Stars and their Wonders!

Star Labeling and its Energy Efficiency

CERC-ENVIS Resource Partner
Consumer Education and Research Centre
Ahmedabad, India

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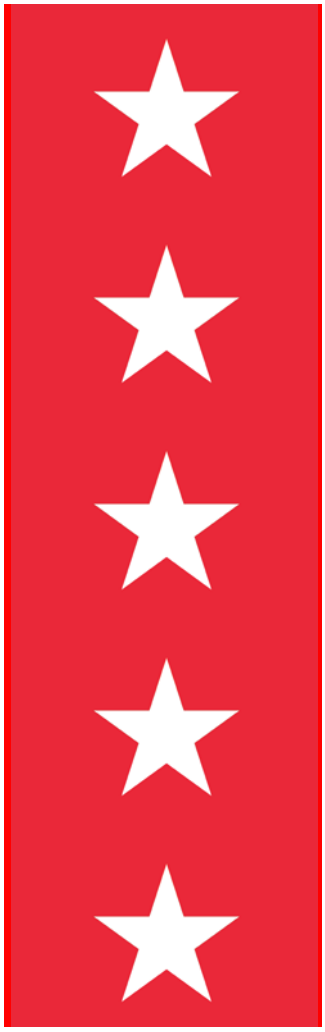

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Star Labeling And Its Energy Efficiency

Know Your Star Label

Contents

Introduction & Background _____ 4

Labels &Sizes_____ 5

Star Ratings _____ 5

Mandatory &Voluntary Appliances for the Star Labeling Programme _____ 6

Types of Star Labels _____ 7

Label Relevancy_____ 12

Monitoring, Verification and Enforcement _____ 12

Tips for energy efficient Lifestyles _____ 15

Conclusion _____ 16

Star Labeling and its Energy Efficiency

Nowadays, Energy Efficiency word is used a lot. You might have come across this phrase a lot on labels, on appliances, advertisements by manufacturers etc. Now, what does energy efficiency mean exactly?

"Energy efficient" is affixed to products that consume less energy. Any product that uses less amount of energy and delivers same or better performance and lasts longer as compared to its counterparts could be called as energy efficient. For example, a compact fluorescent bulb is more efficient than a traditional incandescent bulb as it uses much less electrical energy to produce the same amount of light. Increasing energy efficiency often costs money up-front but in many cases this capital outlay will be paid back in the form of reduced energy costs within a short time period. The more energy efficient the product, the more is the money saved. Long term, you end up saving energy a lot, that it gives a long term return investment.

Background

In May of 2006, the Government of India along with the Ministry of Power launched the Standards and Labeling (S&L) Scheme under the Energy Conservation Act, 2001. The Bureau of Energy Efficiency undertook the responsibility of the scheme. Since then, the Standards and Labeling scheme has had some drastic impact on consumer habits and the environment. The key objective of the scheme is to provide consumers an informed choice about the energy savings of high energy equipment and appliances. To materialise the objective of the scheme, the famous 'star label' was introduced on appliances – that detailed the efficiency of the product along with various particulars, allowing consumers to compare models and choose the best one in terms of energy conservancy. This is expected to impact the energy savings in the medium and long run while at the same time it will position domestic industry to compete in such markets where norms for energy efficiency are mandatory.

Labels

Energy efficiency labels are informative labels affixed to products to describe energy performance (usually in the form of energy use, efficiency, or energy cost); these labels give consumers the necessary information to make informed purchases. Mainly there are two types of labels namely endorsement labels and comparative labels:

a) **Comparative label:** allow consumers to compare efficiency of all the models of a product in order to make an informed choice. It shows the relative energy use of a product compared to other models available in the market.

b**) Endorsement label:** define a group of products as efficient when they meet minimum energy performance criteria specified in the respective product schedule/ regulation/statutory order.

