

# PAT Scheme User Manual

Volume VI

for

**SDA/SERC**



# Imprint

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# Acknowledgment

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The 'PAT User Manuals' is prepared to provide all the procedures and guidance drawn from the Energy Conservation Act, Rules and Regulations pertaining to the PAT scheme, in a simple and lucid language. The dedicated versions for various stakeholders, labelled in different "volumes" enables the user to understand their roles and responsibilities in great details.

The shaping if these PAT User Manuals would not have been possible without the able and constant guidance of Shri Abhay Bakre, Director General, BEE, and support of Shri R K Rai, Secretary, BEE and the Directors, especially Shri Sunil Khandare, Shri Saurabh Diddi, Shri Milind Deore, and Ms. Vineeta Kanwal.

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I sincerely hope that efforts put in by the development team are useful for all the stakeholders in taking this scheme to the further heights.

Ashok Kumar  
Deputy Director General - BEE





# Preface

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World is witnessing climate change at an unprecedented pace. In India too, the effects of climate change are quite visible. India has been able to foresee this quite early and the Energy Conservation Act (EC Act) was enacted in 2001, for promotion of energy conservation and energy efficiency.

Bureau has been implementing several programmes on the promotion of energy efficiency in India under the ambit of the EC Act, 2001. One such scheme which proved to be a gamechanger in the Indian energy efficiency scenario was the Perform, Achieve and Trade (PAT) scheme. The PAT is part of National Mission for Enhanced Energy Efficiency (NMEEE) being implemented with regulations framework under the EC Act, 2001. The scheme focussed primarily on enhancing the energy efficiency of large energy intensive sectors through accelerated adoption of efficient and low-carbon technologies. Six cycles of PAT scheme have been launched till April, 2020, covering 1073 industries from 13 industrial and service sectors.

While implementing the PAT Scheme, it was felt necessary to provide all the stakeholders with user manual for effective discharge of their responsibilities. GIZ has been an active partner in the PAT scheme and also assisted in preparation of the PAT user manuals.

With the continued guidance of the Ministry of Power, BEE acknowledges the efforts of all the stakeholders in the journey of PAT so far and wishes more success in the coming years. I hope PAT user Manuals will guide the stakeholders to understand the procedures, Rules, Regulations and will assist then in smooth implementation of the scheme.

Abhay Bakre  
Director General - BEE



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# Introduction to PAT Scheme

The Ministry of Power launched the National Mission for Enhanced Energy Efficiency (NMEEE) under the National Action Plan on Climate Change (NAPCC) with the objective to strengthen the market for energy efficiency through implementation of innovative business models in the energy efficiency sector. NMEEE consist of four initiatives to enhance energy efficiency which are: Energy Efficiency Financing Platform (EEFP); Market Transformation for Energy Efficiency (MTEE); Framework for Energy Efficient Economic Development (FEEED) and Perform Achieve and Trade (PAT).

The Perform, Achieve and Trade (PAT) Scheme is a programme focused on reducing energy consumption and promoting enhanced energy efficiency among energy intensive industries in the country. BEE is the implementing agency for the PAT scheme across the country. PAT is a market-based mechanism in which identified energy intensive industries and other establishments (called Designated Consumers) are given targets for reducing their Specific Energy Consumption (SEC). The SEC targets for each plant are different and are set by BEE based on energy efficiency performance and classification, e.g., similar processes, CPP/Non CPP, etc. The DCs need to achieve the SEC targets in a 3-year period which is called a PAT cycle. DCs which over-achieve the given SEC target will get incentives in the form of energy saving certificates. These certificates are tradeable and can be bought by other DCs which are unable to achieve their targets. Alternately, the DCs unable to achieve the target would have to pay the penalty, at the price determined and notified by the BEE, which is the price of metric tonne of oil equivalent.

The price of these certificates is determined by the market.

The PAT scheme in its first cycle, operationalized in April 2012 covered 478 industries known as 'Designated Consumers (DCs)' from 8 sectors: Aluminium, Cement, fertilizer, Pulp & Paper, Thermal Power Plant, Chlor-Alkali, Iron & Steel and Textile. Since 2016, PAT is under rolling cycle and new industries and new sectors get added every year. Subsequently new industries and new sectors like Railways, Petroleum Refinery, Petrochemical, DISCOM, Hotels (under commercial buildings) and Airports are also being covered under PAT. As of April- 2019, 956 No. of DCs from 13 energy intensive sectors are notified as Designated Consumers based on their annual energy consumption as given in Table 1.

Who are Designated Consumers (DCs)? - "Every energy intensive industry and other establishments whose annual energy consumption is equal to or greater than the threshold limit specified in the central Government notifications (referred in Table 1, shall be deemed to become Designated Consumer and consequently he shall be considered liable under Section 26 (Energy Conservation Act, 2001) for imposition of penalty for his failure to comply with obligations of DC." It is mandatory for DCs to meet specific Energy Consumption Norms and Standards and requirements under PAT scheme.

The State Designated Agency (SDA) is State Nodal Agency for coordinating, monitoring and Enforcement of PAT scheme in concerned States. The SDA take required action in case of non-compliance by any DC. The State Electricity Regulatory Commission (SERC) is the Adjudicator for holding legal inquiry, after giving a reasonable opportunity of being heard to any person concerned (DC) for purpose of imposing penalty under Section 26 of the EC Act, 2001. These user manuals will detail out activities and interactions needed to be taken up by SDA and SERC with PAT stakeholders for successful implementation of PAT scheme.



Sectors	Minimum Annual Energy Consumption [Threshold] in Metric Tonne of Oil Equivalent (toe)	Reference Notifications
Aluminium	7500	S.O. 394 (E) dated 12th March 2007
Chlor-Alkali	12000	
Fertilizer	30000	
Textile	3000	
Thermal Power Plant	30000	
Cement	30000	
Cement Grinding Units	10000	S.O. 2147(E) dated 17th June 2020
Iron & Steel	20000	S.O. 394 (E) dated 12th March 2007 amended vide S.O.968(E) dated 22nd February 2019
Paper & Pulp	20000	
Petroleum Refinery	90000	S.O. 394 (E) dated 12th March 2007 amended vide S.O. 3542 (E) dated 29th December 2015 (Annexure 4B)
Electricity Distribution Companies (DISCOMs)*	86000	
Railways#		S.O. 394 (E) dated 12th March 2007 amended vide S.O. 3542 (E) dated 29th December 2015 (Annexure 4B), amended vide S.O. 2022(E) dated 8th June, 2016 and S.O. 2147(E) dated 17th June 2020
(a) All Zonal Railways (Traction)	70000	
(b) Workshops	750	
Petrochemical (Gas Crackers and Naphtha Crackers)	100000	S.O. 3600 (E) dated 15th November 2017 (Annexure 4D)
Hotels (under Commercial Buildings or Establishments)	500	S.O.1388 (E) dated 2nd May 2017 (Annexure 4C) amended vide S.O.968(E) dated 22nd February 2019
Airports (under Commercial Buildings or Establishments)	500	S.O. 2147(E) dated 17th June 2020
* Energy consumption of DISCOMs shall be considered equivalent to the total of Aggregate Technical & Commercial (AT&C) losses, which is equivalent to 1000 million kWh.		
# The notification for eight production units of Railways is done by their name.		

Table 1: Industry wise Threshold for Notification of Designated Consumers (DCs)

PURPOSE
This user manual is prepared to enlist the activities to be taken up by SDA and SERC for smooth implementation of the PAT Scheme in the country. This user manual will standardize and simplify the procedure to be followed by SDA and SERC under the EC Act and PAT requirements.
SCOPE
This user manual is applicable to the State Development Agency (SDA) and State Electricity Regulatory Commission (SERC) only. These user manuals covers the detailed list of activities to be taken up by SDA and SERC as defined under EC Act and PAT Notification.

# User Manual for SDA and SERC under Energy Conservation Act and PAT requirements

## ACTIVITY 1

### Identify and suggest Energy Intensive sectors for inclusion under PAT scheme to BEE

- 1.1 The State Development Agency (SDA) to take up sector specific studies to identify the energy saving potential in various energy intensive sectors and suggest the identified sector to BEE for inclusion under PAT scheme. The study should focus on:
  - a) Sectors already notified by BEE as designated consumer sector
  - b) Probable sectors suggested/undertaken for feasibility study, by BEE for inclusion in the PAT scheme
- 1.2 The SDA study for identification on energy intensive sectors should detail the number and production capacities of the industries in the specific sector; specific energy consumption in the sector; technological developments and estimate energy saving potential in the sector.
- 1.3 The SDA shall coordinate with industrial departments of state, other state departments, commissioner of industry, district industry centres, DISCOMs, etc. to identify prospective DCs in existing sectors and new sectors.

## ACTIVITY 2

### Preparation of list of Energy Intensive Industries/DCs by SDA

- 2.1 The SDA should prepare a list of energy intensive industries and DCs in their respective States and share the list with BEE from time to time.

- 2.2 The DCs list should contain its address, contact details of Energy Managers and head of the plant, their energy consumption and production details etc. This list to be updated by SDA from time to time.

## ACTIVITY 3

### Support BEE in communicating PAT Notifications to DCs

- 3.1 Support BEE in communicating PAT Notifications (e.g. notified threshold limits, SEC targets, rules, regulations, etc.) to relevant industries/DCs. The following activities can be taken up by SDA to support BEE:
  - Provide updated list of industries of relevant sector to BEE for dissemination of PAT Notifications
  - Engage with sector/state specific industry associations to reach out to relevant DC sector.
  - Conduct state level workshops for concerned industries to communicate PAT Notifications and actions to be taken by potential DCs.
  - Support BEE in Regional Awareness and orientation workshops for DCs to get familiarize with sector specific proforma and PAT process with the support from BEE.
  - Coordinate with the BEE and DCs in getting the baseline verification, check verification, etc. conducted and maintaining a record of same.

## ACTIVITY 4

### Monitor the submission of Form 1, Form

## 2, Action Plan and Form 3 by DCs

Ref: Clause (h) of Section 15 of EC Act, 2001

4.1 The SDA to monitor and keep a track that DCs submit the following requisite information to SDA with a copy to BEE:

4.1.1 All DCs to Designate or Appoint a 'BEE Certified Energy Manager' in their plant having the minimum qualification as specified in Energy Conservation (Minimum Qualification for Energy Manager) Rules, 2006 and Certified under BEE Regulations, 2010 (S.O. 318 (E) dated 7th March, 2007).

4.1.2 All DCs to submit a report in electronic form to the SDA with a copy to the BEE, on the status of energy consumption in Form 1 (Sector Specific Proforma) within 3 months from the end of each financial year, as prescribed in the Energy Conservation (the form and manner for submission of report on the status of energy consumption by the designated consumers) Rules 2007 (GSR 891 (E) dated 19th November, 2015). A copy of Form 1 is enclosed as Annexure II.

