



GOVERNMENT OF INDIA
MINISTRY OF POWER



Perform, Achieve and Trade (PAT) Scheme

Energy Conservation Rules, 2012 (PAT Rules)



Energy Conservation Rules, 2012

In exercise of powers conferred under the Energy Conservation Act, 2001 (52 of 2001), the Central Government has made the following rules, namely:-

EC Rules, 2012

“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) Rule, 2012.

EC Amendment Rules, 2016

Energy Conservation Rules, 2012

These Rules define

- The procedure for establishment of energy consumption norms and standards and specify such norms and standards for Designated Consumers (Rule 3 & 4)
- Scheme for preparation and implementation of efficient use of energy and its conservation. (Rule 5)
- Assessment of Performance by the Designated Consumers with reference to the energy Consumption Norms and Standards specified for them (Rule 6)
- Procedure for Assessment of performance through Monitoring & Verification (M&V) and Check verification by Empaneled Accredited Energy Auditor (Rule 7 & 8)
- The Procedure regarding compliance with energy consumption Norms and Standards and for issue of ESCerts . (Rule 9, 11, 12 & 13).
- Role and responsibilities of various stake holders (Rule 10 & 15)
- Establishment of new Baseline for the next PAT Cycle (Rule 14).
- The procedure for notifying the price of one tonne of oil equivalent (toe) for purposes of penalty (Rule 16).
- The reporting and verification format for compliance with Energy Consumption Norms and Standards (Form A, Form B, Form C and Form D).
- The procedure and formulae for Normalization (Schedule I & II)
- The timelines for various activities under Perform, Achieve and Trade

Establishment of energy consumption norms and standards. (Rule 3) - Role of BEE

Establishment of Energy Consumption of Norms and Standards

Where Mandatory Energy Audit has been Completed

Based on timely submission of Form 2 & Form 3 as per EC Rule, 2008

Where Mandatory Energy Audit hasn't been completed

- (i) Avg. Rate of reduction in SEC across all the DC sectors determined on avg. of last 3 yrs data
- (i) Policy objectives of keeping the target a few % point above the avg. rate of reduction keeping in view the incentive provided through ESCerts

Procedure for establishment of Energy Consumption Norms & Standards. (Rule 4) - Role of BEE

- **Bureau shall set up a technical Committee;**
- **Technical Committee set up by BEE shall do the followings:**
 - ✓ Verify the data of the previous 3 years submitted by the DCs under rules 2007.
 - ✓ Calculate net energy input to the plant boundary (taking into account the various factors)
 - ✓ Calculate annual SEC in the baseline year and projected SEC in the Target year on a gate-to-gate basis.
 - ✓ Take in to consideration the effects on Capacity Utilisation or Plant load factor or average energy consumption in the target year on account of any of the following factors, namely:
 - Natural Disaster
 - Rioting or social unrest
 - Major change in Govt. policy including environmental standard
 - Impact of market & Shortage of raw material or sales) in any of previous three years.
 - ✓ **The said Technical Committee shall prepare a report and Submit it to Bureau**

Procedure for establishment of Energy Consumption Norms & Standards. (Rule 4) - Role of BEE & MOP

➤ Role of Bureau

- ✓ The Bureau shall examine the report and finalise its reports containing its recommendations
- ✓ The Bureau shall submit the report to the Central Govt.

➤ Role of Central Govt.

The Central Govt. after considering the said report shall by notification :

- ✓ Establish and specify the energy consumption norms & standards for every DC's plant under clause(g) of section 14;
- ✓ Give direction to all DCs for compliance with the energy consumption norms and standards under clause(n) of section 14 and inform the Bureau & all the SDAs

Preparation of scheme for implementation of efficient use of energy and its conservation (Rule 5) – Role of DCs

Every Designated Consumer, **within three months** of the issue of notification under sub-rule (6) of rule 4 shall submit a scheme to State designated agency with a copy to Bureau, which may include: -