Label Sizes

Big Label: The big energy rating label is aimed at appliances which have a constant usage and consume more electricity. It also gives information such as the yearly energy consumption of the product, brand name, product category and much more. For consumers, this big label is helpful as it allows you to calculate the actual money you would spend in electricity bills for that particular product. Products with a big label are*refrigerators, air-conditioners, geysers and washing machines.*

Small Label: Small labels can be found in appliances which usually don't consume more energy. These labels just give you a visual representation of the energy consumption levels by showing star ratings. Products with a small label are *Ceiling fans, tube lights, computers/laptops and televisions.*

Star Rating

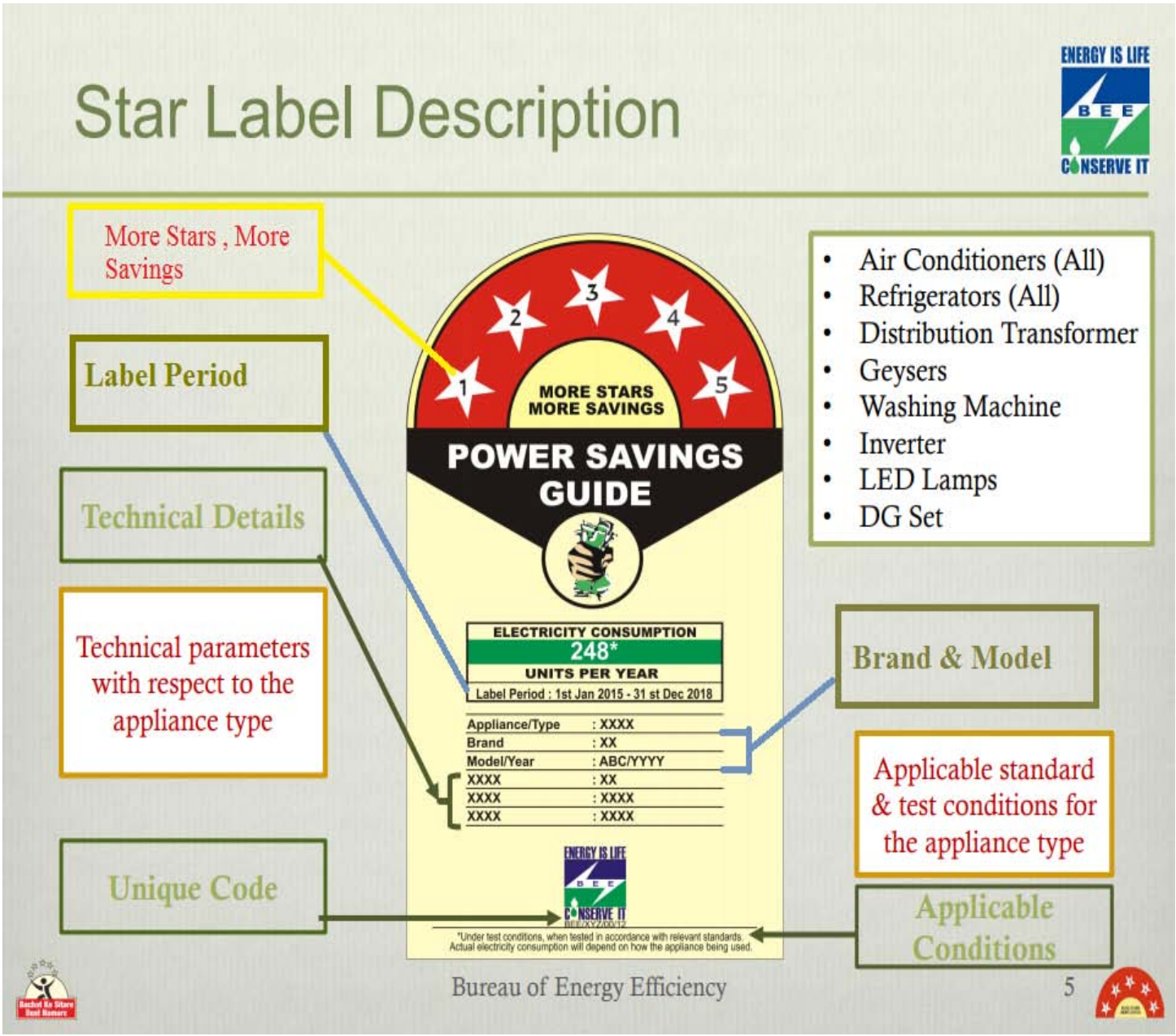
The appliances with the lowest energy consumption in a product category are given the most stars and those with the highest energy consumption are given the least. More the stars, more energy efficient the appliance is. This is a visual representation of the appliance's efficiency. These stars usually range from one, being the least efficient to five, being the most efficient product in its category. This is the quickest way to understand the appliance's power consumption.