4.1.3 All DCs to get an Energy Audit conducted by an Accredited Energy Auditor (AEA) – Every DC needs to get its first Energy Audit conducted by an AEA within 18 months of the notification issued by the Central Government (S.O. 1378 (E) dated 27th May 2014). The subsequent energy audit by DC should be conducted after 3 years from the date of submission of previous energy audit report by the AEA in accordance with the BEE (Manner and Intervals of Time for Conduct of Energy Audit) Regulations, 2010 notified vide. 02/11(6)/05-BEE dated 28-4-2010.

4.1.4 All DCs to furnish the information based on the Energy Audit report in Form 1 (Details of validated data on energy consumed) and Form 2 (recommendations made by AEA in the energy audit report) after getting the

same authenticated by the concerned AEA and the Energy Manager in electronic form as well as in hard copy to the concerned SDA with copy to BEE (Clause 3 and 4, GSR 486 (E) dated 26th June 2008), within 3 months of the submission of Energy Audit Report by the AEA to DC. Form 3 (Details of energy efficiency improvement measures implemented) to be submitted within 3 months from end of subsequent financial years, every year until next audit is conducted. A copy of Form 2 is enclosed as Annexure III and Form 3 as Annexure IV.

4.1.5 As per PAT Rule 3, sub rule 2, Every DC, within 3 months of the issue of relevant PAT notification shall submit a scheme to the concerned SDA with a copy to BEE (PAT Rule 5, sub rule 1) which may include:

- 'Action Plan' containing a brief description of identified energy saving measures which would be implemented during PAT cycle to comply with SEC targets.
- Details of estimated cost of each identified energy saving scheme
- Details of implementation plan to achieve the SEC targets through implementation of energy saving measures or through purchase of energy saving certificates
- The plant may prepare the 'Action Plan' based on Energy Audit recommendations or as per any other inhouse study suggestions. No specific format for action plan has been envisaged, but it should contain the above-mentioned details.

4.2 The SDA to review the information submitted by DCs in Form 1, 2 & 3. Comments/ observations, if any, may be forwarded to BEE.

4.3 In case DCs do not submit Form 1, 2 & 3 and other requisite information or the submitted

information is incomplete; then SDA will issue a 'show cause notice' to the concerned DC for not submitting the requisite forms or for submitting incomplete information.

- 4.4 In case of non-satisfactory response from concerned DC and/ or non-compliance, the SDA may take up the case before the concerned State Electricity Regulatory Commission (SERC), through Inspecting Officer, for initiating adjudication procedure against concerned DC/s under section 27 as per EC Act and PAT Rules with information to BEE. The process of Inspection and Adjudication are explained in forthcoming activities.

## ACTIVITY 5

### Monitor and review the Performance Assessment Document (PAD) submitted by DCs

Ref: PAT Rule 6 –Assessment of performance – [Clause 7]

- 5.1 The SDA shall ensure that coal samples are picked up at random through an independent agency engaged by it from the auto-sampler and get the same sample tested at the internal lab of the designated consumer and external National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited lab for GCV and proximate analysis of coal, in the target year.
- 5.2 The DC will Submit verified Performance Assessment Document (PAD) that is 'Form A', Certificate of Verification' i.e., Form B, M&V Report and other supporting documents to SDA with a copy to BEE within 4 months of completion of the target year. A copy of Form A is enclosed as Annexure V and Form B is as Annexure VI.
- 5.3 After submission of duly verified Form A by DC, SDA may convey its comments, if any, on 'Form A' to the BEE within 45 days of the last date of submission of 'Form A'.
- 5.4 SDA to keep the record of submission of Form A, B, etc. of the DCs in its State. Incase,

the documents are not submitted within the timelines, SDA shall send reminders and show cause notices to such DCs.

## ACTIVITY 6

### Monitor and review Compliance report (Form D) of DC

Ref: PAT Rule 13, sub rule 1

- 6.1 The DC for the purpose of compliance with the energy consumption norms and standards during the target year, in the relevant cycle should furnish the status of compliance to the SDA with a copy to BEE in 'Form D' by the end of eight months from the last date of submission of Form "A". A copy of Form D is given in Annexure VII.
- 6.2 Once the DC submit its compliance report in Form D to SDA with a copy to BEE, the SDA shall keep a record of it.
- 6.3 Where the SEC target has not been met, the DC shall purchase energy saving certificates to meet the assigned target or pay the penalty, as applicable, as per the Section 26 of EC Act, 2001 and amendment in 2010.
- 6.4 If the DC fails to comply with the provisions of PAT rules and meet the SEC targets, the DC shall be liable to penalty which shall not exceed (ten lakh rupees) for each such failure and in case of continuing failure, with an additional penalty which may extend to (ten thousand rupees) for everyday during which such failure continues.
- 6.5 The level of severity and repetitiveness of any non-compliance are the main criteria to quantify the penalty to be imposed. For example, In the compliance report, if the balance ESCerts are not zero or positive, then it's non-compliant. The minimum penalty for the non-compliance can be calculated as:  
  

$$\text{Minimum Penalty} = [\text{Number of negative balance ESCerts}] \times [\text{Value of 1 toe}]^*$$

\*(The value of 1 toe for the relevant cycle as declared by BEE)
- 6.6 The SDA to issue notice to concern DC that they have not complied with energy consumption

norms and standards in relevant PAT cycle and shall be liable to a penalty under section 26 clause (1A).

- 6.7 The SDA to appoint Inspecting Officer to undertake inspection and file the case before the concerned State Electricity Regulatory Commission (SERC) for initiating adjudication procedure for Non-compliance by DC under section 27 as per EC Act and PAT Rules with information to BEE. The process of 'Inspection' and 'Adjudication' are given in below activities.

## ACTIVITY 7

### Inspection against concerned DC/s for Non-compliance under EC Act and PAT Requirements

Ref: The Energy Conservation (Inspection) Rules, 2010 and amendments in 2011 and 2019

Ref: Handbook for Implementation of Provisions of The Energy Conservation Act, 2001-Version 1, BEE – 2019

- 7.1 The process of inspection would be initiated on occurrence of violation of relevant clauses of section 14 and 15 of the EC Act, 2001. The process of inspection would be as per the Energy Conservation (Inspection) Rules, 2010 and its subsequent amendments in 2011 and 2019. The summary of the Inspection process is given below:
- 7.1.1 The SDA may, appoint inspecting officer under sub-section (1) of section 17 of EC Act, 2001 from amongst its officers holding a post equivalent or in the rank of Under Secretary to the State Government. The appointed inspecting officer shall have following educational qualification and experience:
    - 7.1.2 The inspecting officer should be a 'graduate engineer' who has obtained a bachelor's degree in Engineering from an University incorporated by an Act of the Central or State Legislature in India or other educational institutions established by an Act of Parliament or declared to be deemed Universities under section 3 of the University Grants Commission Act, 1956 (3 of 1956) or any degree recognised by the All India Council for Technical Education as equivalent or has obtained a bachelor's degree in Engineering from any foreign University or institution recognised by the Central Government.
  - 7.1.3 The appointed inspecting officer should have minimum professional experience of three years in the field of energy conservation or energy efficiency in the State designated agencies or any Department or Office of the Central Government or a State Government.
  - 7.1.4 The SDA, after being satisfied that there are adequate reasons for undertaking such inspection, issue the authority and direction to the inspecting officer to carry out the inspection.
  - 7.1.5 The SDA shall intimate the decision for undertaking inspection to the Director-General of the Bureau, within a period of fifteen days.
  - 7.1.6 An inspecting officer shall, at the time of carrying out inspection in the DC's premises, produce a certificate of appointment as an inspecting officer or an authority for undertaking such inspection.
  - 7.1.7 The inspecting officer, after recording reasons in writing, shall, wherever necessary, can make consultation with accredited energy auditor, laboratory or professional organization approved by the Bureau. Provided that the accredited energy auditor or professional organisation chosen for consultation shall not have undertaken any energy audit or done anything in relation to such unit of designated consumer or premises of manufacturer or energy intensive industry during the previous four years from the date of inspection.
  - 7.1.8 After undertaking inspection, Inspecting Officer shall prepare an inspection report and submit the inspection report to the SDA within ten working days from the date of inspection. The inspecting officer in

his report shall bring 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. The report for inspection of designated consumers shall be made in Form II format as given in Inspection Rules, 2019 (enclosed as Annexure VIII).

- 7.1.9 The SDA shall examine the inspection report submitted by the inspecting officer and if it is satisfied on such examination and forms an opinion on the basis of the material facts contained in the said report that there is conclusive material in support of non-compliance with any of the provisions referred to in section 26, the SDA shall give directions to the Inspecting officer to file the case before the concerned State Electricity Regulatory Commission, under intimation to the Bureau (DG, BEE).
- 7.1.10 SDA shall define the timelines to meet the deadline for filing the petition to SERC within 2 months. A copy of Letter conveying the direction of SDA to Inspecting Officer for filing of Petition in the format as given Annexure IX.
- 7.1.11 As per the direction from SDA, the inspecting officer shall file the case through a Petition before the concerned State Electricity Regulatory Commission (SERC) for initiating adjudication proceedings against the person concerned under section 27 for imposing penalty under section 26. A detailed flow chart of Inspection process is given in Figure 2. The Inspecting officer needs to prepare and file a Petition along with the fees before the SERC within two months from the date of receipt of inspection report by SDA.
- 7.1.12 The SDA shall send to the Bureau, a copy of the inspection report, and the case filed, together with all the supporting documents.
- 7.2 On receipt of Petition from SDA, the SERC shall appoint any of its members to be an

adjudicating officer for holding an inquiry in such manner as may be prescribed by Central Government, for the purpose of imposing any penalty on the person who has failed to comply with the provisions of any of the clauses of the sections specified in section 26 of EC Act, 2001.

## ACTIVITY 8

### SERC to undertake Adjudication Process on receipt of a Petition from SDA against concerned DC/s for Non-compliance under EC Act and PAT Requirements

Ref: Clause (1) of section 27 of EC Act, 2001

Ref: G.S.R. 25 dated 25.02.2009 Energy Conservation (Manner of holding inquiry) Rules, 2009

Ref: Handbook for Implementation of Provisions of The Energy Conservation Act, 2001-Version 1, BEE - 2019

- 8.1 The respective SERC, on receipt of Petition from SDA, examine it to ensure that it is complete in all respect, admit the same, and appoint an Adjudicating Officer under section 27 of the Act for holding an inquiry under the Inquiry rules as per The Energy Conservation (Manner of holding inquiry) Rules, 2009. The summary of adjudication process is given below:
  - 8.1.1 The respective SERC, on receipt of Petition, examine it to ensure that it is complete in all respect, admit the same, and appoint an Adjudicating Officer under section 27 of the Act for holding an inquiry under the Inquiry rules.
  - 8.1.2 The SERC to Scrutinize the Petition and check if the Petition is complete in all respects and is in conformity with the relevant regulations of SERC.
  - 8.1.3 If the Petition is incomplete and defective then, SERC Receiving Officer shall advise the Inspecting Officer of the SDA on the defects identified in the Petition and give appropriate time to rectify the defects and resubmit the Petition.



