WATCH THE STARS

How to strengthen compliance with India's Standards and Labeling program?

Prayas (Energy Group)

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May 2022

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Abbreviations

BEE	Bureau of Energy Efficiency
CAG	Comptroller and Auditor General of India
CERC	Consumer Education and Research Center
CPRI	Central Power Research Institute
CSO	Civil Society Organization
DISHA	Disseminating Star Labeling in Household Appliance
EC Act	Energy Conservation Act, (2001 and subsequent amendments)
EOI	Expression of Interest
ERC	Electricity Regulatory Commission
ERDA	Electrical Research and Development Agency
FBS	Fixed Budget based Selection
IAME	Independent Agencies for Monitoring and Evaluation
ILC	Inter Laboratory Comparison
M&V	Monitoring and Verification
MEPS	Minimum Energy Performance Standards
MoP	Ministry of Power
MV&E	Monitoring, Verification, and Enforcement
NABL	National Accreditation Board for Testing and Calibration Laboratories
QCBS	Quality and Cost based selection
QR code	Quick Response code
S&L	Standards and Labelling
SDA	State Designated Agencies
SEEI	State Energy Efficiency Index
SERC	State Electricity Regulatory Commission
VOICE	Voluntary Organization in Interest of Consumer Education

Summary

Standards and Labeling (S&L) is one of the flagship programs of the Bureau of Energy Efficiency (BEE). BEE estimated that the S&L program saved about 65 billion kWh of electricity in 2019-20. As a result, Indian consumers saved about ₹ 39020 crores in reduced electricity bills. It is critical to have a strong monitoring, verification, and enforcement (MV&E) mechanism to ensure that these benefits to the consumers as well as the multiple societal benefits of energy efficiency are actually realized. In this brief report, we review BEE's current mechanisms for MV&E under the S&L program, identify the issues involved, and provide recommendations to improve the same. Following are key takeaways:

- BEE and State Designated Agencies (SDA) can set clear annual targets, allot adequate budget, and publish annual reports on the activities conducted for MV&E of S&L program. BEE has adequate funds generated from its S&L fee revenues which can also be complemented with funds from multi-lateral organizations and philanthropies.
- Energy Conservation Act can be amended to make BEE primarily responsible for MV&E instead of the SDA and also provide it with adjudicatory powers to empower it to conduct a strong and effective MV&E. BEE can further strengthen its capabilities by opening regional offices for better co-ordination with SDAs and hire staff with MV&E expertise.
- BEE can conduct lab assessment study and facilitate scaling up of testing capacity. There are only 4 approved independent testing labs for air-conditioners and 9 for refrigerators in India. This can either be through funding some of the capacity addition or through announcing and following a large scale MV&E plan which would ensure sustained business for testing labs.
- BEE can conduct periodic Inter Laboratory Comparison (ILC) exercises of its empaneled labs to address issues of repeatability and reproducibility in its test results.
- There have been instances of sub-quality agencies being hired by BEE for MV&E. BEE and SDAs can explore the possibility of using alternative methods such as Fixed Budget based Selection (FBS) method or the Quality and Cost based selection (QCBS) instead of the current Least Cost (L1) method for hiring agencies.
- BEE can speed up the adoption of QR codes for individual labels to enable consumers to get more details of the product and ensure that the label is not fake.
- Civil society organizations (CSOs) working on consumer rights and energy efficiency can take up the initiative to regularly conduct check-testing of appliances available in the market. This can be funded by consumers, philanthropies, multi-lateral agencies or BEE. There are several such examples in other countries.

Introduction

Standards and Labeling (S&L) is one of the flagship programs of the Bureau of Energy Efficiency (BEE)[1]. BEE estimated that the S&L program saved about 65 billion kWh of electricity in 2019-20[2]. As a result, Indian consumers saved about ₹ 39020 crores in reduced electricity bills. Under the S&L program[3], BEE prescribes standards for energy performance of appliances and equipment and issues a label for each model from 1-star to 5-star based on its energy efficiency, with a 5-star model being the most energy efficient. Manufacturers are required to affix the star-labels at a prominent location on the appliance as well as the packaging. The primary objective of the program is to create awareness and help the consumers buy energy efficient appliances, thereby increasing their market share. It also aims to increase the overall efficiency by periodically revising the energy efficiency standards corresponding to the labels.

Figure 1 Standards and Labeling Program: Details and placement of the star label
Source: beestarlabel.com

One fundamental requirement to the success of the S&L program is that the actual energy consumption of the appliances is as per their star-labels. This is important for three reasons. First, consumers usually pay a premium for higher star-rated appliances expecting reduction in electricity bills. They will feel cheated if these savings are not actually realized. This may result in consumers losing trust in the labels. Second, S&L is considered as one of the most important energy efficiency policies with multiple societal benefits including reduction in climate change inducing emissions. These benefits will not be realized if the appliances do not perform as per the expectations. Finally, it will be unfair to those manufacturers who strictly comply with the label requirements. The non-complying manufacturers may be able to sell their products at lower prices and gain undue advantage in the short term.

