

Scheme for Star Rating for Buildings

BPO

DECEMBER, 2009



BUREAU OF ENERGY EFFICIENCY

Ministry of Power, Government of India





DETAILS OF THE SCHEME FOR RATING FOR BUILDINGS - BPO

BACKGROUND

Commercial buildings in India account for nearly 8% of the total electricity supplied by utilities. Electricity usage in the sectors has been growing at about 11-12% annually. Building energy consumption has seen an increase from 14% in the 1970s to nearly 33% in 2004-05. Electricity use is primarily from lighting, space conditioning (Heating, ventilation and air-conditioning) appliances and equipments (including IT equipment) and water heating.

1. Scheme for Star Rating for Building - BPO

- a. The available data of energy audit studies reveals that, there is a significant potential for improving efficiency in both government and commercial buildings.
 - b. Office buildings can be categorized as day use or 24 hour operational buildings and their actual energy performance in kWh/sqm/annum may vary depending on the number of hours of operation.
 - c. BPOs, which primarily focus on providing service to IT related activities such as application management and application development, data centre operations or testing and quality assurance – may have varied hours of operation e.g. 24x7/ 24x5, 18x7, 16x7 or 16x5 etc.
 - d. A Star Rating Program for BPO buildings has been developed which would create a demand in the market for energy efficient buildings based on actual performance in terms of **Average Annual hourly Energy Performance Index (AAhEPI)**. This programme would rate BPO buildings on a 1-5 Star scale with 5 Star labeled buildings being the most energy efficient.
 - e. This programme targets BPO buildings located within the following 4 climatic zones
 - i. Warm and Humid
 - ii. Composite
 - iii. Hot and Dry
 - iv. Temperateassuming an air-conditioned floor area of more than 50% of its built up area.
- Due to insufficient number of BPO buildings located in the cold climatic zone the scheme doesn't include the cold region.
- f. To apply for this rating a standard format is developed for collection of actual energy consumption data which includes built up area, conditioned and non-conditioned area, type of BPO, hours of operation in a day, climatic zone in which BPO is located, and other related information of the facility.
 - g. The Technical Committee constituted for Energy Baseline and benchmarking of commercial BPO buildings chaired by Director General, Bureau of Energy Efficiency shall be the technical committee for the scheme.



2. Scheme Participation Process

- i. BPO buildings owner(s)/or their authorized representatives can participate in the scheme by registering with the Bureau. Those BPO buildings having a connected load of 100 kW and above and a minimum built up area of 500 Sq m would be considered for BEE star rating scheme. The format for submitting BPO building Information and Energy Data details is enclosed as **Annexure 1**.
- ii. BPO building owner can register either manually or electronically. Initially the applications would be scrutinized on manual submission. The application for each BPO building shall be accompanied by non-refundable registration fee of Rs.1,00,000/- (Rupees One Lakh Only) in the form of a crossed bank draft issued in the name of Bureau of Energy Efficiency and payable at New Delhi. The form can be downloaded from the BEE's website and the BPO building owner shall file their applications electronically/manually including the details of the crossed bank draft and shall submit the same to the BEE.
- iii. BPO building owner(s)/ or their authorized representatives (hereinafter called the User of label) will enter into an agreement (**Annexure – 2**) on a non-judicial stamp worth Rs.100/- (Rupees One Hundred Only), with the Bureau of Energy Efficiency (hereinafter called the Bureau) agreeing to abide by the terms and conditions of the scheme. The agreement will be valid for a period of 5 years subject to realization of point iv,v and vi.
- iv. The BPO building owner(s) should submit a copy of the energy audit report from a BEE certified energy auditor along with the application format.
- v. At the end of 2 years the BPO building owner(s) need to report to BEE on the implementation of recommendations of the energy audit and thereafter the contract would be valid for the next 3 years.
- vi. In case the BPO building owner fails to submit the report of the recommendations as suggested in the Energy Audit, the contract would stand cancelled at the end of 2 years.
- vii. Average Annual hourly Energy Performance Index (EPI) i.e. (AAhEPI) in (Wh/hr/sqm) will be considered for rating the BPO building. The table indicating the AAhEPI with the corresponding Star Label in the various climatic zones is enclosed at **Annexure 3.1** (AAhEPI) shall be (Wh/hr/sqm) in terms of purchased & generated electricity divided by **built up area in sqm and total annual hours of operation**. However the total electricity would not include electricity generated from on-site renewable sources such as solar photovoltaic etc.
- viii. After receipt of complete application, the Bureau would scrutinize the application, and seek further information, if required. The Bureau would authorize the use of label after completion of the scrutiny of the application. The Bureau will have the right to conduct an energy audit or any other form of assessment of the information, provided by the BPO building owner, whenever there are grounds for the same.
- ix. User of the label shall be given a time frame of one month after the expiry of each year to file the Information and Energy Data for the previous year, failing which BEE shall inform the owner of the lapse and after the expiry of the notice period of one month, the authority shall be withdrawn temporarily and owner shall be requested to furnish the information. The entire communication shall take place for a maximum period of six months failing which the authority shall be permanently withdrawn for the use of the label and information shall be uploaded on BEE's website and put out in public domain.