- 8.1.4 The Inspection Officer to rectify the defects and inconsistencies in the Petition, as per the notice issued by Receiving Officer (SERC) and submit the Petition complete in all respects to the Receiving Officer of the SERC, within the timeline specified by the respective SERC.
- 8.1.5 If the Petition is complete in all respects; SERC (Receiving Officer) will duly register the Petition and shall give a number and place the petition before the Commission for admission.
- 8.1.6 For the purpose of adjudicating under section 26 of EC Act, the SERC shall appoint any of its members to be an adjudicating officer (AO) for holding an inquiry in such manner as may be prescribed by Central Government.
- 8.1.7 The SERC will send the copy of the order of appointment of Adjudicating Officer under Act to all the concerned parties (Petitioner, Respondent(s)).
- 8.1.8 The SERC shall admit the Petition and proceed the Petition to the Adjudicating Officer who has been appointed for adjudication of non-compliances under Energy Conservation Act, 2001 (In case Adjudicating Officer is already appointed for such purposes).
- 8.1.9 Adjudicating Officer (AO) Shall Issue notice to the concerned person containing the particulars of violation under Section 26 (1) and 26 (1A) to the person concerned requiring him to appear before the Adjudicating Officer within twenty-one days from the date of issue of such notice. Shall provide an opportunity of being heard to the concerned person(s) to present their case.
- 8.1.10 Concerned Person(s) (CPs) Shall reply to the notice issued by AO and justify as to why an inquiry should not be held against him with regard to the particulars of violations stated in the notice.
- 8.1.11 In the reply filed, the concerned person(s) shall specifically admit, deny or explain the facts stated in the notice and may also state such additional facts as he considers necessary for a just decision in the matter. The reply shall be signed and verified and supported by affidavit.
- 8.1.12 The Concerned Person(s) shall appear before the Adjudicating Officer in person, justifying the noncompliance alleged against him within 21 days from issuance of notice from the Adjudicating Officer.
- 8.1.13 If the concerned person does not appear before the Adjudicating Officer in the notice time; Adjudicating Officer (AO) shall proceed with the inquiry against the concerned person in the absence of such person and shall record reasons in writing for doing so.
- 8.1.14 The concerned party may file an application within 30 days of such decision and AO may recall the order if AO is satisfied that there was sufficient cause for the non-appearance of the concerned person, when the petition was called on for hearing.
- 8.1.15 If the concerned person appears before the Adjudicating Officer along with the reply to the notice issued by AO; Officer (AO) Shall give an opportunity to the concerned person to be heard and justify his case and produce documents/proofs/material on record which become grounds for validating that there was no such non-compliance carried out by the concerned person against the provisions of the Energy Conservation Act.
- 8.1.16 The AO shall hear pleadings of both the parties (Petitioner and the Respondent) during the hearing. May direct both the parties to provide documents in support of statements made during hearing of the matter.
- 8.1.17 Adjudicating Officer (AO) Shall record his findings and pass order on the Petition under his seal and signature.



- The AO shall complete the inquiry within sixty days from the date of issue of the notice. If the inquiry may not be completed within the period of sixty days, the Adjudicating Officer may after recording reasons in writing, seek extension of time from the SERC for a further period of sixty days.
- 8.1.18 All final orders of the Adjudicating Officer shall be communicated to the parties in the proceeding.
- 8.1.19 On completion of inquiry, the said Adjudicating Officer shall record his findings and if he is satisfied on the basis of his findings that the person has failed to comply with the provisions of any of the clauses specified under section 26 (1) and 26(1A), he shall impose penalty under sub-section (2) of section 27, taking into account the provisions of section 28 of the EC Act, 2001. A detailed flow chart of Adjudication process is given in Figure 3.
- 8.1.20 The Concerned Person or SDA can file an appeal before the Appellant Tribunal for Energy Conservation if the said person is not satisfied with the Order of the AO appointed by SERC, Within 45 days from the date on which a copy of the Order issued by AO is received by aggrieved person. The detailed procedure for filing the appeal before the Appellate Tribunal for Energy Conservation are given in Section 30 and 31 of EC Act, 2001.
- 9.1.1 A notice will be issued by BEE to DC and EmAEA who has submitted the Verification report with a copy to concern SDA, asking for clarifications on the reported errors.
- 9.1.2 The DC & EmAEA should reply and give clarifications within 15 days from the date of the notice – either stand by the compliance report (Form D) or accept the errors.
- 9.1.3 Within 2 months after receiving comments from DC & EmAEA, BEE will decide to undertake or not to undertake the review and will intimate its decision to DC and EmAEA and complainant.
- 9.1.4 In case BEE decides to undertake review, it will appoint an EmAEA who has not performed the Monitoring & verification for the concerned DC. The appointed EmAEA will conduct the Check & verification of Form A and other documents and review the M&V process. Refer PAT Rule 8 for details on procedure for Check-Verification (CV).
- 9.1.5 The EmAEA will prepare a CV report and would submit a Certificate in 'Form C' to the BEE and concerned SDA. A copy of Form C is given as Annexure X.
- 9.1.6 If EmAEA records in his CV report a positive opinion, it will be concluded that the DC has met all the requirements with regard to the compliance with SEC target and issue or purchase of ESCerts.
- 9.1.7 If EmAEA records in his CV report a negative opinion, the effect of such opinion on SEC targets and on issue or purchase of ESCerts should be calculated by EmAEA.
- 9.1.8 The SDA may furnish its comments on the CV report within 1 month from the receipt of the report from EmAEA.
- 9.1.9 The BEE after expiry of 1 month will issue a show cause notice to DC and his EmAEA specifying the errors.

## ACTIVITY 9

### Support BEE in Check Verification (CV) of DCs

Ref: PAT Rule 8

- 9.1 BEE may on its own or on receipt of a complaint regarding any error or inconsistency or misrepresentation may undertake review of 'Compliance Report' of any DC through Check Verification process within 1 year from the date of submission of Compliance Report as per the following procedure:

9.1.10 The DC and his EmAEA shall submit their reply within a period of 15 days to BEE.

9.1.11 The BEE after examining the said reply to the show cause notice will forward the report to concerned SDA specifying the following details for the purpose of initiating the penalty proceedings, namely: (PAT Rule 8, sub-rule 14).

- The number of ESCerts wrongfully obtained by the DC on the basis of Verification report found to be wrong and false on CV
- The number of ESCerts which the DC was liable to purchase for non-compliance of SEC target as found in the CV report
- Details of misrepresentation, if any and the unfair gain due to such misrepresentation
- The cost of Check-Verification.

9.1.12 The SDA within 2 months from the date of receipt of the report will initiate the penalty procedure on DC and EmAEA. The SDA shall initiate following actions:

- a. Actions to recover from the DC the loss of the central government by way of unfair gain to the DC.
- b. Penalty proceedings against the persons mentioned in the said report, under intimation to the BEE.

- c. Register complaint for such fraudulent unfair gain if DC does not pay penalty and loss to the exchequer in the specified time mentioned in the penalty proceedings.

## ACTIVITY 10

### Central Government and State Government Power to exempt DCs from PAT compliance

Ref: Section 53 of EC Act, 2001

10.1 If the Central Government or the State Government is of the opinion that it is necessary or expedient so to do in the public interest, it may, by notification and subject to such conditions as may be specified in the notifications, exempt any DC or class of DC from application of all or any of the provisions of this Act.

10.2 Provided that the Central Government or the State Government, as the case may be, shall not grant exemption to any DC or class of DCs for a period exceeding five years.

10.3 Provided further that the Central Government or the State Government, as the case may be, shall consult the BEE before granting such exemption.

#### Key Contacts

Contact details of concerned officials for PAT and Contact Details of PATNeT Officials are given on the BEE Website <https://beeindia.gov.in>

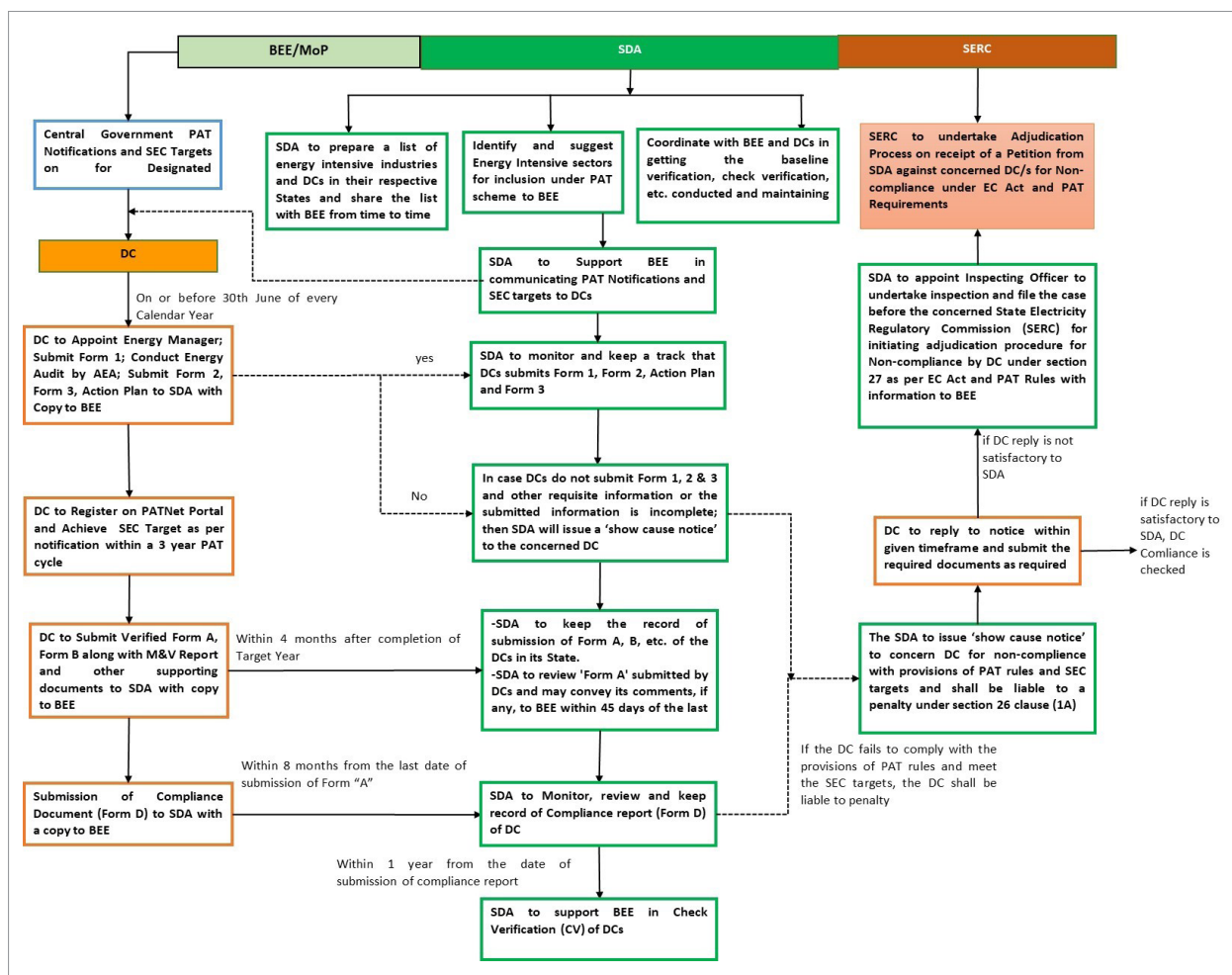
Table 2: Key Documents and Submission Timelines for PAT Cycle