1 Bureau of Energy Efficiency website https://www.beestarlabel.com/
2 BEE annual report 2019-20 https://beeindia.gov.in/sites/default/files/Bee%20%28Annual%20Report%20-%20Artwork_0.pdf
3 Standards and Labelling program webpage https://www.beeindia.gov.in/content/standards-labeling

An effective monitoring, verification, and enforcement (MV&E) mechanism is key to ensure compliance with the S&L program and guarantee its success. This is particularly important in India since the star-labels are issued by BEE based on self-certification by manufacturers. A recent audit[4] of the S&L program by the Comptroller and Auditor General of India (CAG) found serious gaps in the MV&E processes. In this brief report, we review BEE's current mechanisms for MV&E under the S&L program, identify the issues involved, and provide recommendations to improve the same. Our approach was a mix of review of publicly available documents, literature on best practices, and interviews with stakeholders including manufacturers, testing laboratories, and others.

4 Chapter 5, CAG Report No. 3 of 2020 https://cag.gov.in/uploads/download_audit_report/2020/9)%20Chapter%205-of-3-2020-union-05f808dc1340004.78195812.pdf

What is the current MV&E mechanism?

About S&L

BEE runs the S&L program under the provisions of the Energy Conservation Act, (2001 and subsequent amendments[5]). The program is mandatory for 10 appliances[6] and voluntary for 19 appliances[7] as of March 2022. For mandatory appliances, no product can be sold in the country without an appropriate star-label displayed in a particular manner as prescribed by BEE. BEE issues a schedule document for each appliance category which includes the details of standards of energy consumption for each star-rating, testing methods, information to be put out on labels, the manner of display of the labels among other things (see the schedule for air-conditioners as an example[8]). If the appliance category falls under the mandatory regime, the schedule has to be notified in the Gazette of India. The validity of the label is usually two years after which the energy standards corresponding to each star label is revised. BEE requires the validity period to be printed on the labels. Manufacturers (or anyone who wants to sell an appliance under its own or imported brand in India) apply for a separate label for each model and is called a permittee if their application is approved by BEE. They are allowed to submit test results from their in-house testing labs for the label certification as long as they are accredited by the National Accreditation Board for Testing and Calibration Laboratories (NABL). BEE has published an operating manual for the S&L program called Disseminating Star Labeling in Household Appliance (DISHA)[9]. It describes all the processes involved in S&L. BEE also published the Enforcement Manual[10] in 2019. This manual covers the MV&E processes of all the programs including the S&L. There may be some differences between the processes described in the DISHA manual, the Enforcement Manual, and the legal notifications. However, the individual notification for each appliance category published in the Gazette of India serves as the legally binding document.

5 Energy Conservation Act, (2001 and subsequent amendments) https://www.indiacode.nic.in/handle/123456789/2003?sam_handle=123456789/1362
6 List of mandatory appliances under the S&L program https://www.beestarlabel.com/Home/EquipmentSchemes?type=M
7 List of voluntary appliances under the S&L program https://www.beestarlabel.com/Home/EquipmentSchemes?type=V
8 Schedule for Air conditioners https://www.beestarlabel.com/Content/Files/AC%20Notification.pdf
9 Disseminating Star Labelling in Household Appliances https://beestarlabel.com/Home/Launch
10 Handbook of Implementation of provisions of The Energy Conservation Act 2001, Version 1 https://beeindia.gov.in/sites/default/files/Enforcement%20Manual.pdf

What are the compliance requirements?

There are four key compliance requirements for any permittee after their application is approved and a star-label is issued to a particular model by BEE.

1. Submit relevant data to BEE periodically: The permittee is required to submit the registered model-wise production/import data to BEE every quarter. BEE levies a fee per label and the production data is used to calculate the accrued fee. BEE can also use the data to develop a sampling plan for monitoring and verification and to estimate the energy savings from the S&L program.
2. Ensure proper display of the label: Every permittee is required to display the label in a particular manner. Dimensions, colour scheme, and the information on the label is prescribed by BEE in the gazette notification. BEE also requires that the label is affixed to the appliance on display in the store or on the exterior package if the appliance not on display. This is to ensure that the label is easily noticeable by the consumer.