- x. **Adherence to label specification:** The user of label is solely responsible for the adherence to the specification of the label prescribed by BEE (as enclosed at Annexure 4), and the authenticity of the documents submitted. However, in the case of a new BPO building, the BPO building owner(s)/ or their authorized representatives would be required to submit the detailed information in respect of its energy performance after completion of 1 year of operation with full occupancy of the BPO building.
- xi. The user of label will affix the label as per the label design and specification both in terms of size and material, manner of display, and the rating plan prescribed for the particular BPO building.
- xii. The manner of display of the label would be such that it is at a place of prominence at the entrance of the BPO building and at a height of 5 feet as measured from the bottom of the label with respect to the floor level.
- xiii. A list of BEE labeled BPO buildings will be maintained by the Bureau and made available to the public through publications and through its website.
- xiv. The user of label shall be solely responsible for ensuring :
 - a. the accuracy of the information displayed on the label or any public claim for label level.
 - b. compliance to the terms and condition of the scheme.
 - c. directions of the Bureau on the implementation of the scheme.
 - d. Payment of any compensation adjudicated by any court/tribunal to any person for any information displayed on the label.
- xv. The Bureau will work towards creating a market for energy efficient BPO buildings through awareness and education .
- xvi. The Bureau will appoint an independent agency to evaluate the program impact and process of implementation on a periodic basis. This will help the users and other stakeholders to evaluate BPO buildings energy efficiency and track improvements compared to other BPO buildings and recognize the top performers through a systematic evaluation scheme for giving state and national awards.
- xvii. The user of label shall extend full cooperation to BEE or its associates by providing the relevant data for the purpose.
- xviii. The Bureau will review the scheme periodically to determine the need for revision or amendment or termination of the scheme.
- xix. The Bureau, at any time during the operation of the scheme, may decide to terminate or modify the scheme after giving sufficient notice period.
- xx. The User of Label, at any time during the operation of the scheme, may decide to withdraw from the scheme after giving three months notice period to the Bureau as well as a public notice.



3. Label verification Process

- i. The Bureau through its authorized representatives would verify the label content and the manner of display on the BPO building.
- ii. The Bureau will conduct regular sample checking of BPO building for accuracy of the information provided by the BPO building owner and the EPI either on its own or through a third party. This sample checking may be conducted without prior notice. The results of the sample check will be put in the public domain.
- iii. The user of the label would agree to make available the drawings of the BPO building/facility and provide access to the BPO building to the authorized representative of the Bureau .
- iv. If it is found that the BPO building does not conform to the authorized label specification then a second check will be done with an authorized representative of the BPO building owner. The date and time for the second check will be decided by the Bureau and the BPO building owner will be informed at least 24 hours in advance and if no representative is present then the second check results will be binding on the BPO building owner.
- v. The result of the second check along with the information provided in the form “BPO building Information and Energy Data” will be put out in the public domain including an advertisement in newspaper, together with withdrawal of the authority to use the label.