Key Documents	Description	Activity	Where to Submit	Timeline and Frequency of submission	Dates for PAT Cycle	Reference Copy
Action Plan	Contains brief description of identified energy saving measures by DC which would be implemented during PAT cycle to comply with SEC targets	To be submitted by DC	To SDA with a copy to BEE	Once in 3 years; within 3 months from relevant PAT Notification	30th June	-
Form 1 (sector specific Proforma)	Contains status of production and energy consumption of DC as per sector specific proforma	To be submitted by DC	To SDA with a copy to BEE	Yearly submission; within 3 months of the end of a Financial Year	30th June	Enclosed as Annexure II
Form 2	Contains details on action taken on recommendations made by AEA in the energy audit report for improving energy efficiency of the DC	To be submitted by DC	To SDA with a copy to BEE	Once in 3 years; within 3 months of the submission of Energy Audit Report by the AEA to DC		Enclosed as Annexure III
Form 3	Contains details of energy efficiency improvement measures implemented, investment made, energy savings achieved, progress made in the implementation of other recommendations. during a FY	To be submitted by DC	To SDA with a copy to BEE	Yearly submission; within 3 months of the end of a Financial Year	30th June	Enclosed as Annexure IV
Form A (Performance Assessment Document)	Covering the performance of DC during relevant PAT cycle on energy conservation specifying the compliance with the SEC targets verified by EmAEA during Monitoring & Verification process	To be submitted by DC along with Form B and other documents	To SDA with a copy to BEE	Within 4 months of completion of target year	31st July	Enclosed as Annexure V
Form B	EmAEA Certificate of Verification of achievements of energy conservation norms and standards by the DC	To be submitted by EmAEA	To DC & BEE	Within 4 months of completion of target year	31st July	Enclosed as Annexure VI

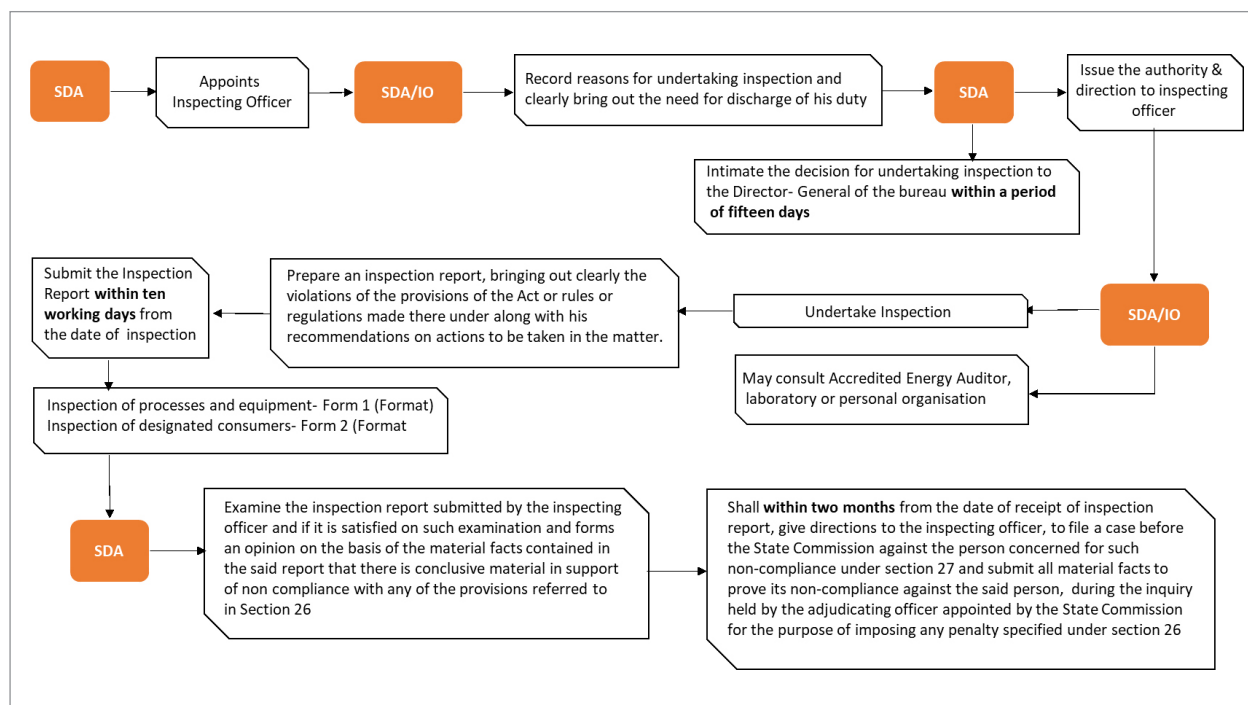
Key Documents	Description	Activity	Where to Submit	Timeline and Frequency of submission	Dates for PAT Cycle	Reference Copy
M&V Report	Details of the verification process, results of assessment and EmAEA opinion along with supporting documents, conclusion relating to DC compliance with energy consumption norms and standards etc. as per BEE format; prepared by EmAEA for DC.	To be submitted by DC along with Form A, B and other relevant documents	To SDA with a copy to BEE	Within 4 months of completion of target year	31st July	Suggested format is enclosed as Annexure XI
Submission of Comments on Form A, Form B to BEE	The SDA will review the Verified Form A which contains the performance of DC during relevant PAT cycle on achievement of SEC target and may convey its comments if any on Form A to the BEE	To be submitted by concerned SDA	To BEE	Within 45 days of the last date of submission of Form A by DC	15th September	
Recommendation of ESCerts to MoP, Gol	The recommendation will specify the exact number of energy Savings Certificates to be issued or entitle to purchase by each DC to meet the compliance	To be submitted by BEE	To Central Government, MoP, Gol	Within 2 months from the date of the receipt of the comments from SDA	15th November	
Issuance of ESCerts by MoP	The MoP will issue the ESCerts in Electronic Form based on the recommendation from BEE	To be issued by MoP	To DC	Within 45 days from the date of receipt of the recommendations of ESCerts from BEE	31st December	
Form D	Contains details of status of compliance of DC with the energy conservation norms and standards	To be submitted by DC	To SDA with a copy to BEE	Within 8 months from last date of submission of Form A by DC to SDA with a copy to BEE	31st March	Enclosed as Annexure VII
Form C	EmAEA Certificate of Check-Verification of achievements of energy conservation norms and standards by the DC	To be submitted by EmAEA	To BEE	Within 1 year from the date of submission of compliance report	31st March	Enclosed as Annexure X

Key Documents	Description	Activity	Where to Submit	Timeline and Frequency of submission	Dates for PAT Cycle	Reference Copy
Form II	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	To be submitted by the Inspecting Officer appointed by SDA	To SDA	Within ten working days from the date of inspection		Enclosed as Annexure VIII
Format of Letter conveying the direction of SDA to Inspecting Officer for filing of Petition	Format of Letter conveying the direction of SDA to Inspecting Officer for filing of Petition	SDA to direct Inspecting Officer to file the case	To Inspecting Officer	Within two months of date of receipt of the Inspecting report		Enclosed as Annexure IX
TOE threshold limit	13 DC sectors with toe threshold limit					Table 1
TOE Calculation method	The standard method of converting different type of energy in TOE					Enclosed as Annexure I

Figure 1: Process flow diagram of each activity of SDA and SERC (Adjudicator) under PAT Scheme



