

DEVELOPMENT OF

STANDARD AND LABELLING (S&L) INSPECTION GUIDELINES FOR STATE DESIGNATED AGENCIES

An initiative supported by



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List of abbreviations

AC	Air conditioner
APSECM	Andhra Pradesh State Energy Conservation Mission
ASDA	Assam State Designated Agency
BEE	Bureau of Energy Efficiency
BIS	Bureau of Indian Standards
BO	Branch office
CB	Certification body
CFL	Compact fluorescent lamp
CREDA	Chhattisgarh State Renewable Energy Development Agency
CSD	Certified subcomponent database
DC	Designated consumer
DISCOM	Power distribution company
DPR	Detailed project report
E3 program	Equipment Energy Efficiency program (Australia)
EAG	Energy Audit at Glance
EC Act	Energy Conservation Act, 2001
ECBC	Energy Conservation Building Code
EER	Energy efficiency ratio
EMC	Energy Management Centre
EU	The European Union
FYP	Five year plan
GEDA	Gujarat Energy Development Agency
GEMS Act	Greenhouse and Energy Minimum Standards Act (Australia)
KEMCO	Korea Energy Management Corporation
LED	Light-emitting diode
M&V	Monitoring and verification
MEDA	Maharashtra Energy Development Agency
MEELS	Mandatory Energy Efficiency Labelling Scheme (Hong Kong)
MEPS	Minimum Energy Performance Standard
MNRE	Ministry of New and Renewable Energy
MOCIE	Ministry of Commerce, Industry and Energy (South Korea)
MSA	Market Surveillance Authority (EU)

MV&E	Monitoring, verification and enforcement
NABL	National Accreditation Board for Testing and Calibration Laboratories
NATA	National Association of Testing Authorities
PAT	Perform, achieve, trade
PSU	Public sector undertaking
PwC	PricewaterhouseCoopers Private Limited
RAC	Room air conditioner
SDA	State designated agency
SECF	State Energy Conservation Fund
SERC	State Electricity Regulation Commission
S&L	Standards and labelling
SME	Small and medium enterprise
SOP	Standard operating procedure
SSEF	Shakti Sustainable Energy Foundation
US DOE	United States Department of Energy
US EPA	United States Environmental Protection Agency

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1. Introduction

1.1. Project background

The large-scale energy efficiency movement in India started from September 2001, when the EC Act received the assent of the President and was published in the Official Gazette. The Act established BEE as a statutory body under the Ministry of Power, and provided it the necessary legal mandate to formulate and implement programmes to promote energy efficiency in the country. The act also specified several focus areas where energy efficiency measures could be implemented. The formulation and implementation of an S&L programme to promote appliance energy efficiency is one of the key focus areas specified in the act.

The S&L programme started in 2006 with voluntary labels for refrigerators and fluorescent tube lights. Today, it has expanded to a total of 21 appliances, with the label being mandatory for 7 appliances.¹ The following figure briefly summarises the chronology of various milestones under BEE's S&L programme.

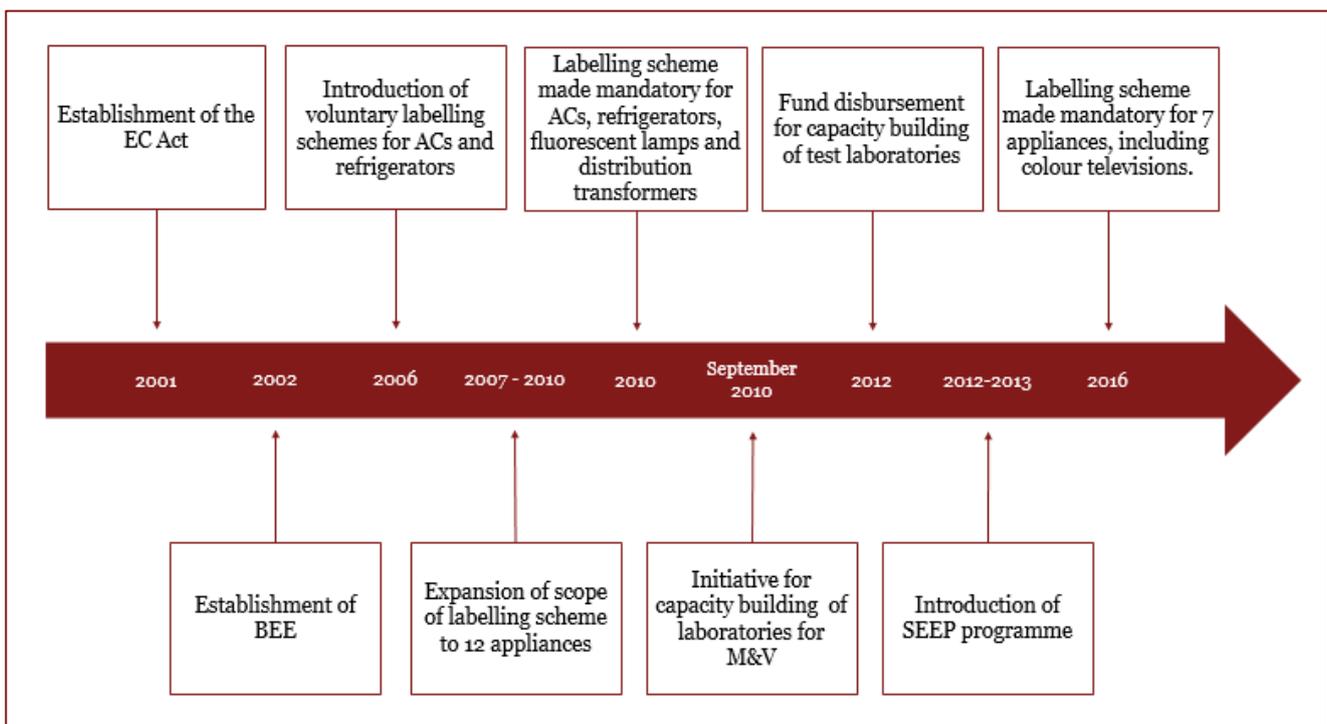


Figure 1: Milestones of S&L programme in India

The figure suggests that energy efficiency in general and S&L in particular have come a long way. The programme has grown at a tremendous rate and BEE is working to further expand its scope. BEE is planning to initiate technical studies for about 15 equipment/appliances for this purpose.

The S&L programme has proved quite successful in increasing the uptake of products with higher energy efficiency, thereby pushing the market towards energy efficient products. This is especially true for ACs whose EER in the market has increased from 2.61 in 2007 to 3.17 in 2014.² This has led to a considerable reduction of CO₂ emissions and fuel consumption over the years. It is expected that with the scope of S&L programme expanding to include more appliances, the fuel savings and reduction in CO₂ emissions achieved would also increase.

¹ The list of appliances covered under the scope of the S&L programme is attached in **Appendix A.** -

² Source: BEE

However, to ensure that the potential savings attributable to the S&L programme are effectively tapped, it is imperative that a robust M&V framework be set in place. A robust M&V framework ensures that manufacturers are adhering to the provisions of the scheme and the performance of the appliances is correctly described by their label. This is important to maintain consumer confidence and the sanctity of the S&L programme, and is imperative to achieve its potential savings.

The EC Act, 2001, stipulates that states have an important stake in MV&E of the S&L scheme. The SDAs have the mandate to appoint inspection offices and conduct inspections. SERCs have the power to appoint adjudication officers and penalise those parties that are found to be non-compliant with the provisions of the EC Act (and by extension, the S&L programme).

However, because of capacity constraints and lack of information or clear-cut guidelines, SDAs have not made much progress with respect to their mandate of performing M&V of the S&L scheme and their role has been limited to awareness raising of energy efficiency schemes in their respective states. This in turn has led BEE to take up the responsibility of M&V from SDAs. BEE frequently acquires samples of appliances that come under the scheme and tests them in independent laboratories to check whether their performance is as indicated by the label. The results of these tests are published on the BEE Star Labelling website.³

Given the rapid pace of expansion of the scheme, the existing protocol of only BEE performing M&V would soon not be feasible. Therefore, SDAs will need to take up the responsibility as envisaged in the EC Act.

1.2. Existing situation of SDAs

1.2.1. Functions and powers

The EC Act, 2001, stipulates that states have an important role in the energy efficiency mandate in the country. The act empowers state governments to designate any agency as an SDA to enforce provisions for the efficient use of energy and its conservation within the state. For this purpose, the act empowers SDAs to take measures necessary for the effective implementation of schemes formulated by BEE. The functions of SDAs with respect to the S&L programme are summarised below:

Section 15 (e)	<ul style="list-style-type: none"> • Take all measures necessary to create awareness and disseminate information for efficient use of energy and its conservation; efficient equipment or appliances.
Section 15 (f)	<ul style="list-style-type: none"> • Arrange and organise training of personnel and specialists in the techniques for efficient use of energy and its conservation.
Section 15 (g)	<ul style="list-style-type: none"> • Take steps to encourage preferential treatment for use of energy-efficient equipment or appliances.
Section 15 (i)	<ul style="list-style-type: none"> • Specify matters to be included for the purposes of inspection under sub-section (2) of section 17.

Figure 2: Role of SDAs in S&L programme

³ <http://www.beestarlabel.com>

1.2.2. SDAs established so far

Under section 15 (d) of the EC Act, multiple state governments have notified and established SDAs in their respective states. While one state has established independent departments to serve as SDA, most have assigned responsibilities of SDAs to the existing departments—Renewable Energy Development Agencies, electrical inspectorate offices, power departments of state governments and distribution companies.

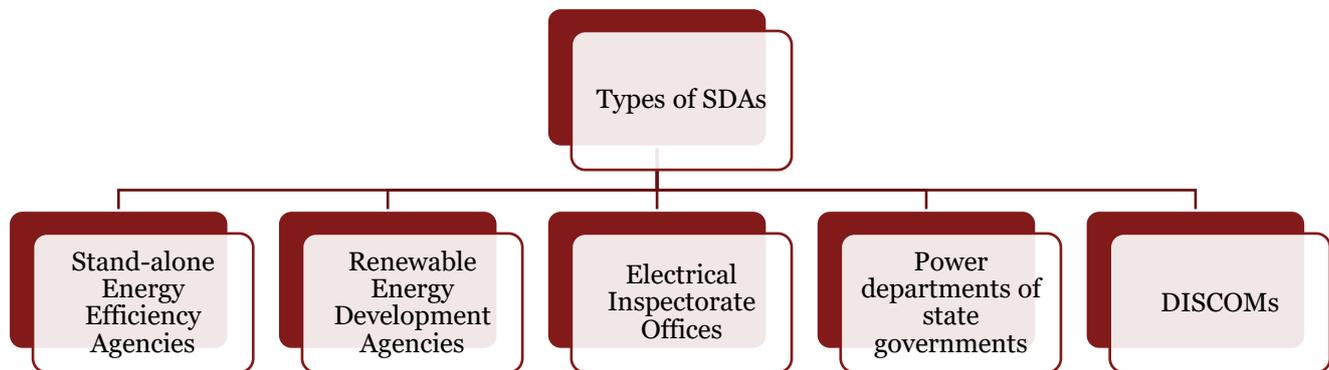


Figure 3: Types of SDAs

Out of the 35 SDAs that have been notified in the country, 15 are Renewable Energy Development Agencies, 10 are Power departments of state governments and some of them are DISCOMs, 6 are Electrical Inspectorate Offices, and 4 are stand-alone energy efficiency SDAs.⁴ The complete list of SDAs is shown in the table below.

Table 1: List of SDAs⁵

No.	State	SDA		Type of SDA
1	Andhra Pradesh	State Energy Conservation Mission	SECM	Standalone Agency for Energy Efficiency
2	Arunachal Pradesh	Arunachal Pradesh Energy Development Agency	APEDA	Renewable Energy Development Agency
3	Assam	Assam State Designated Agency	ASDA	Electrical Inspectorate Office
4	Bihar	Bihar Renewable Energy Development Agency	BREDA	Renewable Energy Development Agency
5	Chhattisgarh	Chhattisgarh State Renewable Energy Development Agency	CREDA	Renewable Energy Development Agency
6	Gujarat	Gujarat Energy Development Agency	GEDA	Renewable Energy Development Agency
7	Goa	Electricity Department	GED	Power department
8	Haryana	Department of Renewable Energy, government of Haryana	HAREDA	Renewable Energy Development Agency

⁴ BEE website: <https://beeindia.gov.in/content/sdas-o>, accessed on 12 August 2016

⁵ BEE website: <https://beeindia.gov.in/content/sdas>, accessed on 12 August 2016

No.	State	SDA	Type of SDA	
9	Himachal Pradesh	Himachal Pradesh State Electricity Board	HPSEB	Power department/Stand-alone Agency for Energy Efficiency
10	Jharkhand	Jharkhand Renewable Energy Development Agency (JREDA)	JREDA	Renewable Energy Development Agency
11	Karnataka	Karnataka Renewable Energy Development Ltd	KREDL	Renewable Energy Development Agency
12	Kerala	Energy Management Centre Kerala	EMC Kerala	Stand-alone Agency for Energy Efficiency
13	Madhya Pradesh	Madhya Pradesh Urja Vikas Nigam Limited	MPUVNL	Renewable Energy Development Agency
14	Maharashtra	Maharashtra Energy Development Agency	MEDA	Renewable Energy Development Agency
15	Manipur	Manipur State Designated Agency	Manipur SDA	Power department
16	Meghalaya	Meghalaya State Designated Agency	MSDA	Electrical Inspectorate
17	Mizoram	Mizoram State Designated Agency	Mizoram SDA	Electrical Inspectorate
18	Nagaland	Nagaland State Designated Agency	NSDA	Electrical Inspectorate
19	New Delhi	Energy Efficiency And Renewable Energy Management Centre	EEREM	Energy Efficiency and Renewable Energy Development Agency
20	Orissa	State Designated Agency, Orissa	OSDA	Electrical Inspectorate
21	Punjab	Punjab Energy Development Agency	PEDA	Renewable Energy Development Agency
22	Rajasthan	Rajasthan Renewable Energy Corporation Ltd	RRECL	Renewable Energy Development Agency
23	Sikkim	Sikkim Electricity Department	SED	Power department
24	Tamil Nadu	Government of Tamil Nadu Electrical Inspectorate	TNEI	Electrical Inspectorate
25	Tripura	Tripura State Electricity Corporation Ltd	TSECL	Power department / DISCOM
26	Uttarakhand	Uttarakhand Renewable Energy Development Agency	UREDA	Renewable Energy Development Agency
27	Uttar Pradesh	Uttar Pradesh New Energy Development Agency	UPNEDA	Renewable Energy Development Agency
28	West Bengal	West Bengal State Electricity Distribution Company Limited	WBSEDCL	Power department/DISCOM
29	Andaman	Electricity Department,	-	Power department/DISCOM

No.	State	SDA	Type of SDA
	and Nicobar	Andaman and Nicobar Islands	
30	Chandigarh	Chandigarh Electricity Department	CED Power department
31	Lakshadweep	Lakshadweep Electricity Department	LED Electricity department
32	Pondicherry	Renewable Energy Agency for Pondicherry	REAP Renewable Energy Development Agency
33	Jammu and Kashmir	Jammu and Kashmir	JKPDD Power department/DISCOM
34	Daman and Diu	Daman Electricity Department	DED Power department
35	Telangana	Telangana New and Renewable Energy Development Corporation Limited	TNREDCL Renewable Energy Development Agency

1.3. Ongoing schemes to enhance capacity of SDAs

The central government has realised that capacity building of SDAs is a crucial task and has taken several initiatives for this purpose. The following 3 sub-schemes are being run for supporting SDAs during the 12th FYP:

- Providing financial assistance to the State Designated Agencies to strengthen their institutional capacities and capabilities
- Contribution to State Energy Conservation Fund
- Human Resource Development for Promoting Energy Efficiency

Because of these initiatives, SDAs are now effectively performing awareness-raising activities and working towards the uptake of energy efficiency schemes at the state level.

A similar approach is being followed for enabling SDAs to take up the responsibility of M&V in their respective states. In this context, **SSEF initiated this study to develop inspection guidelines to support the effective monitoring and enforcement of the S&L programme at the state level.** The inspection guidelines will provide SDAs with clarity on their roles and requirements, and procedure that need to be followed to meet these requirements. This study was entrusted to PwC India.

1.4. Scope of work

The project team will carry out the following activities to develop the inspection guidelines:

1. Assess the current status of MV&E activities for the S&L programme at the state level and their effectiveness.
2. Detail a methodology for SDAs to develop inspection plans as per the provisions of the EC Act. This will include but not be limited to:

-
- a. Defining the scope of the inspection process.
 - b. Define processes and guidelines for each inspection place.
 - c. Determine the allocation of resources and requisite capacity building to carry out the inspection activities.
3. Identify how BEE can enable states to effectively plan their inspection activities.
 4. Define reporting requirements for SDAs on compliance-checking processes.
 5. Acquire a first-level understanding of the potential issues arising out of non-compliance, including possible penalty provisions.

This report describes the steps followed by the project team in the development of the inspection guidelines. **The final inspection guidelines have been submitted as a separate document.**

2. Review of provisions under EC Act, 2001, and proposed inspection rules

The project team has conducted a detailed review of the EC Act, 2001, and the proposed inspection rules⁶ to understand the intended roles of SDA, SERC, the state government and BEE in the MV&E process. The aspects studied by the project team during the review were role, powers, penalty provisions and inspection procedures.

2.1. Provisions of the EC Act relevant to the S&L programme

The EC Act defines the functions and powers of SDAs to support the implementation of BEE's energy efficiency programmes. The act also defines the roles and responsibilities of SDAs related to the S&L scheme. Broadly, there are four major functions mandated by the act:

- Awareness and outreach to promote efficient use of energy and its conservation
- Training of personnel and specialists in the techniques for efficient use of energy and its conservation
- Measures for preferential treatment of energy-efficient appliances
- **Inspection as per the inspection rules**

Section 14: Power of the central government to facilitate and enforce efficient use of energy and its conservation

Provision as per the EC Act, 2001	
(a)	specify the norms for processes and energy consumption standards for any equipment and appliances which consume, generate, transmit or supply energy;
(b)	specify equipment or appliance or class of equipment or appliances, as the case may be, for the purposes of the act;
(c)	prohibit the manufacture or sale or purchase or import of equipment or appliance specified under clause (b) unless such equipment or appliances conform to the energy consumption standards; provided that no notification prohibiting the manufacture or sale or purchase or import of equipment or appliance shall be issued within two years from the date of notification issued under clause (a) of this section;
(d)	direct display of such particulars on the label on equipment or on appliance specified under clause (b) and in such manner as may be specified by regulations;

⁶ The proposed inspection rules were shared by BEE.

Section 15: Powers of state government to enforce provisions for efficient use of energy and its conservation

Provision as per EC Act, 2001

- (i) specify the matters to be included for the purposes of inspection under sub-section (2) of section 17;

Section 16: Establishment of fund by state government

Provision as per EC Act, 2001

- (1) The state government shall constitute a fund to be called the State Energy Conservation Fund (SECF) for the purpose of promoting efficient use of energy and its conservation within the state.
- (2) To the fund shall be credited all grants and loans that may be made by the state government or the central government or any other organisation or individual for the purposes of this act.
- (3) **The fund shall be applied for meeting the expenses incurred for implementing the provisions of this act.**
- (4) The fund created under sub-section (1) shall be administered by such persons or any authority and in such manner as may be specified in the rules made by the state government.

Section 17: Power of inspection

Provision as per EC Act, 2001

- (1) The designated agency may appoint, after the expiry of five years from the date of commencement of this act, as many inspecting officers as may be necessary for the purpose of ensuring compliance with energy consumption standards specified under **clause (a) of section 14** or ensure display of particulars on the label on equipment or appliance specified under **clause (b) of section 14** or for the purpose of performing such other functions as may be assigned to them.
- (2) Subject to any rules made under this act, an inspecting officer shall have power to:
 - (a) inspect any operation carried on or in connection with the equipment or appliance specified under **clause (b) of section 14** or in respect of which energy standards under **clause (a) of section 14** have been specified.

Section 18: Power of central or state government to issue directions

Provision as per EC Act, 2001, and its amendments

The central government or the state government may, in exercise of its powers and performance of its functions under this act and for efficient use of energy and its conservation, issue such directions in writing as it deems fit for the purposes of this act to any person, officer, authority or any designated consumer and such person, officer or authority or any designated consumer shall be bound to comply with such directions.

For the avoidance of doubts, it is hereby declared that the power to issue directions under this section includes the power to direct:

- (b) regulation of the energy consumption standards for equipment and appliances

Section 26: Penalty

Provision as per EC Act, 2001, and its amendments

- (1) If any person fails to comply with the provisions of clause (c) or clause (d) or clause (h) or clause (i) or clause (k) or clause (l) [xxx] or clause (r) or clause (s) of section 14 or clause (b) or clause (c) or clause (h) of section 15, he shall be liable to a penalty which shall not exceed 10 lakh INR for each such failure and, in the case of continuing failure, with an additional penalty which may extend to 10,000 INR for every day during which such failure continues.
- PROVIDED that no person shall be liable to pay penalty within five years from the date of commencement of this Act
- (2) Any amount payable under this section, if not paid, may be recovered as if it were an arrear of land revenue.

Section 27: Power to adjudicate

Provision as per EC Act, 2001, and its amendments

For the purpose of adjudging under section 26, the state commission shall appoint any of its members to be an adjudicating officer for holding an inquiry in such manner as may be prescribed by the central government, after giving any person concerned a reasonable opportunity of being heard for the purpose of imposing any penalty.

- (2) While holding an inquiry, the adjudicating officer shall have power to summon and enforce the attendance of any person acquainted with the facts and circumstances of the case to give evidence or produce any document which in the opinion of the adjudicating officer may be useful for or relevant to the subject-matter of the inquiry, and if, on such inquiry, he is satisfied that the person has failed to comply with the provisions of any of the clauses of the sections specified in section 26, he may impose such penalty as he thinks fit in accordance with the provisions of any of those clauses of that section.
- PROVIDED that where a state commission has not been established in a state, the government of that state shall appoint any of its officers, not below the rank equivalent to a secretary dealing with legal affairs in that state to be an adjudicating officer for the purposes of this section and such officer shall cease to be an adjudicating officer immediately on the appointment of an adjudicating officer by the state commission on its establishment in that state:
- PROVIDED FURTHER that where an adjudicating officer appointed by a state government ceased to be an adjudicating officer, he shall transfer to the adjudicating officer appointed by the state commission all matters being adjudicated by him and thereafter the adjudicating officer appointed by the state commission shall adjudicate the penalties on such matters.

Section 57: Power of state government to make rules

Provision as per EC Act, 2001, and its amendments

- (1) The state government may, by notification, make rules for carrying out the provisions of this act and not inconsistent with the rules, if any, made by the central government.
- (2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely:
- (d) The matters to be included for the purposes of inspection under sub-section (2) of section 17.
- (e) Any other matter which is to be, or may be, prescribed, or in respect of which provision is to be

made, or may be made, by rules.

2.2. Provisions of the Energy Conservation (Inspection) Rules, 2010

Inspecting officer

Provision as per EC Act, 2001 and its amendments

3.	Inspecting officer
(1)	The designated agency may, appoint inspecting officer under sub-section (1) of section 17 from amongst the officers of the state government not below the rank of the Deputy Secretary .
(2)	The inspecting officer appointed under sub-section (1) of section 17 shall possess the qualifications specified for accredited energy auditors under clause (p) of sub-section (2) of section 13.
(3)	An inspecting officer shall, at the time of carrying out inspection produce a certificate of appointment as an inspecting officer or an authority for undertaking such inspection.
(4)	The inspecting officer, after recording reasons in writing, shall, wherever necessary, make consultation with accredited energy auditor, laboratory or professional organization approved by the Bureau for dealing with any one or more of the following matters relating to inspection, namely: (a) While carrying out inspections of manufacturer's premises for ensuring compliance with the provisions contained in clauses (a) and (d) of section 14; (b) While testing samples of equipment specified under clause (b) of section 14; (c) While inspecting consignments intended to be covered under clauses (a) and (b) of section 14; (d) While carrying out inspection with regard to the matters specified in clause (c) of clause (d) or clause (h) or clause (i) or clause (k) or clause (l) or clause (n) or clause (r) or clause (s) of section 14 referred to in section 26.

Inspection of processes and equipment

Provision as per EC Act, 2001 and its amendments

4.	Inspection of processes and equipment
(1)	Where compliance to norms or energy consumption standards or display is required
(2)	Inspection may be carried out at place of manufacture before dispatch, or at the place of its import into India, or at place of its sale
(3)	Inspection may include inspection of any operation carried on in connection with equipment or inspection of records of testing or testing of a sample or matters referred to in clause (d) of sub-rule (4) of rule 3.

Procedure for inspection

Provision as per EC Act, 2001 and its amendments

5.	Procedure for inspection
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(1)	No inspection shall be undertaken by an inspecting officer unless it has been authorized by the designated agency
(2)	The designated agency before issuing authority for inspection shall ensure that: (a) Information received for the purpose of inspection has been duly verified from the credible and reliable sources and the action proposed to be undertaken must be recorded in writing; (b) Notice has been given to the person concerned against whom the inspection is sought and a reasonable opportunity of being heard has been given to him; (c) The inspecting officer shall record reasons for undertaking inspection and clearly bring out its need for discharge of his duty.
(3)	Notwithstanding anything contained in sub-rule (2), the designated agency, if satisfied that there are adequate reasons for undertaking such inspection may, for reasons to be recorded in writing, issue the authority and directions to the inspecting officer to carry out the inspection.
(4)	Every authority issued for inspection shall be in writing under the signature and seal of the designated agency.
(5)	Each inspection shall be undertaken in the presence of two respectable witnesses.
(6)	All documents prepared, samples identified for test-checking, directions issued for testing, statement recorded under sub-section (2) of section 17 in pursuance of inspection, shall be signed by the said witnesses.
(7)	For inspection, a proper notice with reasonable time shall be issued by the inspecting officer.
(8)	The samples inspected by the inspecting officer shall be marked with identification mark to establish their identity.

