELEVISION, COMPUTER, DIRECT COOL REFRIGERATOR, DISTRIBUTION TRANSFORMER, DOMESTIC GAS STOVE, FROST FREE REFRIGERATOR, GENERAL PURPOSE INDUSTRIAL MOTOR, MONOSET PUMP, OPENWELL SUBMERSIBLE PUMP SET, STATIONARY TYPE WATER HEATER, SUBMERSIBLE PUMP SET).

Alerts & Updates

[Applicants](#)

IMPORTANT NOTICE TO ALL COLOUR TELEVISION MANUFACTURERS

Alert to Direct Cool Refrigerator

[View all alerts](#)



Product Registration Database

Search & Compare



Frost Free Refrigerator
Schedule 1



TFL
Schedule 2



AC
Schedule 3



Direct Cool Refrigerator
Schedule 5



Distribution Transformer



General Purpose Industrial Motors



Monoset Pump



Openwell Pump Set



Bureau of Energy Efficiency
Ministry of Power, Government of India

Search and Compare for FROST FREE REFRIGERATOR

| Brand[24] | Model[214] | Gross Volume (litres) | Storage volume (litres) | Electricity Consumption (unit per year) | Star Rating |
|-----------------|-------------|-----------------------|-------------------------|---|-------------|
| Select All | Select All | Select All | Select All | Select All | Select All |
| BOSCH | GFE 32 CMT- | 179 | 158 | 198 | 1 |
| BPL | GFE 32 CVT4 | 190 | 174 | 238 | 2 |
| CROMA | GFE 30 CMT- | 200 | 189 | 242 | 3 |
| ELECTROLUX | GFE 30 CVT4 | 220 | 195 | 244 | 4 |
| FISHER & PAYKEL | GFE 29 LVT4 | 230 | 211 | 247 | 5 |

SEARCH
← BACK

Tools and Technique

- Calculation of appliance energy consumption and savings
 - Tools for product prioritization, policy analysis and energy savings
 - Mobile App.
 - QR code

Advantages

Selection and prioritization of products, projections for market growth

Estimation of energy saving potential for policy decisions and impact analysis


Support data acquisition, handling and visualisation


A historical view of electricity consumption over time (also indicating the resulting costs)


Provide labelled appliance data in accessible manner influencing purchase decisions


A household-specific recommendation service on how to save energy






BEE Star Label



Air Conditioners



Refrigerator



Lighting



TV



Geysers


Ceiling Fans



Pumps


Inverters



Air Conditioners




AKAI
AKW-185CE
Cost Saving(5yrs) ₹15030




AKAI
AKS-185PE
Cost Saving(5yrs) ₹13130




AKAI
AKS-185CE
Cost Saving(5yrs) ₹13130




AKAI
AKS-125CE
Cost Saving(5yrs) ₹8740




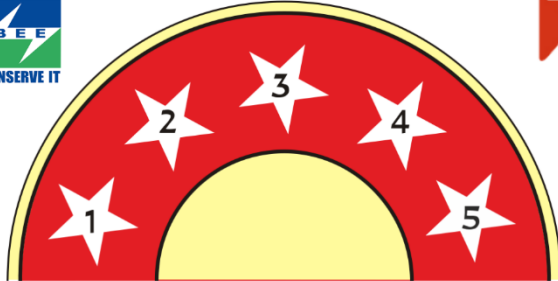
AUX
ASW245-LH
Cost Saving(5yrs) ₹16945



AUX
ASW185-LH
Cost Saving(5yrs) ₹13130


Air Conditioners





₹13130
Cost Saving for 5 years

Brand: AKAI
Model: AKS-185PE
Type: Split air conditioner
Variable speed compressor: No
Heat pump: No
EER (W/W): 3.51
Cooling capacity(W): 5110
Power (W): 1455

Tools and Techniques-looking ahead

- Non-intrusive analytical IT enabled devices for disaggregated appliance data
 - Understanding appliance usage pattern
 - Understanding household routines through time of use and energy consumption from daily activities
 - Live visualization of current total electricity consumption
 - Prediction of energy demand from households and appliances
 - Energy feedback generation
 - Opportunities for load shifting



IT enabled and smart technologies

- **Automation-** system changes to reduce energy are made without human intervention
 - Eg thermostat using machine learning and predicts heating and cooling pattern
- **Real time use-** device provides information to consumers, who make changes to improve efficiency
 - Eg. Smart meter measuring behaviour
- **Substitution/dematerialisation-** internet connected devices are used to displace energy intensive activities
 - Eg. Replacement of on site server with cloud based virtual server



| Social | Financial |
|--|---|
| Lack of awareness amongst consumers and government | High upfront cost and lack of understanding on return on investment |
| Uneasiness with new technologies | Difficulty in calculating overall system benefits |
| Complex nature of devices and tools | Lack of understanding on energy savings |
| Exponential pace of technology evolution | Lack of established mechanism on monitoring and verification of savings |
| | Privacy, interoperability and security |

Benefits for stakeholders

Policymakers

- Establish baseline data to support policy decisions and policy impact
- Database of Manufactures
- Trend analysis such as product performance data, sales volume and technology transition
- Information essential for programme design, implementation and evaluation
- Market surveillance and reporting non compliance
- Support product selection process for verification testing
- Track energy use at
 - Aggregated level - Residential sector, Public sector, etc.
 - Detailed level- Per household, Per appliance type, etc.
- Tool for dissemination and consumer education



Benefits for stakeholders


Manufacturers

- Information on product innovation and design
- Build credibility of their products in the market
- Level playing field by eliminating unfair competition from non-compliant products

Distributor

- Product compliance information

Consumers

- Product specific information in public domain
 - Easy accessibility and user friendly tools
 - Enable product comparison
 - Library of knowledge and training material
 - Reporting of non compliance
- 

Regional Harmonization

- Supports co-ordinated MVE planning and efficient use of resources when a regional market shares similar products
- Enables immediate sharing of information on test results and compliance related information between authorities
- Reduces cost, avoids duplication of efforts, facilitates global trade, and encourages product performance improvements





THANK YOU

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