**Figure 2: The Process of Inspection by SDA appointed Inspecting Officer**



**Figure 3: The Process of Adjudication by SERC appointed Adjudicating Officer**

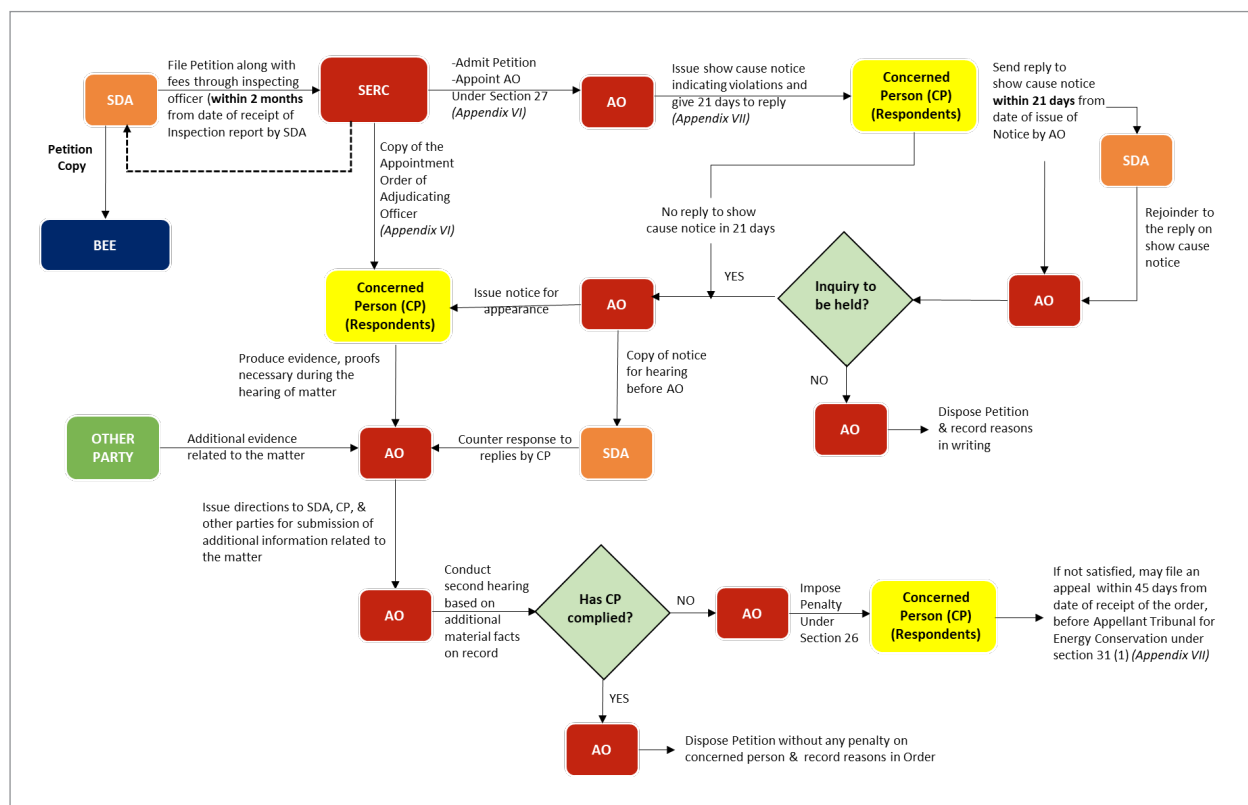
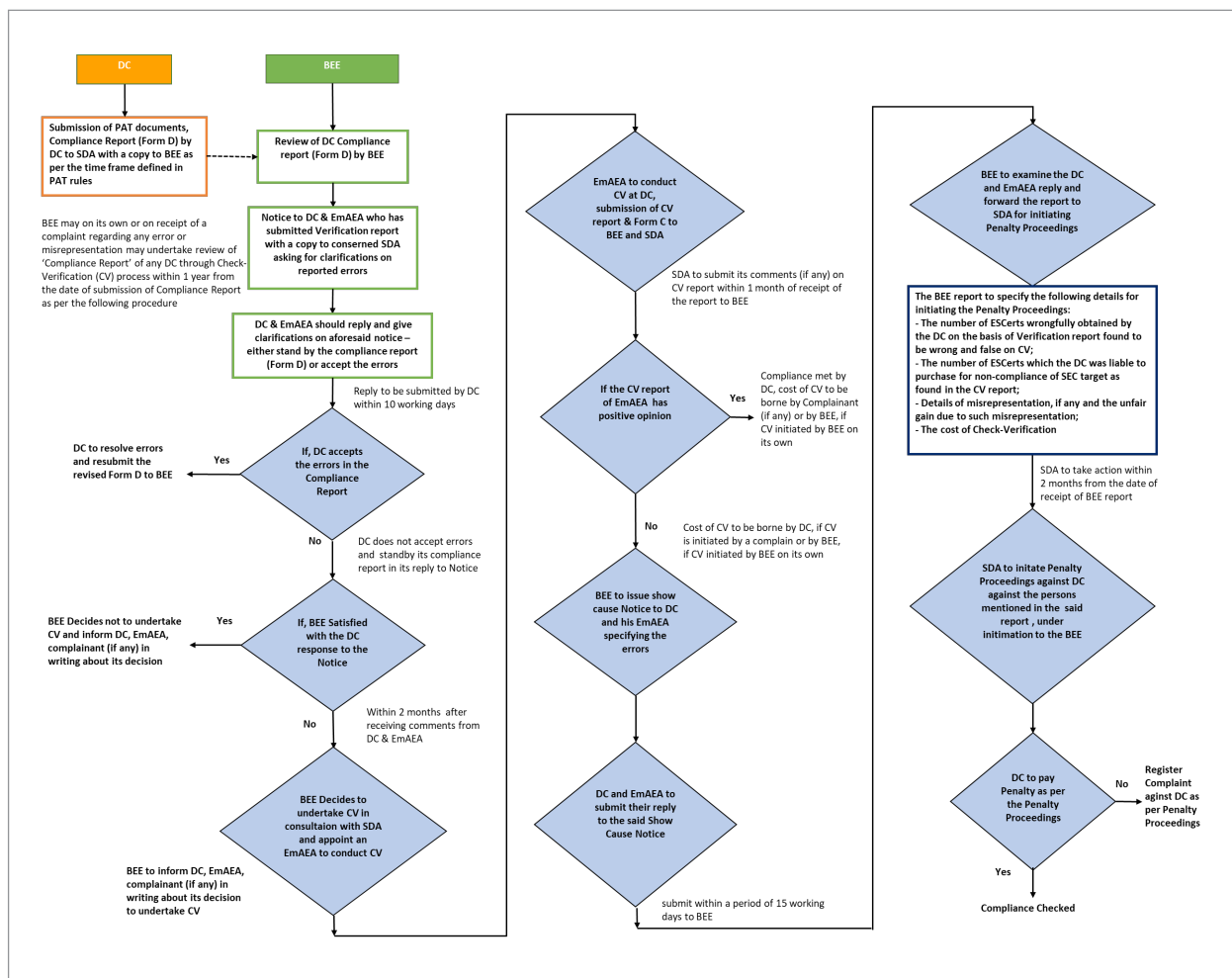




Figure 4: Process of Check Verification



## REFERENCES

### List of Reference Documents

- Energy Conservation Act, 2001 and amendment in 2010
  - BEE (Minimum Qualification for Energy Manager) Rules, 2006
  - BEE (Certification Procedures for Energy Managers) Regulations, 2010
  - BEE (Manner and Intervals of Time for Conduct of Energy Audit) Regulations, 2010 and as amended from time to time
  - BEE (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010, notification no. 02/11(7)/09-BEE dated 31st March, 2010
  - Energy Conservation (The Form and Manner for Submission of Report on the Status of Energy Consumption by the Designated Consumers) Rules, 2007 notified vide, GSR 174(E) dated 2nd March 2007 and as amended from time to time
  - Energy Conservation (Form and Manner and Time for Furnishing Information with regard to Energy Consumed and Action Taken on Recommendation of Accredited Energy Auditor) Rules, 2008 notified vide GSR 486 (E) dated 26th June 2008
- Ministry of Power PAT Rules and Notifications as and when notified:**
- PAT Rules- 30th March 2012
  - PAT Rules, Amendment- 31st March 2016
  - PAT Rules, Amendment -2018, 26th April, 2018
- [The PAT rules are called as "Energy Conservation (Energy Consumption Norms and Standards for Designated Consumers, Form, Time within which, and Manner of Preparation and Implementation of Scheme, Procedure for Issue of Energy Savings Certificate and Value of Per Metric Tonne of Oil Equivalent of Energy Consumed) Rules']
- S.O. 687 dated 30. Mar 2012- Targtes under PAT - I
  - S. O. 1264(E), 31st March, 2016, Notification for PAT Cycle II
  - S.O. 2022 (E), dated 8th June, 2016, Corrigendum for Railway Sec. under PAT II
  - S.O. 998(E), 30th March, 2017, Notification for PAT Cycle III
  - S.O. 1348(E), 28th April, 2017 , Corrigendum of Targets under PAT III
  - S.O. 1409(E), 28th March, 2018, Notification for PAT Cycle IV
  - S.O. 1473(E), 29th March, 2019, Notification for PAT Cycle V
  - S.O. 2673. dated 30th Sep, 2015, Exemption of NLC-1 from PAT I
  - S.O.1378(E) dated 27th May 2014
  - S.O. 394 (E) dated 12th March 2007
  - S.O. 3542 (E) dated 29th December 2015 (Annexure 4B)
  - S.O. 2022(E) dated 8th June, 2016
  - S.O. 3600 (E) dated 15th November 2017 (Annexure 4D)
  - S.O.968(E) dated 22nd February 2019
  - S.O. 2147(E) dated 17th June 2020
  - Handbook for Implementation of Provisions of The Energy Conservation Act, 2001-Version 1, BEE - 2019
  - CERC approved Procedure for Transaction of ESCerts on 14th Feb 2017'
- BEE Website: <https://beeindia.gov.in/>

## ANNEXURE I:

### TOE Calculation method

The details of toe calculation method is given below. The SO 394(E) dated 12th March, 2007 can also be referred for the same.

- i. Tonnes of Oil Equivalent (toe): One ton of oil equivalent (toe) is, unit of energy, based on the amount of energy released by burning one tonne of oil.

$$1 \text{ toe} = 1 \text{ tonne} \times \text{Oil GCV (Gross Calorific Value)}$$

$$= 1000 \text{ kg} \times 10000 \text{ kcal/kg}$$

$$= 10^7 \text{ kcal}$$

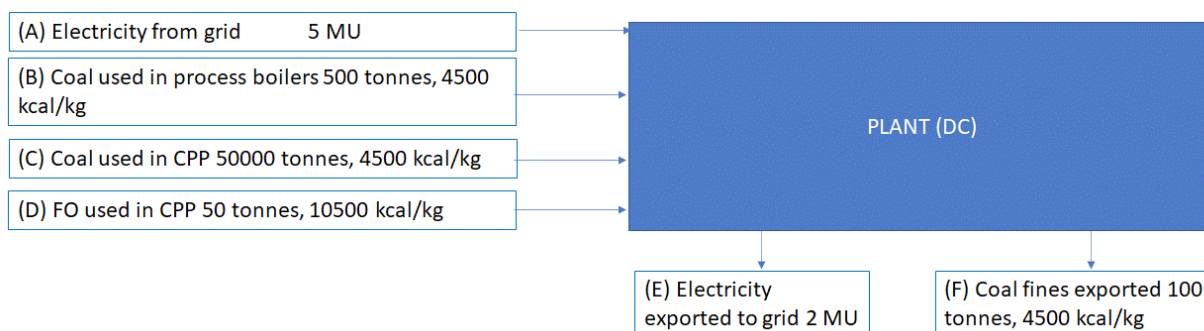
- ii. Purpose of toe: To convert all energy sources into a single comparable terminology

- iii. Gross Calorific Values of Common Fuels for calculation of toe

Solid Fuels (kcal/kg)	
Name	Range/ Around
Coal (Indian)	2800–5000
Lignite	2500–3000
Coal (Indonesian)	5500
Coal (South African)	6000
Pet Coke	7500–8500
Rice Husk	3200
Bagasse	1900–2100
Wood	3400 (depending on moisture)
Liquid Fuels (kcal/kg)	
Name	Range/ Around
Furnace Oil	10000–10500
Diesel	10000
Kerosene	11100
LDO	10700
LSHS	10600
LPG	11600–12500
Naptha	10050
HSD	11840
Petrol	11200
Gaseous Fuels (kcal/NM3)	
Name	Range/ Around
Natural Gas	8600–10500
Propane	22200
Butane	28500