Inspection report

Provision as per EC Act, 2001 and its amendments	
6.	Inspection report
	The inspecting officer shall prepare an inspection report, bringing out clearly the violations of the provisions of the Act or rules or regulations made there under along with his recommendations on the action to be taken in the matter and the report shall inter-alia.
(a)	Age, condition, quality, status of obsolescence, and technology of the equipment generating, consuming, transmitting or supplying energy installed or used by the manufacturer including designated consumer.
(b)	The extent to which the process, equipment and appliance comply with the energy consumption norms or the energy consumption standards notified by the Central Government in relation to such process or the equipment or appliance in terms of clause (a) of section 14.
(c)	The equipment notified for affixation of labels thereon in compliance with the regulations made in that behalf.
(d)	Number of labeled equipment manufactured annually
(e)	Whether labels are printed and displayed as per regulations made in that behalf
(j)	His observations on any point which he considers necessary for the purpose of promotion of energy efficiency or its conservation and enforcement of the provisions of the Act, rules and

	regulations made thereunder.
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Submission of report

Provision as per EC Act, 2001 and its amendments	
7.	Submission of report
(1)	The inspection report shall be submitted to the designated agency.
(2)	A copy of the inspection report shall be given to the chief executive officer of the designated agency and the person concerned, affording him an opportunity to prefer his defence against the course of action proposed, within thirty days of the receipt of the report or such date as may be indicated in the communication, whichever is later.
(3)	The designated agency may, after taking into account the reply of the person concerned and after giving him an opportunity of being heard, give directions to the inspecting officer to initiate adjudication proceedings against the person concerned under section 27 for imposition of penalty under section 26.

2.3. Role of states in MV&E

The review of the EC Act and the proposed amendment(s) suggests that states have a significant role in the S&L programme. SDAs have the mandate to hire inspection officers and conduct inspections to ensure conformity to the S&L regulations. This includes hiring of inspection offices, planning and execution of inspections, and reporting the findings to state commissions for further actions.

The state commissions have the mandate to appoint adjudicating officers and impose penalties on parties found to be non-compliant to the provisions of the EC Act (and, by extension, the S&L programme). The figure below summarises in brief the roles of BEE, SDAs and SERCs in MV&E of the S&L scheme.

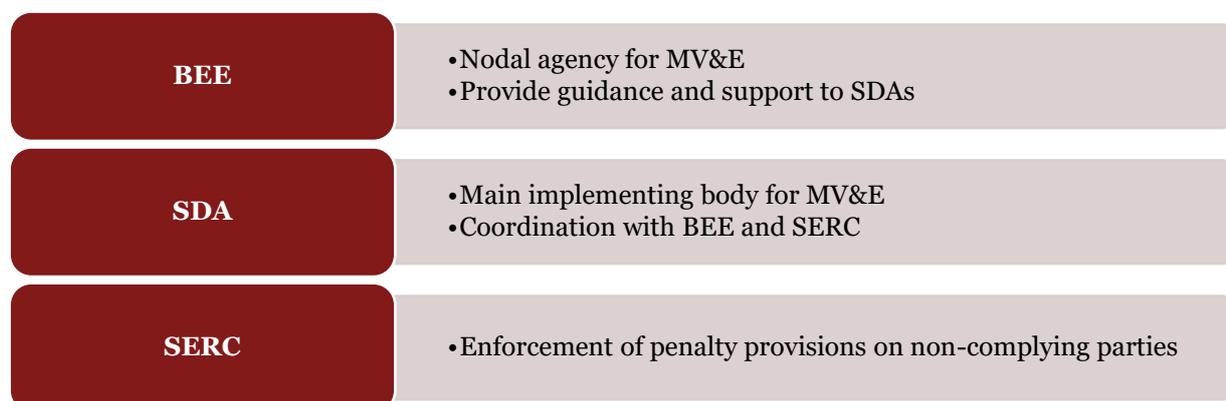


Figure 4: Roles of various stakeholders in the MV&E of the S&L scheme

The inspection rules lists down the procedure to be followed by SDAs and inspection officers for conducting inspections. However, the provisions/rules mentioned in the EC Act/inspection rules are not specific to the S&L programme. Therefore, not all rules/procedures therein may be applicable to the MV&E of the S&L programme. Because of this, an inspection procedure specific to the MV&E of the S&L programme must be developed and aligned with the EC Act and the proposed inspection rules.

To this end, the project team has identified the various components of the MV&E of the S&L scheme and understand which of these components can be carried out by SDAs. This has been done in consultation with BEE.

3. Components of the MV&E and role of SDAs

3.1. Scope of MV&E

The activities involved in the MV&E of the S&L programme would depend on the requirements that the programme sets for manufacturers and appliances. Therefore, the project team carried out a detailed review of schedules and notifications pertaining to the S&L scheme and compiled a list of situations in which manufacturers would be found to be non-compliant with the scheme's provisions.

It was understood that M&V would be conducted to ensure that:

- 1) All appliances registered with BEE for the S&L programme are affixed with an energy label.
- 2) The energy performance of labelled products meets the label criteria.
- 3) Labels specify all required details as per respective notifications/schedules.
- 4) Particulars displayed on the label are correct.
- 5) The label is displayed in the proper manner as defined in the notification/schedule. This includes size, shape, colour and place of display.
- 6) Models for which directions have been issued by the bureau for their withdrawal from the market on account of failure of second test-check have been withdrawn.
- 7) Appropriate labelling fees are paid for use of label.

Enforcement actions would be taken on manufacturers if an appliance fails to comply with any of the above requirements.

3.2. Components of MV&E

Conducting monitoring and verification for each requirement mentioned above involves different activities and hence involves a different inspection procedure. Therefore, the MV&E procedure has been segregated into four independent components such that each of these activities is carried out effectively and efficiently. These components are:

- Label verification,
- Check testing,
- Verification of production numbers and
- Enforcement.

They are outlined in the figure below.

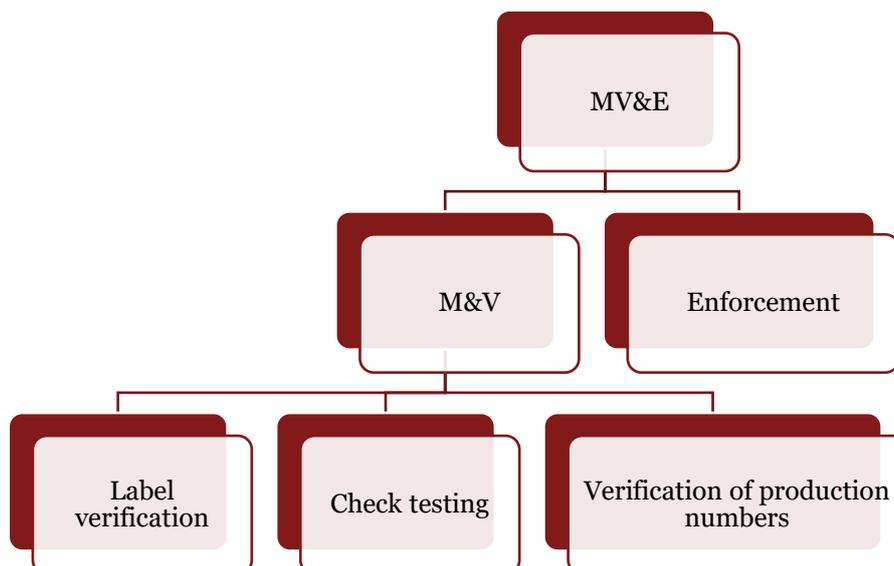


Figure 5: Components of MV&E

3.2.1. Label verification

Label verification is conducted to check whether the contents of the label affixed on each appliance match those approved by BEE. Verifying whether the label is affixed properly, i.e. in the correct position, correct size, correct colour, etc., is also covered under label verification.

To conduct label verification, inspection officers would have to visit the marketplace (or any other point of inspection) and conduct an inspection of the label affixed on the appliances. Comparison of the label with the one approved by BEE will be adequate to judge whether the appliance passes label verification.

Label verification is a relatively straightforward task and market surveillance need to be carried out in all states. Therefore, in the meeting with BEE, it was recommended that **SDAs would conduct label verification** with BEE as the nodal agency, providing SDAs with support and guidance. The minutes of discussion with BEE are enclosed as **Appendix B**.

3.2.2. Check testing

Check testing is conducted to check whether the performance of the appliance is as described by the label approved by BEE. This involves procurement of samples and performing verification testing in independent NABL accredited laboratories. BEE is regularly performing check testing of labelled appliances through an Independent Agency for Monitoring and Verification (IAME). IAME has been hired by BEE for supporting scrutiny of applications for star label and for supporting BEE in check testing of appliances.

The EC Act, 2001, provides SDAs an opportunity to conduct check testing of the labelled appliances and support BEE in this activity. In order to understand the practicality of this working arrangement, the team reviewed a few scenarios in which SDAs are empowered to perform check testing. It was identified that if check testing is performed by SDAs, some of the potential issues such as redundancy can arise, as described below:

- Multiple states performing check testing on the same model of an appliance. This leads to redundancy and is not cost effective. It would be impractical for BEE to manage the selection of appliances separately with each SDA at the pan India level.

- The number of NABL accredited laboratories for appliances under S&L scheme as well as test capacity within these labs is limited and not present in all states. This would create an imbalance between the states having local laboratories and states not having such facilities. There would be cost implications for transportation of samples from one location to other. Also, it would be difficult for the laboratories to coordinate with various SDAs.
- The overall financial budget for check testing will increase manifold.
- A manufacturer can be sued for the same type of fault found in two different states. This situation is not practical.

The problems mentioned above can be avoided if BEE acts as a nodal agency for check testing.

During the discussion with BEE, it was recommended that ***BEE would continue to independently perform check testing at present***, and SDAs' role, for now, would be restricted to support BEE in check testing. However, as the S&L programme moves forward, actions would be taken to enhance SDAs' role in check testing. The minutes of discussion with BEE are enclosed as **Appendix B**.

3.2.3. Verification of production numbers

Manufacturers are required to pay labelling fees to BEE for each appliance on which they affix a BEE star label. Production verification is conducted to ensure that manufacturers are submitting the appropriate labelling fees. Production verification involves verification of production levels in a financial year.

This activity will involve conducting visits to manufacturing premises, checking excise documents, etc., and compiling data from multiple states to arrive at final production numbers. Therefore, in a meeting with BEE (see appendix B), it was agreed that this task, if performed independently by SDAs, would prove difficult. Therefore, it was recommended that ***BEE would perform this task independently***, with the SDAs' role restricted to supporting BEE.

During the discussion with BEE, it was shared by BEE that they are in the process of hiring external agency (s) /consultant for this task.

3.2.4. Enforcement

The EC Act, 2001, mandates that state commissions impose penalties on manufacturers whose appliances are found to be non-compliant with the provisions of the act. SDAs have the legal mandate to file cases with respective SERCs in case a manufacturer is found to be non-compliant. The penalties imposed on defaulters can be recovered as if it were an arrear of land revenue.

In the meeting with BEE, it was recommended that BEE would act as a nodal agency and guide SDAs in filing cases with respective SERCs in situations where non-compliance is detected.

3.3. Summary

Overall, it was recommended from that SDAs would be primarily responsible for conducting label verification and enforcement. However, for the enforcement component, the role of SDAs would be limited to filing case with SERC at the direction of BEE.

The table below summarises the points discussed in this chapter:

Table 2: Role of SDAs in MV&E

MV&E component	Role of SDA	Role of BEE	Main activity for SDAs	Status in India
Label verification	Main	Nodal agency	1. General inspection of labels 2. Market surveillance	Not done
Check testing	Support	Main	-	BEE appoints IAME for this task
Verification of production numbers	Support	Main	-	BEE is about to appoint consultant for this task
Enforcement	Main	Nodal agency	1. File case with respective SERC	Not done

4. Identification of impediments faced by SDAs

The scope of SDAs in MV&E of the S&L programme has been defined in the previous chapter. However, prior to developing the inspection guidelines, the project team felt that it was important to discuss these findings with a few SDAs and understand what challenges they currently face and would face if they are to conduct inspections. This is because the inspection process would be designed in such a way that most of these challenges would be mitigated.

4.1. Selection of SDAs to be visited

The project team held a discussion with BEE to identify the SDAs that need to be visited so that inputs gathered would represent the views of the entire spectrum of SDAs. To this end, it was decided in the meeting that the project team would visit at least one SDA from each type of SDA, i.e. a stand-alone energy efficiency SDA, a renewable energy development agency and an electrical inspectorate. Finally, the following SDAs were selected for discussion by the project team in consultation with BEE.

Table 3: SDAs shortlisted for discussion

SDA visit order	State	State designated agency (SDA)		Type of SDA
1	Maharashtra	Maharashtra Energy Development Agency	MEDA	Renewable Energy Development Agency
2	Gujarat	Gujarat Energy Development Agency	GEDA	Renewable Energy Development Agency
3	Andhra Pradesh	State Energy Conservation Mission	SECM	Renewable Energy Development Agency
4	Kerala	Energy Management Centre Kerala	EMC Kerala	Stand-alone SDA
5	Assam	Assam State Designated Agency	ASDA	Electrical inspectorate office

The following sub-sections provide brief descriptions of the above-mentioned organisations.

4.1.1. MEDA

Registered as a society under the Societies Registration Act and as a Public Trust under the Public Trusts Act, MEDA was established on 26 July 1985 with an objective to promote renewable energy sources and to facilitate energy conservation activities in the state of Maharashtra. MEDA is working as a state nodal agency under the aegis of Energy Department, Maharashtra and the MNRE.

Under section 15 (d) of the EC Act, MEDA has been designated as the SDA for Maharashtra and is responsible for implementation of the EC Act in the state. MEDA is committed to this task and has been working sedulously towards enhancing energy efficiency in Maharashtra.

In this context, MEDA has launched several schemes for enhancing the uptake of energy efficiency measures in the state. These schemes are presented in the figure below.

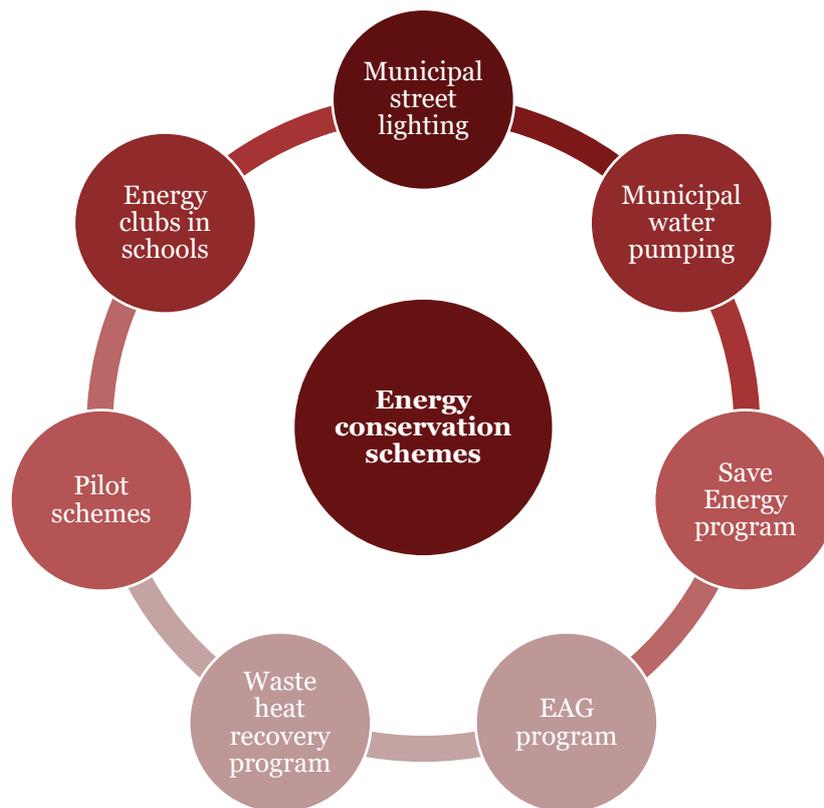


Figure 6: MEDA’s energy conservation schemes⁷

A few of the above-mentioned programmes are discussed in brief in the table below.

Table 4: Details of MEDA’s energy conservation schemes

Scheme	Description
Save Energy Program⁸	<p>The main objective of the Save Energy program is to provide financial assistance to eligible organisations for carrying out detailed energy audit at their facilities through empanelled consultants of MEDA.</p> <p>The programme covers the following sectors:</p> <ul style="list-style-type: none"> • Industries • Commercial buildings • Government/semi-government/government undertaking/ Local self-government buildings • Residential complexes • Municipal street lights/public water supply schemes
EAG Programme for SMEs⁹	<p>The main objective of the EAG program is to provide technical and financial assistance to eligible organisations for carrying out walk through energy audit at their facilities through our empanelled</p>

⁷ MEDA’s website - http://www.mahaurja.com/EC_Scheme.html, accessed on 12 August 2016

⁸ MEDA’s website - <http://www.mahaurja.com/PDF/SaveEnerProg.PDF>, accessed on 12 August 2016

⁹ MEDA’s website - <http://www.mahaurja.com/PDF/SMEProgram.pdf>, accessed on 12 August 2016

	consultants.
Financial assistance scheme for waste heat recovery¹⁰	Under this scheme, MEDA has proposed to provide financial aid to industries for preparation of DPRs for power generation, utilisation of waste heat for heating of water, air, increase in process temperature etc. from waste heat recovery.

MEDA has been actively involved in promotion of energy conservation methods and energy efficiency measures across all sectors, especially the industrial and SME sectors in Maharashtra. MEDA is also planning to set up a dedicated ECBC cell for implementing the ECBC in the state.

4.1.2. GEDA

GEDA is one of the premier renewable energy development agencies in the country and has been working in the fields of renewable energy development and energy conservation since its inception. GEDA is working as a state nodal agency for MNRE and an SDA for BEE.

GEDA was designated as an SDA by the state government for implementation of the provisions of the EC Act and in Gujarat in August 2005. Since then, GEDA has undertaken several initiatives for the promotion of energy efficiency measures as mandated by the EC Act and BEE.

Since its designation as an SDA, GEDA has been actively working towards increasing awareness and uptake of energy efficiency projects in Gujarat. Few of the initiatives taken by GEDA are discussed below:



Figure 7: Energy conservation initiatives undertaken by GEDA

Along with the above-mentioned initiatives, GEDA has actively participated in BEE's initiatives such as the Bachat Lamp Yojana. GEDA has also initiated the assignment to amend the ECBC for implementation in the state.

A few of the above-mentioned programmes are discussed in brief in the table next.

¹⁰ MEDA's website - http://www.mahaurja.com/PDF/ECON_WHR_program.pdf, accessed on 12 August 2016

Table 5: Details of GEDA's energy conservation schemes

Scheme	Description
LED village programme in Amarpura¹¹	<p>GEDA has implemented the LED village project in the village of Amarpura as a pilot demonstration project. This was funded by BEE. The scope of the project included:</p> <ul style="list-style-type: none"> • Replacement of conventional street lights with LED street lamps • Replacement of conventional lights with LED lamps <p>It is estimated that approximately 2 lakh tons of CO₂ emissions has been avoided as a result of this programme.</p>
Investment grade energy audit of government buildings¹²	<p>GEDA has facilitated in implementation of Investment Grade Energy Audits in several government buildings. The final DPR brought out various energy conservation measures, potential energy and energy cost saving, and investment required for implementation of these measures and the payback period.</p>
Urja Mitra vans	<p>GEDA has successfully carried out an innovative programme for raising awareness about benefits of energy efficiency measures and energy audits. Several dedicated vans were deployed for the purpose. The vans were equipped with material such as posters, measuring equipment etc. for this purpose.</p>

4.1.3. APSECM

The government of Andhra Pradesh constituted the State Energy Conservation Mission on 26th September 2012 with a mission to enhance the penetration of energy conservation measures in the state. APSECM has been designated as the SDA for the state of Andhra Pradesh as per the provisions of the EC Act. The APSECM has the following objectives¹³:

- to champion the cause of Conservation of Energy and take all necessary measures for creation of necessary awareness leading to economical consumption of energy,
- to devise measurable and sustainable goals with clear action plan, involving organisations like DISCOMs etc.,
- to compile best practices and methods to reduce consumption in each of the domestic, commercial, industrial and agriculture segments, and
- to advise the state government on the implementation of various provisions of Energy Conservation Act, 2001

APSECM has been actively working towards achieving their objective and has carried out several state-level energy efficiency projects over multiple sectors.

¹¹ GEDA website - <http://geda.gujarat.gov.in/pdf/First%20LED%20Village%20Project%20of%20Gujarat.pdf>, accessed on 13 August 2016

¹² GEDA website - <http://geda.gujarat.gov.in/pdf/Investment%20Grade%20Energy%20Audit%20of%20Government%20Buildings.pdf>, accessed on 13 August 2016

¹³ APSECM website - <http://www.apsecm.gov.in/mission.aspx>, accessed on 13 August 2016

Few important projects carried out are mentioned below.



Figure 8: APSECM's energy conservation activities

Along with the above-mentioned activities, APSECM frequently organises awareness raising campaigns. These campaigns include awareness raising in schools, requesting prominent personalities across all fields to promote energy conservation etc. Basic information on energy consumption activities are easily available on their website¹⁴.

4.1.4. EMC Kerala

EMC was established in Thiruvananthapuram, Kerala in February 1996 as an autonomous organisation under the Department of Power, Kerala. The government of Kerala has also appointed EMC Kerala as the SDA as per the provisions of the EC Act.

The objectives of the Centre are to facilitate efficient management of all forms of energy, to **promote energy efficiency and energy conservation** and to develop new sources of energy as well as novel energy technologies with a view to increasing production, improving the quality of life and facilitating the use of energy on a sustainable basis.

The following figure details the objectives of EMC that are related to energy efficiency.

¹⁴ <http://www.apsecm.gov.in/>

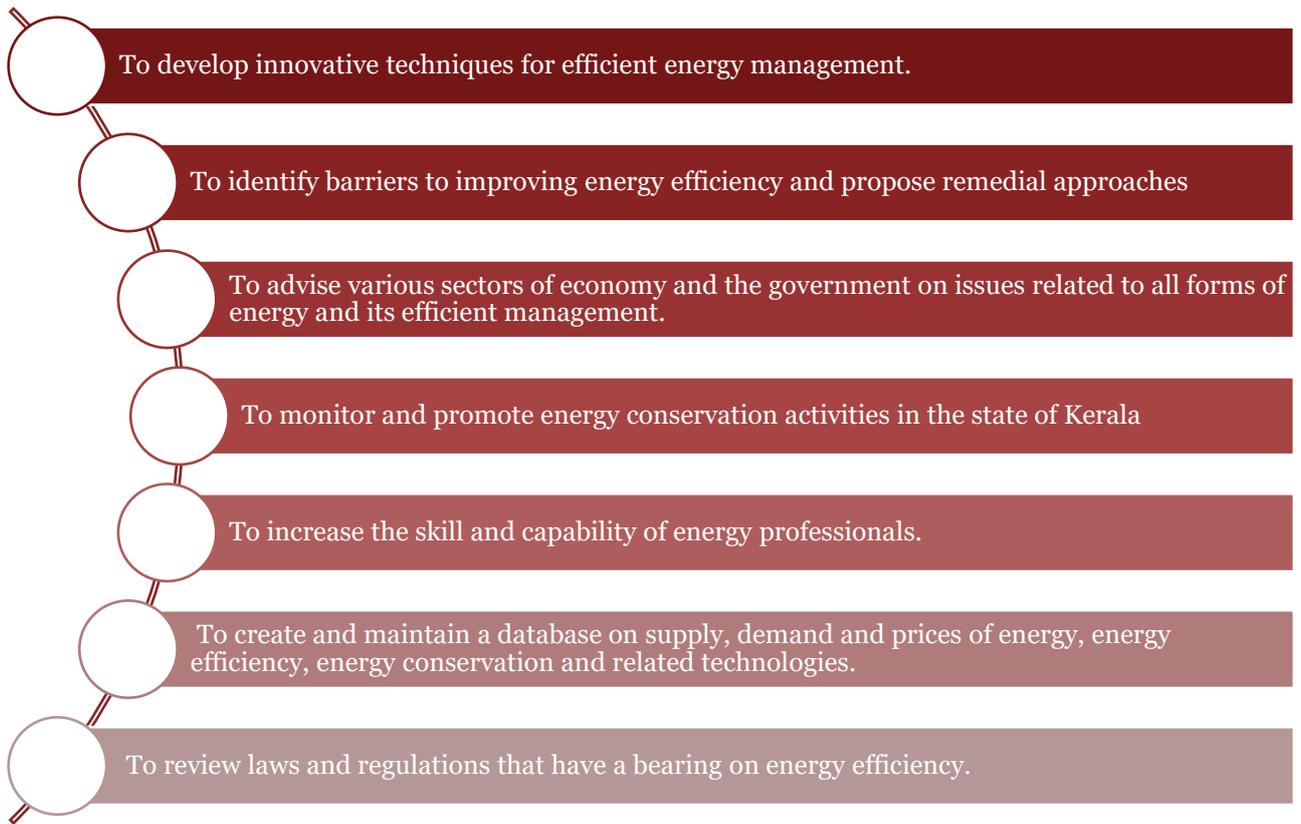


Figure 9: Major objectives of EMC Kerala

EMC Kerala is one of the most proactive SDAs across the country and has rolled out several schemes to enhance uptake of energy efficient technologies in the state. The following figure mentions a few major initiatives in this regard.

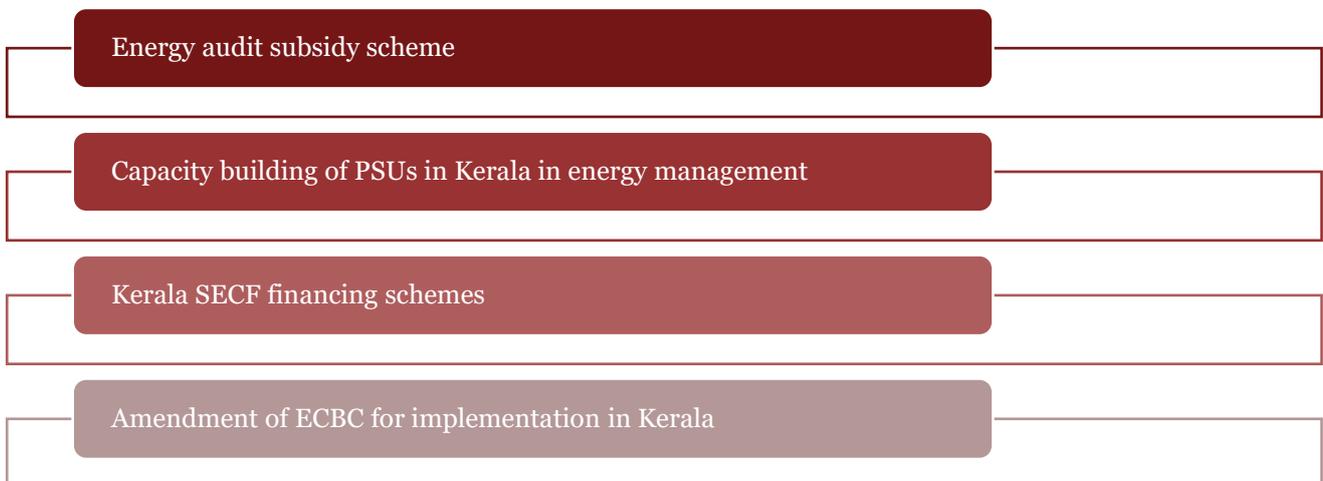


Figure 10: EMC Kerala's initiatives for increasing uptake of energy efficient technologies

4.1.5. ASDA

The government of Assam, under section 14 (d) of the EC Act, designated the Chief Electrical Inspector-cum-Adviser, Assam as the SDA to coordinate, regulate and enforce the provisions of the Act in the state. The designated agency is the Assam State Designated Agency (ASDA).