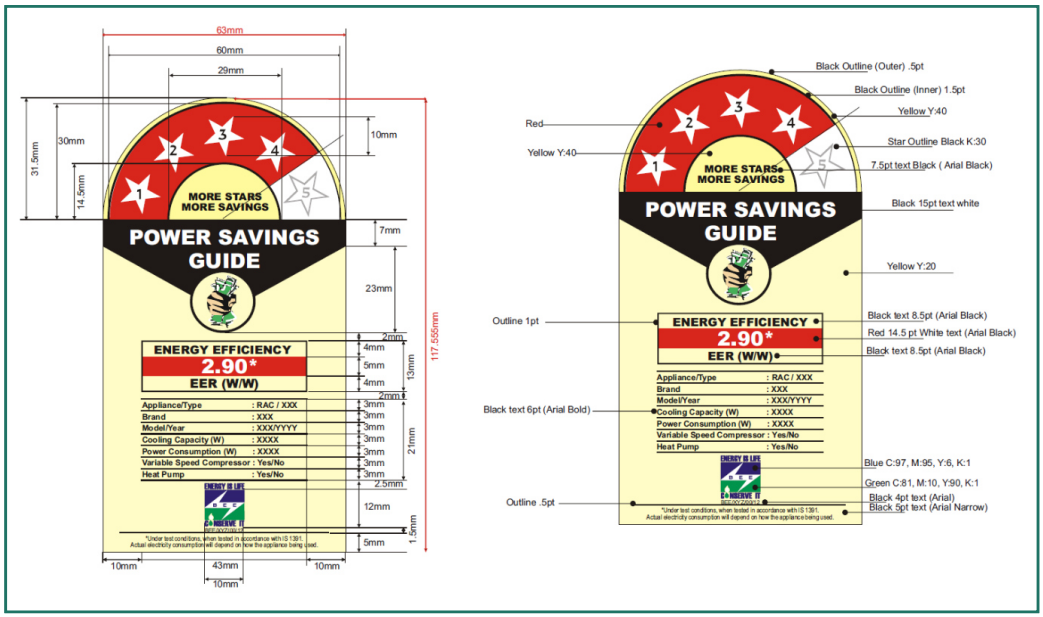

Figure 2 Display specifications of star labels prescribed by BEE
Source: beestarlabel.com

3. Ensure correct content on the label: In case of mandatory S&L, permittees are required to make sure that no product is sold without the approved label. The labels are non-transferable and each model should carry only the label approved for that model. Permittees should also make sure labels are within the prescribed validity period.
4. Ensure that the model's energy consumption is as per the label: BEE issues the star-label for a particular model based on the test results submitted by the permittee for that model. The permittees are required to make sure that the model sold in the market complies with the performance parameter mentioned on the label when tested according to the prescribed test methods.

What is the monitoring and verification mechanism?

As per the Energy Conservation Act, the State Designated Agencies (SDAs) are primarily responsible for the monitoring and verification of all the programs including S&L and report any violations to BEE. SDAs can appoint as many inspecting officers as required for ensuring compliance with the energy consumption standards. However, BEE has been appointing Independent Agencies for Monitoring and Evaluation (IAME) since the early days of S&L's implementation. IAMEs are responsible for conducting scrutiny of applications and monitoring and verification on BEE's behalf. They are required to be a government accredited conformity assessment / appliance/equipment certification agency. They are selected through a competitive bidding process. BEE started hiring IAMEs, probably due to lack of capacity and intent on SDAs' part to conduct MV&E.

DISHA manual has guidelines for market surveillance which is supposed to be conducted by either IAME or any other agency hired by BEE. It requires the surveillance to "*be a comprehensive Pan India market research of retailer/dealer/ e-market place including their catalogues and websites that sell appliances to assess whether they are providing the labelling details of the appliances".* It also suggests adopting a sampling plan which prioritizes appliances with history of non-compliance, those with high market penetration and other such criteria. But these requirements are usually not published in the gazette notifications.

The process for verification testing is outlined in the DISHA manual as well as in the gazette notifications. There are two types of testing: check-testing and challenge testing. As per the check-testing process, BEE or IAME or SDA can randomly pick samples from the manufacturing facility or warehouse or a retail outlet as deemed fit. A sampling plan is to be generated by BEE for each appliance category using a software which factors in various parameters. The details of this software are not available in the public domain. The testing is to be carried out as per the testing method prescribed in the gazette notification in an independent testing laboratory accredited by the NABL and empanelled by BEE. Manufacturers' in-house NABL accredited laboratories are not allowed for check-testing. In the challenge testing, anyone can lodge a complaint with BEE regarding energy performance of a particular model. BEE is required to conduct the verification test similar to the check-testing approach. The complainant needs to deposit the testing expenses which are forfeited if the model passes the test.

If the first sample fails the test, a second opportunity is to be given to the permittee. A larger sample is to be tested at a different NABL accredited and BEE empanelled independent test laboratory in the presence of the representative from the Permittee. If the second sample also fails the test, then a combination of remedial and punitive action is to be taken against the permittee.

What is the enforcement mechanism?

As per the Energy Conservation Act, 2001, the responsibility of enforcement of the compliance with all the energy efficiency regulations lies with the central and the state governments. BEE's role is limited to reporting non-compliance and recommending actions to be taken. BEE released an Enforcement Manual[11] in 2019 which categorized all non-compliance acts related to S&L in four grades and described the course of action to be taken for each category. Grade 1 refers to the non-compliance associated with the submission of relevant data and Grade 2 refers to the non-compliance with the manner of display of the label. In these two cases, BEE provides some time to the permittee to correct the non-compliance. If the permittee continues to be non-compliant after the provided time, BEE cancels the label issued to the permittee.

Grade 3 non-compliance is associated with incorrect content on the label and Grade 4 non-compliance is associated with the energy performance of the model not being as per the label. These are considered as non-compliance acts of serious nature. In these cases, BEE intimates the non-compliance to all the State Designated Agencies. It requires the permittee to correct the non-compliance as well as withdraw the stock from the market, and correct any advertising materials within two months. BEE also publishes the details of the model and the brand in national newspapers and any other media which it deems fit for the benefit of consumers. The permittee is required to submit a report after two months on the compliance with BEE's directions. If the report is not submitted or the directions are not complied with, BEE takes further actions. It recommends the central government to prohibit the permittee from selling the model. It also intimates the concerned state designated agency to initiate adjudication proceedings against the permittee with the corresponding state electricity regulatory commission. The SERC is required to appoint any of its members as an adjudicating officer. The officer is required to conduct an inquiry on the non-compliance and calculate the penalty as per the rules[12] issued by the central government. The appeals against the orders of the SERC can be heard in the Appellate Tribunal for Electricity.