Electricity (kcal/kWh)	
Name	Range/ Around
Grid Electricity	860
CPP Electricity	Actual Heat Rate of CPP

iv. Calculation of energy (in toe) in a plant



$$\begin{aligned}
 \text{Energy Input to the plant (kcal)} &= A + B + C + D - E - F \\
 &= (5 \times 10^6 \times 860) + (500 \times 10^3 \times 4500) + (50000 \times 10^3 \times 4500) + (50 \times 10^3 \times 10500) \\
 &\quad - (2 \times 10^6 \times \text{CPP NHR}) - (100 \times 10^3 \times 4500) \\
 \text{Energy input to the plant (toe)} &= \text{energy input to the plant (kcal)} / 10^7
 \end{aligned}$$

$$\begin{aligned}
 \text{CPP Gross heat Rate (CPP GHR)} &= 50000 \times 10^3 \times 4500 / \text{Gross Generation} \\
 \text{CPP Gross heat Rate (CPP NHR)} &= \text{CPP GHR} / (1\% \text{ Auxiliary Power Consumption})
 \end{aligned}$$

**ANNEXURE II:****Form 1 (sector specific Performa)**

Form 1 [See rule 3]				
Details of information regarding Total Energy Consumed and Specific Energy Consumption Per unit of Production				
Section-A (General Information Details)				
Sr No.	General Details	Description		
1	Name of the Unit			
2	(i) Year of Establishment			
	(ii) Registration No (As provided by BEE)			
3	Sector and Sub-Sector in which the Designated Consumer falls	Sector	Sub-Sector	
4. (i)	Complete address of DCs Unit location (including Chief Executive's name & designation) with mobile, telephone, fax nos. & e-mail.			
(ii)	Registered Office address with telephone, fax nos. & e-mail			
(iii)	Energy Manager's Name, designation, Registration No., Address, Mobile, Telephone, Fax nos. & e-mail			
Section - B (Production and Energy Consumption Details)				
5.1	Aluminium, Cement, Chlor-Alkali, Iron & Steel, Fertilizer, Pulp & Paper, Textile, and Petro-Chemical sectors notified as Designated Consumers			
(a)	Production details			
	Name of Products	Unit	Previous Year	Current Year
		(1)	(2)	(3)
(i)	Product 1	Tonne		
(ii)	Product 2	Tonne		
(iii)	Product 3	Tonne		
(iv)	Product (Please add extra rows in case of additional products)	Tonne		
(v)	Total Equivalent Product	Tonne		
(b)	Energy Consumption Details			
(i)	Total Electricity Purchased from Grid/Other Source	Million kWh		
(ii)	Total Electricity Generated	Million kWh		
(iii)	Total Electricity Exported	Million kWh		
(iv)	Total Electrical Energy Consumption	Million kWh		

(v)	Total Solid Fuel Consumption	Million kcal		
(vi)	Total Liquid Fuel Consumption	Million kcal		
(vii)	Total Gaseous Fuel Consumption	Million kcal		
(viii)	Total Thermal Energy Consumption	Million kcal		
(ix)	Total Energy Consumption (Thermal + Electrical)	TOE		
(x)	Total Normalized Energy Consumption (Thermal + Electrical)	TOE		
<b>(c)</b>	<b>Specific Energy Consumption Details</b>			
(i)	Specific Energy Consumption (Without Normalization)	TOE/Tonne		
(ii)	Specific Energy Consumption (Normalized)	TOE/Tonne		
<b>5.2</b>	<b>Thermal Power Stations (Coal/Oil/Gas/others) notified as Designated Consumer</b>			
(i)	Total Capacity	MW		
(ii)	Unit Configuration	No. of units with their capacity		
(iii)	Annual Gross Generation	Million kWh		
(iv)	Annual Plant Load Factor (PLF)	%		
(v)	Station Gross Design Heat Rate	kcal/kWh		
(vi)	Station Gross Operative Heat Rate	kcal/kWh		
(vii)	Auxiliary Power Consumption	%		
(viii)	Operative Net Heat Rate	kcal/kWh		
(ix)	Operative Net Heat Rate (Normalized)	kcal/kWh		
<b>5.3</b>	<b>Petroleum Refinery notified as Designated Consumer</b>			
<b>(a)</b>	<b>Crude Oil Processed Details</b>			
(i)	Throughput (Total Crude Oil Processed)	Thousand Barrels		
(ii)	NRGF (Without Normalization)			
(iii)	NRGF(Normalized)			
<b>(b)</b>	<b>Energy Consumption Details</b>			
(i)	Total Electricity Purchased from Grid/Other Source	Million kWh		
(ii)	Total Electricity Generated	Million kWh		
(iii)	Total Electricity Exported	Million kWh		
(iv)	Total Electricity Consumed in the Plant	Million kWh		
(v)	Total Electrical Energy Consumption	SRFT		
(vi)	Total Solid Fuel Consumption	SRFT		
(vii)	Total Liquid Fuel Consumption	SRFT		

(viii)	Total Gaseous Fuel Consumption	SRFT		
(ix)	Total Thermal Energy Consumption	SRFT		
(x)	Total Steam Exported/Consumed for Non-refinery operations	SRFT		
(xi)	Total Energy Consumption (Thermal + Electrical)	MMBTU		
(xii)	Total Normalized Energy Consumption (Thermal + Electrical)	MMBTU		
<b>(c)</b>	<b>Specific Energy Consumption Details</b>			
(i)	Specific Energy Consumption (Without Normalization)	MMBTU/Mbbls/ NRGF (MBN)		
(ii)	Specific Energy Consumption (Normalized)	MMBTU/Mbbls/ NRGF (MBN)		
<b>5.4</b>	<b>Electricity Distribution Companies notified as Designated Consumer</b>			
<b>(a)</b>	<b>Energy Input Details</b>			
(i)	Input energy purchase	Million kWh		
(ii)	Net input energy (at DISCOM Periphery after adjusting the transmission losses and energy traded)	Million kWh		
(iii)	Total Energy billed (is the Net energy billed, adjusted for energy traded))	Million kWh		
<b>(b)</b>	Transmission and Distribution (T&D) loss Details	Million kWh %		
<b>5.5</b>	<b>Railways units notified as Designated Consumer</b>			
<b>5.5.1</b>	<b>Zonal Units Notified as Designated Consumers</b>			
<b>(a)</b>	<b>Gross Tonne Kilometrage</b>			
(i)	Gross Tonne Kilometrage (For Diesel-Passenger)	GTKm		
(ii)	Gross Tonne Kilometrage (For Diesel-Goods)	GTKm		
(iii)	Gross Tonne Kilometrage (For Electrical-Passenger)	GTKm		
(iv)	Gross Tonne Kilometrage (For Electrical-Goods)	GTKm		
<b>(b)</b>	<b>Energy Consumption Details</b>			
(i)	Diesel Consumption for Gross Tonne Kilometrage (for Passenger)	KL		
(ii)	Diesel Consumption for Gross Tonne Kilometrage (for Goods)	KL		
(iii)	Electricity Consumption for Gross Tonne Kilometrage (for Passenger)	Million kWh		



(iv)	Electricity Consumption for Gross Tonne Kilometrage (for Goods)	Million kWh		
<b>(c)</b>	<b>Specific Energy Consumption Details</b>			
(i)	Specific Energy Consumption of Diesel for Passenger (Without Normalization)	L/1000GTKm		
(ii)	Specific Energy Consumption of Diesel for Goods (Without Normalization)	L/1000GTKm		
(iii)	Specific Energy Consumption of Electrical for Passenger (Without Normalization)	kWh/1000GTKm		
(iv)	Specific Energy Consumption of Electrical for Goods (Without Normalization)	kWh/1000GTKm		
(v)	Specific Energy Consumption of Diesel for Passenger (With Normalization)	L/1000GTKm		
(vi)	Specific Energy Consumption of Diesel for Goods (With Normalization)	L/1000GTKm		
(vii)	Specific Energy Consumption of Electrical for Passenger (With Normalization)	kWh/1000GTKm		
(viii)	Specific Energy Consumption of Electrical for Goods (With Normalization)	kWh/1000GTKm		
<b>5.5.2</b>	<b>Railway Production Units Notified as Designated Consumer</b>			
<b>(a)</b>	<b>Production Details</b>			
(i)	Total Major Production	No of units		
(ii)	Total Minor Production	No of units		
(iii)	Total Other Product-1	No of units		
(iv)	Total Other Product-2	No of units		
(v)	Total Other Product-3	No of units		
(vi)	Product (Please add extra rows in case of additional products)	No of units		
(vii)	Total Equivalent Product	No of Equated Units		
<b>(b)</b>	<b>Energy Consumption Details</b>			
(i)	Total Electricity Purchased from Grid/Other Source	Million kWh		
(ii)	Total Electricity Generated	Million kWh		
(iii)	Total Electricity Exported	Million kWh		
(iv)	Total Electrical Energy Consumption	Million kWh		

(v)	Total Solid Fuel Consumption	Million kcal		
(vi)	Total Liquid Fuel Consumption	Million kcal		
(vii)	Total Gaseous Fuel Consumption	Million kcal		
(viii)	Total Thermal Energy Consumption	Million kcal		
(ix)	Total Energy Consumption (Thermal + Electrical)	TOE		
(x)	Total Normalized Energy Consumption (Thermal + Electrical)	TOE		
<b>(c)</b>	<b>Specific Energy Consumption Details</b>			
(i)	Specific Energy Consumption (Without Normalization)	Kgoe / Eq. Unit		
(ii)	Specific Energy Consumption (Normalized)	Kgoe / Eq. Unit		
<b>5.6</b>	<b>Commercial Building or establishments - Hotels notified as Designated Consumer</b>			
<b>(a)</b>	<b>Building Area</b>			
(i)	Total Built up area	m <sup>2</sup>		
(ii)	Air-conditioned area	m <sup>2</sup>		
(iii)	Non-Airconditioned area	m <sup>2</sup>		
(iv)	Gross Floor area	m <sup>2</sup>		
(v)	Public area	m <sup>2</sup>		
(vi)	Service area	m <sup>2</sup>		
(vii)	Covered Parking Area	m <sup>2</sup>		
<b>(b)</b>	<b>Energy Consumption Details</b>			
(i)	Total Electricity Purchased from Grid/Other Source	KWh		
(ii)	Total Electricity Generated	KWh		
(iii)	Total Electrical Energy Consumption	KWh		
(iv)	Total Solid Fuel Consumption	Million kcal		
(v)	Total Liquid Fuel Consumption	Million kcal		
(vi)	Total Gaseous Fuel Consumption	Million kcal		
(vii)	Total Thermal Energy Consumption	Million kcal		
(viii)	Total Normalized Energy Consumption (Thermal + Electrical)	TOE		
<b>(c)</b>	<b>Specific Energy Consumption Details</b>			
(i)	Specific Energy Consumption (Without Normalization)	TOE/1000 m <sup>2</sup> /year		
(ii)	Specific Energy Consumption (Normalized)	TOE/1000 m <sup>2</sup> /year		