- ✓ Action Plan containing inter- alia, a brief description of identified energy saving measures to comply energy consumption norms and standards by the target year;
- ✓ The estimated cost of each identified energy saving measures;
- ✓ Implementation plan to Achieve Energy Consumption Norms and Standards;

Procedure for Monitoring and Verification (Rule 7) – Role of DCs

- The Designated consumer in consultation with empaneled accredited energy auditor, shall put in place **transparent, independent and credible Monitoring and Verification (M&V) arrangement** for Energy Consumption and Production based on the Bureau of Energy Efficiency (Manner and Intervals of Time for Conduct of Energy Audit) Regulations, 2010 for compliance with the Energy Consumption Norms and Standards, and such arrangement shall include-
 - Preparation and Maintenance of Quarterly Data / Yearly Data reports /End of Cycle Data Reports by Designated Consumers -
 - ✓ On the performance of plant and production process;
 - ✓ Internal Field Audit of Plant and Production Process;
 - ✓ On outcomes of Internal Field Audit of Plant and Production Process;
 - ✓ A Year wise report on Production achieved, Energy Consumed and SEC consumption and reduction achieved and measures adopted for energy conservation and quantity of savings achieved;

Procedure for Monitoring and Verification (Rule 7) – Role of DCs and EmAEA Firm

- All the activities under taken by the designated consumers under these rules shall be scrutinized by the **empaneled accredited energy auditor** for the purpose of verification report, and
- the DC shall furnish the full and complete data, Provide necessary documents and others facilities required by EmAEA for the purpose of performing the function of verification under these rules.

Empanelment of EmAEA Firm for M&V and Check-Verification (Rule 9) – Role of BEE

- A firm registered under the Indian Partnership Act, 1932 (9 of 1932) or a company incorporated under Companies Act, 1956 (1 of 1956) or any other legal entity competent to sue or to be sued or enter into contract shall be entitled to undertake verification and check – verification, if it
 - ✓ Has at least one Accredited Energy Auditor (AEA)
 - ✓ Has at least three Energy Auditors;
 - ✓ Has adequate expertise of field studies
 - ✓ Has a minimum turnover of Ten Lakh per annum in at least one of previous three years;
- Bureau shall invite application form the Firms, Companies and other legal entities to undertake the work of Verification and Check – Verification;
- Application so received shall be scrutinized in accordance with the provisions of this rules and a panel of eligible applicant shall be prepared and displayed on Bureau’s website;
- The selected applicant shall be issued a certificates of Empanelment;
- A unit registration number shall be issued to the EmAEA firm;

Obligation of Empaneled AEA Firm (Rule 10) – Role of EmAEA

- For the work of verification or check-verification, the AEA shall constitute a team comprising a team head and other members including experts:

Provided that a person who was a in the employment of a DC within previous **four years**, shall not be eligible to perform such work

Provided further that any person or firm or company or other legal entity, who was involve in undertaking **energy audit in any of DC within previous four years**, shall not be eligible to perform the work of verification and check-verification of such DC.

- In assessing the compliance with the energy consumption norms and standards and issue of ESCerts, **AEA shall follow the provisions of Act, rules and regulations.**
- Any deviation from rules and required professional conduct for verification or check-verification by accredited energy auditor shall attract action under the relevant provisions of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.”.

Assessment of Performance (Rule 6) – Role of DCs

After Completion of Target Year: Every DC within **four months** of the conclusion of the target year from the baseline year shall submit to the SDA with a copy to the Bureau, the performance assessment document (PAD) in **Form 'A'**, duly verified together with certificate in **Form 'B'** given by the empanelled Accredited Energy Auditor (AEA) and accompanied by the following Documents:-

- ✓ Copy of unit number of registration
- ✓ Proof of timely submission of reports in Form 1 under EC Rule, 2007
- ✓ Proof of timely submission of reports in Form 1, Form 2 and Form 3 under EC Rule, 2008
- ✓ Details of Energy saving measures implemented for compliance with the energy conservation norms and standards
- ✓ Name and particulars of Energy Manager, his date of appointment and details of his duties