4. Challenge testing

- i. The label contents can be challenged by any other star rated BPO building owner.
- ii. The challenge must be submitted to BEE in writing along with a challenge test fee of Rs.1,00,000/- (Rupees One Lakh Only) in the form of a demand draft in favour of Bureau of Energy Efficiency. If the challenge test fails then this amount will be forfeited.
- iii. The BEE will examine the challenge within a reasonable time frame on receipt of the same in writing.
- iv. After BEE finds the reasonableness of the challenge test it will notify a date and time for checking the BPO building either by its officers or by a third party in the presence of representative of the BPO building owner and challenger/ representative. The results of checking will be shared with BPO building owner(s) and challenger.
- v. If the BPO building fails the star label authority then the cost of the check testing will be borne by the BPO building owner and the deposit of Rs.1,00,000/- (Rupees One Lakh Only) will be returned to the challenger. The Bureau will bring out the results of the challenge testing in public domain along with information provided in form for “BPO building information and Energy data”, together with withdrawal of the authority to use the label



BEE Star Rating for Buildings - BPO

Name of the Building:

City:

Table 1: Building Information and Energy Data

No.	Primary Data	Year:
	Item	Value
1	Connected Load (kW) or Contract Demand (kVA)	
2	Installed capacity: DG/ GG Sets (kVA or kW)	
3	a) Annual Electricity Consumption, purchased from Utilities (kWh)	
	b) Annual Electricity Consumption, through Diesel Generating (DG)/Gas Generating (GG) Set(s) (kWh)	
	c) Total Annual Electricity Consumption, Utilities + DG/GG Sets (kWh)	
4	a) Annual Cost of Electricity, purchased from Utilities (Rs.)	
	b) Annual Cost of Electricity generated through DG/GG Sets (Rs.)	
	d) Total Annual Electricity Cost, Utilities + DG/GG Sets (Rs.)	
5	Area of the building (exclude parking, lawn, roads, etc.)	
	a) Built Up Area (sqm) (excluding basement area)	
	<ul style="list-style-type: none">• Conditioned Area(in sqm)• Conditioned Area(as % of built up area)	
6	Working hours (e.g. day working /24 hour working)	
7	Working days/week (e.g. 5/6/7 days per week)	
8	a) BPO building	
	- Total no. of Employees	
	- Average .no. of Persons at any time in office during office hours	
9	a) Installed capacity of Air Conditioning System (TR) and KW	
10	Installed lighting load (kW) (if available)	
11	HSD (or any other fuel oil used, specify)/Gas Consumption in DG/GG Sets (liters/cu. meters) in the year	
12	Fuel (e.g. FO, LDO,LPG, NG) used for generating steam/water heating in the year (in appropriate units)	
13	Average Annual hourly EPI (AAhEPI) in (Wh/hr/sqm) Energy includes electricity purchased and generated (excluding electricity generated from on-site renewable resources)	
14	Star Label applied for	

I hereby declare that the BPO building in fully occupied for the last one year and all the above furnished information is true in all respect.

Signature of the BPO building owner
or authorized representative



BEE Star Rating for Buildings - BPO

Table 2: Contact Details of the Organization and the Contact Person

No	Details
Organization	
a) Name of the Organization	
b) Postal Address	
c) Phone No.	
Contact Person	
a) Name & Designation	
b) E-mail Address	
c) Phone Nos.	
a) Name of the Architect	
b) Postal Address	
c) Phone No.	
a) Name of the Contractor	
b) Postal Address	
c) Phone No.	



Application Form for Participation and Agreement

Application for Participation in the scheme for BEE Star Rating for BPO buildings
(ON THE LETTER HEAD OF THE COMPANY/FIRM)

The Director General
Bureau of Energy Efficiency
4th Floor, Sewa Bhawan,
R.K.Puram,
New Delhi-110066

I/We are the BPO buildings owner(s)/authorized representative of _____ (BPO name and address) owned by _____ (full name of developer/firm) hereby apply for participation in the scheme **“BEE Star Rating for Buildings - BPO”**.