11 Handbook of Implementation of provisions of The Energy Conservation Act 2001, Version 1 https://beeindia.gov.in/sites/default/files/Enforcement%20Manual.pdf
12 Energy Conservation (Manner of holding inquiry) Rules 2009 https://beeindia.gov.in/sites/default/files/GSR25_eng.pdf

What is the current status of MV&E activities?

There is limited information on the MV&E activities actually being conducted by BEE, IAME, and the SDAs. An audit[13] of the S&L program by the Comptroller and Auditor General (CAG) of India done in 2020 paints a rather bleak picture. It concluded that BEE had check-tested only 51 models till 2017-18 out of a total of 32079 models approved (both mandatory and voluntary). These 51 models belonged to only 5 product categories. Further, 32 out of these 51 models (i.e. 63%) failed the first check test. Only 8 of these were tested the second time out of which 7 failed. It also found that no market surveillance was done to check whether the labels were affixed on the mandatory products, whether they are displayed in correct manner, whether they are fake etc. Several of the MV&E processes were examined by the CAG which we will discuss in the next section.

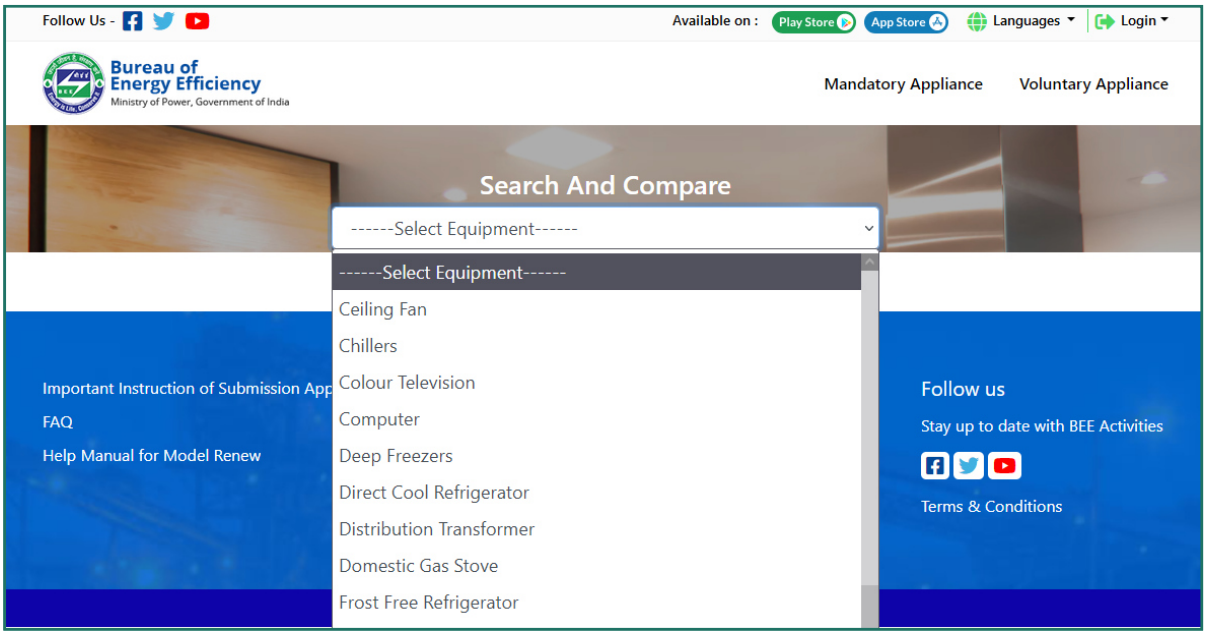

Figure 3 Snapshot of the Search and Compare page on BEE's website
Source: beestarlabel.com

BEE's website for the S&L program has a section called Search and Compare[14]. This is an online repository of all the models approved by BEE under different product categories. This repository is regularly updated. Consumers can use it to get information on various models under different star-rating categories for different product categories. Consumers can also use this repository to cross-check the validity of the labels that they see in the retail store and on an e-commerce website. BEE has also made available a mobile app for the same database.

BEE's website also has a section called Check Test Results[15]. There is a drop-down menu where one can check the details of the models under each product category which have failed check-testing. However, there are no entries under any of the product categories except for air-conditioners (7

13 Chapter 5, CAG Report No. 3 of 2020 https://cag.gov.in/uploads/download_audit_report/2020/9)%20Chapter%205-of-3-2020-union-05f808dc1340004.78195812.pdf
14 Search and compare webpage https://beestarlabel.com/SearchCompare
15 Check Test Results web page https://www.beestarlabel.com/Lab/TesteresultofEquipment2

entries) and refrigerators (2). The date of publication of results is not published. Hence, it is not clear if these are recent check-testing results.