Section - C (Sector-wise as well as sub-sector wise pro-forma details)			
6	Name of the Sector	Sub-Sector	Pro-forma in which the details to be furnished
(i)	Aluminium	Refinery/Smelter	Sa <sub>1</sub>
		Cold Rolling Sheet	Sa <sub>2</sub>
(ii)	Cement	Cement	Sb
(iii)	Chlor-Alkali	Chlor-Alkali	Sc
(iv)	Fertilizer	Fertilizer	Sd
(v)	Iron and Steel	Integrated Steel	Se <sub>1</sub>
		Sponge Iron	Se <sub>2</sub>
(vi)	Pulp and Paper	Pulp and Paper	Sf
(vii)	Textile	Composite	Sg <sub>1</sub>
		Fiber	Sg <sub>2</sub>
		Spinning	Sg <sub>3</sub>
		Processing	Sg <sub>4</sub>
(viii)	Thermal Power Plant	Thermal Power Plant (Coal/Oil/Gas)	Sh
(ix)	Petroleum Refinery	Petroleum Refinery	Si
(x)	Electricity Distribution Companies	Discoms	Sj
(xi)	Railways	Zonal Railways	Sk <sub>1</sub>
		Production	Sk <sub>2</sub>
(xii)	Commercial Building	Hotels	Sl

Note: All Sector Specific Pro-forma, details of which are given above, are available on the Bureau of Energy Efficiency's official website.

I/we undertake that the information supplied in the Form 1 and Sector Specific Pro-forma is accurate to the best of my knowledge and the data furnished in Form 1 has been adhered to the data given in the concerned Sector Specific Pro-forma.

Signature

( )

Name of the Energy Manager

Registration number

Authorised Signatory and seal

Name:

Designation:

Name of the Designated Consumers:

Address:

## Annexure III:

### FORM 2

#### DETAILS OF ACTION TAKEN ON RECOMMENDATIONS OF ACCREDITED ENERGY AUDITOR FOR IMPROVING ENERGY EFFICIENCY

S. No	Energy efficiency improvement measures-(Suggested categories of areas of energy efficiency improvement for obtaining details of energy savings-Refer Annexure 3)	Investment Million Rs.	Reasons for not implementing the measure	Date of completion of measure/likely completion	Life Cycle years <sup>1</sup>	Annual Energy <sup>2</sup> Savings				
1.						Oil	Gas	Coal	Electricity	Other
2.										
3.										
4.										
5.										
6.										

Signature

Nature of the energy manager

Name of the company

FULL address

Contact person

Email address

Telephone/Fax numbers

Plant address

Signature

Name of the accredited energy auditor

Accreditation details

Seal

1. Estimated the predicted life of the measure, meaning the number of years the level of first year energy savings or even larger amounts will materialize.  
2. Life commercial units of litre, Kg, tonnes, normal cubic meter, KWh or MWh and indicate the unit. Indicate the anticipated potential in energy savings

**ANNEXURE IV:****Form – 3****[See rule – 3 (2)]**

**Details of energy efficiency improvement measures implemented, investment made and savings in energy achieved and progress made in the implementation of other recommendation**

**A. Implemented:**

Sl. No.	Description of energy efficiency improvement Measure	Category <sup>3</sup>	Investment (Rupees)	Verified savings <sup>4</sup> (Rupees)	Verified energy savings	Units <sup>5</sup>	Fuel	Remarks
1.								
2.								
3.								

**B. Under Implementation:**

Sl. No.	Description of energy efficiency improvement Measure	Category	Investment (Rupees)	Verified savings (Rupees)	Verified energy savings	Units	Fuel	Remarks
1.								
2.								
3.								

Signature

Nature of the energy manager

Name of the company

Full Address

Contact Person

Email Address

Telephone/Fax numbers

Plant Address

---

3. Use "C. No." column of form 2 as reference – See Annexure "3" for adoption.

4. First Year.

5. Use conventional energy, volume or mass units with proper prefix k = 10,<sup>3</sup> M = 10,<sup>6</sup> G = 10<sup>9</sup>

**ANNEXURE V:** Form A (Performance Assessment Document)

Form – A  
[(See rule 6 (1))]

**PERFORMANCE ASSESSMENT DOCUMENT**  
(To be filled by designated consumer)

1	Name of designated consumer		
2.	Registration number		
3.	Sector		
4.	Sub-sector		
5.	Accredited Energy Auditor		
a	Name of the Empanelled Accredited Energy Auditor Firm		
b	Registration number of Firm		
6.	List of documents submitted (Attach a copy self-attested by Energy Manager and counter signed by Accredited Energy Auditor)		
a.	Baseline data	Submitted/Not submitted	Date of submission
b.	Form 1 of Rules, 2007 or Rules, 2008 ( ) Specify the year in the bracket	Submitted/Not submitted	Date of submission
c.	Form 1 of Rules, 2007 or Rules, 2008 ( ) Specify the year in the bracket	Submitted/Not submitted	Date of submission
d.	Form 1 of Rules, 2007 or Rules, 2008 ( ) Specify the year in the bracket	Submitted/Not submitted	Date of submission
e.	Form 2 of Rules, 2008	Submitted/Not submitted	Date of submission
f.	Form 3 of Rules, 2008	Submitted/Not submitted	Date of submission
7.	Specific energy consumption		
a.	Specific energy consumption (baseline) as notified		toe/tonne or Net Heat Rate, kcal/kWh or Energy Performance Index, as specified for a particular sector

b.	Production (baseline) as notified		Tonne or Million kWh
c.	Target specific energy consumption (SEC) as Notified		toe/tonne or Net Heat Rate, kcal/kWh or Energy Performance Index, as specified for a particular sector
d.	Difference of Baseline specific energy consumption (SEC) and Target specific energy consumption (SEC) as notified		toe/tonne or Net Heat Rate, kcal/kWh or Energy Performance Index, as specified for a particular sector (a-c)
e.	Normalised specific energy consumption (Achieved in the target year)		toe/tonne or Net Heat Rate, kcal/kWh or Energy Performance Index, as specified for a particular sector
f.	Energy savings certificates to be issued or deficit		Nos [(c-e)xb] or [(c-e)xb]/10

8. Energy Efficiency Project implemented during current cycle (Mention cycle period: .....)								
S. No	Project	Year of Implementation	Annual Energy Savings in Lakh kWh	Annual Energy Saving in toe*	Annual Energy consumption (before) in toe	Annual Energy consumption (after) in toe	Energy cost (Rs per kWh or toe)	Investment (Rs crores)
a.								
b.								
c.								
d.								
e.								

\* Please indicate the weighted average Gross Calorific Value (GCV) of coal considered for calculation of toe: ..... kcal/kg.

Note 1: Form A may be filled in accordance with the following guidelines, namely: -

#### **GUIDELINES**

1. Name of designated consumer: As per notification under clause (g) of section 14.
2. Registration No: As provided by Bureau of Energy Efficiency
3. Sector: As specified in Form 1 of Rules, 2007 or Rules, 2008.
4. Sub-sector: As specified in Form 1 of Rules, 2007 or Rules, 2008.
5. Name of accredited energy auditor: As selected by designated consumer from list of accredited energy auditor empaneled by Bureau of Energy Efficiency.

**6. List of documents submitted:**

- (a) Baseline data: Submitted to Bureau of Energy Efficiency for Target Calculations
- (b) Form 1 of Rules, 2007 or Rules, 2008 mention the year ( ): As per filing, attach acknowledgement of submission i.e. after completion of 1st year after notification
- (c) Form 1 of Rules, 2007 or Rules, 2008. mention the year ( ): As per filing, attach acknowledgement of submission i.e. after completion of 2nd year after notification
- (d) Form 1 of Rules, 2007 or Rules, 2008. mention the year ( ): As per filing, attach acknowledgement of submission i.e. after completion of target year
- (e) Form 2 of Rules 2008: As per filing, attach acknowledgement of submission
- (f) Form 3 of Rules 2008: As per filing, attach acknowledgement of submission

**7. Specific energy consumption (SEC)**

- (g) Specific energy consumption (Baseline): As notified by Government of India as aforesaid.
- (h) Production (Baseline): As notified by Government of India as aforesaid.
- (i) Target specific energy consumption as notified: notified by Government of India
- (j) Normalised specific energy consumption (Achieved): Normalised specific energy consumption (Achieved) in the target year from Form 1 of Rules, 2007 and Rules, 2008.
- (k) Energy savings certificates: Calculate as per formulae provided in the rule 11. Enter +ve value if energy savings certificates to be issued to designated consumer or enter -ve value in case recommended for purchase of energy savings certificates

- 8. Project implemented during current cycle: Energy efficiency projects implemented by designated consumers during last three years. Attach photograph of energy savings projects implemented.

**Undertaking**

I/We undertake that the information supplied in this Performance Assessment Document is accurate to the best of my knowledge and if any of the information supplied is found to be incorrect and such information result into loss to the Central Government or State Government or any of the authority under them or any other person affected, I/we undertake to indemnify such loss.

I /We agree to extend necessary assistance in case of any enquiry to be made in the matter.

Signature

Name

Designation

For and behalf of

Name of the Firm/Company/ Organisation

SEAL of the Firm /Company/  
Organisation



**ANNEXURE VI:** Form B (EmAEA Certificate of Verification of achievements of energy conservation norms and standards by the DC)

Form B  
(See rule 6(1))

**CERTIFICATE OF VERIFICATION**

M/s..... the accredited energy auditor "(Name of Empanelled Accredited energy Auditor Firm)", have undertaken a thorough independent evaluation of the activities undertaken by Ms..... a designated consumer for compliance with the energy consumption norms and standards specified under the Government of India Ministry of Power notification number....., dated the..... during the target year compared to the baseline year and consequent entitlement or requirement of energy savings certificates and certify that-

- (a) the verification of the data collection in relation to energy consumed and specific energy consumption per unit of production in the baseline year and in the target year in Form 1 under Rules 2007 or Rules 2008, has been carried out diligently and truthfully;
- (b) the verification of the identified energy efficiency measures, and the progress of their implementation given in Form II and Form li I under Rules 2008 has been carried out diligently and truthfully;
- (c) the verification of the compliance with energy consumption norms and standards during the target year has been carried out diligently and truthfully;
- (d) the verification of the total amount of energy saved, year-wise, after the baseline year and until target year or otherwise and request made by the designated consumer, the entitlement of ..... (Nos) energy savings certificate (s) required to be issued or purchased by him have been carried out diligently and truthfully;
- (e) all reasonable professional skill ,care, and diligence have been taken in verifying the various verification activities, findings and conclusions, documents, reports, preparing the documents including the performance assessment document in Form 'A' and verification report and the contents thereof are a true representation of the facts.