I/We have gone through the scheme for the **“BEE Star Rating for Buildings - BPO”**, and we agree to abide by the terms and conditions of the scheme. I/We am/are willing to enter into an agreement for participating in the scheme. The duly signed complete agreement is enclosed.

Dated this Day of (Year)

Signature

Name

Designation

For and on behalf of

.....

(Name of the firm)

Encl: Agreement

AGREEMENT

Agreement between the Bureau of Energy Efficiency, a statutory body under the Ministry of Power and BPO owner(s)/authorized representative (the user of label) under the **“BEE Star Rating for Buildings - BPO”**.

Whereas the Bureau of Energy Efficiency, Ministry of Power (hereinafter referred to as the Bureau), a statutory body established under the Energy Conservation Act 2001, (52 of 2001) with its office at Bureau of Energy Efficiency, 4th Floor, Sewa Bhawan, R.K. Puram, New Delhi-66 India has launched a scheme for **“BEE Star Rating for Buildings - BPO”**.

Whereas M/s _____ (BPO owner(s)/authorized representative) having its registered office at _____ (full address) has agreed to participate under the **“BEE Star Rating for Buildings - BPO”** (hereinafter referred to as the user of label)

Now therefore, the parties hereto mutually agree as follows:

1. General

1.1 Commencement and duration

1.1.1 The agreement shall be valid for a period of 5 years commencing from the date it is signed or until Notification under ----- of the Energy Conservation Act 2001 issued by the Central Government, whichever is earlier.

1.2 Objective

The main objective of this Agreement is that both the parties to the Agreement shall work together to implement the scheme for “BEE Star Rating of BPO buildings-BPOs” in accordance with the details of the Scheme as attached.

1.3 Use of energy efficiency label

1.3.1 The label is being promoted by the Bureau. The use of the label is assigned to M/s ABC (BPO building owner(s)/authorized representative) for achieving the objective defined in Article 1.2 of this Agreement.

Format for submitting BPO building Information and Energy Data details is enclosed as **Annexure 1**. Average Annual hourly Energy Performance Index (AAhEPI) in (Wh / hr /sqm) will be considered in rating the BPO buildings. The table indicating the AAhEPI with the corresponding Star Label under the various climatic zones is enclosed at **Annexure 3.1**

The user of label is solely responsible for the adherence to the specification of the label prescribed by BEE (as enclosed at **Annexure 4**), and the authenticity of the documents submitted



2. Taxes and duties

2.1 The User of label shall also bear any taxes, duties, levies, registration fee, etc as applicable from time to time in the use of label under the implementation of the scheme for **“BEE Star Rating for Buildings - BPO”**

3. Amendment / Additions

3.1 If both parties to the Agreement form an opinion that any or some provision of the scheme are coming in the way of achievement of the objective of this Agreement defined in Article 1.2; and both BEE and the user of label are satisfied that the adjustment or amendment of such provisions shall contribute towards the achievement of the objective defined in Article 1.2; BEE may, adjust or amend such provisions of the scheme at any stage during the implementation of the scheme in consultation with other stakeholders

3.2 Any such adjustment or amendment shall be made in writing.

4. Notice

4.1 Any notice given by any of the parties hereunder shall be sent in writing at the address given as follows:

(1) **Bureau of Energy Efficiency**

The Director General
Bureau of Energy Efficiency
4th Floor, Sewa Bhawan,
R.K. Puram,
New Delhi - 66

(2) **User of label**

In witness whereof the parties hereto have signed this Agreement

Signature.....
(place, date)
Bureau of Energy Efficiency
Witness: 1
Witness: 2

Signature.....
(place, date)
User of label
Witness: 1
Witness: 2

Bandwidths for BPO buildings for 4 climatic Zones

Energy Performance Index (EPI)

***Average Annual hourly EPI (AAhEPI)**

Climatic Zone - Composite

Climatic Zone - Composite

Normalized EPI Bandwidth (kWh/Sqm/Year)	Star Rating
450-400	1 Star
400-350	2 Star
350-300	3 Star
300-250	4 Star
Below 250	5 Star