There is limited information on the status of MV&E activities related to S&L being conducted at the state level. The State Energy Efficiency Index (SEEI) 2020[16] reports that about 21 states and union territories have appointed inspecting officers as required by the Energy Conservation Act. However, it is not clear whether these officers have been exclusively appointed for the role of inspection or it is an additional responsibility. Furthermore, there is no information on the actual monitoring and verification activities conducted by these officers. The SEEI does not mention appointments of adjudicating officers by the state electricity regulatory commissions as required by the Act. Few ERCs like Maharashtra[17], Delhi[18], and Andhra Pradesh[19] have appointed the adjudicating officers. However, there is no information on whether any adjudication proceedings have ever taken place related to S&L or for that matter any other program. Consequently, we did not find any cases related to the Energy Conservation Act in the Appellate Tribunal for Electricity, which is designated as the first appeal tribunal as per the 2010 amendment of the act.

16 State Energy Efficiency Index (SEEI) 2020 https://stateenergyefficiencyindex.in/wp-content/uploads/2021/10/SEEI-2020-PAMPHLET-FINAL.pdf
17 Maharashtra Electricity Regulatory Commission https://www.merc.gov.in/faces/merc/common/outputClient.xhtml
18 Appointment of Adjudicating Officer under the Energy Conservation Act, 2001, Delhi Electricity Regulatory Commission http://www.derc.gov.in/sites/default/files/ADJUDICATING%20OFFICER.pdf
19 Appointment of Adjudicating Officer under the Energy Conservation Act, 2001, Delhi Electricity Regulatory Commission https://aperc.gov.in/admin/upload/adjudicatingofficer.pdf

What are the issues in the MV&E?

There are several issues hampering an effective MV&E mechanism of the S&L program in India. These issues concern all the stakeholders involved in the MV&E mechanism including BEE, SDAs, IAME, Testing laboratories, manufacturers, and civil society organizations.

Lack of mandate, budget, and transparency

BEE or the SDAs do not have any clear targets for the market surveillance and number of models to be check-tested under the EC Act. The Appliance Schedules or the operating manual, DISHA, also does not specify any targets. This makes it difficult to hold BEE or the SDAs accountable for their activities under the MV&E. Furthermore, BEE's role is legally limited. As per the EC Act, SDAs are primarily responsible for the MV&E of all the energy efficiency programs including the S&L. SERCs have been given the adjudication powers for any violations of the EC Act. BEE's role is limited to *"develop testing and certification procedure and promote testing facilities for certification and testing for energy consumption of equipment and appliances"*. This significantly limits BEE's authority to provide deterrence to any kind of non-compliance.

This lack of specific mandate probably exhibits in the limited funding allocation to the MV&E. There is no line item for MV&E in BEE's budget as per the annual reports available on its website. The CAG report mentions that the Ministry of Power (MoP) had approved ₹ 26 crore in 2011 for capacity building of testing labs. However, BEE spent only about ₹ 11 crores and the remaining amount was unutilized. There is no data on budget allocation for the MV&E by the SDAs.

Also, BEE and SDAs are not required to publish their MV&E activities. BEE publishes the name of the model and the manufacturer only after the non-compliance is proved through two levels of check-testing. This can be useful for creating awareness about the defaulting model. However, there is no reporting of the total appliances covered under the market surveillance activity or total models check-tested every year either by BEE or the SDA. Such a report can substantially increase the accountability of BEE and SDA as well as increase the credibility of the program.

Limited in-house capacity and issues with IAME

BEE does not have any in-house laboratories for check-testing. BEE is located in Delhi with no other offices. This limits BEE's capacity to conduct and coordinate any nation-wide MV&E plan. BEE has been engaging Independent Agencies for Monitoring and Evaluation (IAMEs) for MV&E since the early days of the S&L program. However, there have been several issues with IAMEs in the past such as hiring of inexperienced companies, focusing only on work related to application scrutiny and not MV&E, and conducting check-testing only in limited locations (CAG report)[20]. Our interviews indicate some additional operational issues with the IAMEs. There have been instances of IAMEs delaying the collection of check tested appliances causing storage space issues at the testing lab premises. In some cases, IAME personnel have not shown up for the check-testing at scheduled time. It has also been

20 Chapter 5, CAG Report No. 3 of 2020 https://cag.gov.in/uploads/download_audit_report/2020/9)%20Chapter%205-of-3-2020-union-05f808dc1340004.78195812.pdf

observed that the IAME personnel have limited technical expertise as compared to the manufacturer/testing lab personnel and may not be able to reply to their objections during the second check-testing. This is crucial for proving the non-compliance.

Issues around capacity and capability of testing labs in India

BEE's operating manual requires that the check-testing of appliances can only be done in NABL accredited independent testing labs empanelled by BEE. It provides a list of such labs on its website for S&L. There are two large independent NABL accredited public sector/not-for-profit labs viz. Electrical Research and Development Agency (ERDA)[21] in Vadodara and the Central Power Research Institute (CPRI)[22] in Bengaluru. Among the private sector labs, there are a handful of large labs which conduct testing for more than 5 appliance categories under the mandatory category. The number of independent testing labs varies with the appliance category (Table 1). There are only 4 independent testing labs for air-conditioners and 9 labs for refrigerators. For smaller appliances like LED, ceiling fans, and TV, the number is more. This is probably because of the comparatively higher investment required for the testing set-up of air-conditioners and refrigerators. Furthermore, BEE allows certification from the in-house laboratories and hence most of the manufacturers have invested in their own labs. Also, limited check-testing by BEE means there is no assured business for the private sector testing labs. Hence the number of private testing labs is limited in India.