Installation of Auto Sampler for Coal testing (Rule 6) – Role of DCs and SDA

- The DCs shall make the necessary arrangement for taking “**as fired basis**” sample from **Auto Sampler installed at solid fuel feeding points**;
- DCs shall ensure that Coal samples are picked up from auto sampler at **least once in a month** and get tested at internal and external NABL lab for **GCV and Proximate analysis**;
- DCs shall ensure that Coal samples are picked up from auto sampler at **least once in a quarter** and get tested at external NABL lab for **GCV and Ultimate analysis**;
- **SDA shall ensure** that the coal sample are picked at random through an independent Agency by it from the auto sampler and get the same tested at the internal lab of DC and NABL lab for **GCV and Proximate analysis**;

Recommendation for issue of ESCerts (Rule 11) – Role of BEE

- The Bureau on satisfying itself about the correctness of verification report, and check-verification report, wherever sought by it, send its recommendation to the Central Government, based on the claim raised by the designated consumer in Form 'A', **within two months** from the last date of submission of said Form 'A' by the concerned state designated agency, for issuance of energy savings certificates.
- The exact numbers of ESCerts to be issued to the DC and the entitlement for such ESCerts to be Purchased shall be determined by following formula:
 - ✓ **for Thermal Power Plant Sector**
$$\text{Number of Escerts} = (\text{Heat Rate Notified for the target year} - \text{heat rate achieved in the target year}) \times \text{Notified Generation in Baseline Year}/10$$
 - ✓ **for other Sectors**
$$\text{Number of Escerts} = (\text{SEC Notified for the target year} - \text{SEC achieved in the target year}) \times \text{Notified Production in Baseline Year}$$

Procedure for issue of ESCerts (Rule 12) – Role of BEE

- Central Govt. after receiving recommendation from Bureau issue ESCerts of desired value to DC **within 45 days**.
- ESCerts shall only be in electronic form
- 1 ESCerts= 1 tonne of Oil Equivalent (toe) = 10968 INR
- The DC who has been issued energy savings certificates may sell them through the power exchange.
- ESCerts issued in current cycle shall remain valid till compliance period of next cycle.
- ESCerts purchased by DC for compliance shall after their submission to Bureau stand expire.

Compliance of energy consumption norms and standards (Rule 13) – Role of DCs

➤ The designated consumer for the purpose of achieving the compliance with the energy consumption norms and standards during the target year, in the relevant cycle shall take the following action and after completing the said action, furnish the status of compliance to the concerned state designated agency with a copy to the Bureau in **Form 'D' by the end of one month from the completion of trading of ESCerts of respective cycle** as may be specified by CERC.

(a) by implementation of energy conservation and energy efficiency improvement measures or;

(b) where the measures implemented in terms of clause (a) are found inadequate for achieving compliance with the energy consumption norms and standards, the designated consumer shall purchase the energy savings certificates equivalent in full satisfaction of the shortfall in the energy consumption norms and standards worked out in terms of metric ton of oil equivalent.

Establishment of new baseline for next Cycle (Rule 14)

The Energy Consumption Norms and Standards achieved by the DC on completion of the target year, as mentioned in the compliance report in Form-‘D’ shall be the baseline for the establishment of new plant specific energy consumption (SEC) norms and standards for DCs for the next cycle.

Specification of Value of Energy (Rule 16)

- The value of metric tonne of oil equivalent of energy consumed, as on the 1st day of April of the year for which value of energy is being specified, shall be determined by applying the following formula, namely: -

$$P = Wc \times Pc + Wo \times Po + Wg \times Pg + We \times Pe$$

Where, -

P = Price of Metric tonne of Oil Equivalent for the specified year (1 toe)

Pc = Average Price of Delivered Coal (Rs/ tonne of Oil Equivalent)

Po = Average Price of fuel Oil (Rs/tonne of Oil Equivalent)

Pg = Average Price of Gas (Rs/tonne of Oil Equivalent)

Pe = Average Price of Electricity (Rs/tonne of Oil Equivalent)

All price shall be as on the 1st April of the year for which value of energy is being specified.