Average Annual hourly EPI AAhEPI (Wh/hr/Sqm)	Star Rating
45-40	1 Star
40-35	2 Star
35-30	3 Star
30-25	4 Star
Below 25	5 Star

Climatic Zone - Warm and Humid

Climatic Zone - Warm and Humid

Normalized EPI Bandwidth (kWh/Sqm/Year)	Star Rating
460-410	1 Star
410-360	2 Star
360-310	3 Star
310-260	4 Star
Below 260	5 Star

Average Annual hourly EPI AAhEPI (Wh/hr/Sqm)	Star Rating
50-45	1 Star
45-40	2 Star
40-35	3 Star
35-30	4 Star
Below 30	5 Star

Climatic Zone - Hot and Dry

Climatic Zone - Hot and Dry

Normalized EPI Bandwidth (kWh/Sqm/Year)	Star Rating
315-265	1 Star
265-215	2 Star
215-165	3 Star
115-165	4 Star
Below 115	5 Star

Average Annual hourly EPI AAhEPI (Wh/hr/Sqm)	Star Rating
35-30	1 Star
30-25	2 Star
25-20	3 Star
20-15	4 Star
Below 15	5 Star

Climatic Zone - Temperate

Climatic Zone - Temperate

Normalized EPI Bandwidth (kWh/Sqm/Year)	Star Rating
400-350	1 Star
350-300	2 Star
300-250	3 Star
250-200	4 Star
Below 200	5 Star

Average Annual hourly EPI AAhEPI (Wh/hr/Sqm)	Star Rating
40-35	1 Star
35-30	2 Star
30-25	3 Star
25-20	4 Star
Below 20	5 Star

*AAhEPI will be calculated as mentioned in Annexure 3.2



SOME IMPORTANT DEFINITIONS

BPO - BPO is distinct from information technology (IT) outsourcing, which focuses on hiring a third-party company or service provider to do IT-related activities, such as application management and application development, data center operations, or testing and quality assurance. It may be a 24X7, 24X5, 18X5, 18X7, 16X5 or 16X7 hours of operations building.

Built up Area - Built up area is the carpet area + area covered by thickness of walls+ balconies etc. and would exclude basement and parking areas. In case basement is being utilized for BPO operations its are should be included.

Connected Load - It is the total load that a customer can impose on the electrical system if everything was connected at one time. Connected load can be measured in horsepower, watts, or volt-amperes. Some rate schedules establish a minimum demand charge by imposing a fee per unit of connected load.

AAhEPI - AAhEPI (Wh/hr/Sq m) is defined as Average Annual hourly EPI of a Building .This value is calculated from EPI values mentioned in the tables in Annexure - 3.1 on left as follows [**EPI/(Daily hours of Operation x days of operation in a week x 52 weeks in a year)**]]x1000 .This value will be independent of time and therefore applicable to all types of BPO operations .

Kilowatt-hour (kwh) - A unit of electrical measurement indicating the spending of 1,000 watts for one hour. Higher quantities are expressed in megawatt-hours, or the expenditure of one million watts for one hour.

Voltage (v) – It is the force that causes current to flow through a conductor. One volt equals the force required to produce a current flow of one ampere through a resistance of one ohm. Potential energy; is a measure of the difference in electrical potential of two points.