Mandatory &Voluntary Appliances for the Star Labeling Programme

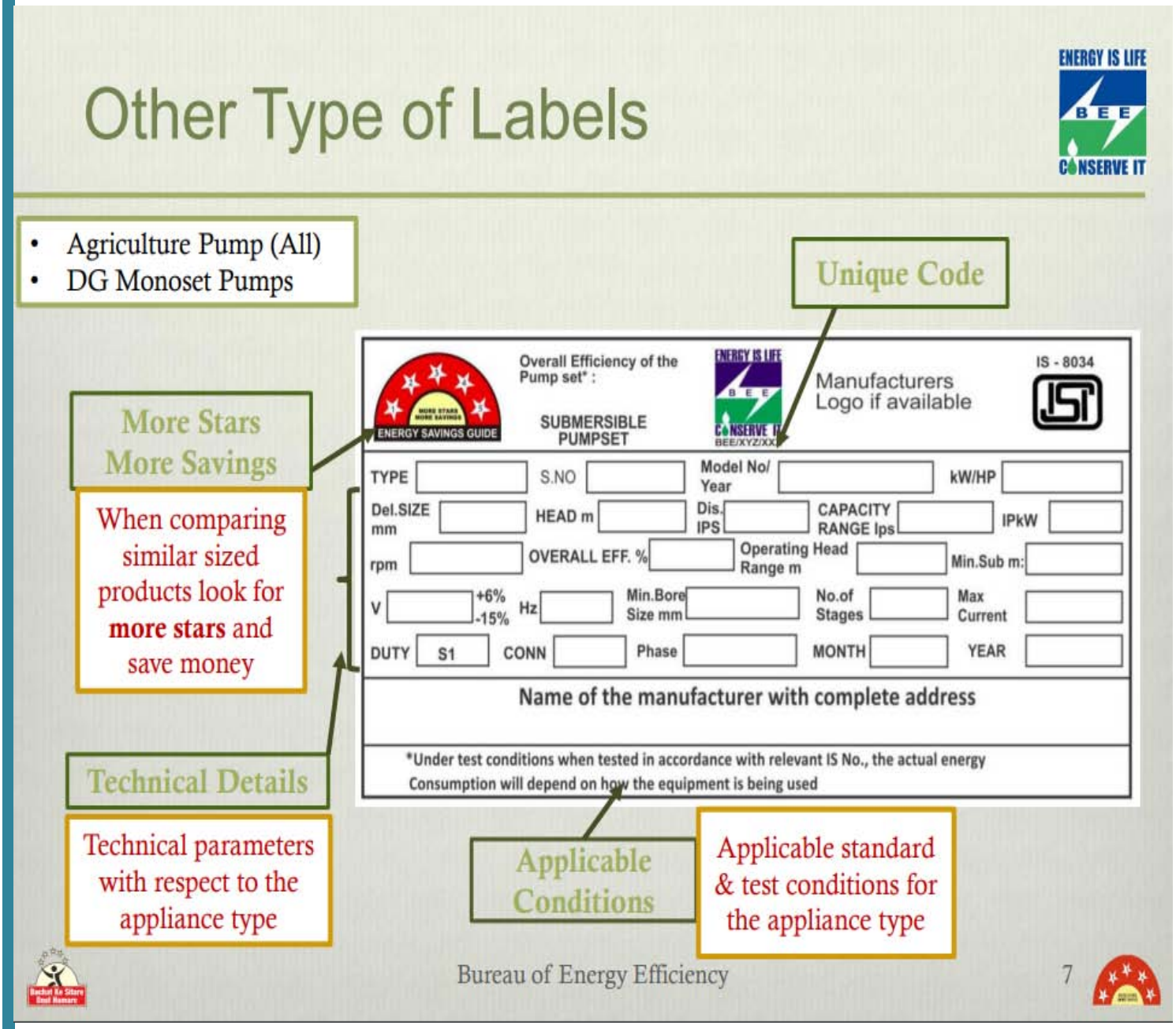
Here are the lists of Voluntary and Mandatory appliances for the Star Labeling Programme