ASDA is one of the more active SDAs in the country and has initiated multiple schemes towards increasing uptake of energy efficient technology in the state.

Initially, ASDA's actions had been limited to awareness raising and campaigning such as providing information to DCs, request them to appoint energy managers, carry out of energy audit, provide information relating to energy conservation and energy saving tips in local dailies, distribute informative leaflets for the benefit of public, celebrate National Energy Conservation Day in association with ASEB, etc.

In 2007, the government of Assam notified the use of energy efficient lamps in government buildings, institutions, board, corporations etc. and promoted the use of energy efficient building designs as per the ECBC.

The following figure summarises the work conducted in the state by ASDA.



Figure 11: Initiatives by ASDA in promoting energy efficiency in Assam

4.2. Discussion with shortlisted SDAs

The project team travelled to various states to hold discussions with the shortlisted SDAs. The ultimate objective of holding the discussion was to understand the progress of the SDA with respect to M&V of the S&L scheme and identify the various challenges faced by these SDAs in this regard.

To this end, the team prepared a questionnaire, which comprised of both subjective and objective questions that would help understand the progress of S&L scheme in the state. In these discussions, the team presented the overall components of MV&E and expected role of SDAs. The team then enquired about the readiness of the

SDA in conducting these activities and the possible challenges they would face. The team also received several useful suggestions from SDAs, which were then discussed with BEE.

Key takeaways from the discussions are provided below. The detailed proceedings of the discussions are provided in **Appendix B**.

4.2.1. Key takeaways from discussion with MEDA

The project team had a very productive meeting with MEDA. The agency is very keen and enthusiastic on conducting MV&E of the S&L programme in Maharashtra. They were content with the overall structure and process flow of M&V proposed by the project team.

However, during the discussion, MEDA had raised some concerns regarding the proposed inspection process and gave suggestions. The following table summarises the key discussion points of the meeting with MEDA.

Table 6: Key takeaways from meeting with MEDA

MEDA's opinion	Description
The number of inspections at retail stores should be kept at a minimum.	MEDA shared that conducting inspections at the retail store level would create unnecessary hassle for both store owners and consumers. This would also create an opportunity for “ <i>inspector raj</i> ” and increase corruption.
Consumers should be empowered to verify labels on appliances by themselves.	MEDA suggested that consumers should be provided with a mobile-based application that would allow them to conduct label verification on the equipment they purchase. Involvement of consumers would make the label verification process more potent and wide-spread.
MEDA, having the status of government undertaking, does not have the authority to enforce provisions of the EC Act.	MEDA shared that since MEDA has the status of government undertaking, it doesn't have the legal authority to enforce provisions of the EC Act 2001. They suggested that deputing government officers in MEDA for inspection purposes can be a workaround for this problem. Another solution suggested was assigning the task of conducting inspections for label verification to electrical inspectorates.
The minimum requirement for inspection officers must be changed to Dy. Engineer or Class 1 officer.	MEDA pointed out that the EC Act stipulates that inspection officers must have a position of Dy. Secretary. It was suggested, for practical reasons, that this should be changed to Dy. Engineer or Class 1 officer of the government.
Inspections must be conducted at warehouse or distributor level only	MEDA suggested that conducting inspections at the retail store level is not feasible and therefore must be conducted at the warehouse/state distributor level.

BEE should assign targets for number of inspections/appliances to be checked in a given year.	MEDA suggested that BEE assign targets for number of inspections/appliances to be checked in a given year. This would make the process more efficient and reduce chances for corruption.
All class 1 government officers should qualify as “respectable witnesses”.	MEDA suggested that all class 1 government officers qualify as “respectable witnesses” during inspections as required by the EC Act.

4.2.2. Key takeaways from discussion with GEDA

The project team noticed that GEDA has been very active in promoting energy conservation methods in Gujarat since 34 years. The state has initiated a lot of activities in this front. There is enthusiasm on part of GEDA to conduct inspection activities for the S&L scheme.

However, they are facing key issues that prohibit them from carrying out the functions required by the EC Act 2001. The major concern regarding enforcement is lack of adequate communication between BEE and SDAs. They also expect robust guidelines to be shared by BEE that details how GEDA should perform MV&E activities. The following table summarises the key discussion points of the meeting with MEDA.

Table 7: Key takeaways from meeting with GEDA

GEDA's opinion	Description
Communication between BEE and SDAs should be more frequent.	GEDA informed that there is lack of frequent communication between BEE and SDAs. Therefore, SDAs do not have adequate information on context and background of different schemes, SDAs are not able to carry out their duties in full-scale.
There is a need for guidelines indicating standard operating procedures.	GEDA informed that lack of proper administrative structure (centre-state hierarchy) and lack of clear guidelines are major barriers faced by SDAs. This would be solved if standard operating procedures and protocols are issued by BEE.
GEDA is facing a manpower limitation to carry out SDA duties.	GEDA shared that there is a shortage of manpower to carry out functions of SDA as required by the EC Act.
Training sessions for staff should be conducted.	GEDA suggested that there is a need to conduct training sessions for SDA officials to inform them of their roles and how to carry out those functions.

Inspections should be conducted at both warehouse and retail store levels.	GEDA suggested that inspections should be conducted at both warehouse and retail store levels so that non-compliance issues at the retail store levels are also addressed.
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4.2.3. Key takeaways from discussion with APSECM

The project team had a very productive meeting with APSECM. The officials at APSECM shared that they are only working towards awareness related activities related to the S&L scheme at present. During the discussion, several key challenges and suggestions were highlighted. They are described below.

Table 8: Key takeaways from meeting with APSECM

APSECM's opinion	Description
There is limited understanding of S&L scheme in APSECM.	APSECM shared that understanding towards operation of S&L scheme at BEE such as registration of user of label, check testing etc. is not adequate enough and a training session would help rectify this.
Check testing of samples from each lot for all manufacturers is required.	APSECM suggested that there should be a sample testing for each lot of manufacturer. The size of lot can be defined by BEE (for example one sample per thousand). This sample can be picked at random from the manufacturer's place or warehouse. Such an exercise will attract manufacturer's attention towards meeting the compliance criteria.
BEE should adopt the model of conducting product testing before approving the permission for affixing BEE label over appliances.	It was suggested that products must be tested by BEE before the approval for labelling is granted. This would reduce the possibility of fraud.
It would be highly difficult for the SDAs to manage the legal actions with retailers.	Retailers should not be held responsible for non-compliance observed in labels. It was also shared that it would be highly difficult for the SDAs to manage the legal actions with retailers.
SDAs don't have any power/mandate to take any kind of legal action	The SDAs do not have powers to stop any sale and hence it will be difficult to manage the actions against retailers.

BEE should share the details of approval given to manufacturers for affixing label.	The reference number, letter, date etc. shall be known to the SDAs which will help them to prepare a case in the event of non-compliance.
There is a need for guidelines indicating standard operating procedures.	APSECM informed that lack of proper administrative structure (centre-state hierarchy) and lack of clear guidelines are major barriers faced by SDAs. This would be solved if standard operating procedures and protocols are issued by BEE.
APSECM is facing a manpower limitation to carry out SDA duties.	APSECM shared that there is a shortage of manpower.
Training sessions for staff should be conducted.	APSECM suggested that there is a need to conduct training sessions for SDA officials to inform them of their roles and how to carry out those functions.

4.2.4. Key takeaways from discussion with EMC Kerala

The meeting with EMC Kerala brought out that EMC has been very proactive in building up the capacity to undertake MV&E activities. The agency has even developed the testing capacity for few appliances, which is sufficient enough to estimate whether the appliance conforms to specified criteria or not. EMC has also performed check testing of ceiling fans in the past.

The officials from EMC also provided the project team with a few suggestions. They are described in the following table.

Table 9: Key takeaways from meeting with EMC

EMC's opinion	Description
Check testing is most important at present.	EMC shared that verification testing of star rated appliances is very important at present. The BEE shall create group of SDAs (combining 4 to 5 SDAs in one group). A group can be the extended arm of BEE in performing check testing activities. Also, in long run it would be very useful if SDAs develop in-house test capacity which can be solely for BEE's check testing requirements.

Awareness of retailers is an important requirement under BEE's S&L programme.	It is important for retailers to know that selling a non-star rated product in case the model is registered with BEE or is under mandatory labelling regime is a non-compliance and there can be severe implication for such actions. Therefore, there is strong need of training of retailers towards the programme objectives as well as making them aware about the MV&E activities that central and state governments will do to check the compliances.
Bar coding of labels	The team suggested that it would easier for inspection if there is some sort of encrypted code over the labels.
The existing provision under EC Act 2001 are not sufficient for enforcement actions.	The existing provision under EC Act 2001 are not sufficient for enforcement actions. The provisions are not well defined and there are ambiguities towards role of SDAs. There is a need to define legal mandate /kind of legal action that shall be taken in case of non-compliance in label particulars.
Getting witnesses on-board for each and every field inspection will be difficult	Getting witnesses on-board for each and every field inspection will be difficult. This will involve too much administrative processes. Also, it would be difficult to identify witnesses.
Clarity on which SDA should file complaint with SERC	During the inspection, if multiple SDAs identify a particular appliance model as non-compliant then the SDA which have identified it first shall be given the chance to file the case with SERC.
The penalty provisions should be based on volume of damage done.	This needs to be separately defined for non-compliance during label verification and during check testing. However, in none of the case the consumers are getting retrieved from the fraudulent actions. There should be some form of redressal mechanism for consumers.

4.2.5. Key takeaways from discussion with ASDA

The meeting with Guwahati, Assam was held in the presence of entire team of ASDA and representative from BEE. The discussions were useful to gauge the capacity building needs of the organisation and to understand their strong focus to support BEE in all energy efficiency schemes. The Chief Electrical Inspectorate along with his team at ASDA presented rich understanding of overall schemes of BEE and shared their full support for conducted MV&E activities for S&L programme.

Some of the key points discussed during the meeting are tabulated below.

Table 10: Key takeaways from meeting with ASDA

ASDA's opinion	Description
Penetration of labelled appliances	<p>ASDA shared that the penetration of labelled appliances specifically the ones in voluntary phase is low in the state. There is a need to build awareness amongst the retailers to promote the sale of energy efficient appliances.</p> <p>Also, it would be important to undertake outreach activities at mass level. The people in Assam are interested towards conserving energy and would be highly supportive in market transformation. However, they lack the technical know-how/benefits of BEE schemes. It is also observed that few people are confused between BEE and BIS markings.</p>
Inspection of labels	<p>ASDA suggested that before initiating the label verification through SDAs at PAN India level it would be important for BEE to inform all manufacturers/user of label in BEE S&L scheme about the activities that will be conducted by SDAs for label verification. This would help the inspection officers to obtain the support from local dealers and retailers during the inspection. Also, the manufacturers would be more cautious henceforth for their conformance with BEE guidelines.</p>
Type of inspection	<p>The officials of ASDA suggested the following:</p> <ul style="list-style-type: none"> • To start with, a general inspection shall be done. • This shall be followed by focussed inspection for selected points. • If there is a change in star rating table for any appliance, then focussed inspection shall be held. • BEE shall be given prior intimation for each inspection.
Target for annual inspection for SDAs	<p>How many products for an appliance type that a particular manufacturer has distributed for sale in the state is an important criteria for setting annual inspection targets for inspection.</p> <p>Each state differs in terms of their appliance needs, population, per capita income, power structure etc. Therefore, the sale of any particular type of appliance is somewhere high and somewhere low. The amount of product inflow in a state will provide an estimate of the number of inspections that shall be done.</p> <p>The BEE needs to develop a mechanism in which the annual targets for the label verification exercise are defined in a realistic manner.</p>
Conduct of inspection	<p>The project team presented the proposed process flow for inspection to be done by the SDAs for label verification. The ASDA officials acknowledged the proposed process and shared their acceptance for conducting inspection through mobile-GPS based devices.</p>

Local issues	ASDA shared that execution of the proposed MV&E activities by SDAs would require a dedicated team /cell with clear roles and responsibilities. For ASDA being an electrical inspectorate it would be difficult to create a dedicated team of inspection. The resources in ASDA have mixed responsibilities and the team size is lean. Hence, BEE shall provide enough support for electrical inspectorate SDAs for conducting all activities.
Getting witnesses on-board for each and every field inspection will be difficult.	Getting witnesses on-board for each and every field inspection will be difficult. This will involve too much administrative processes. Also, it would be difficult to identify witnesses.
Clarity on which SDA should file complaint with SERC.	During the inspection, if multiple SDAs identify a particular appliance model as non-compliant then the SDA which have identified it first shall be given the chance to file the case with SERC.

4.2.6. Summary of discussions

The discussions held with the five SDAs were very productive and brought out a macroscopic picture on the current situation and progress of SDAs with respect to the S&L scheme and M&V activities related to the scheme. The key takeaways are summarised below:

1. **Level of awareness of SDAs towards the S&L scheme** – Most SDAs have basic knowledge of the S&L scheme. However, they all felt that special training sessions on the functioning of the S&L scheme, its related activities, M&V and the role of SDAs etc. should be conducted.
2. **Status of SDAs' involvement in the S&L scheme** – Roles of most SDAs towards the S&L scheme has been limited to awareness raising among various stakeholders such as retail store owners and consumers. However, all SDAs are enthusiastic towards carrying out M&V activities for the programme.
3. **Need for official guidelines** – All SDAs have noted that there is a need for guidelines specifying the standard operating procedures, role of SDAs etc. for the M&V process.
4. **Need for upgrading manpower** – The SDAs have shared that they are facing a shortage of manpower dedicated for activities related to the S&L programme. They have requested that BEE support them in this aspect.
5. **Lack of mandate for taking enforcement action** – The SDAs have noted that the existing provisions under EC Act 2001 are not sufficient for enforcement actions. The provisions are not well defined and there are ambiguities towards role of SDAs. There is a need to define legal mandate /kind of legal action that shall be taken in case of non-compliance in label particulars.
6. **Inspection of labels** – The SDAs have provided various suggestions for the proposed label verification process. The inspection guidelines will capture these inputs in defining the process steps.

4.3. Next actions

The potential gaps and challenges that are or would be faced by SDAs during the inspection process have been briefly assessed during the meetings held with shortlisted SDAs. These challenges need to be analysed and possible solutions need to be identified such that most of these challenges are mitigated. These solutions will then be discussed with BEE. Only then a detailed inspection process can be made.

Therefore, to identify possible solutions, the project team conducted a detailed review of the process followed in international S&L programmes and the inspection process followed in BIS. They are discussed in the following chapters. The findings would then be discussed with BEE for further action.

5. Review of MV&E practices in international S&L programmes

5.1. Introduction

The project team carried out a review of MV&E practices followed for international S&L programmes in order to understand the different provisions of MV&E implemented in other parts of the world, and which of these provisions can be applied to the Indian context so that a few of the concerns faced by SDAs can be addressed.

To this end, S&L programmes implemented across five countries were studied by the project team. These are listed in the following figure.



Figure 12: S&L programmes reviewed

5.2. The US: ENERGY STAR

ENERGY STAR is a **voluntary** S&L programme in the US established in 1992. Jointly developed by DEA and EPA, the programme aims to save costs and help protect the environment through energy-efficient products and practices.

The ENERGY STAR label is an endorsement labelling programme, and is established to achieve the following objectives:

- Reduce greenhouse gas emissions and other pollutants caused by the inefficient use of energy
- Make it easy for consumers to identify and purchase energy-efficient products that offer savings on energy bills without sacrificing performance, features, and comfort.¹⁵

The ENERGY STAR labelling programme is voluntary and covers a wide range of products, including lighting technologies, refrigerators, heating equipment, etc.

¹⁵ Retrieved from: <https://www.energystar.gov/products/how-product-earns-energy-star-label>

5.2.1. MV&E practices

The key aspects of MV&E practices in the US are as follows:

- The US Energy Star programme follows a **third-party verification system**¹⁶ wherein the products under the S&L domain are required to supply supporting evidence of compliance with the relevant criteria before being able to use the energy-efficiency label.
- Manufacturers and importers are required to submit an application for registration of the product model to the government authorities. This application shall include the certificate as well as test results obtained from an accredited laboratory.
- Once the products are allowed to affix the Energy Star label, the government regularly surveys the market and conducts verification testing in order to ensure the conformance.
- The EPA monitors the use of the ENERGY STAR mark and name in trade media, advertisements, and the Internet. It conducts **semi-annual quality assurance reviews** of retail store stock to ensure the following:
 - ✓ ENERGY STAR qualified products are on store shelves and labelled properly
 - ✓ Products on shelves are not labelled as ENERGY STAR unless they are qualified products
 - ✓ Disqualified products are not available in stores
 - ✓ The EPA and DOE oversee verification testing to ensure products using the ENERGY STAR meet programme requirements.
- In order to ensure that ENERGY STAR labelled products meet consumer performance expectations on an ongoing basis, **a subset of models are subject to verification testing each year.**
- The US EPA has defined a complete methodology for ensuring implementation of MV&E regimes specific to product labelling.¹⁷

¹⁶ In a third-party verification system, the product model is tested at independent accredited laboratories beforehand in order to check its conformance with the labelling programme requirements. Upon qualifying the requirements, the products are issued a certificate from laboratories.

¹⁷ The information about the product integrity is available in public domain and can be accessed through (http://www.energystar.gov/index.cfm?c=partners.pt_es_integrity)

5.2.2. Activities involved in MV&E

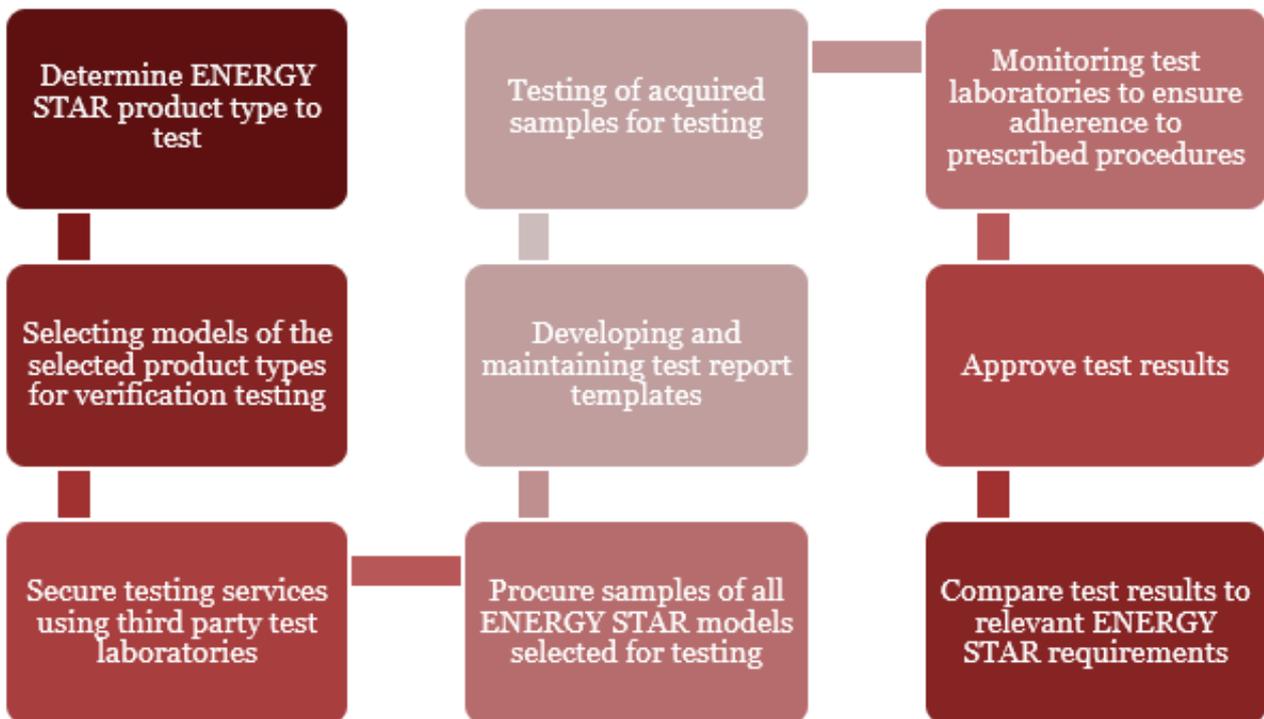


Figure 13: Activities involved in MV&E, the US

The Department of Energy is responsible for approving the laboratory test report. If it is found that a product does not adhere to the required standards, the following actions are taken:

- The manufacturer is notified by DoE if a model does not meet ENERGY STAR specifications.
- EPA is notified if the test results indicate that a product is not in compliance with ENERGY STAR specifications.
- The Federal Trade Commission is notified if test results indicate that a model is not appropriately rated or labelled.

5.2.3. Key stakeholders

5.2.3.1. US DOE¹⁸

DOE manages the government-run ENERGY STAR verification programme for DOE-covered products. Its responsibilities include the following:

- Determining which ENERGY STAR product types to test
- Selecting ENERGY STAR models for verification testing based on specific programmatic criteria

¹⁸ Retrieved from: http://energy.gov/sites/prod/files/2013/12/f5/estar_verification_process.pdf

- Securing testing services using third-party test laboratories having appropriate capabilities and accreditations
- Procuring all ENERGY STAR models selected for verification testing
- Developing and maintaining test report templates
- Monitoring test laboratories so as to ensure adherence to prescribed test procedures and established quality assurance or quality control programmes
- Approving laboratory test reports
- Comparing test results to relevant ENERGY STAR requirements, DOE energy conservation standards and DOE certification requirements
- Notifying the manufacturer if a model does not meet the ENERGY STAR specifications
- Notifying EPA if test results indicate that a product is not in compliance with ENERGY STAR specifications
- Notifying the Federal Trade Commission if test results indicate that a model is not appropriately rated or labelled
- Arranging for reuse or disposal of products after testing

5.2.3.2. US EPA¹⁹

EPA is responsible for all enforcement actions under the ENERGY STAR programme, including those resulting from the DOE verification programme. It also oversees the CB verification testing specific to ENERGY STAR products, which includes developing requirements for EPA-recognised CBs, accreditation bodies and test laboratories, providing specific guidance to these parties, and compiling verification test results.

EPA also holds regular seminars for the development of CBs.

5.2.3.3. EPA recognised CBs²⁰

EPA-recognised certification bodies are responsible for certifying products that meet ENERGY STAR requirements and report information on those products to EPA. They must verify that test results are from an EPA-recognised laboratory, maintain open correspondence with EPA, and cooperate with their accreditation bodies for ongoing accreditation. CBs are also responsible for administering verification testing and challenge testing.

The responsibilities of CBs are as follows:

- Maintain accreditation as per ENERGY STAR requirements
- Certify product performance according to the SOP for ENERGY STAR
- Enrol first-party laboratories within a CB's witnessed or supervised manufacturers' testing laboratory (W/SMTL) programme

¹⁹ Retrieved from: http://energy.gov/sites/prod/files/2013/12/f5/estar_verification_process.pdf

²⁰ Retrieved from: http://www.energystar.gov/index.cfm?c=third_party_certification.tpc_cert_bodies

-
- **Report certified products and corresponding data to EPA.** Submit data through the qualified product exchange system via XML web services using well-formed, valid XML documents compliant with the web-services definition provided
 - **Report products ineligible for ENERGY STAR certification Excel to EPA**
 - Administer verification testing and challenge testing, and share testing results
 - Utilise the CSD to support certification of luminaires. Note, use of the CSD is optional
 - Cooperate with ongoing assessments and audits from accreditors and from EPA
 - Participate in all the required meetings and conference calls with EPA
 - Stay engaged in the development of all new and revised product specifications and test procedures

Funding for verification testing

For products tested by DOE under the ENERGY STAR verification programme, DOE pays all the costs for obtaining and testing products. Verification programmes administered by CBs are partner-funded.

Compliance study in 2011²¹

ENERGY STAR qualified products available for sale in the US are subject to verification testing in order to ensure that they continue to meet the performance requirements. In 2011, 811 models underwent verification testing. Of these:

- A total of 590 models were tested through the verification testing process administered by EPA-recognised certification bodies.
- There were 108 appliance and heating and cooling equipment models were tested through the US DOE administered verification testing.
- A total of 100 compact fluorescent lamp models were tested through the ENERGY STAR CFL third-party testing and verification programme
- Thirteen luminaire models were tested through EPA-administered verification testing process under the quality assurance testing for residential light fixtures and solid state lighting luminaires programme

The overall compliance rate was found to be 93%.

²¹ Retrieved from:
http://www.energystar.gov/ia/partners/downloads/2011_ES_Verification_Testing_Summary_Final.pdf?9a79-1e82

5.2.4. Managing disqualifications²²

Product disqualifications are a result of performance testing failures under one of the verification testing efforts. They include the following:

- Third-party verification testing
- CFL third-party testing
- Quality assurance lighting programme
- DOE appliance testing for refrigerators, dish washers, clothes washers and room ACs

Third-party CBs are required to report testing failures to EPA within two days of determining a test failure. EPA will then review the notification and decide on further action on a case-to-case basis.

All matters for which EPA notifies a manufacturer of a testing failure are **assigned a case number**. All manufacturers are requested to reference the case number in all communications. **A case tracking sheet** is also developed and maintained in order to document each case.

Product control measures

In all instances where a product has been disqualified, the manufacturer is required, inter alia, to take the following measures:

- Immediately cease unit labelling and shipment
- Remove ENERGY STAR references from related marketing materials, spec sheets and websites
- Cover or remove labels on units within the manufacturer's control

Additional measures may be required for certain cases. The following factors are considered in developing such requirements:

- Consumer investment
- Last date of product manufacture
- Last date of shipment
- Quantity of units produced
- Estimated sell-through period of product type
- Scope and depth of product distribution
- Preventative measures adopted

Product control measures are based on and apply to the model number of the disqualified product. Under no circumstances should a new ENERGY STAR product be qualified using the model number of a previously disqualified product.

²² Retrieved from:
http://www.energystar.gov/ia/partners/third_party_certification/downloads/Disqualification_Procedures.pdf?ce92-3df1

Other actions taken

- **Qualified Product List updated:** When a determination to disqualify is finalised, the model is removed from the ENERGY STAR Qualified Products List. EPA notifies the associated CB to disqualify the model in CB product lists.
- **ENERGY STAR integrity webpage updated:** Once the product has been removed from the ENERGY STAR Qualified Products List, EPA posts the model on its list of disqualified products on the ENERGY STAR programme integrity webpage. **This webpage provides consumers and utilities with information regarding models that no longer meet product standards.**
- **Utilities notification:** On a monthly basis, those utilities that have opted for regular product disqualification updates receive notice of product categories affected by disqualifications during that period.