Weighted of Coal (Wc) or Oil (Wo) or Gas (Wg) or Electricity (We)
= Amount of Coal or Oil or Gas or Electricity across all DCs in BY (in toe)
/ Total Energy Consumed Across All DCs in BY(in toe)

List of Various Forms to be submitted by DC and EmAEA

■ **Forms submitted by DC:**

- Form I and Sector Specific Pro-Forma
- Performance Assessment Documents (Form A)
- Compliance of Energy Consumption Norms and Standard Document (Form D)

■ **Forms to be submitted by EmAEA**

- Certificate of Verification (Form B)
- Certificate of Check-Verification (Form C)

Form I and Sector Specific Pro-Forma

	Sector	No of Pro-forma	Name of Pro-Forma for Sub-Sector	Sub-Sector
1	Aluminium	2	Sa1, Sa2	Smelter & Cold Sheet
2	Cement	1	Sb	Cement
3	Chlor- Alkali	1	Sc	Chlor- Alkali
4	Fertilizer	1	Sd	Fertilizer
5	Iron & Steel	2	Se1, Se2	Integrated steel & Sponge Iron
6	Paper & Pulp	1	Sf	Paper & Pulp
7	Textile	4	Sg1, Sg2, Sg3, Sg4	Composite, Fiber, Spinning & Processing
8	Thermal Power Plant	1	Sh	Thermal Power Plant
9	Railways	General format for data collection of these three Sectors are available on BEE website https://beeindia.gov.in/content/pat-performa The sector specific pro-forma for these sectors are under finalisation.		
10	DISCOMM			
11	Petroleum Refinery			
	Total	13		

Timelines and Activities

Activity	Time Line	Description	Tentative Dates for PAT Cycle III	Activity by	Where
Action plan submission	3 Months	Within 3 month from Notification	30 June 2017	DC	SDA/BEE
Form 1 and Pro-forma submission	3 Months	Yearly submission of Form 1 within 3 months from last financial year	30 June (Every Year)	DC	SDA/BEE
Form A, Form B along with other documents	4 Months	Within 4 month from conclusion of target year	31 st July 2020	DC	SDA/BEE
Submission of comments on Form A, Form B from SDA comments	45 Days	Within 45 days of the last date of submission of Form A	15 th Sept 2020	SDA	BEE
Recommendation of ESCerts to MoP, GOI	Two Months	Within two months from the date of the receipt of the comments from SDA	15 th Nov 2020	BEE	MoP
Issuance of ESCerts by MoP	45 Days	Within 45 days from the date of receipt of recommendation of Escerts from BEE	31 st Dec 2020	MoP	
Form D Submission	One Month	After 1 month from the date of completion of Trading of ESCerts		DC	SDA/BEE

Forms

Performance Assessment Documents (Form A)

To be filled by DCs

1.	Name of designated consumer		
2.	Registration number		
3.	Sector		
4.	Sub-sector		
5.	Accredited energy auditor		
	Name		
	Registration number		
6.	List of documents submitted		
a.	Baseline data (three years)	Submitted/Not submitted	Date of submission
b.	Form I () Specify the year in the bracket	Submitted/Not submitted	Date of submission
c.	Form I () Specify the year in the bracket	Submitted/Not submitted	Date of submission
d.	Form I () Specify the year in the bracket	Submitted/Not submitted	Date of submission
e.	Form II	Submitted/Not submitted	Date of submission
f.	Form III	Submitted/Not submitted	Date of submission

Performance Assessment Documents (Form A)