Sr. No	Mandatory Appliances	Voluntary Appliances
1.	Room Air Conditioners	Induction Motors
2.	Frost Free Refrigerators	Pump Sets
3.	Tubular Florescent Lamp	Ceiling Fans
4.	Distribution Transformer	LPG -Stoves
5.	Room Air Conditioner (Cassettes, Floor Standing)	Washing Machine
6.	Direct Cool Refrigerator	Computer (Notebooks/Laptops)
7.	Colour TV	Ballast (Electronic/ Magnetic)
8.	Electric Geysers	Office equipment (Printer, Copier, Scanner, Multi-Function Devices)
9.	Variable Capacity Inverter Air conditioners	Diesel Engine Driven Mono-set Pumps
10.	LED Lamps	Solid State Inverter
11.		Diesel Generator Sets (DG Sets)
12.		Chillers
13.		Microwave Oven

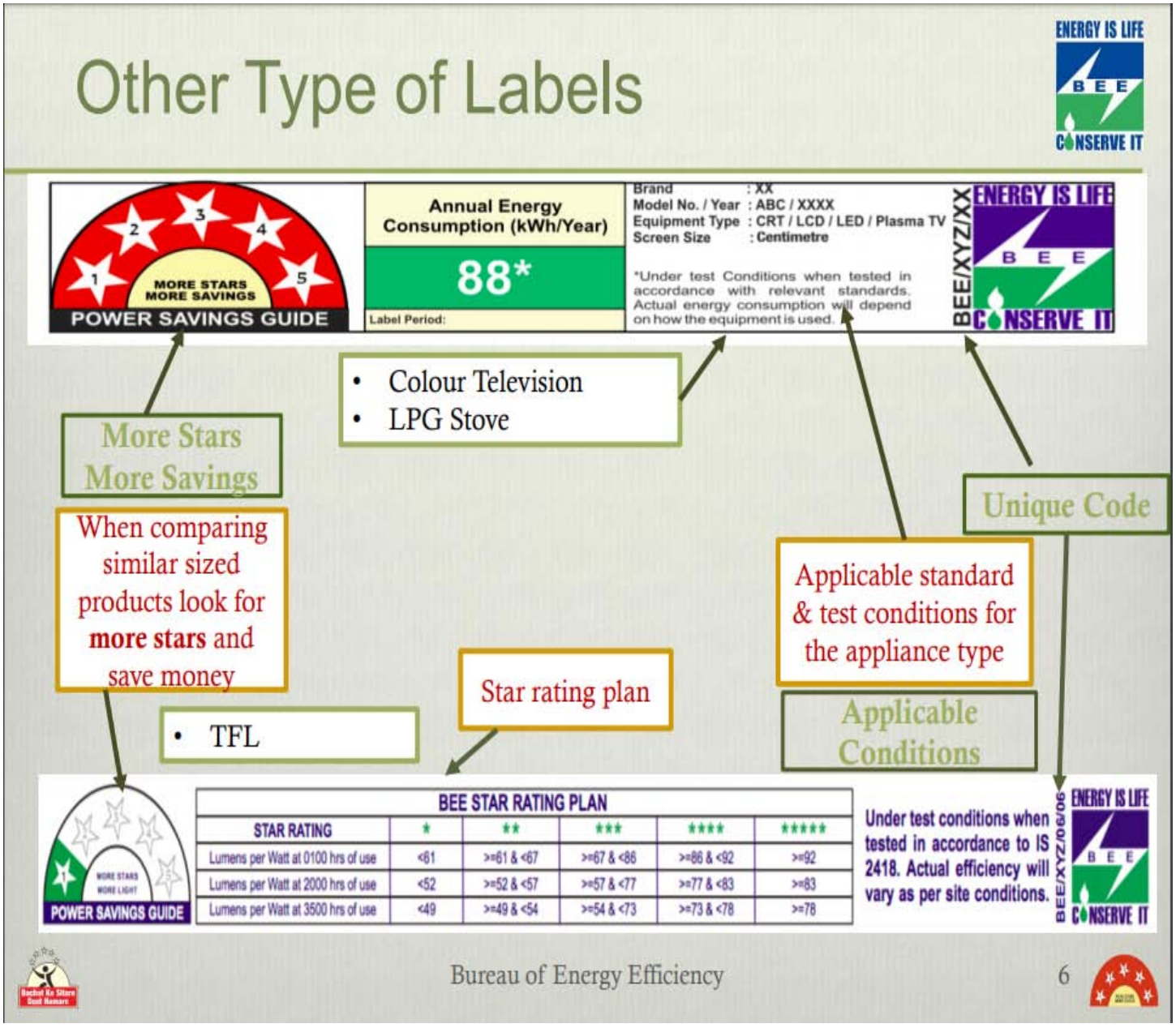
Source: https://beeindia.gov.in/content/standards-labeling