Compliance monitoring

As part of its broader effort to ensure proper use of the ENERGY STAR logo, EPA supports a number of initiatives that help ensure that the label is effectively removed from disqualified products.

- **Retail store-level assessment (RSL):** The RSL project involves a broad market review of retail-shelf products, twice a year, in major retailers across the US to identify products improperly labelled as ENERGY STAR. It also includes a more focussed review of retail shelves and online sources in order to identify any disqualified models that continue to be advertised or labelled as ENERGY STAR products.
- **Commercial food services (CFS) monitoring:** The CFS project reviews the use of the ENERGY STAR logo in the CFS industry, including at trade shows, and through catalogue and website marketing in order to ensure that only qualified products are labelled and marketed as ENERGY STAR.
- **Customs port inspections:** ENERGY STAR works closely with US customs to support the examination and seizure of disqualified products labelled as ENERGY STAR arriving in US ports.

5.3. Australia: The Energy Rating label

The E3 program is a cross-jurisdictional programme through which the Australian government, states and territories and the New Zealand government collaborate together to deliver a single, integrated programme on energy-efficiency standards and energy labelling for equipment and appliances.

On 1 October 2012, the GEMS Act came into effect, creating a national framework for energy efficiency in Australia. The GEMS Act is the underpinning legislation for the E3 program in the country. The E3 programme remains the delivery mechanism for appliance and product energy efficiency and now covers 22 different product types with other products currently under investigation.

Programme objectives

The E3 program was drafted with the following objectives:

- To **reduce energy bills for households as well as businesses** in a cost-effective way by driving improvements to energy efficiency of new appliances and equipment sold
- To **improve the energy efficiency of new appliances and equipment** that use energy and to also improve the energy performance of products that have an impact on energy consumption
- To **reduce appliance and equipment-related greenhouse gas emissions** through a process which complements other actions by jurisdictions

Programme governance and implementation

In 2012, the Commonwealth and the state and territory governments signed the Inter-Governmental Agreement for the GEMS Legislative Scheme. This was accompanied with the introduction of the national GEMS Act in 2012, where states and territories agreed to a single national regulatory approach rather than each state introducing its own set of regulations.

The Inter-Governmental Agreement sets out the governance arrangements for the E3 Program and the GEMS Act. The programme is overseen by the E3 Committee, which consists of representatives of the Commonwealth, state as well as territory governments. The committee recommends actions through the Energy Working Group and senior committee of officials to the Commonwealth of Australian Governments Energy Council for decisions.

The Commonwealth Department of Industry and Science implements the E3 Program on behalf of the Commonwealth, state and territory governments. The programme has three main components:

- Policy and information development
- **Implementation of determinations**
- **Compliance**

Implementing determinations is the responsibility of the GEMS Regulator. The regulator is based within the Department of Industry and Science and is responsible for administering the GEMS Act, **maintaining the GEMS register**,²³ **monitoring and enforcing compliance with the act**, among other things.

Compliance

The GEMS Regulator, supported by GEMS inspectors vested with inspection, monitoring, and investigation powers, is responsible for monitoring and enforcing compliance under the act through a monitoring programme of the following:

- **Market surveillance:** Verification activities in order to ensure that GEMS products meet the GEMS registration and labelling requirements
- **Check testing:** Verification activities, conducted by accredited independent laboratories, to ensure that GEMS products meet GEMS-level requirements, for example, minimum energy performance standards

The GEMS Regulator has a range of response options to non-compliance which include informal educative approaches, administrative and civil actions, and criminal sanctions.

²³ The GEMS register records information for each registration of a product covered by GEMS determinations. For a GEMS product to be offered for sale or used commercially in Australia it must be on the GEMS register. Data from the GEMS register is an integral component of the product investigation and compliance monitoring processes.

5.3.1. Labelling programme under the GEMS Act

Energy rating labels provide consumers with information on the energy-efficiency of a product. There are three types of labels endorsed by the Australian Government:

- The Energy Rating Label
- The Swimming Pool Pumps Label
- The Zoned Energy Rating Label

The Energy Rating Label is a mandatory comparison label. There are also voluntary comparison labels such as the swimming pool pumps label. The Zoned Energy Rating Label is currently being developed for appliances installation locations impact on energy efficiency, performance and energy usage.

5.3.1.1. The Energy Rating label

The Energy Rating Label shows the energy performance of particular appliances and equipment. It allows consumers to understand how much a particular model will cost to run, and also how energy efficient it might be in comparison to similar models.

Products covered²⁴

It is currently **mandatory** for the following products to show the Energy Rating Label:

- Air conditioners (single phase, non-ducted)
- Clothes washers
- Clothes dryers
- Dishwashers
- Televisions
- Refrigerators
- Freezers
- Computer monitors

However, the application of label is not mandatory if these products are sold online.

²⁴ Retrieved from: <http://www.energyrating.gov.au/about/what-we-do/labelling>

5.3.1.2. The Zoned Energy Rating Label

Since several factors that affect the performance of appliances such as temperature, pressure, humidity, etc. varies for different locations, the E3 committee is exploring a move to a zone-based energy-efficiency labelling system for few products.

A Zoned Energy Rating Label will provide enhanced information to consumers as well as advisors about product energy efficiency and other key performance attributes relevant to their location. It will allow for meaningful comparisons of energy efficiency, running costs and key performance attributes across technologies.

However, the label has not been rolled out as yet. Following several rounds of qualitative and quantitative testing, a single-draft zoned design was selected and has since then been agreed to by the E3 Committee.²⁵

5.3.2. Monitoring, verification and enforcement (MV&E)

The key aspects of MV&E practices in Australia (considering refrigerator as a sample case) are as follows:

- The reference standard is AS/NZS 4474.2:2009 (describing performance of household refrigerating appliances - energy labelling and minimum energy performance standard requirements).
- The Australian Government Department of Climate Change and Energy Efficiency to administer the compliance programme on behalf of the E3 Committee.
- The programme has a self-certification system wherein manufacturers and importers are required to register all products covered by the programme before they can be sold. An application for registration and necessary approvals must be submitted to the concerned authority. The application shall include a declaration of compliance with the relevant performance criteria for MEPS and where applicable, labelling and the results of testing and calculations.
- The government provides the authority to affix a label based on the information submitted by the applicants and conducts verification and enforcement checks post labelling.
- The government verifies the claims made by manufacturers and importers through verification testing. Samples of products are arranged from the market, using a sampling process. Verification testing is conducted by independent laboratories.
- Where a product fails an initial screen test on a single sample, a further set of tests on multiple (usually three) samples is used to confirm the non-conformance of the model.
- The government also regularly surveys retail outlets (market survey) for checking compliance with labelling display requirements and to check that all eligible products are registered.

5.3.2.1. GEMS compliance policy

The GEMS Regulator's compliance objective is to maximise the number of responsible parties who choose to voluntarily comply with the GEMS Act, while implementing strategies and responses to identify, and then deter, non-compliance.

Compliance monitoring activities assist the GEMS Regulator to determine a responsible party's compliance status. The GEMS Regulator monitors compliance through the following ways:

- **Check testing**

²⁵ The reports from these tests are available at the website (<http://www.energyrating.gov.au/about/what-we-do/labelling>).

-
- **Market surveillance**
 - Receipt of allegations

Check testing

Check testing, also known as verification testing, refers to the activities undertaken in order to ensure that GEMS products meet the relevant GEMS determinations:

- GEMS level requirements for MEPS
- **GEMS labelling requirements**
- **GEMS other requirements, specified performance requirements**

Market surveillance

Market surveillance refers to the verification activities undertaken in order to ensure that GEMS products meet the GEMS registration and labelling requirements of the relevant GEMS determination, once products are in the marketplace. Market surveillance is also conducted so as to ensure that GEMS products offered for supply online meet the GEMS registration requirements.

It is conducted by GEMS inspectors and focussed on retailers, suppliers, importers, and where applicable, manufacturers.

Receipt of allegations

The GEMS Regulator receives allegations of suspected non-compliance with the GEMS Act from a variety of sources.

5.3.2.2. Check testing or verification testing

The GEMS Regulator conducts verification tests in order to ensure that the products meet the relevant GEMS determinations. Models of GEMS products are selected for check testing using an intelligence-led, risk-based approach, with the products sourced directly from the market and generally purchased anonymously.

Check tests are conducted on behalf of the GEMS Regulator by NATA accredited or affiliated bodies either in Australia or overseas. The entire process has been clearly defined in the GEMS Check Testing Policy and the GEMS Check Testing Selection Criteria.

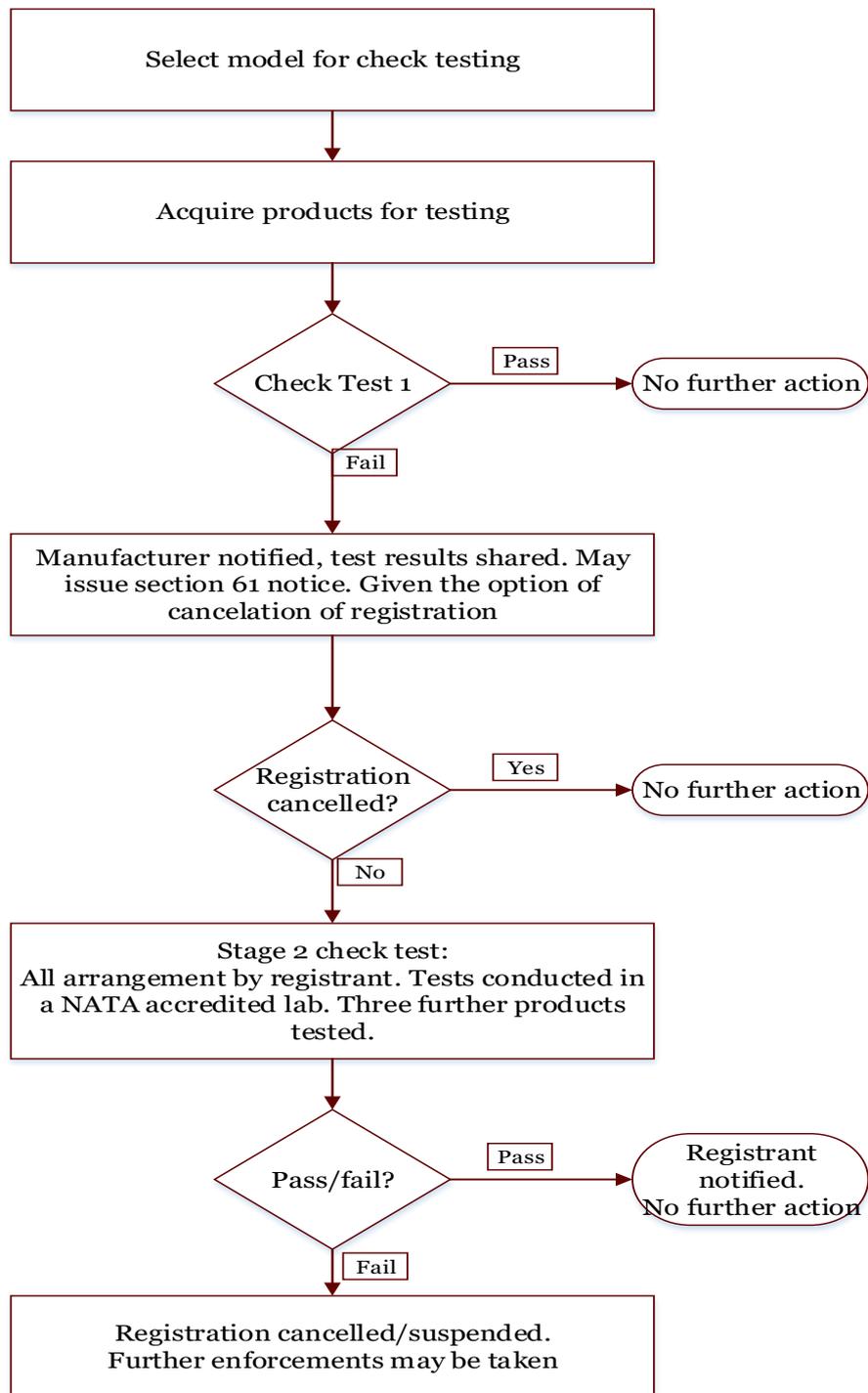


Figure 14: Compliance verification process

Check testing adheres to the following four main steps:

- Selecting models
- Acquiring products of models
- Stage (1) check test

- Stage (2) check test

Selecting models

The GEMS Regulator selects models for check testing using an intelligence led, risk based approach mentioned in the GEMS Check Testing Selection Criteria.

Acquiring products

In order to ensure that the products selected for the stage (1) check test are representative of the models registered with the GEMS Regulator, the regulator, where possible, sources products anonymously and directly from the market.

However, in certain circumstances, the manufacturer may be required to provide the product to the GEMS Regulator for verification. Such a scenario may include a possibility where it is not practical to purchase the product.

Check test stage 1

This test must be conducted by a NATA-accredited test laboratory on behalf of the GEMS Regulator. Usually, a single product is tested in a stage 1 check test. However, for some products, for example, lamps, a single product is not considered representative of the model. In these situations, the relevant determination will determine how many products will be tested.

If the stage (1) check test results reveal that the product meets the requirements of the GEMS determination, then the model passes the test. The GEMS Regulator notifies the registrant and no further action is taken.

However, if the stage (1) check test results reveal that the product does not meet the requirements of the GEMS determination, the registrant is notified and supplied with the test results. The registrant is also given an opportunity to provide information for the GEMS Regulator to consider in deciding whether to issue a notice under section 61²⁶ of the GEMS Act.

If, after receipt of the section 61 notice, the registrant elects to cancel the registration of the model, then the GEMS Regulator must cancel the registration. The GEMS Regulator may also consider additional enforcement responses.

If the registrant believes that the results of the stage (1) check test do not accurately reflect the model, then the registrant may arrange for stage (2) check testing at the registrant's expense.

Stage (2) check test

The registrant will arrange the stage (2) check test in accordance with the section 61 notice that details, among other requirements, how products will be selected, how many products will be selected, and where these products will be tested.

Three further products are tested. If two out of the three products fail to pass the test, the model fails. If two out of the three products pass the test, the model passes. For products such as lamps, two or three products are not considered representative of the model. In these situations, the GEMS Regulator will determine how many products will be tested.

If the stage (2) check test results reveal that the products meet the requirements of the GEMS determination, then the model passes the test. The GEMS Regulator notifies the registrant and no further action is taken. However, if the stage (2) check test results reveal that the products do not meet the requirements of the GEMS

²⁶ A section 61 notice requires that the registrant either elect to cancel the registration of the model or arrange for stage (2) check testing at the registrant's expense.

determination, then the GEMS Regulator can suspend or cancel the model's registration. The GEMS Regulator may also consider additional enforcement responses.

5.3.2.3. Response to non-compliance

The GEMS Act provides the GEMS Regulator with a range of response options, including informal educative approaches, administrative and civil actions, and criminal sanctions.

Responses include the following:

- Suspending a registration
- Cancelling a registration
- Enforceable undertakings
- Infringement notices
- Civil penalty order
- Injunctions.

The GEMS Act also allows the GEMS Regulator to publicise details of the enforcement action taken, including the names of persons in relation to whom the action has been taken. In addition, certain adverse decisions relating to the registration of models of GEMS products may be publicised, including the names of registrants.

5.4. South Korea: Energy Efficiency Labelling and Standards Program

Currently, the MOCIE and Korea Energy Management Corporation operates three energy efficiency programmes.²⁷ They include the following:

- Energy Efficiency Label and Standards Program
- Certification of high efficiency energy-using appliance program
- E-Standby program

5.4.1. Energy Efficiency Label and Standards Program

Commenced on August 1992, the programme is a mandatory system for labelling of household appliances, lighting equipment and motor vehicles. Manufacturers are required to indicate the energy efficiency grade of products that come under the scope of the programme.

The label has five different grades from 1 to 5, with grade 1 being the most efficient. A grade 1 product, in general, saves 30–40% more energy than a grade 5 product.²⁸ The label also indicates a carbon dioxide emissions rating for 28 products.

²⁷ Retrieved from: http://www.un.org/esa/sustdev/csd/casestudies/e3_1_repkorea.pdf

²⁸ Retrieved from: http://www.kemco.or.kr/new_eng/pg02/pg02100200_4.asp

MKE and KEMCO have been taking efforts to enhance the energy conservation grade by each product's market state and skill standardisation.

The programme has made it mandatory for 35 products²⁹ (under its target list) to indicate the energy efficiency using a label.

5.4.2. Certification of high efficiency Energy-using Appliances Program

The High Efficiency Energy-using Appliances Program is an efficiency guarantee system that ensures that a product has an energy-efficiency performance above a certain standard. The high-efficiency equipment label is attached for those products which are certified. A certification is also issued for such products.

This programme has been in place since December 1996. However, it is voluntary in nature. It is applicable for 44 targets, including pumps, boilers and lighting appliances.

5.4.3. E-standby program

The e-Standby Program was rolled out in January 1999 in order to promote and facilitate the use of products that consume less energy while in standby. The Energy Saving Label (or the 'Energy boy') is attached to those products that meet the standards set by the Korean government. The programme is focussed on electronic appliances, including those for office and household use. It is voluntary in nature.

However, for those products which do not meet the standby standards, it is mandatory to attach a Standby Warning label. There are 22 products that are included in the e-Standby Program.

Since the Energy Efficiency Label and Standards Program is mandatory and most relevant to the S&L programme in India, it will be the focus of the document.

5.4.4. Program implementation³⁰

5.4.4.1. Stakeholders

Implementation of the label and standards programme involves the following stakeholders.

Table 11: Stakeholders

Stakeholder	Role
Manufacturer or importer	<ul style="list-style-type: none"> Manufacturing of energy efficient equipment Apply for label
Designated exam organisation	<ul style="list-style-type: none"> Conduct tests of equipment Provide reports to the manufacturer and KEMCO
KEMCO	<ul style="list-style-type: none"> Approval for label Promotion of energy -efficient products in the market

²⁹ KEMCO applies the energy efficiency grade label to 24 items and the minimum efficiency label to 11 items.

³⁰ Retrieved from: http://www.kemco.or.kr/new_eng/pg02/pg02100200_3.asp

	<ul style="list-style-type: none"> • Undertake statistical analysis • Overall management of the programme
Consumers	<ul style="list-style-type: none"> • Purchase energy-efficient equipment

5.4.4.2. Procedure

The overall procedure of the program is explained below.



Figure 15: Procedure for application for use of label

5.4.5. MV&E

In order to verify standards compliance, KEMCO randomly purchases products in the market, and requests their examination by the testing body.

The testing body reports the performance test result to KEMCO. If the result deviates from the requirements, KEMCO issues directions to the manufacturer to rectify the problem.

Fixed monitoring is carried out every year, and in addition irregular monitoring is also carried using market research and the information from consumer organisations where possible.

Table 12: Results of MV&E³¹

Year	2011	2010	2009
Total models	203	184	179
Offences	12	9	10

³¹ KEMCO presentation on testing compliance

5.5. European Union: The EU Energy label

The energy labelling programme in the European Union is based on the framework that was passed on 28 September 2010. The directive referred to is – Commission Delegated Regulation (EU) No 1060/2010 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of household refrigerating appliances.

The framework directive requires member states to put in place a market surveillance authority (MSA), which has powers to carry out checks on products, request relevant information from manufacturers, and request the withdrawal from the market of non-compliant products

The framework directive is complemented by a delegated regulation which provides information to a specific product category.

5.5.1. Introduction to the EU label

The EU label grades products based on their efficiency of utilisation of energy. The grades range from A to G, A being the most efficient and G the least. However, the revised label contains grades A+++, A++ and A+ as well.

The label also contains the supplier's name or trademark and model identifier, pictograms highlighting selected performances and characteristics and annual energy consumption in KWh.

The energy label is currently mandatory for the following product categories:³²

- Refrigerators
- Wine storage appliances
- Washing machines
- Televisions
- Air conditioners
- Tumble driers
- Vacuum cleaners
- Water heaters
- Ovens
- Range hoods
- Dishwashers

5.5.2. Stakeholders

5.5.2.1. Suppliers

The roles and obligations of the suppliers are clearly mentioned in the respective regulations for each product. These roles and obligations include the following:

³² Retrieved from: <http://www.newenergylabel.com/uk/timetable>

-
- Supply a label with each product, free of charge, to dealers
 - Liability for the accuracy of the labels and fiches supplied
 - Make available the technical information on request to the authorities of the member states and the European Commission

5.5.2.2. Dealers

Obligations of dealers are also mentioned in the regulations. They include the following:

- Attaching the label, as provided by suppliers, to the product at the point of sale. The label is to be inserted outside of the front or top of the product, in such a way as to be clearly visible.
- Making available the product fiche in the brochure or in any other literature that accompanies products when sold to end-users.

5.5.2.3. Member states' MSA

The responsibilities of the MSA include the following:

- Organising appropriate checks on product compliance, on an adequate scale, and obliging the manufacturer or its authorised representative to recall non-compliant products from the market
- Requirement from the manufacturer or importers concerned to provide all necessary information, as specified in the implementing measures
- Taking samples of products and subject them to compliance checks

5.5.3. MV&E mechanism³³

As per the clauses mentioned in the regulations, member states are required to perform market surveillance activity in order to ensure that there are no violations of the provisions mentioned in the respective regulations.

The verification procedure that the authorities of the member states must follow are mentioned in the regulation.

³³ All the points mentioned in the section refer to the regulation for air conditioners. The document of the regulation can be found by following this link - <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R0626&from=EN>

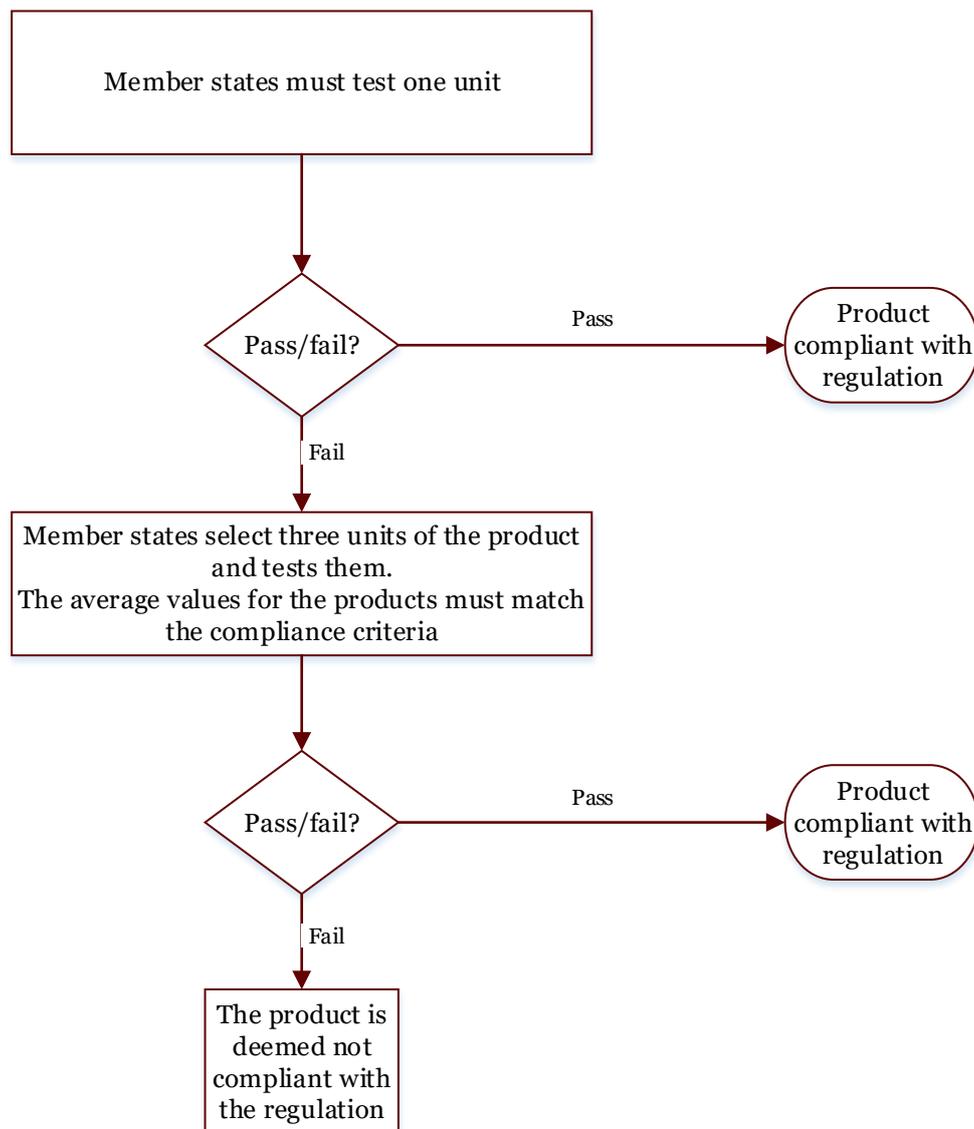


Figure 16: Verification process

Step 1

The authorities of the member state must test one single unit.

Step 2

The model will be considered to comply with the provisions set out in the regulation if the required parameter is within 8 –10% of its declared value.

Step 3

If the result referred to in point 2 is not achieved, the market surveillance authority shall randomly select three additional units of the same model for testing.

Step 4

The model is considered to comply with the provisions set out in the regulation if the average of the three units for the required parameter is within 8–10% of its declared value.

Step 5

If the results referred to in point 4 are not achieved, the model shall be considered not to comply with this regulation.

5.6. Hong Kong: Mandatory Energy Efficiency Labelling Scheme (MEELS)

The Government of Hong Kong, in 2008, introduced MEELS through the Energy Efficiency (Labelling of Products) Ordinance in order to generate public awareness and promote the use of energy efficient appliances. Under MEELS, it is mandatory to show an energy label for prescribed products for supply in Hong Kong. Under the ordinance, importers or manufacturers cannot supply a particular product unless it is a listed model with a reference number. The Director of Electrical and Mechanical Services (the Director) is the main authority concerned with MEELS.

Also, the labelling standards are regularly updated to keep up with advancement in technology and current status of market for energy efficiency in Hong Kong.

Label design

The label contains the following information:

- Energy efficiency grade from 1 to Grade 5, grade 1 being the most efficient and grade 5 the least
- Estimate of annual energy consumption
- Product information such as brand, reference number, etc.
- Product specific details

Products covered³⁴

Two phases of the MEELS programme have been fully implemented and the following products are covered in its scope:

- Air conditioners
- Refrigeration appliances
- CFLs
- Washing machines
- Dehumidifiers

For supply in Hong Kong, the above-mentioned products are required to be listed models with reference numbers and bear energy labels.³⁵

³⁴ Retrieved from: <http://www.energylabel.emsd.gov.hk/en/about/background2.html>

³⁵ The complete list of products is available at the official MEELS website – www.energylabel.emsd.gov.hk. The list is updated on a weekly basis.