Appliance	Independent	Manufacturer owned	Total
Air-Conditioners	4	27	31
Refrigerators	9	14	23
Ceiling Fans	22	0	22
LED	52	15	67
TV	60	6	66
Water heater	25	1	26
TFL	9	2	11
Total	**181**	**65**	**246**

Table 1 Testing labs for mandatory appliances

Note: BEE provides the list of empanelled labs on their website. We identified the labs as independent or manufacture owned based on their names.

21 Electrical Research and Development Agency https://erda.org/
22 Central Power Research Institute https://cpri.res.in/

We also observed that the cost of testing appliances varies significantly across the labs (see Table 2). This may be attributed to the variation in the quality of the testing equipment, skill levels of the technicians, and other factors. One of the concerns reported by the testing labs is that BEE/IAME select the lowest cost (L1) bidder in the competitive bidding to conduct check-testing. However, there are not enough checks to ensure that the minimum quality of testing is being ensured. Hence, some of the labs do not participate in the bidding. BEE also does not conduct any Inter Laboratory Comparison (ILC) on a periodic basis.

Appliance	Price range (₹ '000)
AC	120-250
Refrigerators FF	300-400
Refrigerators DC	210
Ceiling Fans	30-40
TV	18-35
Water heater	18-60
LED	120

Table 2 Cost range of testing for selected appliances
Source: Author compilation of quotations received from multiple labs,
FF: Frost Free, DC: Direct Cool

No Independent testing initiative by Consumer Organizations

Independent check-testing by consumer organizations has the potential of holding the manufacturers accountable for compliance with the S&L. There are several examples world wide of consumer organizations conducting compliance tests on products picked up from the market and publishing their results annually. We discuss two such examples in next sections. However, there has been very limited testing for electrical appliances covered under the S&L program. Consumer Education and Research Center (CERC) in Ahmedabad, and Voluntary Organization in Interest of Consumer Education (VOICE) in New Delhi have conducted some testing exercises in the past. However, lack of adequate and consistent funding for the testing activities is the primary reason for their limited activities. We also observed a hesitancy on the part of some of the testing labs in providing services to CSOs for independent compliance check-testing. One possible reason can be that most of the demand for their services comes from the manufacturers and testing labs, particularly the private ones, do not want to antagonize them.

What can be done?

S&L program's MV&E mechanism needs urgent attention and several actions can be taken to make it more effective. This is crucial to ensure strong compliance and consequently greater credibility among the consumers. We have a few recommendations.

Clear targets and adequate budget for MV&E

BEE and SDAs can set clear annual targets for MV&E. Targets can be set for the number of surveys to be conducted for the market surveillance as well as the number of models to be check-tested. BEE has approved about 1700 models on an average every year for the last 3 years for appliances under the mandatory regime. The target can be to check-test at least one sample of each model approved that year under the mandatory program. BEE can also increase the number of samples for some models where higher non-compliance is suspected. Targets to the SDAs can be determined in proportion to the number of appliances of that category sold in that state. Manufacturers are expected to give state level sales data to BEE.

BEE should also set a dedicated and adequate budget to the MV&E. Since 2014, the Expenditure Finance Committee decided that the S&L program will be run by the fees levied by BEE on the production of star-labeled appliances. As can be seen from Figure 4, the annual income from the fees (including the interest on the corpus formed by carry-over) has increased from ₹ 18 crore in 2012-13 to ₹ 76 crore. S&L's corpus has reached about ₹ 385 crores as of March 2021. However, the expenditure has remained more or less constant except for 2019. We estimate a good check-testing plan can cost about ₹ 40-50 crores per year. This is a small amount if compared to the ₹ 39020 crores which the consumers are expected to save as a result of this program. This amount can be met entirely from the S&L fees or also be partially funded by grants from the Ministry of Power. Multilateral and Bilateral funding agencies can also be a partial funding source.