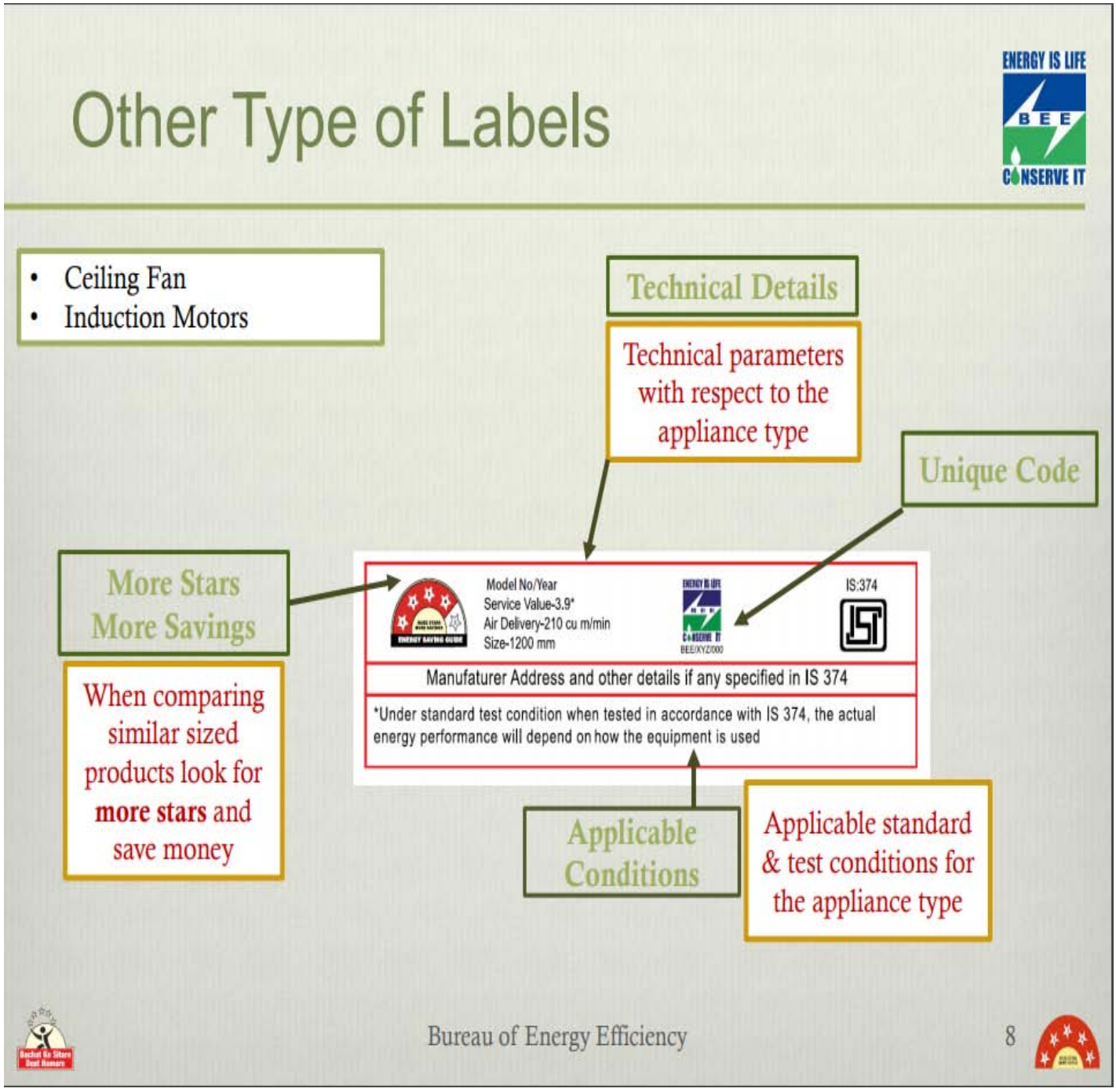
Star Label for Air Conditioners, Refrigerators, Distribution Transformers, Geysers, Washing Machine, Inverter, LED Lamps, Diesel Generator Sets (DG Sets)