Registration process

A person who wishes to register a product must submit the specified information and documents to the Director of Electrical and Mechanical Services. A guideline document specifying all the necessary details and procedures for registration of a model under MEELS is available on the MEELS website. The format of the forms and other relevant documents are also available.

The entire process is explained in brief below.

- Form 1³⁶ must be completed for each different model that has to be registered.
- The technical details must be separately provided in the associated schedules.
- The completed Form 1, along with the required documents, must be submitted to the Director in accordance with the Ordinance.
- The Director then assigns a reference number to the model in the name of the person who made the submission and issues a letter of notification informing him of that reference number.

5.6.1. Stakeholders

5.6.1.1. The Director

The Director of Electrical and Mechanical Services Department of Hong Kong has been given the responsibility for the overall management of the MEELS programme. The roles and responsibilities of the Director include but are not limited to the following:

- Issuance of registration numbers to various products and their enlistment
- Maintaining a list of recognised laboratories
- Maintaining a list of registered models
- Routinely selecting samples of listed models for compliance monitoring by independent laboratories
- Take enforcement actions such as serving improvement notices, prohibition notices, removing the reference number of a listed model from the record etc. if the relevant requirements in the ordinance are not complied with
- Overall management of the programme

5.6.1.2. Specified person

A person who has submitted the documents for registration of the product under the ordinance is referred to as the specified person. His duties include the following:

- Ensuring that the prescribed products of the listed model conform to the requirements under the ordinance
- Ensuring that any updates to the registered products are reported to the Director
- Ensuring that the information set out on an energy label conforms to the performance of the product

³⁶ Retrieved from: [http://www.energylabel.emsd.gov.hk/en/doc/Form_1_\(201511\).pdf](http://www.energylabel.emsd.gov.hk/en/doc/Form_1_(201511).pdf)

5.6.2. *MV&E*

The key aspects of MV&E practices in Hong Kong (considering refrigerator as a sample case) are shared below:

- The governing law is the Energy Efficiency (Labelling of Products) Ordinance that was passed in May 2008. The products that come under the purview of the ordinance are mentioned in its Annexures.
- The ordinance specifies that the Director of Electrical and Mechanical Services Department (the Director) is responsible for the enforcement of the scheme.
- The programme has a self-certification system wherein the manufacturers and importers are required to register all products covered by the programme before they can be sold. An application for registration and necessary documents must be submitted to the Director.
- The Director provides the authority to affix the label based on the information submitted by the applicants and conducts verification and enforcement checks post labelling. The Government of Hong Kong has published a Code of Conduct to guide stakeholders for discharging their duties.
- The Director is authorised to conduct compliance monitoring in order to verify the claims made by manufacturers and importers through verification testing. The samples of products are arranged from the market. The procedure is mentioned in the Code of Conduct.
- Where a product fails an initial screen test on a single sample, a further set of tests on multiple (usually three) samples is used to confirm the non-conformance of the model.

Compliance monitoring

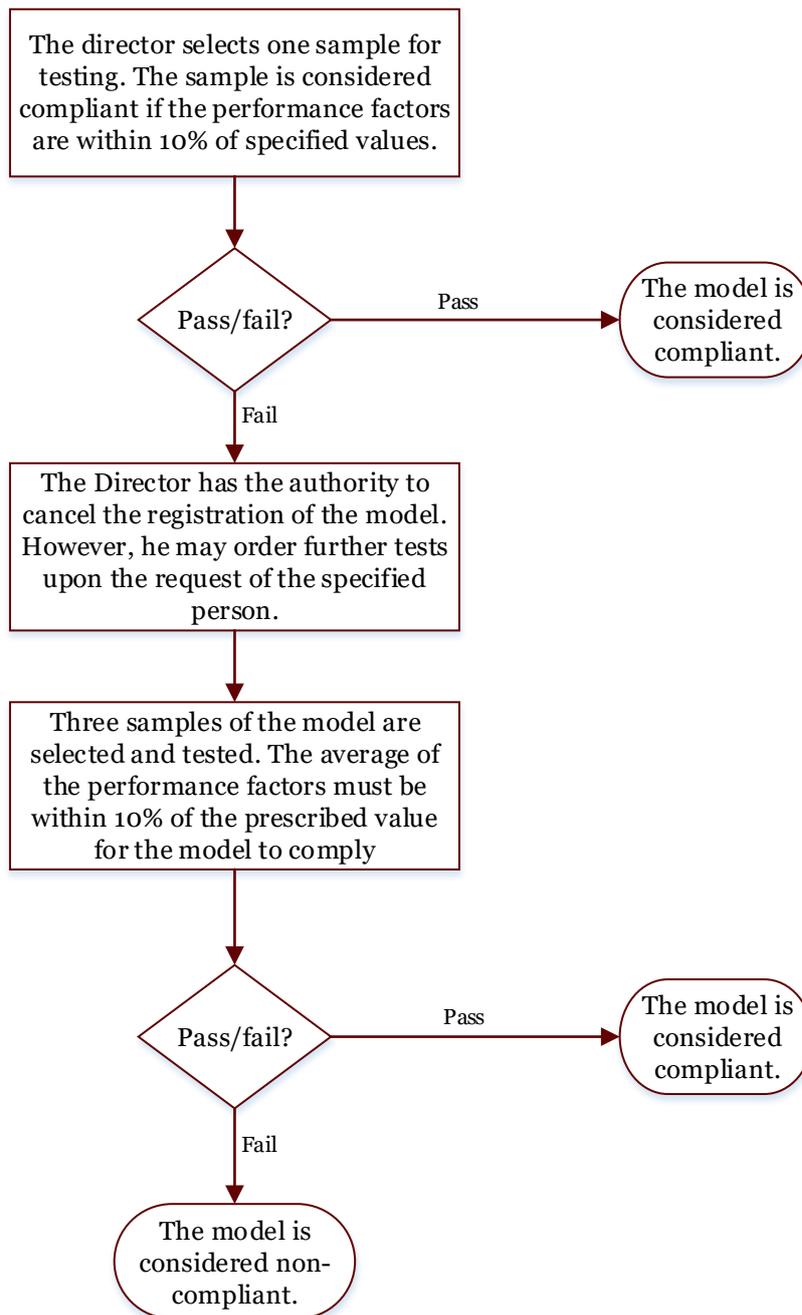


Figure 17: Compliance monitoring structure

As per the ordinance, the Director is responsible to conduct compliance monitoring for models that are listed and registered. A brief outline of the process for compliance monitoring for air conditioners is described below:

- The Director initially orders a performance test on one sample of the product to be tested. The sample is considered compliant with the ordinance if the test results are within a tolerance limit of 10%.

- If the sample fails to pass the test, the Director may remove the model from the list of registered products. However, the specified person may provide an explanation of why the samples failed to pass the compliance test and may opt for further testing of the model for the Director’s consideration.
- If further testing is approved, three samples are tested. The cost for the same must be borne by the specified person.
- The model is only considered compliant with the requirements of the ordinance if the average of the performance factors of the three models is within a tolerance limit of 10%.

Violations

Any person who contravenes the requirements commits an offence of the ordinance and is liable to a maximum fine of 100,000 HKD upon conviction.³⁷

5.7. Summary of international S&L programmes

A summary of the international S&L programmes with respect to MV&E of the S&L scheme is shown in Table 13 below.

Table 13: Summary of international S&L programmes

Programme	Country	Programme type	Key stakeholders for MV&E	M&V aspects covered	Learnings for programme in India
ENERGY STAR	The US	Voluntary	US EPA, US DOE, US CBs conduct inspections independently	Check testing	Several agencies conduct check testing independently. This increases the efficacy of MV&E and reduces chances of fraud.
The Energy Rating Label	Australia	Mandatory for few appliances	GEMS Regulator responsible for MV&E	Check testing	SOPs for MV&E have been defined very clearly for this programme.
Energy Efficiency Label and Standards Program	South Korea	Mandatory for 35 products	KEMCO	Check testing	Before providing permit to use the label, the Government directly verifies the test results with the issuing laboratory. This lowers risk of fraud at the time of issuing the label.
The EU Energy Label	European Union	Mandatory for 11 appliances	Member states	Check testing	The EU programme emphasizes the role of dealers and retailers for the promotion of energy labels.

³⁷ Retrieved from: <http://www.energylabel.emsd.gov.hk/en/faq/faqs.html>

MEELS	Hong Kong	Mandatory	The Director	Check testing	The MEELS programme has a very clearly defined structure. However, the model may not be applicable in the Indian context since the authority of conducting testing is solely with the Director.
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It can be seen from the above table that in the five international S&L programmes under consideration, only check testing is conducted by the respective implementing bodies. Label verification is only conducted with an objective to ensure that those appliances found non-compliant in check testing are not present in the market. Also, each programme has a different provision kept for enforcement, from imposing penalties to prosecution in a court of law.

The programmes discussed above are only relevant to check testing and not to label verification. The information is useful to BEE for strengthening the check testing scheme for the S&L programme in India.

6. Review of MV&E practices followed by BIS

6.1. Introduction

BIS is the national standards body in India working under the aegis of the Ministry of Consumer Affairs, Food and Public Distribution. It was established by the Bureau of Indian Standards Act,³⁸ 1986. It has about 20 regional offices across the country with its head office in New Delhi.

One of the major functions of BIS is the formulation, promotion and recognition of the Indian Standards. BIS has identified 14 sectors which are important to Indian Industry. For formulation of the Indian Standards, it has a separate Division Council to oversee and supervise the work. The standards are regularly reviewed and formulated in line with the technological development to maintain harmony with the International Standards.

To support the activities of product certification, BIS has a chain of eight laboratories. In certain cases where it is economically not feasible to develop test facilities in BIS laboratories, the services of outside approved laboratories are availed of. Except for the two labs, all the other labs are NABL accredited. BIS also operates a scheme for recognising labs.

6.2. Procedure for grant of license

A manufacturer is granted permission to use the BIS mark on a product only after BIS has ensured that the product can be manufactured as per the relevant Indian Standard. Capability of the manufacturer is checked by conducting a preliminary factory evaluation w.r.t. raw materials, manufacturing process, QC, etc. Samples are tested in the factory to bring out any deficiencies in the entire process.

Simultaneously, samples are also drawn for testing in independent laboratories for assessing conformation to the relevant standard. Also, prior to grant of license, the manufacturer must agree to the Scheme for Testing and Inspection (STI). The process of grant of license is shown below:

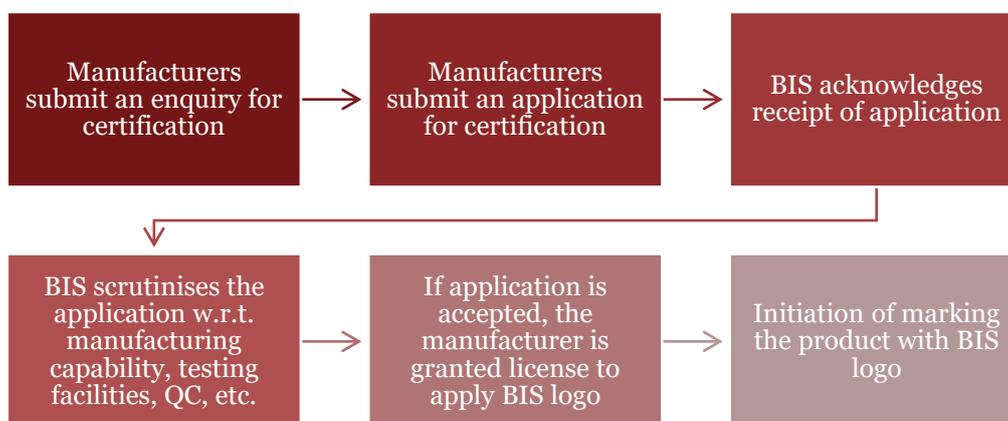


Figure 18: Process for grant of license

³⁸ The BIS Act, 2016, has been passed by the Parliament. However, it is yet to be notified.

6.2.1. Enquiry regarding certification marks scheme

When an enquiry is received from a manufacturer for obtaining a licence for use of Standard Mark on his product(s), he may be informed about the following:

- Relevant Indian Standard(s) for the product(s);
- Procedure for obtaining Certification Marks Licence;
- List of documents required to be submitted along with the application;
- Financial obligations involved.

A manufacturer is advised to submit an application only if he has the requisite manufacturing and testing capacity to assure that the product's performance would adhere to the standard.

6.2.2. Application for certification marks scheme

The manufacturer should submit an application to the relevant BIS branch office pertaining to the factory location along with the prescribed application fee. A recording number is assigned when an application is received by the BO.

6.2.3. Scrutiny of applications

All applications are scrutinised w.r.t. availability of adequate manufacturing machinery, testing facilities and qualified testing personnel. In case any deficiencies are found, the applicant is notified with 10 days of receipt of application and is given 30 days to rectify the issues. Applications found to be complete are accepted for recording.

6.2.4. Acceptance and recording of application

All accepted applications are provided with a recording number.³⁹ Post this, a preliminary inspection is conducted within 10 days of recording for local applications and 20 days for outstation applicants. The process of the preliminary inspection is described below:

- In the preliminary factory evaluation, a thorough examination of the facilities as per manual is carried out after examining the technical process and testing frequency adopted by the firm.

STI

STI is a document that lays down system for checks and controls to be exercised by the firm in ensuring quality of the product during various stages of production of the article. STI contains, inter alia, information on:

- Method of applying Standard Mark;
- Definition of the control unit;
- The frequency of tests on the raw material, if necessary;
- The controls at the intermediate stages of manufacture;
- The levels of control for various characteristics given in the specification;
- Criteria for the conformity of the control unit to the various requirements of the specification and the format for maintaining test and other relevant records;
- List of instruments/equipment requiring periodic calibration;
- Reference to BIS website.

³⁹ The recording number is a five digit number in a serial order prefixed by letter CM/A and the code number of the BO.

- A draft STI shall be prepared in the factory itself and a temporary number may be allotted to the same. Acceptance of the temporary STI shall be taken from the firm during the visit itself. Proposal for marking fee shall also be prepared in the factory based on CMD guidelines and the applicant is to be informed.
- Factory testing of the product shall be conducted for all possible tests with a view to determine whether the sample⁴⁰⁴¹ will pass during independent testing. In case of failure, the sample need not be sent and the application may be closed after returning to the office by giving due notice.

Immediately after the preliminary factory evaluation, PIR along with the proposed STI and marking fee is sent to CMD within seven days. CMD examines the STI in consultation with the technical committee and communicates its findings/acceptance within 30 days. Formal acceptance of the finalised STI may also be taken from the applicant.

The marking fee proposal shall be finalised by CMD in consultation with the Finance Department and obtain DDGM's approval within 45 days. The finalised marking fee shall be communicated to BO, who will in turn take formal acceptance of the finalised marking fee from the applicant.

6.3. M&V procedure

To ensure that products that are marked with the BIS mark comply with the corresponding standards, BIS conducts random factory inspections and testing of samples acquired from the assembly line, warehouse and/or authorised dealers.

6.3.1. Frequency of inspections

Tentative quarterly/monthly inspection programmes are first worked out by BO keeping in view the frequency of visits as determined from time to time and special requirements in specific cases. It is ensured that the same technical auditor/team does not visit the same factory consecutively.

It is ensured that at least 2 factory visits are conducted in a given year for each product marked with the BIS logo. Also, the time gap between these two visits cannot exceed 6 months.

6.3.2. Inspection team

For effective supervision of the operation of the licences and for ensuring that follow-up actions are taken promptly, a set of licences of similar or allied products are entrusted to a group of officers under the guidance of a group leader.

All visits surveillance, supervisory, lot, etc., are recorded through an appropriate inspection or contact report duly signed by the technical auditors along with the details of the persons contacted and the date of inspection. The format for the report has been provided in the operations manual. **The report is prepared at the site itself.**

6.3.3. Type of inspections

To ensure smooth and effective running of the M&V process, BIS conducts four types of inspections over the year. They are: surveillance visits, supervisory visits, internal audits and special visits. Description of each type of inspections is provided next.

⁴⁰ A sample may be drawn for the complete range of products together with all relevant marking samples separately.

⁴¹ Separate samples should be drawn for physical and chemical testing.

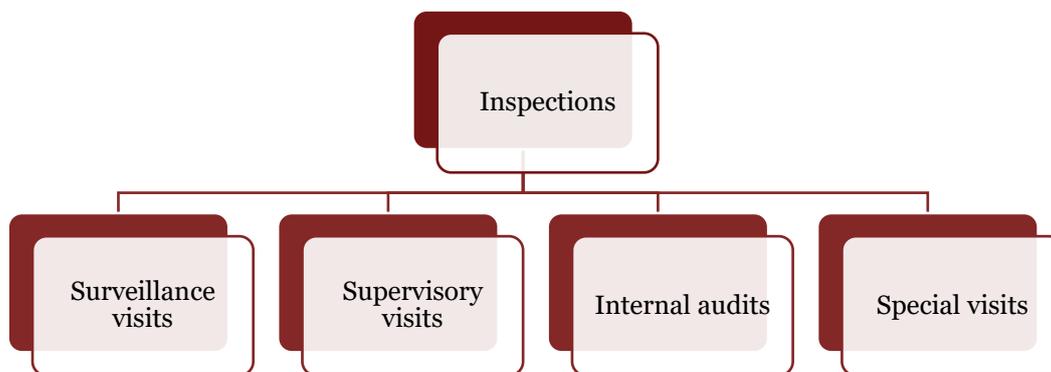


Figure 19: Types of inspections

6.3.3.1. Surveillance visits

After initiation of marking by the licensee, visits are paid to the licensee's factory to keep a check on his/her operation of STI, and for the procurement of samples from the factory. **BIS is required to arrange a minimum of two visits of a licensee unit in a year.** The gap between two successive visits does not exceed 6 months.

All licensees are required to intimate the production schedule to respective BOs by registered post so that the visits are not infructuous.

6.3.3.2. Supervisory visits

The Head of the Certification Department in BO pays periodic surprise visits to the licensees by rotation, especially for products under mandatory certification, new products brought under certification in BO, and licensees whose performance is inconsistent to ensure that the procedures are strictly followed both by the licensees and the technical auditors. **The BO head must carry out at least two supervisory visits in a month.**

Visits by DDGRs and by officers from RO/CMD may be arranged to bring in a uniform approach and improvement to the operation of scheme. These officers study the testing procedures followed by the licensee in their laboratories with reference to the size of the sample, time taken for testing, practical problems, if any, and advise the concerned Marks Department regarding the necessary improvements.

6.3.3.3. Internal audits

In order to ensure uniform implementation of certification system, annual audits of BOs and ROs are conducted. Follow-up action on all audit reports is taken by RO/CMD.

Generally, CMD organises the audits of ROs and ROs will organise the audit of BOs. However, audits of BOs may also be organised from headquarters under direction of DDGM. The internal audit procedure prepared by CMD and given in the Quality Manual for Product Certification is followed.

6.3.3.4. Special visits

Special visits are conducted to address specific situations that arise. The following visits are considered as special visits:

- All visits to the factory of an applicant for considering grant of licence

- All visits carried out at the licensee's request for considering resumption of marking
- All visits carried out at the licensees request for considering renewal of deferred licence
- All visits carried out at the request of the licensees for considering inclusion of additional varieties in the licence (However, visits carried out simultaneously with the surveillance visits shall not be treated as special visits.)
- Visits for the factory testing of applicant/inclusion sample where laboratory has carried out partial testing
- Lot inspection, when specifically imposed by licence renewing authority
- Any other visit paid to the factory of an applicant/licensee at their specific request

6.3.4. Inspection procedure

Prior to proceeding for inspections, the technical auditors are required to study the relevant standards and all aspects to be inspected during the visit. Once thoroughly acquainted with background information and requirements, the officers visit the factory.

The following tasks are performed during the factory visit:

- Inspect the factory thoroughly with respect to raw materials, storage, manufacturing process, the controls exercised at intermediate stages of production; and examine the results of incoming inspection and/or test certificates of raw material or bought out components or sub-assemblies.
- Check availability of relevant standards, STI, etc., and examine the various test procedures that are being followed.
- Check records of production, laboratory testing, calibration of instruments, wherever necessary, for ascertaining compliance to the provisions of scheme of testing and inspection.
- Check if there is any change regarding the manufacturing machinery and test equipment declared in the pro forma.
- Check and report hygienic conditions maintained in the premises, wherever applicable.
- Sign records indicating the date of visit and record observations about any improvements needed in maintaining the records.
- **Draw samples of the material with the Standard Mark and test it in the factory** for the important requirements of the specification. The test results obtained should be compared with the results recorded by the licensee.
- **Another sample with the Standard Mark, preferably of different type/size/grade/lot/control unit, is drawn for independent testing.** One sample properly sealed and labelled is also left with the licensee as counter sample.
- The technical auditors also note down the test results of the particular control unit from which samples are drawn as recorded by the licensee. The technical auditors invariably ensure that at the time of drawing of the sample the particular type/grade/size/brand/variety of the sample drawn is the one which is included in the standard and for which the licence has been granted; and check that the varieties/grades/sizes, etc., not included in the licence are not marked by the licensee.

- Where conformity of raw materials is specified, samples of raw materials may be drawn by rotation during surveillance visits.
- See that the quantity of the sample is adequate for testing the requirements for which it is desired to be tested. Where a separate test piece has to be cast along with the product and where a material has to be tested before processing, the technical auditor has to anticipate it and draw the required samples.
- Take down names and addresses of the consumers to whom the material with the Standard Mark has been recently supplied.
- See how material not conforming to standard is stored and disposed of.
- Ensure that the Standard Mark is removed from the batches or control unit which on testing by inspecting officer do not conform to the specification.
- Check whether the licensee has taken all the actions asked for during the previous inspections.
- Ensure that samples drawn during previous visits and left with the firm, if any, have been dispatched to the desired laboratory.
- Discuss any recent failure of samples and corrective actions taken.
- Discuss manufacturing, testing and other technical problems to find solutions.
- Discuss details of improvements made in management/process/quality control with specific reference to the improvements required on the non-conformities observed during surveillance visits and testing of samples. This should be specifically reported in evaluation reports.

After completing the inspection, the technical auditor immediately reports to the group leader his conclusions regarding the operation of the licence, particularly if the operation is not satisfactory.

6.3.5. Sampling during surveillance visits

During surveillance visits of licensees, the technical auditor draws samples from a control unit and tests it in the factory. The test results of this sample are compared to the test results mentioned in factory records. In addition, samples, preferably from another control unit, are drawn for independent testing.

Every effort is made to cover the entire or maximum possible range in one year of the operative period of the licence.

6.3.6. Sampling from market

Samples are also procured from the market (authorised dealers) since the test results would give additional evidence whether the BIS certification scheme is working properly. The concerned BO is responsible for purchasing samples from the market.

An exclusive cell for procurement of market samples is created at each BO with the combination of one officer and one staff member. This cell is responsible for coordinating the procurement of market samples for all the products based on the feedback from the dealing officers.

6.3.7. Testing of samples

The code number of all samples drawn by a BO is entered in the **Sample Code Register** and in the relevant input screen of the **CMMS software**. The code is linked to the licence no. and laboratory where the sample has been sent.

Access to Register/CMMS data is restricted to the concerned officer or to other person authorised by the Head BO. Upon receipt of the test report, it is decoded and its results are recorded in the sample code register/CMMS. After decoding, it is marked to the dealing officer.

6.4. Enforcement actions

The actions to be taken by dealing officer/group leader/director/head of BO during operation of licence include:

- Giving a notice to the licensee for lapses observed and advising him to take necessary action to remove these lapses, and thereafter following up to ensure that actions are taken by the licensee well in time
- Advising the licensee to stop marking if STI is not being operated satisfactorily
- Permitting resumption of marking if the operation is found to be satisfactory after approval by the Head of MD/BO concerned
- Ensuring forwarding of the samples to the laboratory for testing
- Making arrangements for acquiring market samples and seeking consumers' views
- Carrying out investigations in case of failure of samples
- Informing licensees of any amendments to the scheme of testing and inspection, marking fee, operational procedures, etc.
- Informing technical departments regarding any gaps that are noticed during the inspection
- Suggesting modifications in specification requirements on the basis of the analysis of data collected from licensee
- Processing of notice of cancellation of licence under the act under the signatures of DDGR or any other officer authorised on his behalf
- Investigation of complaints received

6.4.1. Stop marking procedure

According to the provisions mentioned in the manual, a licensee is supposed to stop marking his products by himself and intimate BIS of the same. Stop marking should be imposed following the detection of misuse of ISI Mark and actions may simultaneously be taken as per the Enforcement Manual, and cancellation notice may be served if the misuse was intentional and/or large scale. Stop marking notice is generally issued in the following situations:

-
- On account of failure of samples in check testing—failure of same sample in two or more critical requirements, failure of two consecutive samples in one critical requirement, three ‘non-critical’ failures or one ‘critical’ and two ‘non-critical’ failures
 - Observation of serious discrepancies such as absence of technical person (excluding temporary absence), breakdown of major testing equipment, violation of statutory norms, compromise with safety, hygiene or other norms endangering public life and health

When stop marking was done due to reasons other than failure, the verification is required only for the corrective actions taken. Testing of samples should be carried out if necessary to prove that corrective actions are effective.

When stop marking has been done based on sample failure, resumption should be based on factory testing except when the sample offered had failed in the first instance. Normally, long duration tests should be excluded during such factory testing. When long duration tests formed the basis of stop marking, verification testing can be carried out in independent testing at the discretion of the Head BO depending on the factory location, availability of inspecting officers, etc.

6.5. Summary

Since the BIS logo just certifies that a product is compliant with the relevant standard and does not show any energy consumption values like the Energy Label, label verification is not required. Therefore, BIS only performs check testing of samples collected from the assembly line, warehouse and/or the market place. If the sample is found to be non-compliant with the provisions of the Indian Standard, the stop marking procedure is initiated. It is ensured that until the product complies with the provisions of the standard, marking does not re-initiated. To ensure that quality of the product is maintained, each BO has to visit factories coming under its purview at least twice in a year.

Just as the case with international programmes, the inspection procedure followed at BIS is relevant mostly to check testing. However, there are several protocols in place in the inspection process so as to reduce the chances of corruption.

Adopting these in the label verification process for SDAs was discussed with BEE and a final inspection process was defined on the basis of the discussion. The process is discussed in detail in the following chapters.

7. Process for conducting label verification

The primary role of SDAs in the inspection process for the S&L scheme is conducting inspections for label verification, with support from BEE. The detailed process flow that SDAs would follow for conducting label verification effectively as well as efficiently has been described in this chapter.