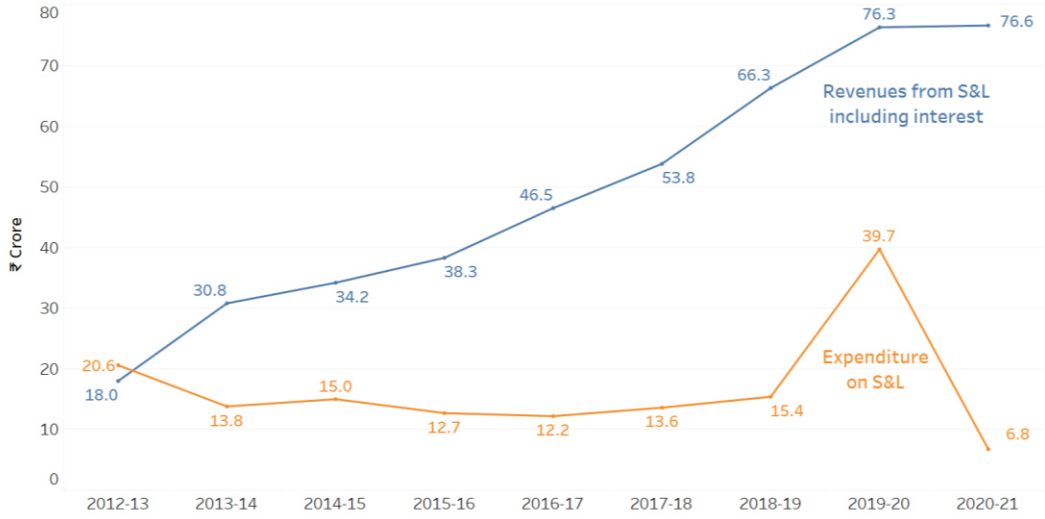

Figure 4 Revenue and Expenditure on S&L program
Source: BEE's Annual reports

Strengthening of BEE's role and institutional capacity on the MV&E

As discussed earlier, SDAs are primarily responsible for the MV&E of S&L and other energy efficiency programs as per the EC Act. While they can continue to play a key role, BEE can be entrusted with the primary responsibility of MV&E. This will enable BEE to prioritize MV&E. BEE should also be empowered to adjudicate in case of violations of the compliance with the EC Act. The current mechanism of SDAs petitioning to SERCs has not worked, probably due to the lack of priority for both the parties.

This will require an amendment of the EC Act. This will also require institutional strengthening of BEE. BEE will need to set up regional offices and also appoint members from the judiciary. EC Act already has a provision under which BEE can open regional offices to coordinate better with the SDAs. This will be beneficial to all the programs run by BEE and increase its overall effectiveness in enhancing India's energy efficiency. In addition to the regional offices, BEE also needs staff with technical expertise dedicated to design and execution of the MV&E mechanism. This staff can be involved in activities like designing the sampling plan, coordinating with the IAME, conducting Inter Laboratory Comparison (ILC) tests etc. This can facilitate an effective management of the MV&E mechanism and also address a number of coordination issues.

Facilitating adequate and capable testing facilities

The EC act requires BEE to facilitate testing methods and facilities for S&L in India. There are three things that BEE can do towards this purpose.

First, BEE can conduct a lab capacity assessment study comparing the existing capacity and the total capacity required if BEE significantly scales up the current testing plan to make it adequate. BEE can then announce a gradual scaling up of the testing plan to allow testing labs to enhance their capacity. The gestation period for setting up the testing lab capacity is less than 6 months for most of the appliance categories. Air-conditioners require one of the most expensive testing setup which is about ₹ 8 crore on the higher side, excluding cost of land/building. BEE can decide to fund some of the additional capacity as it did in 2011. However, ensuring regular testing business and smooth process seems to be appreciated more by the testing labs.

Second, BEE can conduct regular Inter Laboratory Comparison (ILC) exercises for all its empanelled labs. It has been observed that there is significant variation in the quality and expertise of different testing labs. The NABL accreditation of the labs is supposed to be reviewed every two years and includes ILCs as well as surprise visits. However, most of the interviewed stakeholders doubted whether it is actually done. An ILC exercise by BEE, supervised by its dedicated MV&E staff, would be useful in addressing the issues of repeatability and reproducibility in the test results. It would also be useful in identifying quality issues, if any, among the testing labs.

Third, BEE can explore the possibility of using alternative methods such as Fixed Budget based Selection (FBS) method or the Quality and Cost based selection (QCBS) instead of the current Least Cost (L1) method used for selecting the testing labs as well as the IAME. This is in line with the

Ministry of Finance's recent guidelines[23] on public procurement and project management that identifies the issues with L1 bidding and its probable impact on the quality and timely completion of the contracted work.

Improving transparency and accountability

Setting clear targets, allocating adequate budgets, and strengthening institutional and testing capacity need to be complemented by transparency on the MV&E activities conducted by BEE and SDAs to hold them accountable. BEE can regularly publish the plan of their MV&E activities along with a report on the activities already conducted. This can have multiple benefits. It increases BEE's accountability, gives clarity to the manufacturers on the products being tested, and increases the consumers' trust on the S&L program. This is a best practice followed by several countries such as Australia for its energy rating program and the USA[24] for its Energy Star program. As per the operating manual, BEE publishes details of the test only when a product fails two levels of check-testing. This is to create awareness among people about the defaulting appliance model and also as a name and shame tactic to dissuade manufacturers from non-compliance. A similar approach can be adopted for the SDAs.

BEE also needs to speed up the adoption of QR codes in the S&L program. This has been pending for a long time with the latest Expression of Interest[25] (EOI) being issued by BEE in 2018. There is no public information on the progress but the labels still do not have any QR codes. As per the EOI, the intended outcome was to use a unique serialized and dynamic QR code for each appliance. The objective was to enable consumers to get more details of the product and ensure that the label is not fake. A second objective was to enable BEE to automatically create a database of all the appliances sold with scanning of QR code at the point of sale.

Another recommendation to improve BEE's accountability is to require it to discuss MV&E activities in periodic technical committee meetings. BEE appoints appliance specific Technical Committees to pool together expertise of industry, testing labs, academics, and civil society organizations. The primary role of the committees is to recommend the energy efficiency parameters related to the MEPS and different star ratings. The role of the committees can be extended to discuss the annual MV&E plans and outcomes of the market surveillance and check-testing activities. This platform can also be used to address specific issues related to IAME, testing procedure and others.