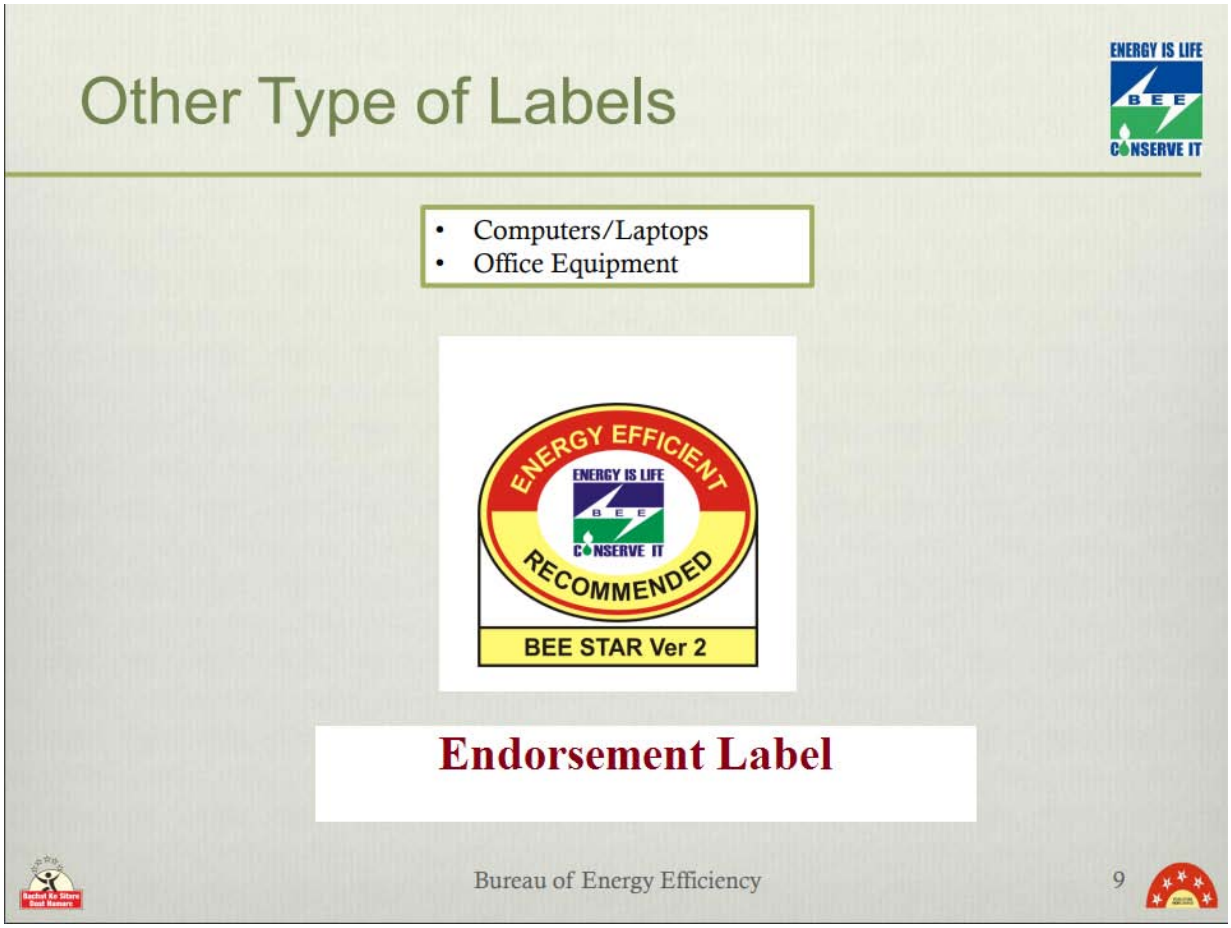
Star Label for Agriculture Pump and Diesel Engine Driven Monoset Pumps (DG Monoset Pumps)



Star Label (Upper Red & White one) for Colour Television and LPG Stove and Star Label (Lower Green & White one) for Tubular Fluorescent Lamps



Star Labels for Ceiling Fan and Induction Motors



Energy Efficiency Endorsement Label for Computers/Laptops and

Office Equipment

Label relevancy

Technology evolves each passing year and so do their power efficiency figures. BEE understands this and hence updates their energy ratings every year. Updates depend on the newer technologies in each product category. Hence, a product with 5-star ratings last year may be considered a 4 star rated product based on the updated norms in its category this year. Manufacturers update their devices yearly too; hence the relevancy of BEE's energy ratings stays constant year after year.