The inspection process has been prepared after conducting a detailed analysis of the various requirements under label verification, key challenges faced by SDAs and their suggestions in conjunction with BEE. It has also been ensured that the inspection process described herein is such that it is in line with BEE's vision of the expected role of SDAs in the inspection process.

7.1. Designing the inspection process

7.1.1. Key aspects of inspection

To design the inspection process, first of all, the major aspects involved in the inspection process have been identified. Several options for each of these aspects were discussed with BEE and SDAs, and the most feasible option was selected and proposed in the guidelines.

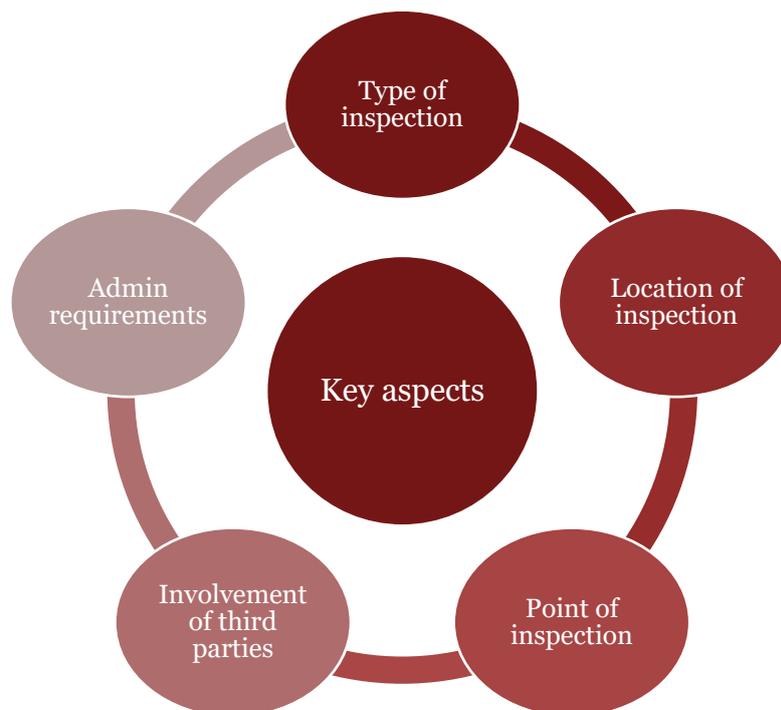


Figure 20: Key aspects of inspection process

7.1.1.1. Types of inspections

In general, there are two types of inspections based on scope—**targeted inspection** and **general inspection**.

- **Targeted inspections** are conducted to verify the compliance of a particular model or a particular manufacturer with the provisions of the S&L scheme. These are conducted for specific reasons such as verifying non-compliance of a particular model, non-availability at directions of BEE, etc.
- **General inspections** are not tied to one type of product or model. They consist of general surveillance activities in the marketplace or warehouses.

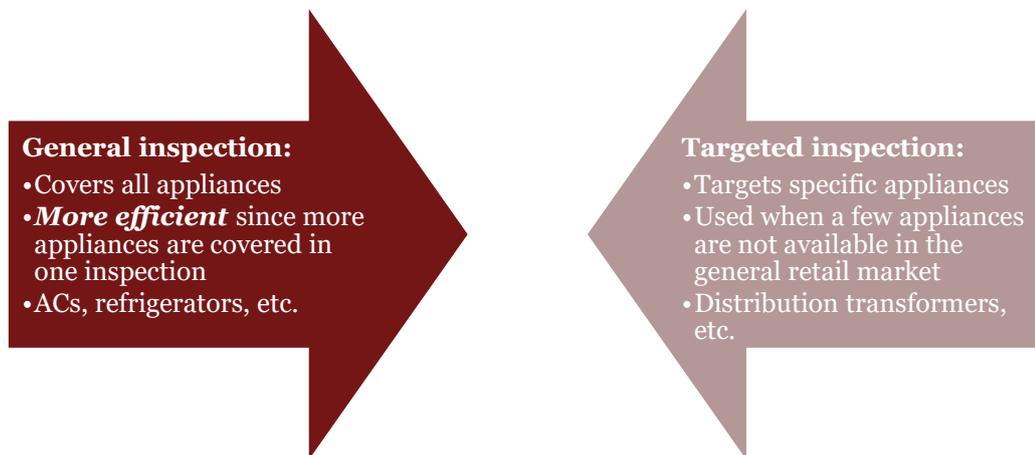


Figure 21: Types of inspections

7.1.1.2. Location of inspection

Location of inspection refers to the type of location where the inspection is being conducted—villages, towns, cities and metros. The chances of non-compliance are higher in villages and smaller towns as compared to major cities because of the difference in consumer awareness towards the S&L scheme and energy efficiency in general. Therefore, the location of inspection is an important factor.

7.1.1.3. Point of inspection

The point of inspection refers to that point in the supply chain where the inspection is being conducted. The points could be retail stores, warehouses, distribution centres and factories. The EC Act authorises SDAs to conduct inspections at any point of the supply chain.

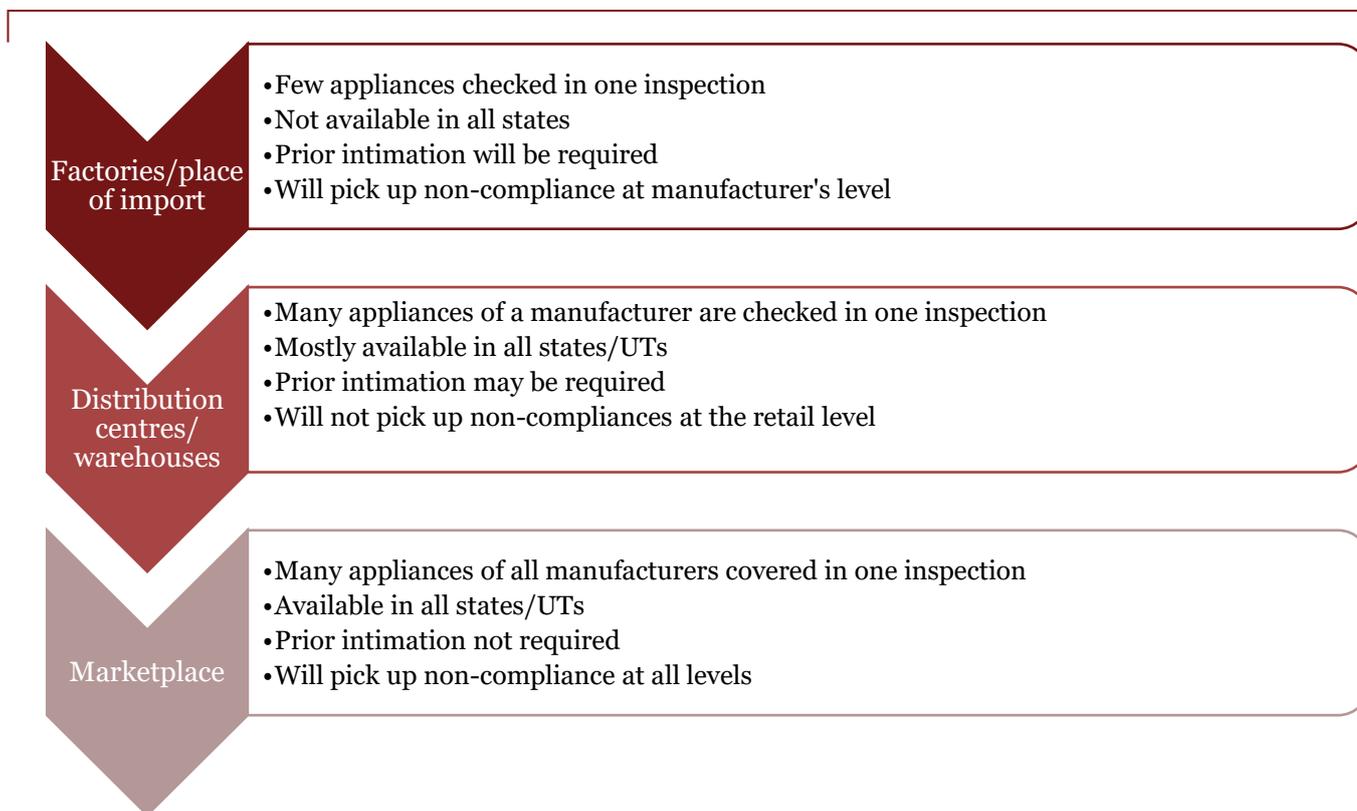


Figure 22: Points of inspection

Legal mandate

Provision as per proposed Inspection Rules		
4.	Inspection of processes and equipment	
(2)	Inspection may be carried out at place of manufacture before dispatch, or at the place of its import into India, or at the place of sale.	
(3)	Inspection may include inspection of any operation carried on in connection with equipment or inspection of records of testing or testing of a sample or matters referred to in clause (d) of sub-rule (4) of rule 3.	

Clause (2) of sub-rule 4 of the proposed Inspection Rules suggests that inspections can take place at place of manufacture, place of import or at place of sale. However, it does not mandate for inspections to be carried out at the warehouse/distribution centres. This should be replaced with: 'Inspection may be carried out at place of manufacture or place of import into India or place of its sale or any other place as may be deemed necessary by the designated agency'.

While the Inspection Rules provide the legal mandate for SDAs to conduct inspections, it is silent on the powers of inspection officers in case the manufacturers/retailers are non-cooperative with the inspection officers. It is important to specify those powers and protocols to ensure a smooth and robust inspection process.

7.1.1.4. *Involvement of third parties*

Involvement of third parties in the inspection process is an important factor from an administrative, authenticity and practical point of view. For example, presence of officers from other state departments, utilities etc., can support SDA officials in conducting the inspection. The EC Act requires the presence of two ‘respectable’ witnesses during the inspection process. However, ensuring the presence of these stakeholders may entail acquiring necessary approvals, which may delay the inspection process. Hence, it would be prudent to authorise the SDA chief for the decision the on involvement of witnesses. The SDA chief shall authorise officials of a state government department as witnesses for the inspection process.

7.1.1.5. *Selection of inspection team*

The inspection team is an important aspect in the inspection process. Inspection teams should be chosen such that inspections are carried out quickly and integrity is maintained. The procedure followed by BIS (see chapter 5.3.1.2) can be adopted for this purpose.

7.1.1.6. *Dispatch of inspection notice*

There is no need of dispatching a notice if the inspection is carried out at the marketplace. However, a notice may need to be dispatched if the inspection is to be carried out at warehouse level or factory level.

7.1.2. *Finalising the inspection process*

The project team collated the suggestions received by SDAs to ensure that label verification can be conducted smoothly. The proposed recommendations are mentioned in the inspection guidelines, taking the inputs provided by SDAs and BEE into consideration.

Table 14: Key aspects of inspection

Aspect	Final recommendation
Inspection type	SDAs should conduct both general inspections and targeted inspections during the financial year. However, the number of general inspections should be higher than that of targeted inspections.
Inspection location	The inspection team should highlight a few priority areas in the state/UT that could be visited for inspection. These areas could include a major electronics market, a popular shopping mall and a manufacturer’s factory.
Point of inspection	Conducting inspections at the marketplace and warehouses is most efficient. Therefore, general inspections at these locations would be the preferred choice for conducting inspections. In situations where appliances are not frequently inspected by general inspection, conducting inspections at the factory or warehouse level would be appropriate.

It was also recommended that BEE assign inspection targets to each SDA at the start of the financial year, taking into consideration the different capacities of SDAs, their awareness levels, size and geography of the state, etc. This would help BEE plan schemes to upgrade the capacities of SDAs on the basis of these inputs.

During the project team’s discussions with BEE and SDAs, it was noted that several issues could arise if SDAs independently conducted label verification and filed cases with the respective SERCs. For example,

- a. Consider a situation where state A’s SDA during label verification finds that model X’s label is non-compliant. The SDA directs the manufacturer to remedy this situation in state A. However, the sale of model X can continue without the proper label until all the SDAs find the same issue with the model.
- b. Another issue arises if we consider the situation where all SDAs are made aware of the situation with model X. If the provisions of the act are followed judiciously, all the SDAs in 29 states and 7 UTs independently notify the manufacturer. This situation is not practical.
- c. In the event that the above situation is indeed followed, all SDAs must check whether their individual directives have been complied with.

The above situation is not feasible. Therefore, it was recommended during the discussions that BEE would be primarily responsible for coordinating the enforcement process and would direct certain SDAs to file cases with SERCs.

7.1.3. Overall inspection process flow

The following process flow for the inspection process was recommended on the basis of the points discussed in previous sub-sections.

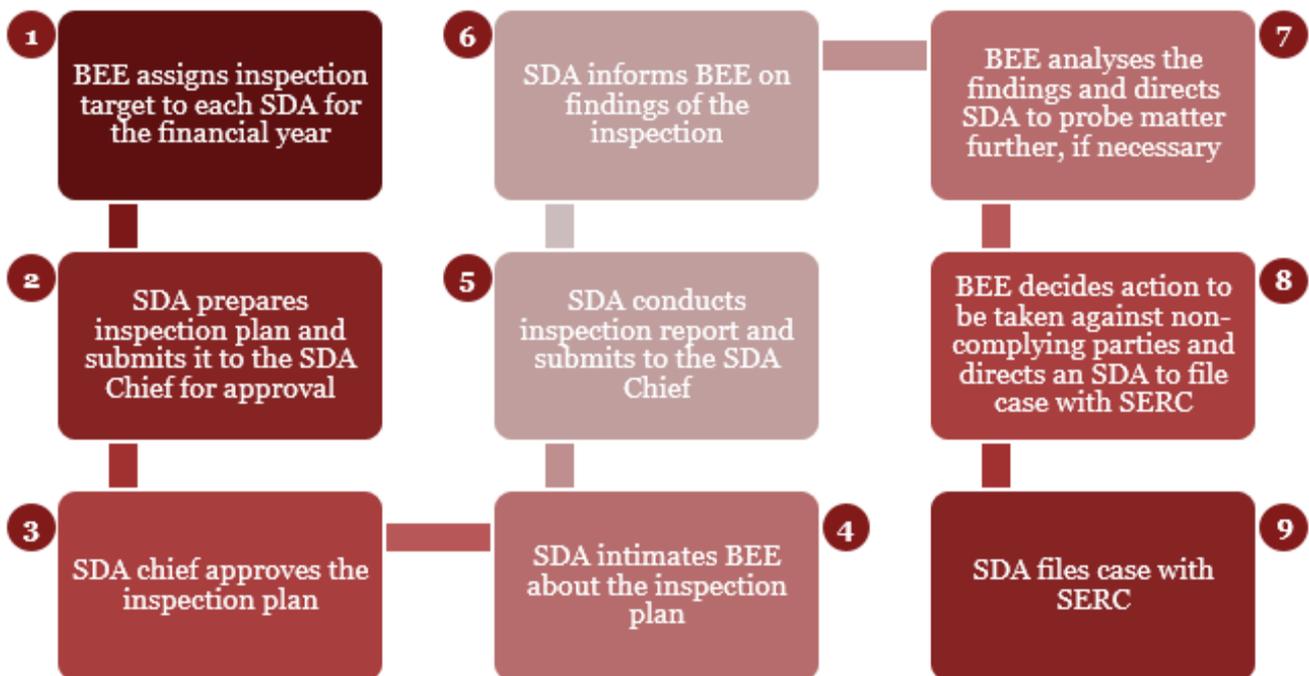


Figure 23: Inspection process flow

7.2. Assigning inspection targets to SDAs

At the start of the year, BEE shall assign an inspection target to each SDA for the financial year. The inspection target shall specify the minimum number of inspections, target range of appliances, minimum number of inspections in types of locations, etc.

BEE shall form an inspection committee for the purpose of deciding on targets for each SDA. Targets should be decided taking into account the following parameters:

- **Appliances prevalent in various states:** For example, ACs would be more prevalent in hot and dry states, whereas heaters would be prevalent in colder states. Therefore, hot and dry states shall focus on ACs and colder states shall focus on heaters.
- **Size of the state:** Inspection targets should ideally be more for larger states such as Maharashtra than for smaller states such as Goa.
- **Present capacity of SDAs:** The targets assigned to SDAs should be achievable and therefore shall depend on the number of inspection officers, availability of funds, etc.

The targets shall be communicated to each SDA by 30 April of each year. This would provide sufficient time for inspection teams in SDAs to plan out their activities for the year. BEE shall monitor and evaluate the progress of SDAs towards adhering to their targets at frequent intervals. BEE shall also review the progress of each SDA at the end of the financial year.

7.3. Preparation of inspection plan

Preparation of inspection plan is the most important step of the label verification process. It is one of the key methods for the SDA Chief and BEE to keep track of inspections, estimate total inspection cost and plan for further actions.

The inspection plan shall be prepared by the inspection team in light of the targets specified by BEE (and specific conditions, if any). In general, the inspection plan shall include the following information:

- **Inspection type:** General inspection/targeted inspection
- **Inspection location:** Geographical location within the state/UT (for example, CP within Delhi)
- **Point of inspection:** Marketplace, state warehouse or factory
- Inspection team
- Involvement of third parties such as witnesses, etc.
- Time of inspection
- Specific targets
- Dispatch of notice to manufacturers
- Budget

7.4. Approval of inspection plan

Once the plan has been developed by the inspection team, it shall be sent to the SDA Chief for approval. The SDA Chief shall scrutinise the inspection plan for any errors, check and verify budget requirements, and ensure that the inspection plan is aligned with the overall target for the year.

Once the SDA Chief has approved the inspection plan, he/she shall issue a ‘**certificate of appointment**’ for each member of the inspection team.

7.5. Intimation to BEE

An intimation shall be sent to BEE through the software so that BEE can track the progress of SDAs with respect to conducting inspections.

It is expected that BEE will store this information electronically and will be able to monitor the progress of each SDA. If required, BEE can send their comments and recommendations to the SDA Chief. A few days can be kept as buffer time for this purpose.

Legal mandate

Clause (3) of section 5 of the proposed Inspection Rules is relevant to the procedure for inspection.

7.6. Inspection procedure

The particular inspection team shall arrange for travel tickets, inspection tablets, etc., and prepares for the inspection.

7.6.1. App for inspection

Each SDA shall arrange for special tablets/mobiles used only for inspection purposes and called ‘inspection tablets’. These tablets or mobiles shall be loaded with an application made specifically to assist inspection officers in the inspection process. The entire database of approved labels for each appliance will be available through the app on a real-time basis. The app shall work as explained in the diagram below:

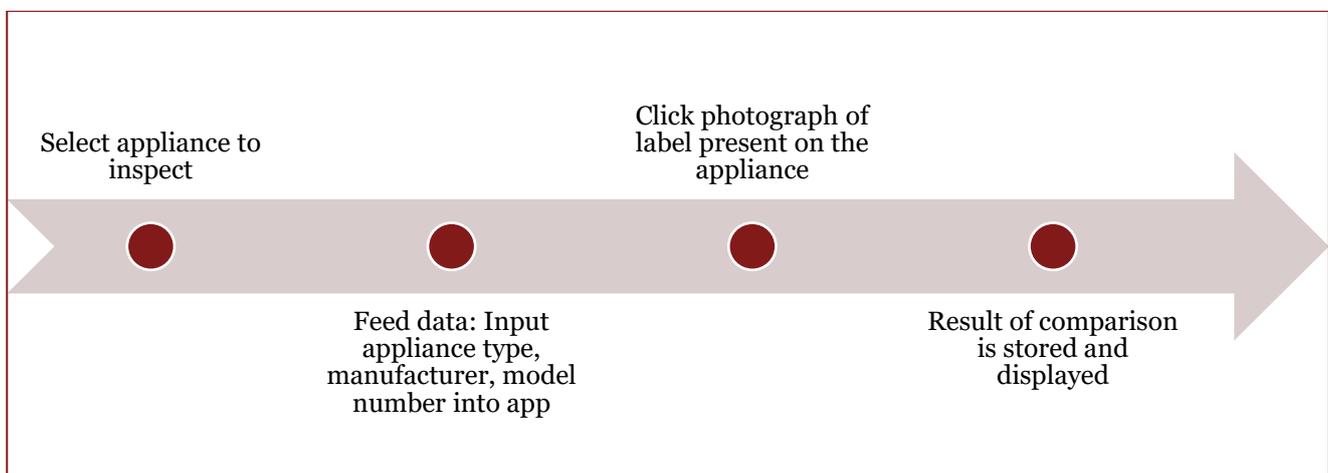


Figure 24: Procedure for use of app for inspection

The app will store the result and other details of the inspection for each appliance. A photograph of the label shall also be stored as a measure of proof. The app will also have the functionality to generate reports for each inspection and to send detailed reports to the SDA Chief and BEE.

However, till the time the app is developed, the inspection team shall carry printouts of the inspection templates to carry out the inspections and shall use the BEE star label application on their mobile phones/tablets for verifying the authenticity of the labels present on the appliances in the stores visited.

7.6.2. Inspection at marketplace

Once the inspection team arrives at the marketplace, they shall decide which retail store must be visited to conduct inspections. To begin with, visiting only authorised dealers should be preferred. However, this shall be determined on a case to case basis by the SDA officials.

- At first, the team shall identify and visit few major stores in the marketplace where a majority of the appliances under the labelling scheme can be covered. A few minor stores also should be identified since chances of occurrence of fraud may be higher in those stores.
- The inspecting officers upon entering the retail store shall brief the store manager on the inspection and seek his cooperation. The officers shall then inspect all appliances kept on the store's display as per the inspection procedure described below.
- The inspection procedure for appliances for which labelling is not mandatory, the inspection officers shall first make a list of all models of the appliance kept on display at the store. The list shall also contain information on whether the model is affixed with a label and details of the label, if applicable. The list shall then be compared with the database in the inspection app (or the BEE star label app) for checking compliance with the applicable norms.
- Once all appliances at the store have been checked, the inspection officers shall acquire the signature of the retail store manager and exit the store. The app would have a function to 'end inspection at store' to capture this information.

Inspection procedure

- ***The inspection officers will first identify the model number of the appliance to be checked. They will input the number into the mobile app and subsequently click a photograph of the label present.***
- ***The app will automatically check whether the label affixed on the particular appliance is as approved by BEE. The app will immediately display the result.***
- ***If it is found that the label is indeed fake, the inspecting officer should take a photo of the appliance clearly showing the model number and label simultaneously. The signature of the store manager should also be taken as a precaution.***
- ***To determine whether this was a one-off case, another appliance of the same model should be checked as per the procedure mentioned above. Further enquiry should be made on the basis of the findings.***

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- ***It needs to be checked whether the model fails the inspection in another retail store in the marketplace.***

Once the respective stores have been visited as per the requirement, the inspection team will end the inspection, shut down the device and return to the SDA office.

7.6.3. Inspection at warehouse/factory

The inspection procedure at the warehouse/factory is similar to the procedure at the marketplace. However, prior permission may be required to enter the place for inspection.

- The inspecting officers upon entering the warehouse/factory shall ask the manager to give them a list of all appliances stored/manufactured at the premises (including model numbers). This will provide the inspection officers with an estimate of time needed to conduct the inspection at the store and a reference point. Alternatively, the team should also carry the list of appliances that are registered at BEE from the respective user of label.
- Based on the information from the factory manager, the inspection team identifies the appliances that are being currently manufactured by the user of label and those which are not being manufactured but are still registered with BEE.
- Taking support from the factory manager, the inspection team shall visit the point of affixing the star label on appliances and finished appliance inventory section.
- The inspection process shall be carried out as per the defined process. Once all appliances identified in the list have been checked, the inspection officers will acquire the signature of the factory authorised signatory. The app would have a function to ‘end inspection at factory’ to capture this information.

Legal mandate

Clauses (5), (6) and (10) of the proposed Inspection Rules are relevant to the inspection process.

7.7. Preparation of inspection report

After returning from the inspection, the inspection team generates the inspection report through the application in the inspection tablet. Post this, a consolidated report of the inspection and its findings and recommended actions is prepared and submitted to the SDA Chief. The inspection team of SDA shall be responsible for the preparation and submission of report.

The SDA Chief scrutinises the report and checks for any errors. Once he/she is satisfied that it is satisfactory, the report is approved.

Legal mandate

Provision as per EC Act, 2001, and its amendments

6.	Inspection report	
(1)	The inspecting officer shall prepare an inspection report, bringing out clearly the violations of the provisions of the act or rules or regulations made thereunder along with his recommendations on the action to be taken in the matter and the report shall inter alia.	
	(b)	The extent to which the process, equipment and appliance comply with the energy consumption norms or the energy consumption standards notified by the central government in relation to such process or the equipment or appliance in terms of clause (a) of section 14
	(c)	The equipment notified for affixation of labels thereon in compliance with the regulations made in that behalf
	(d)	Number of labelled equipment manufactured annually
	(e)	Whether labels are printed and displayed as per regulations made in that behalf
	(j)	His observations on any point which he considers necessary for the purpose of promotion of energy efficiency or its conservation and enforcement of the provisions of the Act, rules and regulations made thereunder
(2)	For the purpose of ensuring compliance with the energy consumption norms or standard specified under clause (a) or clause (g) or direction issued under clause (h) or clause (i) or clause (k) or clause (l) of section 14 or for ensuring compliance with the display of particulars on label affixed to an equipment specified under clause (b) of section 14, the inspection report shall be in Form II	

7.8. Intimation to BEE

The SDA Chief shall intimate BEE of the findings using the software mentioned above.

BEE shall store this information electronically and shall be able to monitor which models have been checked in which location and by which SDA. This way, BEE will have the overall view of compliance of each appliance with respect to label verification. BEE will use this information to identify the source of faults in each instance of default. This is explained in the next sub-section.

Legal mandate

Provision as per proposed Inspection Rules

7.	Submission of report	
	(1)	The inspection report shall be submitted to the head of the designated agency, with a copy to the Director – General, Bureau, within ten working days of the date of inspection.
	(2)	A copy of the inspection report shall be given to the chief executive officer of the designated agency and the person concerned, affording him an opportunity to prefer his defence against the course of action proposed, within 30 days of the receipt of the report or such date as may be indicated in the communication, whichever is later.
	(3)	The head of the said designated agency shall, within two months from the date of receipt of inspection report, give directions to the inspecting officer, with a copy to the Director – General, Bureau, to file the case before the state commission against the person concerned under section 27 and prove its non-compliance against the said person during the inquiry held by the adjudicating officer appointed by the state commission for the purpose of imposing penalty specified under section 26.

7.9. Analysis of findings during label verification

BEE shall have a complete report of inspections conducted in all states. Using this database, BEE will analyse the findings and identify those appliances which have frequently failed in label verifications conducted across the country.

Post this, BEE shall direct SDAs to conduct targeted inspections to probe the matter further so that adequate information is collected and presented while filing a case with SERC.