Signature:

Name of accredited energy auditor for verification

Name of Empanelled Accredited energy Auditor Firm:



**ANNEXURE VII:** Form D (Contains details of status of compliance of DC with the energy conservation norms and standards)

**FORM-D**

(See rule 13 and 14)

**COMPLIANCE OF ENERGY CONSUMPTION NORMS AND STANDARD DOCUMENT**

(To be filled in by designated consumer)

1.	Name of designated consumer		
2.	Registration number		
3.	Sector		
4.	Sub-sector		
5.	List of documents submitted		
a.	Performance Assessment Document (Form 'A')	Submitted/Not Submitted	Date of Submission
6.	Compliance		
a.	Energy Savings Certificates		Issued/Recommended for purchase
b.	Energy Savings Certificates submitted for compliance		If recommended for purchase
c.	Balance Energy Savings Certificates		Nos

Note 1: Form D may be filled in accordance with the following guidelines: -

**GUIDELINES**

1. Name of designated consumer: As per notification from Government of India (GoI) under clause (g) of section 14
2. Registration number: As per E-filing
3. Sector: "As specified in Form A"
4. Sub Sector: "As specified in Form A"

5. List of Documents submitted:

- (a) Performance assessment document: Submitted to Bureau of Energy Efficiency for issue of energy savings certificates.

6. Compliance

- (a) Energy savings certificates: Enter +ve value if energy savings certificates issued to designated consumer or enter -ve value in case recommended for purchase of energy savings certificates
- (b) Energy savings certificates submitted for compliance: If designated consumer is recommended for purchase of energy savings certificates, then enter value of energy savings certificates submitted by designated consumer for compliance of energy consumption norms and standards- saving target of designated consumer.
- (c) Balance energy savings certificates: - Numbers of energy savings certificates balance. If balance is ZERO than DC is in accordance for compliance of energy saving target and if balance is -ve than DC will be recommended for penalty.

**Undertaking**

I/We undertake that the information supplied in compliance with energy consumption and standard documents in this Form 'D' is accurate to the best of my/our knowledge and if any of the information supplied is found to be incorrect and such information result into loss to the Central Government or State Government or any of the authority under them or any other person affected, I/we undertake to indemnify such loss.

I/we agree to extend necessary assistance in case of any enquiry is made in the matter.

**Signature**

**Name**

**Designation**

**For and behalf of**

**Name of the Firm/Company/Organisation**

**SEAL of the Firm/Company/Organisation**

## ANNEXURE VIII: Form II (Inspection Report Format)

**Form II**  
**[See rule 4A]**  
**Format for Inspection Report**

[The inspection report should be precise, self-explanatory and representative of all facts and findings. The following format may be used for preparation of inspection report]

1. Place and Date of Inspection:

--

2. Name of the State Designated Agency

3. Name of the Inspector

4. Authority Number for undertaking Inspection

--

5. Brief Background of the Inspection:

(a) Scheme for which Inspection has been undertaken

(b) Relevant Sections for verification of compliance under Energy Conservation Act, 2001 (52 of 2001):

(c) Sub-Component for which the inspection is done i.e. Point # (a) or (b) or (c) or (d) of the Inspection Procedure

--

6. Brief of the procedure followed for the inspection:

--

7. Findings of the Inspection done: Mention the relevant non-compliance clause of section 14 of the Energy Conservation Act, 2001 (52 of 2001)

Specify in detail the nature of non-compliance


8. Notification issued under relevant clauses of Section 14 of the Energy Conservation Act, 2001 (52 of 2001)–Mention details of Notification–Number, and Date; subject–matter of the Notification i.e. Rule or Regulation or Direction. Indicate Rule or Regulation number which have been non-complied Specify the details of proofs)


9. (Sufficient proof needs to be furnished while mentioning findings of the inspection, Specify the details of proofs)


10. Recommendation: [The recommendation should mention that whether the case is a 'Defaulter' amounting to loss or violation of Direction issued by the Central Government or Bureau of Energy Efficiency and whether the case should be referred to the authority for Inquiry or Levy of Penalty as per Energy Conservation Act, 2001(52 of 2001)].


[F. No. 10/2/08-EC]

RAJ PAL, Economic Advisor

Note. – The principal rules were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i) vide

notification number G.S.R. 645 (E), dated the 30th July, 2010 and subsequently amended vide notification number

G.S.R. 645 (E), dated the 26th August, 2011.

**ANNEXURE IX:** Format of Letter conveying the direction of SDA to Inspecting Officer for filing of Petition

{Letter head of SDA}

To,  
The Inspection Officer  
Address

Subject: Direction for filing of Petition before State Electricity Regulatory Commission against the non-compliant person (designated consumer/manufacturer/trader/distributor)

Dear Sir,

We have studied and examined the Inspection report submitted by you on ..... (dated) of M/s ..... (the concerned designated consumer/manufacturer/trader/distributor). On examination of the said report, it is observed that M/s ..... (the concerned designated consumer/manufacturer/trader/distributor) has non-complied with clause ..... (relevant clauses of EC Act) of the EC Act.

We are of the opinion that on the basis of the material facts contained in the said report, there is enough conclusive material in support of non-compliance with the provisions contained in section 26 of EC Act

The Inspecting Officer is therefore directed to file the case before the State Electricity Regulatory Commission against M/s ..... (the concerned designated consumer/manufacturer/trader/distributor) under section 27 and prove its non-compliance before the Adjudicating Officer.

The Inspecting Officer is directed to file the case within two months of date of receipt of the Inspecting report i.e. latest by ..... (date)

Being certified as Energy Manager under the above regulations, the Certified Energy Manager is liable to comply with Rule 11 – Cancellation of Certificate:

Thanking You

SDA Representative

**ANNEXURE X: Form C**

**Form C**  
**(See rule 8(9) and 10(14))**  
**CERTIFICATE OF CHECK-VERIFICATION**

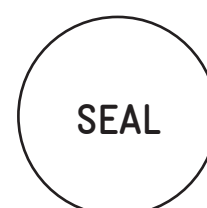
M/s..... the accredited energy auditor "(Name of Empanelled Accredited energy Auditor Firm)", have undertaken a thorough independent evaluation of the activities undertaken by Ms.....a designated consumer for compliance to the energy consumption norms and standards specified under the Government of India Ministry of Power notification number....., dated the..... during the target year compared to the baseline year and consequent entitlement or requirement of energy savings certificates, mentioned in the Performance Assessment Document in Form 'A' and compliance of energy consumption norms and standards document in Form 'D' and certify that-

- (a) the check-verification of the data collection in relation to energy consumed and specific energy consumption per unit of production in the baseline year and in the target year in Form 1 under Rules 2007 or Rules 2008, has been carried out diligently and truthfully;
- (b) the check-verification of the identified energy efficiency measures, and the progress of their implementation given in Form 2 and Form 3 under Rules 2008 has been carried out diligently and truthfully;
- (c) the check-verification of the compliance with energy consumption norms and standards during the target year has been carried out diligently and truthfully;
- (d) (d) the check-verification of the total amount of energy saved, year-wise, after the baseline year and until target year or otherwise and request made by the designated consumer, the entitlement of ..... (Nos) energy savings certificate (s) required to be issued or purchased by him have been carried out diligently and truthfully;
- (e) (e) all reasonable professional skill ,care, and diligence have been taken in check-verifying the various verification activities, findings and conclusions, documents, reports, preparing the documents including the information given in performance assessment document in Form 'A' and verification report submitted by the accredited energy auditor appointed by the designated consumer ..... for verification and the contents thereof are a true representation of the facts.

**Signature:**

**Name of accredited energy auditor for check-verification**

**Name of Empanelled Accredited energy Auditor Firm:**



## ANNEXURE XI: Suggested format of M&V Report

The M&V report to be submitted to BEE shall include, but not limited to, the following details,

- 1) Details about the DC which includes name of the plant, registration number, details about energy manager/auditor
- 2) Period over which the verification was done
- 3) Block diagram/ single line diagram showing entire process (all units) of the plant with clear boundary conditions, fuel sampling points (if applicable), and intermediate import/ export channels for fuel, raw materials, and products. If any condition has been changed in the assessment year, the same needs to be clearly highlighted (with dotted line, other colour, etc)
- 4) Block diagram/ single line diagram showing entire electrical system in the present boundary condition, with import/ export, as and where applicable.
- 5) Details about the scenario of the baseline & verification year – Production, energy consumption pattern, sources of energy etc.
- 6) Energy conservation measures implemented, with, quantified savings, investment made, etc.
- 7) Quantified break-up of the savings accrued w.r.t. the measures taken, year wise.
- 8) Agency's view and findings on the savings measures vs actual savings incurred.
- 9) Quarterly, Yearly and End of Cycle (EoC) Data Reports by DCs (2015-2018)
- 10) Measuring Equipment and Instrument Calibration
- 11) Energy scenario in the assessment year – Main plant, CPP, HRSG, GTG etc.
- 12) Addition or deletion of Equipment as compared to baseline scenario
- 13) Changes in Process Flow, Plant & Machinery, Technology, Product Mix, addition, deletion of products etc. in current year as compared to baseline
- 14) Details of raw materials prepared used in the year with quality parameters
- 15) Fuel related information including usage, fuel analysis (solid, liquid & gaseous), procedure carried out for fuel analysis in lab
- 16) Fuel Analysis report (Internal and External) with frequency of fuel testing
- 17) Energy and mass balance of the entire process.
- 18) Suggestions/comments on the proforma by Accredited energy auditor
- 19) List of documents verified with each parameter (both baseline & assessment year)
- 20) Details about normalization factors identified
- 21) Gate-to-gate diagrams (Baseline & Assessment year)
- 22) Annexures required
  - i. Proforma
  - ii. Production reports
  - iii. Annual power cost reports
  - iv. CPP/HRSG/WHR monthly reports
  - v. Signed copy of Form A & B
  - vi. Calculation of normalization factors – with supporting documents
  - vii. Details about Energy Manager, PCB Consent, calibration certificates, Fuel receipt details etc.
  - viii. Supporting document for all the parameters in the proforma.
  - ix. Reconciliation document, as applicable







## Bureau of Energy Efficiency

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