For Example: If you are looking at a 1-ton air-conditioner and it has a 5 star rating, it means that this AC is the most energy efficient among all the other 1-ton ACs. So, if you compare a 1.5-ton air-conditioner with a 1-ton variant based on star ratings, this comparison shall be inaccurate with regards to energy efficiency. Also, a refrigerator manufactured in 2015 might be highly energy efficient and must have received a 5 Star Rating. But, the same refrigerator might be less energy efficient compared to refrigerators manufacturedin 2017 owing to improved efficiency technologies. Thus, BEE continues to update the star rating and makes the energy rating programme better every passing year.

Monitoring, Verification and Enforcement

The manufacturers are officially required to put these labels as per the Standards and Labeling Programme introduced in 2006.

The company of the product first has to register themselves on the Standards and Labeling (S&L) web portal for each brand of the appliance, i.e., for air-conditioners, refrigerators etc. After that, numerous required documents need to be submitted– from the name and address of the premises where the products are manufactured to a valid quality management certificate as per the latest ISO 9001 accreditation. The applicants should also deposit a security fee of INR 1, 00,000 for each registration as a security deposit.

Here it should be noted that Small Scale Industries (SSI) have to only pay INR 25,000 provided they submit the valid SSI certificate. After the company registration for the brand is done, the model registration is the next important step. Each model of the equipment should be registered with a registration fee of INR 2000 and with particular documents. Out of the documents, the test report for the equipment should also be submitted which decides the star rating of the appliance. The test report will constitute the energy efficiency performance value – which is deduced uniquely for each product as per Indian Standards. This energy efficiency performance value should be obtained from NABL (National Accreditation Board for Testing and Calibration Laboratories) accredited labs or the manufacturer's own lab. The Independent Agency for Monitoring and Evaluation (IAME) will evaluate the application (but not test the energy efficiency performance value, yet) and will authorise the applicant to fix the standard BEE star label on the registered product. The registered product should be produced within six months from this step and should be commercially available within a year. The manufacturer should also provide details about authorised dealerships from where the product will be available from. This is later important for BEE for monitoring, verification and enforcement of the star label.

BEE has two robust methods for verification of the energy efficiency factor.

One is the **Check Testing**. For this, the Bureau or its designated agency (IAME or State Designated Agencies (SDA) or any other agency), shall carry out testing on its own by procuring samples of the product from the authorised dealers from the market. In case thesample drawn for the check testing fails, the Bureau or its designated agency shall conduct a second check testing. The Bureau or its designated agency use a sampling based approach. The selected samples procured by the Bureau or its designated agency are then tested by third-party NABL accredited labs. The test lab submit the test report to the Bureau which will be evaluated by the Bureau or its designated agencywhether the test result conforms to the relevantschedule/standard/regulation and also the information given on the label.

If the results indicate failure, it goes on to **second check testing.** The Bureau or itsdesignated agency shall conduct a second check testing for which it shall buytwo additional samples of the same model within two weeks.If the product goes on to fail the second check testing also, the Bureau will direct the manufacturer to correct the star level on the product and change the particulars displayed on the advertising material. If the requirement falls beneath the one-star standard, the manufacturer will have to withdraw all

the stocks from the market. Additionally, the Bureau will also publish the results on their site and newspapers for the benefit of the consumer with the particulars of the appliance(Check out the below picture).

S.No.	Manufacturer Logo	Manufacturer/ Company Name	Brand	Model	Star Rating	CEC as per BEE record	Test Results (PAEC)		Result
							Sample 1	Sample 2	
1.	SAMSUNG	Samsung India Electronics Pvt Ltd	Samsung	RT28K3022 SE/HL	2	303 kWh	347 kWh	Target Temperature not attained	Fail

Another method of verification is **Challenge testing**, where written complaints to the BEE about the star label will see actions taken accordingly towards the product.