7.10. BEE directs SDAs to file a case with SERC

Once BEE has identified the non-compliant party or it is satisfied that a further probe will not deliver any further insights, BEE would select a SDA and direct it to file a case with the respective SERC.

BEE shall provide to the SDA all information required by the SDA to take actions against the non-complying party.

7.11. SDAs file a case with SERC

The procedure for filing of case with SERC shall be similar to that followed for the PAT scheme. As per the procedure developed for the PAT scheme, SERC shall appoint any one of its members as an adjudicating officer for holding an enquiry for the purpose of imposing a penalty against non-compliant parties.

8. Presentation of draft label verification procedure at national SDA meet

The inspection process defined in the previous chapter was developed after careful consideration of all the challenges faced by and suggestions from SDAs. This process was also reviewed and discussed with BEE. However, the project team and BEE were of the opinion that the inspection process must be presented at a national SDA meet so that inputs from all SDAs would be taken at the same time. All concerns raised would be discussed at the workshop and consensus on the final guidelines could be reached.

In this context, the project team was invited by BEE at the national SDA meet held in Guwahati on 7 June 2016. The team delivered a presentation on the proposed inspection guidelines. This chapter provides a brief synopsis of discussions during the national SDA meet.

The national workshop for SDAs was held on 7 and 8 June 2016 in Guwahati, Assam. On the first day, training on achievements of PAT Cycle – I, commencement of PAT Cycle – II, PAT rules and target setting for PAT Cycle - II and the role of SDAs under PAT scheme were discussed. On second day, a discussion on the review on SDA work progress was carried out.

The broad agenda for the workshop is shared below.

Day I : 7 June 2016	
Inaugural session	
Welcome remarks	Arijit Sengupta, Assistant Energy Economist
Keynote address and theme address	Secretary, BEE
Inaugural address	Chief Secretary/Additional Chief Secretary, Govt. of Assam
Vote of thanks	Chief Electrical Inspector, Electrical Inspectorate of Assam
Discussion with the states on ‘Enforcement and Compliance of Building Efficiency Program’	Sanjay Seth, Energy Economist
Session – I	
Discussion with the states on ‘Achievements of PAT Cycle – I and Commencement of PAT Cycle - II’	Ashok Kumar, Energy Economist
Discussion with the states on ‘PAT Rules and Target Setting for PAT Cycle - II’	Sameer Pandita, Assistant Energy Economist
Discussion with the states on ‘Role of SDAs under PAT Scheme’	Arijit Sengupta, Assistant Energy Economist
Session – II	
PATNet, ESCerts trading mechanism and role of SDAs and SERCs	Girja Shanker, Assistant Energy Economist

Discussion on way forward for SDA scheme	Arijit Sengupta, Assistant Energy Economist & Ishan Jain, Project Engineer
End of day 1	

Day II: 8 June 2016	
Session – III	
Experience sharing by CREDA on energy efficiency activities	Director, CREDA
Experience sharing by EMC Kerala on energy efficiency activities undertaken by SDA Kerala	Director, EMC
Session – IV	
Presentation on ‘Formulation of Inspection Guidelines for SDAs’	S&L team of Bureau of Energy Efficiency along with the project team
Review of state-wise progress under SDA and SECF scheme and discussion on SDA-related issues	Arijit Sengupta, Assistant Energy Economist and K K Nair, F&AO
Session – V	
Review of state-wise progress under SDA and SECF scheme and discussion on SDA-related issues	Arijit Sengupta, Assistant Energy Economist and K K Nair, F&AO
Valedictory session	Secretary, BEE and Chief Electrical Inspector, Electrical Inspectorate of Assam
End of day 2	

The session on ‘S&L inspection guidelines’ was chaired by Sanjay Seth, Energy Economist, BEE. The session was started by Ishan Jain, Project Engineer, BEE, followed by a presentation on inspection guidelines from Mohit Verma, Manager, PwC and lastly a summarising address by Rajeev Ralhan, Director, PwC.



Some of the topics that were discussed during the session were:

Development of standard and labelling (S&L) inspection guidelines for state designated agencies

-
- Key components of MV&E for S&L
 - Importance and steps under label the verification process
 - ✓ Assigning inspection targets to SDAs
 - ✓ Preparation of inspection plan
 - ✓ Steps under conduct of actual inspection
 - ✓ Steps for preparation of inspection report
 - ✓ Filing of case with SERC

During the presentation, the project team discussed each of the above-mentioned topics in detail and presented a hypothetical case about the situations that can come up during the label verification process. The inputs received from one-to-one meetings with SDAs and BEE was the basis of the entire discussion during the national meet. The session chair also shared the importance of the label verification process and how SDAs can support BEE in the entire MV&E process.

The entire session was diligently followed by SDA officials. The following were the key discussion points:

- The SDA participants acknowledged the proposal of conducting inspection through handheld mobile application based tablets as this would provide them with a faster and efficient way of reporting results and analysis.
- It was unanimously agreed that such inspection is the need of the hour and SDAs are committed to support BEE to undertake the label verification process on the field.
- Few SDA officials requested BEE to conduct one more detailed session on S&L and its MV&E requirement for all SDAs (preferably for half a day) so that a focussed discussion could be held and action points could be agreed upon.
- Regarding the manpower, a few SDAs had some concerns on undertaking such initiatives with their lean team; however, SDAs were of the opinion that BEE has been acting proactively on supporting SDAs for their manpower requirement.
- The SDA officials suggested that it would be important for BEE to inform the user of label—that is manufacturers and traders of labelled appliances—about the proposed inspection work so that the inspection team can get the appropriate reference and consent of retailers to conduct the inspection.
- Regarding filing of cases with SERC, BEE shared that they will be conducting sessions with SDAs separately to construct a simplified process and will support them in such activities.

9. Pilot demonstration

The inputs received by various SDAs during the project team's presentation at the national SDA meet in Guwahati were discussed at length with BEE. The suggestions received were considered and debated upon, and the key highlights were captured in the inspection guidelines. However, to evaluate the workability and effectiveness of inspection guidelines, the team proposed that it would organise pilot demonstrations with two SDAs. This would provide more confidence amongst the SDAs for conducting label verification and help the team identify the various practical issues and constraints that the inspection team is likely to face during their visits to retail stores. In consultation with BEE the **two SDAs selected for the pilot demonstration were MEDA and CREDA**. The agenda of the visits is defined in the figure below:

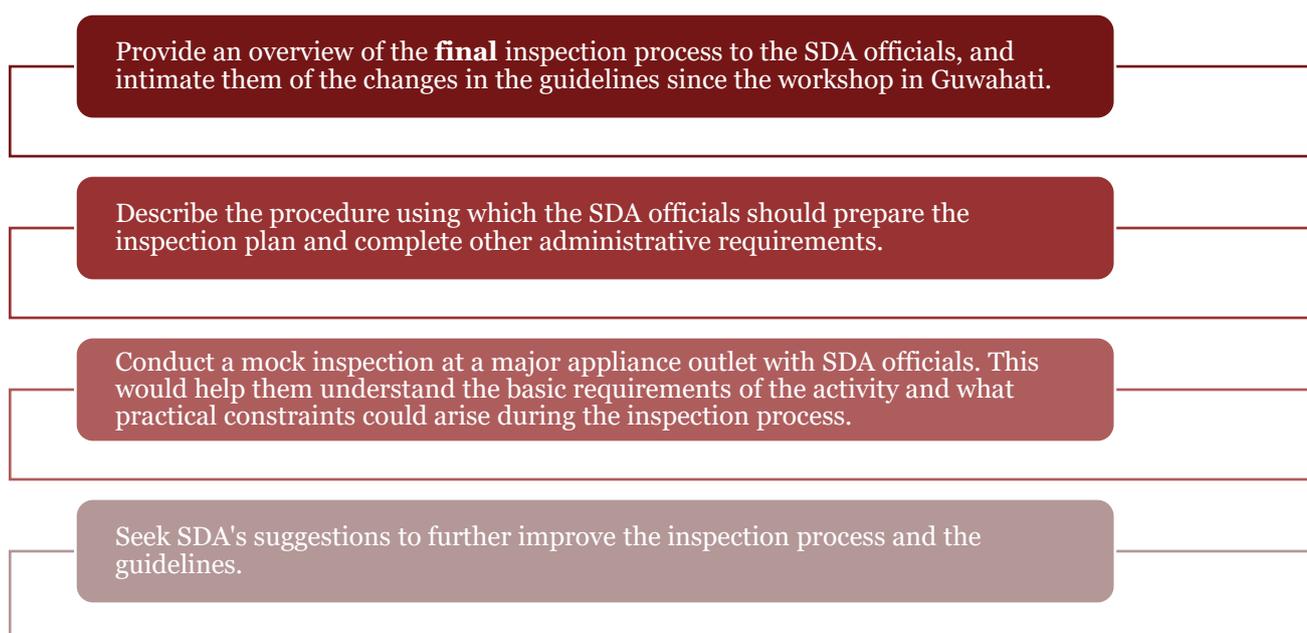


Figure 25: Agenda of pilot demonstration visits

In this context, the team travelled to Pune on 25th October 2016 and Raipur on 11th November 2016 to carry out pilot demonstration of the inspection for carrying out label verification at those locations. The team also conducted a mock survey in Delhi NCR.

This chapter provides a brief synopsis of the discussions and experiences during the team's visits.

9.1. Survey at Big Bazaar, Gurgaon

The team decided to conduct a routine survey in a few major stores in Delhi NCR to gain a first-hand experience of a label verification inspection, get the store managers' inputs, understand their responsiveness and attitude towards the inspection, identify any practical issues that may arise during the inspection process, and identify which types of non-compliances are prevalent in the market.

For this purpose, the project team made a visit to Big Bazaar, Ambience Mall, Gurgaon on 23rd October 2016 and explained to the store manager of the appliance section the purpose of the visit. The store manager and staff extended their cooperation for the exercise. The survey was carried out using the templates prepared by the team and the authenticity of the label was checked using the BEE star label mobile application.



The team, carried out the survey and made the following observations:

- The steps defined in the inspection guidelines were followed. The entire process was conducted impeccably. Models of all appliances sold at the store were kept at the display, and therefore an inventory list was not required for purpose of inspection. An inspecting officer can simply browse the appliances kept at the display during the inspection.
- Conducting the survey was not very time consuming and therefore, by the team's estimation, a thorough inspection at a major store should take around 2 to 3 hours if all appliances at the store are inspected.
- A few instances of probable non-compliance with the S&L programme's provisions were detected during the survey.
- Overall, the team's experience in conducting the inspection was good, and in an actual visit by inspection officers, the inspection would be carried out smoothly.

9.2. Pilot demonstration with MEDA

The project team travelled and made a visit to MEDA in Pune on 25th October 2016 to carry out the first pilot demonstration of the inspection process. The team had prepared a presentation as per the agenda mentioned in Figure 25, and had prepared templates for inspection, which were similar to the ones used in the survey in Delhi NCR. The project team comprised on Mr. Rajeev Ralhan (Director, PwC), Mr. Mohit Verma (Manager, PwC) and Mr. Jwalant Mehta (Consultant, PwC). The officials from MEDA included Mr. Hemant Patil (Manager, MEDA) and his team members. Prior to visit to the store, the team also had a meeting with Mr. Nitin Gadre, IAS (Head, MEDA) to intimate him of the progress.

Mr. Mohit commenced the workshop by informing the MEDA officials about the various components of M&V, scope of label verification, scope of SDAs' involvement in M&V as recommended by BEE, the tentative

inspection procedure and administrative requirements. A case study was also presented using which Mr. Mohit demonstrated a methodology on how to prepare the inspection plan.

Preparation of inspection plan

For the purpose of preparing an inspection plan, it was assumed in the case study that BEE had prescribed an inspection target to MEDA at the start of the financial year. Given the inspection target, the team discussed with MEDA's officials the ideal methodology on how to prepare the inspection plan. The team also presented a draft inspection plan with MEDA, which was discussed at length during the workshop. The draft inspection plan was discussed at length, several changes were made and the final inspection plan was agreed upon. The summary of the final inspection plan is illustrated below⁴².

Month	Locations to be visited	Estimated cost for the month (INR)
August	Pune, Mumbai, Thane, Ahmednagar	-
September	Pune, Nasik, Nagpur, Amravati, Sangli	-
October	Pune, Aurangabad, Solapur, Satara	-
November	Pune, Mumbai, Thane, Nagpur	-
December	Pune, Nasik, Nagpur, Amravati	-
January	Pune, Aurangabad, Solapur, Nagpur	-
February	Pune, Mumbai, Thane, Nagpur	-
March	Pune, Nasik, Amravati, Nagpur	-

Inspection at Vijay Sales, Pune

Once the inspection plan was developed, the project team and MEDA officials decided to visit a major appliance store in Pune to conduct the mock inspection. Mr. Hemant had already spoken to the store manager at Vijay Sales, Pune and arranged for the inspection prior to the meeting. Therefore, post the presentation, the team proceeded to the store for the inspection. The inspection team comprised of Mr. Mohit Verma, Mr. Jwalant Mehta, Mr. Hemant Patil and his team.

During the inspection, the project team first demonstrated the best practices in conducting the inspection and making observations, using the BEE star label app, and reporting as per the inspection template. After making few observations, the officials from MEDA were able to perform the entire process themselves.

⁴² The budget has been left blank since it is different for each SDAs.



At the inspection's conclusion, an inspection report was prepared based on the findings of the mock inspection. Finally, the inspection team noted that the inspection process was very straightforward and could be easily conducted in the future.

Suggestions from MEDA

During the course of the pilot demonstration and workshop, MEDA's officials had provided a few suggestions on aspects of the inspection process. They are outlined below:

- The inspection procedure for checking labels of appliances under the mandatory scheme and those under the voluntary scheme could have certain requirement specific to the nature of labelling and hence the inspection process shall capture the different steps (if any).
- The enforcement mechanisms and penalties for non-compliances under the mandatory and voluntary schemes should be different.
- Mr. Hemant mentioned that SDAs could arrange witnesses from government organizations in the state/city of inspection. The ideal organizations for this purpose are electrical inspectorates and DISCOMs.

9.3. Pilot demonstration with CREDA

The project team travelled made a visit to CREDA in Raipur on 11th November 2016 to carry out the first pilot demonstration of the inspection process. Just as the case with pilot demonstration with MEDA, the team had prepared a presentation as per the agenda mentioned in Figure 25, and had prepared templates for inspection for pilot demonstration with CREDA.

The project team comprised on Mr. Mohit Verma (Manager, PwC) and Mr. Jwalant Mehta (Consultant, PwC). The officials from CREDA included Mr. Sanjeev Jain (Chief Engineer, CREDA), Mr. Rajiv Gyani, Mr. Kamran Shaikh, Mr. Vaibhav Dubey, Mr. Sahu, Mr. Kanru and Mr. Tewari.

Mr. Mohit commenced the workshop by informing the CREDA officials about the various components of M&V, scope of label verification, scope of SDAs' involvement in M&V as recommended by BEE, the tentative inspection procedure and administrative requirements. A case study was also presented using which Mr. Mohit demonstrated a methodology on how to prepare the inspection plan.

Preparation of inspection plan

For the purpose of preparing an inspection plan, it was assumed in the case study that BEE had prescribed an inspection target to CREDA at the start of the financial year. Given the inspection target, the team discussed

with CREDA officials the ideal methodology on how to prepare the inspection plan. The team also presented a draft inspection plan with CREDA, which was discussed at length during the workshop.

Inspection at Big Bazaar, Raipur

The project team and CREDA officials decided to visit a major appliance store in Raipur to conduct the mock inspection. The team proceeded to the store for the inspection. The inspection team comprised of Mr. Mohit Verma, Mr. Jwalant Mehta and the officials from CREDA.

During the inspection, the project team first demonstrated the best practices in conducting the inspection and making observations, using the BEE star label app, and reporting as per the inspection template. After making few observations, the officials from CREDA were able to perform the entire process themselves.



At the inspection's conclusion, an inspection report was prepared based on the findings of the mock inspection. Finally, the inspection team noted that the inspection process was very straightforward and could be easily conducted in the future.

Suggestions from CREDA

During the course of the pilot demonstration and workshop, CREDA's officials had provided a few suggestions on aspects of the inspection process. They are outlined below:

- Mr. Gyani suggested that there should be a provision that can hold retailers responsible if any non-compliance happens at their premises (such as exchanging of labels).
- Inspection plan should be submitted monthly or quarterly instead of annually, as proposed in the guidelines. This would help SDAs plan their activities accordingly.
- The number of inspections should increase just before festive seasons, because of high amount of sales during the time.
- Regional level integration of the *proposed* inspection application must be ensured for smooth execution of label verification procedure. This could be achieved through user-ids for each inspection officer.
- During the inspection, if any non-compliance is observed, inspection officers should capture the **serial number** of the appliance. This would help during the enforcement procedure.
- In cases where the label validity period has expired, instead of notifying manufacturers to replace the sale of the appliance, the label should indicate that the latest version of the label is available at BEE star label website. This would be both convenient and cost-effective.

The project team acknowledged these suggestions and would incorporate changes into the guidelines after discussions with BEE.

10. Way forward

The final S&L inspection guidelines for SDAs have been prepared after conducting several rounds of discussions with BEE, gathering inputs and suggestions from several SDAs (through visits and presentation at the national SDA meet) and conducting pilot demonstrations with MEDA and CREDA. The inputs provided by these stakeholders have proved instrumental in fine-tuning the inspection guidelines to suit the current situation and needs of SDAs.

The guidelines provide, in sufficient detail, the various tasks involved in label verification, such as preparation of inspection plan, conducting the inspection and submission of final report to BEE. We believe that these guidelines shall provide sufficient inputs to SDAs for conducting inspections in their respective states.

10.1. Immediate next actions

It is recommended that BEE takes several steps to ensure that SDAs are ready to perform label verification on their own. This would enable SDAs to understand the requirements and plan out their capacity building activities accordingly. The immediate next steps to be taken are shown in the following figure.



Figure 26: Immediate next actions

10.1.1. Conduct a nationwide workshop for SDAs

Although each aspect of label verification and the corresponding procedures have been described in detail in the inspection guidelines, **it is recommended that BEE conduct a nationwide workshop informing SDAs about the inspection guidelines and the corresponding procedures.** This will facilitate smooth roll-out of the inspection guidelines and avoid ambiguity post its roll-out.

The agenda of the workshop should be similar to that of the pilot demonstration, and should cover the following aspects:

- M&V of the S&L programme, its components and role of SDAs
- Label verification, its scope and procedure
- Preparation of inspection plan, inspection report and other administrative aspects
- Procedure to file case with SERCs

10.1.2. Committee to finalize key aspects of label verification

Several aspects need to be finalized before SDAs can begin to perform label verification from FY 2017-18. These aspects include:

- Finalizing of inspection targets for FY 2017-18
- Identifying target appliances for each SDA
- Finalizing the number of inspections in factories and warehouses for each SDA
- Roadmap for capacity building of SDAs (in terms of funding, number of employees etc.)
- Finalizing key aspects such as involvement of witnesses etc.
- Define the provisions to be undertaken in-case of non-compliance both under the mandatory and voluntary labelling regimes

It is imperative this committee is formed and the above-mentioned aspects are discussed on priority basis so that SDAs are equipped with enough information to begin conducting label verification inspections from the following financial year (FY 2017-18). The committee shall be supported by an external organisation which can provide support for research & analysis, identifying the impact of policy measures, assessing the impact of policy measures on stakeholders, gathering stakeholders' point of view and identifying the amendments for Act.

10.1.3. Development of an application for conducting inspection

The provisions mentioned in the inspection guidelines are such that they would help facilitate effective implementation of the label verification process. However, few of these provisions such as use of the **inspection app based on Android / IOS / Windows / any other platform** are not possible immediately for obvious reasons. Hence, one of the **foremost task to be undertaken is development of a mobile based app**. This app can be synced with the existing BEE star label app for ease of usage. Development of app would require identification of steps wherein existing BEE app can be edited and new features could be added. It is recommended that this activity is taken up on priority.

10.1.4. Monitoring the progress of SDAs

Once the intricate details have been finalized, the inspection guidelines should be followed for conducting label verification at a wider platform. The inspection activity shall be undertaken in various cities, towns and villages of the country. The outputs from multiple inspections would provide clarity as well as facilitate in identifying practical constraints (if any) in terms of technical understanding, weak areas, process gaps, legal provisioning required, etc. It would be important to monitor the progress of SDAs and handhold them in this exercise so that the procedures are meticulously followed and strengthened.

10.2. Roadmap to facilitate effective implementation of inspection guidelines

Also, once SDAs start conducting label verification on their own, they are likely to experience local challenges. Therefore, periodic modification/updating of the guidelines is necessary to maintain its practical relevance.

Therefore, keeping these aspects in mind, we have prepared the following illustrative roadmap. **It is recommended that BEE begins the procedure to develop the app on priority basis.**

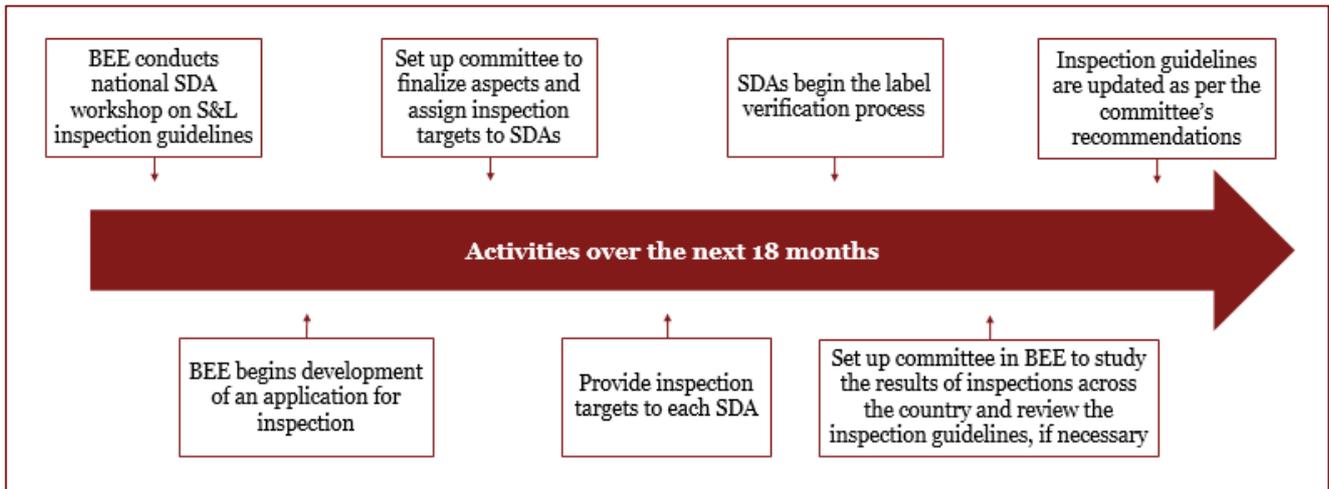


Figure 27: Proposed roadmap

Until such time the app is developed, the other activities should be performed manually. Once the app is developed by BEE, the entire process would become automated and hence become more efficient.

Appendix A. - Appliances covered under the S&L programme

Table 15: Appliances covered under the S&L scheme⁴³

Schedule	Appliance covered	Mandatory/voluntary	Label type
1	Frost-free refrigerator	Mandatory	Comparative
2	Tubular fluorescent lamps	Mandatory	Comparative
3	Room air conditioners	Mandatory	Comparative
3 (A)	RAC (cassette, floor standing tower, ceiling, corner AC)	Mandatory	Comparative
4	Distribution transformer	Mandatory	Comparative
5	Direct cool refrigerator	Mandatory	Comparative
6	General purpose industrial motors	Voluntary	Comparative
7	Monoset pump	Voluntary	Comparative
7	Openwell pump set	Voluntary	Comparative
7	Submersible pump set	Voluntary	Comparative
8	Ceiling fan	Voluntary	Comparative
9	LPG stoves	Voluntary	Comparative
10	Water heaters	Mandatory	Comparative
11	Colour television	Mandatory	Comparative
12	Washing machine	Voluntary	Comparative
13	Diesel engine driven monoset pump	Voluntary	Comparative
14	Computers/laptop	Voluntary	Endorsement

⁴³ BEE labelling programme website: <http://www.beestarlabel.com>, accessed on 12 August 2016

Schedule	Appliance covered	Mandatory/voluntary	Label type
15	Ballast	Voluntary	Comparative
16	Office automation products	Voluntary	Endorsement
17	Solid state inverter	Voluntary	Comparative
18	Diesel generator set	Voluntary	Comparative
19	Inverter ACs	Voluntary	Comparative
20	LED lamps	Voluntary	Comparative

Appendix B. - Summary of discussions with stakeholders

B.1. First discussion with BEE

The stakeholder consultation meeting with BEE was held on the fourth Floor, Sewa Bhawan, R K Puram, New Delhi, on 1 February 2016. The meeting was attended by the following officials:

- Saurabh Diddi, BEE
- Rajeev Ralhan, PwC
- Mohit Verma, PwC
- Jwalant Mehta, PwC

The agenda of the meeting was to understand BEE's perspective and expectations from the inspection guidelines, identify broad roles of all stakeholders involved in the inspection process, discuss the work done so far in relation to the development of the guidelines and reach a consensus on the scope of the inspection process.

The following points were discussed in the meeting:

1) Work done so far in relation to development of the guidelines

- BEE has already prepared two operation manuals regarding the S&L programme: one for users of the label and one for BEE. However, enforcement provisions are missing from those manuals.
- An enforcement manual is already under preparation for the S&L programme. However, detailed guidelines specific to SDAs are yet to be made.
- It was agreed that BEE would share the two enforcement manuals for PwC's reference.

2) BEE's expectations from the project

- The study should be conducted while considering the proposed updates to the EC Act.
- Broad roles of each stakeholder—SDA, BEE, test laboratories—should be defined in the guidelines.
- The guidelines should be comprehensive in all respects—enforcement provisions, inspection details, timelines etc.
- The manual should also define all terminology in detail.

3) Scope of inspection process

- It was agreed that the inspection process would be comprehensive and would include checking for check testing, label verification for fake labels, non-compliance with mandatory labelling, etc.
- The guidelines would also include details on the directives issued to manufacturers or importers in case an appliance is found to be non-compliant to the provisions mentioned above.

-
- A detailed inspection process would be framed for production verification.

4) Next actions

Draft guidelines should be made and discussed with BEE. If any changes are required, they would be communicated later.