23 General Instructions on Procurement and Project Management, Department of Expenditure, Ministry of Finance, Government of India, 21 October 2021
https://www.doe.gov.in/sites/default/files/General%20Instructions%20on%20Procurement%20and%20Project%20Management.pdf
24 Third-Party Certification webpage
https://www.energystar.gov/partner_resources/products_partner_resources/third_party_cert
25 Implementation of QR Code for the appliances & Maintenance, Design & Upgradation Of Web Portal & App of Standards & Labelling (S&L) Program, Invite for expression of interest
https://beeindia.gov.in/sites/default/files/tender_document/EOI%20QR%20Code%20Final%20%28AutoRecovered%29.pdf

Cultivating a sustainable CSO led testing initiative

In addition to BEE and SDAs strengthening its MV&E mechanisms, civil society organizations (CSOs) working on consumer rights and energy efficiency can take up the initiative to regularly conduct check-testing of appliances available in the market. There are several best practice examples in other countries. Stiftung Warentest[26], a consumer research organization in Germany, has been conducting independent testing of various goods and services including appliances since 1964. It is self-financed and receives revenues from its magazines and paid content on its website. It also receives a small financial grant from the German government. Similarly, Consumer Reports[27] in the USA and CHOICE[28] in Australia are large independent, non-profit member organizations funded by donations and subscriptions. Over the years, they have built significant consumer trust and have played a key role in ensuring compliance with performance and safety standards. There have been some such initiatives in India but most of it has been limited to food and cosmetics products. We need an independent initiative for appliances and equipment which is adequately and regularly funded through various sources such as self-revenues, government, multilateral/bi-lateral agencies of philanthropic foundations.

26 Stiftung Warentest website https://www.test.de/unternehmen/about-us-5017053-0/
27 Consumer Reports website https://www.consumerreports.org/cro/about-us/what-we-do/index.htm
28 CHOICE website https://www.choice.com.au/about-us

Conclusion

Standards and Labeling is one of the flagship energy efficiency programs in India. It is helping consumers make informed decisions about energy efficient appliances and keeping inefficient appliances out of the market. It is crucial to ensure that the appliances sold in the market comply with the regulations of the S&L program. This requires a strong MV&E mechanism in place. This can be done by setting clear targets and budget for the MV&E activities for both BEE and SDAs. BEE's role also needs to be strengthened as the primary agency responsible for MV&E along with adjudicatory powers. BEE also needs to address various issues related to testing labs capacity and capabilities in India. Finally, the civil society organizations can take up the task of independently testing the compliance with S&L through an adequately and periodically funded initiative. A strong MV&E mechanism can protect consumer rights, realize true energy efficiency benefits, and transform the market to higher efficiency levels.

List of related publications

Stars on web: Energy efficiency star labels should be prominently and uniformly displayed on the e-commerce platforms, April 2022
https://energy.prayaspune.org/power-perspectives/stars-on-web-energy-efficiency-star-labels-should-be-prominently-and-uniformly-displayed-on-the-e-commerce-platforms

India needs a stronger policy push for energy efficiency, October 2021
https://energy.prayaspune.org/our-work/article-and-blog/india-needs-a-stronger-policy-push-for-energy-efficiency

We must exercise caution not to trip over smart meters, June 2021
https://www.livemint.com/opinion/online-views/we-must-exercise-caution-not-to-trip-over-smart-meters-11624551799338.html

Smart metering of electricity consumers in India: getting it right, May 2021
https://energy.prayaspune.org/power-perspectives/smart-metering-of-electricity-consumers-in-india-getting-it-right

Handling smart meter data: privacy concerns, preparedness and safeguards, April 2021
https://energy.prayaspune.org/power-perspectives/handling-smart-meter-data-privacy-concerns-preparedness-and-safeguards

Public procurement of energy efficient appliances can be improved, February 2021
https://energy.prayaspune.org/power-perspectives/public-procurement-of-energy-efficient-appliances-can-be-improved

eMARC: Insights from smart metering data, July 2019
https://energy.prayaspune.org/our-work/article-and-blog/emarc-insights-from-smart-metering-data
eMARC dataset is available in the public domain at https://dataverse.harvard.edu/dataverse/eMARC

ESMI (Electricity Supply Monitoring Initiative) blog, July 2019
https://energy.prayaspune.org/our-work/article-and-blog/electricity-supply-monitoring-initiative
ESMI dataset is available in the public domain at https://dataverse.harvard.edu/dataverse/esmi

Standards and Labeling (S&L) is one of the flagship programs of the Bureau of Energy Efficiency (BEE). BEE estimated that the S&L program saved about 65 billion kWh of electricity in 2019-20. As a result, Indian consumers saved about ₹ 39020 crores in reduced electricity bills. It is critical to have a strong monitoring, verification, and enforcement (MV&E) mechanism to ensure that these benefits to the consumers as well as the multiple societal benefits of energy efficiency are actually realized. In this brief report, we review BEE's current mechanisms for MV&E under the S&L program, identify the issues involved, and provide recommendations to improve the same.

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