The Bureau has various enforcement to carry out the S&L scheme properly and revises the energy efficiency quotient for every three years. BEE also has a dedicated app named 'BEE Star Label" that allows you to view the star rating of various products available in the market.

Check out the link to download Apps (https://www.beestarlabel.com/Home/MobileApp)

Tips for energy efficient Lifestyles

- **Get the size right:** Make sure the product you are buying suits your needs. Oversized water heaters, air conditioners and refrigerators waste energy and money.
- **Think long term:** Most of the energy efficient appliances cost more initially, but they save a lot of money in the long run. Expect to keep most of the major appliances between 10–20 years. In addition, the latest energy efficient dish washer and washing machines not only save our electricity, but use less water and thus reduce our water bill.
- **Maintenance:** Maintain the appliance properly; this will help in reduce the wasteful energy consumption.
- **Refrigerator**: The larger the refrigerator, more the energy consumption. Hence, one should buy the correct size to suit one's needs.
- **Washing Machines:** Look for washing machines with adjustable water levels, this will help to consume less water to wash small water loads.
- **Room Air Conditioners:**The most efficient air conditioners have higher efficiency compressors, fan motors and heat transfer surfaces than previous models. A higher efficiency unit reduces energy consumption by 20-50 percent. Replacing a 10 year old model with an energy star labeled product saves energy to a great extent. Big units for small areas are not good choices. A smaller unit running a longer period of time works more efficiently and is more effective in decreasing humidity level than bigger units running on and off frequently. ACs having automatic temperature settings saves a lot of energy and money.
- **Television:** The Televisions earn the energy star label primarily because they draw a small amount of power when not in use, regardless to the amount of energy they consume while in operation. Also, LED and LCD televisions andmonitors draw less

power than cathode ray tube (CRT) or plasma screens. Turn Off or even unplug the TV set when not in use, because they draw power for the instant – on functionality.

- **Injet printers** are more energy efficient than Laser Printers.
- **LED bulbs** and **LED Tube lights** save around 70% of electricity, for the same lighting levels as compared to the traditional incandescent light bulbs and tubelights.

Conclusion

The energy labeling has single-handedly influenced our consuming habits for good.BEE provides the consumer an informed choice about the energy saving productsand it also constantly notifies people of products which don't match the specified label rating. You can check out the link of BEE Website (https://beeindia.gov.in/), for the products that are listed under false labels.If we have to progress towards maximum energy efficiency and power conservation, as consumers we need to become more responsible.

Sources:

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Consumer Education and Research Centre

Consumer Education and Research Centre (CERC), set up in 1978, is a non-political, non-profit and nongovernment organisation dedicated to the education and empowerment of consumers as well as promotion and protection of consumer interests through effective uses of education, research, the media and law. CERC has three major roles-to make consumers aware of their rights, to help them protect themselves and to make providers of goods and services accountable. Its activities include complaints handling, legal advice and litigation, consumer education and awareness programmes, library and information service, publication, comparative testing of products, advocacy, investor and environment protection.

CERC-ENVIS Resource Partner

Ministry of Environment, Forest and Climate Change, Government of India has recognized Consumer Education and Research Centre (CERC) as ENVIS (Environment Information System) Centre in 2005. The focus of ENVIS is to provide environmental information to decision makers, policy planners, scientists and engineers, research workers, etc. across the country. ENVIS was conceived as a distributed information network with the subject-specific centers to carry out the mandates and to provide the relevant and timely information to all concerned.

Subject assigned to the CERC- ENVIS Centre is "Environment Literacy - Eco-labelling and Ecofriendly Products." The Centre launched the website http://cercenvis.nic.in/ on NIC (National Informatics Centre) platform with the theme 'Eco-labelling and Eco-Friendly Products'. The website furnishes the information on national and international scenario on this subject. It publishes theme based quarterly newsletter named "Green Insights". It also circulates bimonthly e-bulletin "Green Alert". Since Social Media is very popular among youth and to attract them and sensitise them towards eco products, ENVIS Resource Partner has started a page on facebook also (https://www.facebook.com/EcoProductsEcoLabeling).

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