B.2. Second discussion with BEE

The meeting with BEE held on 7 April 2016 at the BEE headquarters. It was attended by the following officials:

- Saurabh Diddi, Energy Economist, BEE
- Ishaan Jain, BEE
- Mohit Verma, PwC
- Jwalant Mehta, PwC

The meeting was held to:

- Discuss roles and responsibilities of BEE and SDAs for different aspects of MV&E
- Discuss various requirements and proposed options for label verification
- Understand current progress of SDAs with respect to MV&E
- Plan for next actions to develop the inspection guidelines

The following points were discussed during the meeting:

- The project team shared the progress of the work done and put across the expected outcomes of the meeting. It was conveyed that the team has focussed on label verification as per the discussion in the previous meeting. The project team also shared with BEE a report on M&V practices in other countries. The team pointed out that these countries focus primarily on check testing. Label verification is generally not considered a separate process.
- The project team enquired about the expected role of SDAs in the check testing process. Mr. Diddi shared that the responsibility of conducting check testing will remain with BEE and will be done through IAMEs. SDAs would only be involved in taking action against defaulters identified in check testing. However, this would only be done in later stages.
- The project team enquired about the current situation of production verification. Mr. Diddi informed them that BEE has started focussing on production verification. BEE will float a tender for appointing an agency (consisting of chartered accountants) to check the production of 100 production facilities.
- Mr Diddi conveyed to the project team that BEE does not have enough powers to take appropriate action against non-compliant manufacturers like those of BIS. For example, neither BEE nor SDAs have the power to seal the shops where appliances with fraudulent labels are being sold. He expects the project team to recognise this fact and recommend appropriate changes in the final report of this project. He would recommend for the amendment of the EC Act based on this report. He expects that this would complete within a span of 3 years.
- Mr Diddi conveyed to the project team that he expects the project report to capture the various instances of default that can be found during label verification and the corresponding enforcement actions. The report should also state the enforcement provisions that exist at present and identify what

other provisions are needed for robust implementation of the MV&E process. These would include administrative as well as legal provisions.

- The project team had a discussion on data sharing between BEE and SDAs. Mr Diddi stated that the data on approved equipment is very dynamic—up to 80 models may get registered in a day with many models’ registration expiring simultaneously. Therefore, only real-time data sharing is appropriate. An app-based data sharing solution was proposed.
- It was agreed that the SDA Chief would be the appropriate authority to approve inspection plans. However, BEE should ideally get a copy of the plan to suggest any changes if required.
- The project team had a discussion regarding the inspection procedure. BEE would direct SDAs to carry out the number of inspections and decide on their frequency. It was agreed that the inspections would be conducted anonymously. The project team presented options for conducting inspections. It was agreed that conducting general inspections at random locations is more efficient and should be preferred.
- Mr Diddi emphasised that SDAs lack the legal powers needed for conducting inspections. He emphasised on the need to capture necessary **evidence** of non-compliance that would hold in court. This could involve acquiring the signature of the retailer, capturing photos and/or confiscating the samples. He recommended that an appropriate mechanism be developed towards that end. He also recommended that the team of corresponding enforcement directives against retailers and manufacturers, and identify gaps in existing provisions.
- It was suggested that MV&E process would be conducted phase by phase. Phase 1 would involve conducting inspections only in major retail stores. Phase 2 would deal with retailers involved in selling fake appliances.
- Continuing the discussion on inspection procedure, Mr Diddi suggested the use of an app-based solution while conducting inspections, wherein inspecting officers can simply click a photo of the label and the appliance through the app. Comparison of label details with actual data would be done automatically. This would serve the need for both efficient comparison and acquiring strong proof. The signature of the retailer can be captured via the app using a stylus.
- It was pointed out that the app could also be used as an efficient platform for preparing and sharing reports with SDA chiefs. A copy of the report and an all-India consolidated report would be sent to BEE. It was also pointed out that using funds for the development of the app, procuring tablets for inspections, etc., would not create a hindrance. Mr. Diddi recommended us to find a way that could avoid misuse.
- The project team had a brief discussion on the enforcement procedure. Mr Diddi was of the opinion that location of the placement of label should not be considered non-compliance. The team pointed out a few issues that could arise if the EC Act is followed judiciously. After thoughtful discussions, Mr Diddi raised an important query: Should multiple situations of the same type of non-compliance be considered as multiple non-compliance? Another issue that was raised was: How would manufacturers ensure roll-out of non-compliant products? The team was asked to think of solutions for these issues.
- Mr Diddi emphasised a robust communication mechanism between SDAs. This will ensure that an occurrence of non-compliance is known to all SDAs and help in planning for inspections. The app could generate reports for non-compliant models.
- The project team asked Mr Diddi for his recommendation on visiting SDAs to gather insights. He agreed that visiting a few SDAs is essential to understand their perspectives towards MV&E and

understand key barriers that they are facing. He stressed on identifying exactly what SDAs need to perform label verification activities—capacity, infrastructure, funds and/or regulatory power.

- He recommended that the project team visit 6 SDAs—2 stand-alone SDAs, 2 renewable energy departments and 2 inspectorates. This would help the team gain perspectives from the entire spectrum of SDAs. He suggested that the team visit MEDA, PEDDA, SDAs in Orissa, Tamil Nadu, Hyderabad and Kerala. He also suggested presenting the team’s findings in the national meet of SDAs. This is expected to happen in the first or second week of May.

B.3. Discussion with MEDA

The meeting with Maharashtra Energy Development Agency was held on 11 April 2016 in Pune. The meeting was attended by the following officials:

- Nitin Gadre, IAS, MEDA
- Hemant Patil, MEDA
- Rajeev Ralhan, PwC
- Mohit Verma, PwC
- Jwalant Mehta, PwC

The meeting was held to understand MEDA's current capacity to conduct MV&E activities and understand key challenges they are facing w.r.t. MV&E. The project team handed out a questionnaire to MEDA that captured most aspects in detail. The project team also presented the proposed MV&E process for MEDA's comments.

The key discussion points are mentioned below:

- The project team presented the key aspects of MV&E, described the tentative role of SDAs and detailed the process proposed by BEE for MV&E to be followed by SDAs. The team had a brief discussion on MEDA's thoughts over the draft process.
- Chief, MEDA was of the opinion that increasing the number of inspections at retailer level would be cumbersome to the customers. Also, it can lead to corruption in the inspection process.
- Chief, MEDA also shared that the government is currently looking to reduce the number of inspections and therefore would be averse to increasing inspections at retailer level. In his opinion, the best approach is to empower consumers to use an app to verify authenticity of the label of the appliance they purchase. This would not only eliminate the need to conduct inspections at retailer level, but also increase the potential of label verification.
- Chief, MEDA suggested that the application that calculates the net energy saving of a consumer using energy efficient appliances. The project team informed him of the Android/iOS app developed by BEE. It was also suggested that a function for calculations of overall savings should be added to the app.
- The project team then has a detailed discussion with Mr Patil to understand current progress and key impediments of MEDA on conducting MV&E of S&L scheme. Mr Patil shared that since MEDA has the status of government undertaking, it doesn't have the legal authority to enforce provisions of the EC Act. Therefore, SDAs don't have power to collect penalties from defaulting manufacturers. He suggested that deputing government officers in MEDA for inspection purposes can be a workaround for this problem. Another solution would be to assign task of inspections to electrical inspectorates.
- The project team enquired on the status of hiring of inspection officers. Mr Patil shared that MEDA has not hired any inspection officers till date. Mr Patil pointed out that the EC Act requires inspection officers to have a position of Dy. Secretary. He suggested that this should be changed to Dy. Engineer or Class 1 officer in the government for practical reasons.
- Mr Patil emphasised that inspections at retailer stores was not feasible as it would increase the possibility of occurrence of corruption and be cumbersome to both retail store owners and consumers. He suggested that inspections should be conducted at the state warehouse/ local distribution centre level. BEE could assign targets for number of inspections/ appliances to be checked in a given year.

This would make the process more efficient and reduce chances for corruption. He suggested that a process similar to that followed by BIS should be adopted.

- When asked on his opinion on witnesses, Mr Patil shared that all class 1 government officers would qualify as “respectable witnesses” as required by the EC Act.

B.4. Third discussion with BEE

The meeting with BEE was held at BEE Office, Sewa Bhawan, R K Puram, New Delhi, on 18 April 2016. It was attended by the following officials:

- Saurabh Diddi, Energy Economist, BEE
- Ashish Saraswat, BEE
- Mohit Verma, PwC
- Jwalant Mehta, PwC

The following points were discussed during the meeting:

- The project team shared its experience and key takeaways from the meeting held with MEDA. The team briefed Mr Diddi on MEDA's opinions on the inspection process and its suggestions. The team also shared the Minutes of Meeting with MEDA and a brief on the inspection procedure followed by BIS.
- The project team informed Mr Diddi that MEDA was of the opinion that inspections should not be conducted at retail stores. Instead, they should be done at state level warehouses and local distribution centres to avoid unnecessary hassle to consumers and shop owners. Mr Diddi acknowledged this and shared that by avoiding inspections at retail stores, the issues at the retailer level such as sale of models without a label will not be checked. He suggested that inspectors should also conduct inspections at retail stores.
- Mr Diddi emphasised on the need for providing consumers adequate training to use the proposed app appropriately – capturing information, nameplate etc. He also suggested that a function to report non-compliance should be available on the app.
- The project team shared MEDA's opinion on inspecting powers of SDAs. MEDA feels that since it has the status of a government undertaking, it doesn't have the prerogative to enforce the EC Act. Mr Diddi did not approve of their opinion, and said that SDAs can simply file a case with SERC for taking enforcement action against defaulters.
- The project team also discussed the tentative plan on visit to different SDAs.

B.5. Discussion with GEDA

The meeting with Gujarat Energy Development Authority (GEDA) was held on 21 April 2016 at GEDA Office, 4th floor, Block 11, Udyog Bhavan, Gandhinagar. It was attended by the following officials:

- Amita Pandya, GEDA
- R N Kansara, GEDA
- Shivam Modi, GEDA
- Mohit Verma, PwC
- Jwalant Mehta, PwC

The following points were discussed during the meeting:

- The project team described in detail the background of the project and key agenda of the meeting. The team shared the progress of the S&L scheme in India and the work done so far by BEE to enhance and develop SDA's capacity to carry out the functions mandated by the EC Act.
- The project team enquired about the work done by GEDA in promoting energy conservation. Ms Pandya shared that GEDA has been carrying out energy conservation activities in Gujarat for the past 34 years. GEDA has been involved in promoting energy conservation in all major sectors and areas – from awareness programmes in schools to conducting energy audits in industries. GEDA's main focus area has been promoting use of renewable energy in Gujarat. Ms Pandya also shared that GEDA has an independent state fund dedicated for this purpose. She informed that the State government has been very active in this domain.
- Ms Pandya shared that GEDA has carried out many activities for promoting energy efficiency in the state – promotional activities for energy efficiency in general, about 3000 walk through audits in industries to spread awareness about energy efficiency practices, activities to promote use of LEDs in parallel to the DELP programme, provide consultation services to consumers etc. She informed that GEDA has also worked with Shakti Sustainable Energy Foundation for carrying out promotional programmes in 5 cities (including Ahmedabad and Vadodara).
- Ms Pandya also informed that GEDA has been conducting promotional activities in an innovative way using dedicated vans. The Urja Mitra mobile van travels across the state and spreads awareness about energy conservation and energy saving measures amongst various sections of energy consumers – mainly industrial consumers and educational institutions. A brochure of the scheme was shared with the project team.
- The project team enquired about the progress of enforcement carried out by GEDA w.r.t. the EC Act. Mr Kansara shared that not much progress has been made so far. He informed that the key reason behind this is lack of communication between BEE and SDAs. In case of taking enforcement actions against DCs, BEE sends a notice to SDAs and directs them to file a case with the respective SERCs. Mr Kansara also shared that since SDAs do not have adequate information on context and background of each case, SDAs are not able to carry out their duties appropriately. He suggested that if SDAs are informed on the developments in each case from time to time, they would be more effective in the entire process.
- The project team had a discussion on the key barriers faced by GEDA in performing duties mandated by the EC Act. Ms Pandya and Mr Kansara informed that lack of proper administrative structure (centre-state hierarchy) and lack of clear guidelines are major barriers faced by SDAs. They also shared

that state activities often take precedence over activities for EC Act in case of lack of proper guidelines. They also face legal issues such as lack of authority to collect penalties from defaulters. They informed the project team that these issues were highlighted in multiple national SDA meets and suggested the project team to study the minutes of those meetings. GEDA is also facing a manpower limitation to carry out activities mandated by the EC Act.

- The project team discussed the importance of MV&E to ensure successful implementation of S&L programme in India. Ms Pandya acknowledged this and added that she has personally found that a few manufacturers were not complying with the provisions of the scheme. She added that M&V is particularly important in areas where there is low consumer awareness of the S&L programme. She suggested that consumer awareness activities would be more effective and uniform if BEE designs standard advertising contents and provides it to various SDAs. SDAs could then translate and advertise that in regional languages. This would help standardise advertisements across the country.
- The project team asked for SDA's suggestion for enhancing their effectiveness in carrying out their functions. Mr Kansara and Ms Pandya suggested that there is a need to conduct training sessions for SDA officials to inform them of their roles and how to carry out those functions. Also, to enhance the effectiveness of M&V, BEE should send a letter to various parties recognising authority of SDAs in performing inspections.
- The project team shared the work done in development of inspection guidelines for SDAs. The team presented the various aspects of MV&E and discussed different options for each of these aspects. Mr Kansara and Ms Pandya were content with the overall process and had a few suggestions. They said that inspections should be conducted at both warehouse and retail store levels so that non-compliance issues at the retail store levels are addressed.
- Ms Pandya suggested a few indicators of situations where non-compliance can be present. Appliances manufactured by low-profile manufacturers since probability of non-compliance is higher for those appliances. Another indicator of potential non-compliance is unnatural pricing of 4-star and 5-star appliances. A retail store selling a 4 or 5 star product at considerable lower price than usual could indicate potential fraud. In this regard, providing knowledge of prices of these products could be useful to SDAs while conducting label verification.
- The team had a discussion on the use of a mobile app-based solution for conducting inspection. Ms Pandya suggested that if adequate awareness is raised, consumers could perform label verification at retail stores effectively.
- The project team also had a brief introductory discussion with Mr J T Akhani (IAS), Director, GEDA. The team described the project and shared details of interactions held with Ms Pandya and Mr Kansara. Mr Akhani was very enthusiastic of the project and ensured support of GEDA in further stages of the project.

B.6. Discussion with APSECM

The meeting with Andhra Pradesh SDA i.e. State Energy Conservation Mission (SECM) was held on 28 April 2016 at Vijaywada, hotel DV Manor. It was attended by the following officials:

- A.V.L.K Jagannadha Sarma, ADE, SECM
- Hemanth Kumar Rayavarapu, Energy Consultant, SECM
- Ishan Jain, Project Engineer, BEE
- Mohit Verma, Manager, PwC

The following points were discussed during the meeting:

- The project team described in detail the background of the project and key agenda of the meeting. Mr Verma shared the progress of the S&L scheme in India and the work done so far by BEE to enhance and develop SDA's capacity to carry out the functions mandated by the EC Act. During the discussion a complete background on the genesis of this project as well as outcomes so far was shared. Mr Ishan highlighted that the project is very important from the view point of upcoming roles of SDAs. He shared that the recommendations from this study will be studied for inclusion in 13th plan document so that SDAs can be provided adequate resources for conducting all functions as per the Act.
- The project team enquired about the work done by SECM in promoting energy conservation. Mr Sarma shared that energy efficiency is very well accepted concept in the entire State. He shared that the government is promoting energy efficiency projects and would be very keen to participate under initiative by BEE. He shared that SECM has been recently formed (after division of NREDCAP) and at present regarding the S&L scheme, the agency is only working towards awareness related activities.
- Mr Verma enquired about the understanding of SECM officials towards functioning of S&L scheme. Mr Sarma shared that understanding towards operation of S&L scheme at BEE such as registration of user of label, check testing etc. is not adequate enough and they would be happy to get more details about it. Thereafter, Mr Verma provided a detailed session on complete functionality of S&L scheme. The check testing procedure was explained in detail. He also discussed the importance of MV&E to ensure successful implementation of S&L programme in India. Mr Verma presented the various aspects of MV&E and discussed different options for each of these aspects.
- Mr Sarma shared that in recent past they have received complaints from local consumers about fake labels i.e. labels with misleading star ratings. He shared that the complaints were received through oral communication. Also, the agency have received good feedback from local consumers regarding saving of electricity through installation of 5 star ACs. He shared that consumers in AP State are aware of S&L scheme and intends to obtain maximum benefits of energy efficiency through installation of star rated appliances. Therefore, undertaking activities of MV&E is very important. He presented his acknowledgement towards the proposed roles for SDAs.
- The project team asked for SECM's suggestion for enhancing their effectiveness in carrying out their functions. Mr Sarma suggested following key areas:
 - ✓ It is very important for Central and State government to increase the verification testing of star rated appliances. Mr Sarma suggested that there should be a sample testing for each lot of manufacturer. The size of lot can be defined by BEE (for example one sample per thousand). This sample can be picked at random from the manufacturer's place or warehouse. Such an exercise will attract manufacturer's attention towards meeting the compliance criteria.

- ✓ BEE can adopt the model of conducting product testing before approving the permission for affixing BEE label over appliances.
 - ✓ Bar coding of labels. He suggested that consumers are themselves a hand of government in any sort of inspection activity. Therefore, it would be helpful if some form of authentic coding is given on the labels so that the consumers can verify the code and product authenticity.
 - ✓ Retailers should not be held responsible for non-compliance observed in labels. He shared that it would be highly difficult for the SDAs to manage the legal actions with retailers. Also, there is no mandate where any kind of legal action can be taken. The SDAs do not have powers to stop any sale and hence it will be difficult to manage the actions against retailers. However, market surveillance should be done and manufacturers shall be held responsible for all non-compliances.
 - ✓ BEE shall share the details of approval given to manufacturers for affixing label. The reference number, letter, date etc. shall be known to the SDAs which will help them to prepare a case in the event of non-compliance.
 - ✓ There is a need to conduct training sessions for SDA officials to inform them of their roles and how to carry out those functions. Also, to enhance the effectiveness of M&V, BEE should send a letter to various parties recognising authority of SDAs in performing inspections.
- The project team had a discussion on the key barriers faced by SECM in performing duties mandated by the EC Act. Mr Sarma informed that lack of proper administrative structure (centre-state hierarchy), manpower, and lack of clear guidelines are major barriers faced by SDAs.
 - The team had a discussion on the use of a mobile app-based solution for conducting inspection. Mr Sarma shared that they are very well aware about the functionalities of App and suggested that it would be good to conduct inspection through the App.

B.7. Discussion with EMC Kerala

The meeting with Kerala SDA i.e. Energy Management Centre (EMC) was held on 05 May 2016 at the office of EMC, Trivandrum Kerala. It was attended by the following officials:

- Saurabh Diddi, Energy Economist, BEE
- K. M. Dharesan Unnithan, Director, EMC Kerala
- A. M. Narayanan, Head - Energy Efficiency, EMC Kerala
- Johnson Daniel, Energy Technologist, EMC Kerala
- Dr. R. Harikumar, Head, Education & Training, EMC Kerala
- B. V. Subhash Babu, Energy Technologist, EMC Kerala
- Ishan Jain, Project Engineer, BEE
- Rajeev Ralhan, Director, PwC
- Mohit Verma, Manager, PwC

The meeting began with a round of introduction by all members. The following points were discussed during the meeting:

- Mr Diddi described in detail the background of the project and key agenda of the meeting. He also shared the progress of the S&L scheme in India and the work done so far by BEE to enhance and develop SDA's capacity to carry out the functions mandated by the EC Act. During the discussion a complete background on the genesis of this project as well as outcomes so far was shared. Mr Ralhan highlighted that the project is very important from the view point of upcoming roles of SDAs. Mr Jain shared that the recommendations from this study will be studied for inclusion in 13th plan document so that SDAs can be provided adequate resources for conducting all functions as per the Act.
- Mr Unnithan and his team appreciated the concern towards accelerating the MV&E activities for BEE's energy efficiency schemes. He shared that EMC has been very proactive in building up the capacity to undertake MV&E activities. The agency has developed the testing capacity for few appliances which is sufficient enough to estimate whether the appliance conforms to specified criteria or not. He further shared that during 2015 EMC picked-up some ceiling fans from market and carried out testing to check the performance and it was found that few of the models failed during initial testing. The EMC team shared that some time back few retailers have approached EMC with doubts regarding genuineness of star label on appliances.
- The project team enquired about the awareness of local people towards energy conservation. The EMC team shared that energy efficiency is very well accepted concept in the entire State. The government is promoting energy efficiency projects and would be very keen to participate under initiative by BEE.
- Mr Verma made a presentation on the proposed roles of SDAs in MV&E. He also presented the detailed process flow of activities that needs to be carried out during field inspections by SDAs officials.
- Mr Verma enquired about the understanding of EMC officials towards functioning of S&L scheme. The EMC team shared that understanding towards operation of S&L scheme at BEE such as registration of user of label, check testing etc. is good enough and they would be happy to get more details about it. Thereafter, Mr Verma asked the details about BEE's star label application. On this, the EMC officials

said that they are not well versed with functionalities of App. Mr Diddi explained the features of BEE star label mobile app and shared this app will be the primary tool for SDAs to conduct field inspections.

- The project team asked for EMC's suggestions for enhancing effectiveness of MV&E activities and providing clear roles for SDAs. The EMC team suggested following key areas:
 - ✓ Verification testing of star rated appliances is very important at present. The BEE shall create group of SDAs (combining 4 to 5 SDAs in one group). A group can be the extended arm of BEE in performing check testing activities. Also, in long run it would be very useful if SDAs develop in-house test capacity which can be solely for BEE's check testing requirements.
 - ✓ Awareness of retailers is an important requirement under BEE's S&L programme. However, largely it is seen that profit margin is the only criteria behind their marketing conversation with consumers before making a sale. It is important for retailers to know that selling a non-star rated product in case the model is registered with BEE or is under mandatory labelling regime is a non-compliance and there can be severe implication for such actions. Therefore, there is strong need of training of retailers towards the programme objectives as well as making them aware about the MV&E activities that central and state governments will do to check the compliances.
 - ✓ Bar coding of labels. The team suggested that it would be easier for inspection if there is some sort of encrypted code over the labels.
 - ✓ The existing provision under EC Act 2001 are not sufficient for enforcement actions. The provisions are not well defined and there are ambiguities towards role of SDAs.
 - ✓ Getting witnesses on-board for each and every field inspection will be difficult. This will involve too much administrative processes. Also, it would be difficult to identify witnesses.
 - ✓ During the inspection, if multiple SDAs identify a particular appliance model as non-compliant then the SDA which have identified it first shall be given the chance to file the case with SERC.
 - ✓ Retailers as well as complete supply chain should be held responsible for non-compliance observed in labels. There is a need to define legal mandate/kind of legal action that shall be taken in case of non-compliance in label particulars.
 - ✓ The penalty provisions shall be based on volume of damage done. This needs to be separately defined for non-compliance during label verification and during check testing. However, in none of the case the consumers are getting retrieved from the fraudulent actions. There should be some form of redressal mechanism for consumers.
- The project team had a discussion on filing cases with SERC. The EMC team shared that they have filed few cases with SERC and they can guide other SDAs in developing the case file.
- The team had a discussion on the use of a mobile app-based solution for conducting inspection. The EMC team shared their acceptance towards conducting inspection through the App.

B.8. Discussion with ASDA

The meeting with Guwahati, Assam, was held in the presence of entire team of ASDA and representative from BEE. It was attended by the following officials:

- Md. N. Huda, Chief Electrical Inspector, SDA Assam
- Utpal Gogoi, Member Secretary, AELB
- A. C. Khatoniar, Dy Chief Electrical Inspector
- Utpal Konwar, Dy Chief Electrical Inspector
- Ishan Jain, Project Engineer, BEE
- Rajeev Ralhan, Director, PwC
- Mohit Verma, Manager, PwC

The meeting began with a round of introduction by all members.

The discussions were useful to gauge the capacity building needs of the organisation and to understand their strong focus to support BEE in all energy efficiency schemes. The Chief Electrical Inspectorate along with his team at ASDA presented rich understanding of overall schemes of BEE and shared their full support for conducted MV&E activities for S&L programme.

Some of the key points discussed during the meeting are tabulated below.

ASDA's opinion	Description
Penetration of labelled appliances	ASDA shared that the penetration of labelled appliances specifically the ones in voluntary phase is low in the State. There is a need to build awareness amongst the retailers to promote the sale of energy efficient appliances. Also, it would be important to undertake outreach activities at mass level. The people in Assam are interested towards conserving energy and would be highly supportive in market transformation. However, they lack the technical know-how /benefits of BEE schemes. It is also observed that few people are confused between BEE and BIS markings.
Inspection of labels	ASDA suggested that before initiating the label verification through SDAs at PAN India level it would be important for BEE to inform all manufacturers / user of label in BEE S&L scheme about the activities that will be conducted by SDAs for label verification. This would help the inspection officers to obtain the support from local dealers and retailers during the inspection. Also, the manufacturers would be more cautious henceforth for their conformance with BEE guidelines.
Type of inspection	The officials of ASDA suggested the following: <ul style="list-style-type: none">• To start with a general inspection shall be done• This shall be followed by focussed inspection for selected points• If there is a change in star rating table for any appliance, then focussed inspection shall be held• Intimation to BEE for each inspection before the start of inspection

	shall be must
Target for annual inspection for SDAs	<p>How many products for an appliance type that a particular manufacturer has distributed for sale in the State is an important criteria for setting annual inspection targets for inspection.</p> <p>Each State differs in terms of their appliance needs, population, per capita income, power structure etc. Therefore, the sale of any particular type of appliance is somewhere high and somewhere low. The amount of product inflow in a State will provide an estimate of the number of inspections that shall be done.</p> <p>The BEE needs to develop a mechanism in which the annual targets for the label verification exercise are defined in a realistic manner.</p>
Conduct of inspection	<p>The project team presented the proposed process flow for inspection to be done by the SDAs for label verification. The ASDA officials acknowledged the proposed process and shared their acceptance for conducting inspection through mobile-GPS based devices.</p>
Local issues	<p>ASDA shared that execution of the proposed MV&E activities by SDAs would require a dedicated team /cell with clear roles and responsibilities. For ASDA being an electrical inspectorate it would be difficult to create a dedicated team of inspection. The resources in ASDA have mixed responsibilities and the team size is lean. Hence, BEE shall provide enough support for electrical inspectorate SDAs for conducting all activities.</p>
Getting witnesses on-board for each and every field inspection will be difficult	<p>Getting witnesses on-board for each and every field inspection will be difficult. This will involve too much administrative processes. Also, it would be difficult to identify witnesses.</p>
Clarity on which SDA should file complaint with SERC	<p>During the inspection, if multiple SDAs identify a particular appliance model as non-compliant then the SDA which have identified it first shall be given the chance to file the case with SERC.</p>