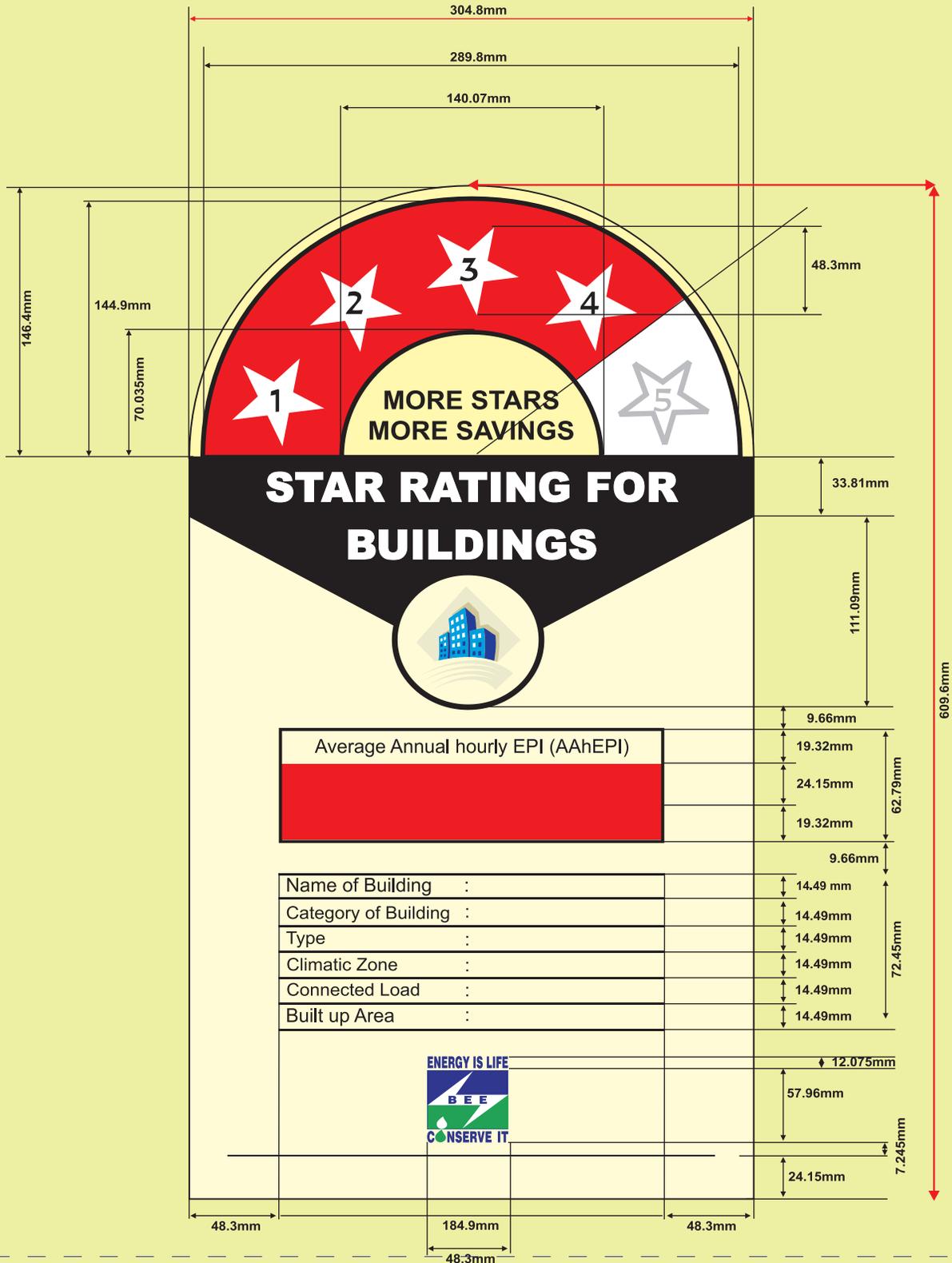
Watt (w) - A measure of real power. Power required to do work at the rate of one joule per second. It is the power expended when one ampere of direct current flows through a resistance of one ohm under a pressure of one volt. It is analogous to horsepower or foot-pounds per minute of mechanical power.

Power - The time rate of generating, transferring, or using electric energy, usually expressed in kilowatts.

Contract Demand - A customer's contract demand is the amount of power which a customer agrees to pay to have available at all times. Because this refers to power which must be made available, as opposed to energy which can actually be consumed, contract demand is measured in kilowatts, not kilowatt-hours.

Energy Audit - An energy audit is a preliminary activity towards instituting energy efficiency programs in an establishment. It consists of activities that seek to identify conservation opportunities preliminary to the development of an energy savings program.

Label Specifications







BUREAU OF ENERGY EFFICIENCY

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