7	Target Year	Notified target specific energy consumption for the cycle	Energy savings certificates issued	Revised target specific energy consumption for the cycle		
		toe/ton of product or Net Kcal/kWh	Nos	toe/ton of product or Net Kcal/kWh		
a.	Mention the year ()		-			
b.	Mention the year ()					
c.	Mention the year ()		-			
8.	Specific energy consumption					
a.	Specific energy consumption (baseline)			toe/ton or Net kcal/kWh		
b.	Production (baseline)			ton or Million kWh		
c.	Revised target SEC (from 7.b)			toe/ton or Net kcal/kWh		
d.	Target after normalisation, if any			toe/ton or Net kcal/kWh		
e.	Achieved specific energy consumption			toe/ton or Net kcal/kWh		
f.	Energy savings certificates			nos		
9.	Energy Efficiency Project implemented during current cycle					
	Project	Year of Implementation	Annual Energy consumption (before)	Annual Energy consumption (after)	Energy tariff	Investment

Certificate of Verification (Form B)

Form B

(See rule 5)

CERTIFICATE OF VERIFICATION

I/We _____ the accredited energy auditor, have undertaken a thorough independent evaluation of the activities undertaken by M/s. _____, 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 III 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.

Check Verification Form: Form-C

Form C
(See rule 7)
Certificate of Check – Verification

I/We _____ the accredited energy auditor, have undertaken a thorough independent evaluation of the activities undertaken by M/s. _____, a designated consumer for compliance to the energy consumption norms and standards specified under the Government of India, Ministry of Power notification numbers _____, 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 standard 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 II and Form III 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) 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) 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 the 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

Designation:

Compliance of Energy Consumption Norms and Standard Document (Form D)

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

Mandatory Energy Audit

In exercise of the powers conferred by clauses (i) and (k) of Section 14 of the Energy Conservation Act, 2001 (52 of 2001), the Central Government, in consultation with the Bureau of Energy Efficiency hereby direct, that every designated consumer shall,—

a) get energy audit conducted by an accredited energy auditor, in accordance with the Bureau of Energy Efficiency (Manner and Intervals of Time for Conduct of Energy Audit) Regulations, 2010; And

(b) furnish to the concerned designated agency, details of information on energy consumed and details of the action taken on the recommendations of accredited energy auditor, in accordance with the Energy Conservation (Form and Manner and Time for Furnishing Information With Regard to Energy Consumed and Action Taken on Recommendations of Accredited Energy Auditor) Rules, 2008.

Mandatory Energy Audit

Interval of Time for conduct of Energy Audit:

- (1) Every designated consumer shall have its first energy audit conducted, by an accredited energy auditor **within 18 months** of the notification issued by the Central Government under clause (i) of section 14 of the Act.
- (2) The interval of time for conduct and completion of subsequent energy audits shall be **three years** with effect from the date of submission of the previous energy audit report by the accredited energy auditor to the management of the designated consumer.

Penalties and Adjudication

As per Section 26 of EC Act,

- If any DC fails to comply with the timelines of M&V procedure, he shall be liable for a penalty of Rs. 10 lakh, in addition to Rs. 10,000 per day
- If any DC fails to comply with the provisions, he shall be liable to a penalty of Rs. 10 lakh rupees and, in the case of continuing failure, with an additional penalty of the price of every metric ton of oil equivalent of energy
- Any amount payable under this section, if not paid, may be recovered as if it were an arrear of land revenue.

Mandatory requirement to be fulfilled by DC

- **EC Act schedule provides list of 15 energy intensive industries and other establishments to be notified as designated consumers (DC).**
- **DCs to appoint or designate energy managers who shall be in charge of activities for efficient use of energy and its conservation (clause 14(I)).**

. **Note:** The minimum qualification of energy manager to be designated or appointed under clause 14(I) is the passing of certification examination, conducted by Bureau of Energy Efficiency

- **The following information to be provided for energy manager:**
 - ✓ Name of the energy manager
 - ✓ Registration number (EA/EM No.)
 - ✓ Complete postal office address
 - ✓ Telephone and Mobile number
 - ✓ Email address)
- **The information with regard to energy consumed (clause 14(a)) in Form 1 and Pro-forma**
- **Get energy audits conducted by accredited energy auditors**
- **Implement techno-economic viable recommendations**
- **Comply with norms of specific energy consumption**
- **Submit report on steps taken**

Thank You

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