



GREEN INSIGHTS

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Newsletter on Eco-labelling and Eco-friendly Products

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**Energy labels:
A choice for energy efficiency**



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Eco-labelling and Eco-friendly Products

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FORWORD

Climate change is making the earth hotter, and increases in temperature are expected in the coming decades. Along with increasing temperatures, precipitation patterns are changing, extreme weather like storms and droughts are increasing, and sea levels are rising. These changes in weather patterns affect both energy demand, specially with increased peak electricity use for air conditioning, and energy supply, with reduced reliability and efficiency. They also have closely related effects on water demand and supply. Energy efficiency is one of the most important tools for avoiding climate change by reducing the use of fossil fuels.

Energy saving could be achieved by using more energy efficient appliances which help reduce the emission of greenhouse gases and other air pollutants. To facilitate the consumers to choose energy efficient appliances and raise public awareness on energy saving, Governments of different countries introduced Energy Efficiency Labelling Schemes. The objective of the schemes is to promote deployment of energy efficiency technologies as well as to encourage manufacturers to invest in research and development of energy-efficient products. Products which meet the energy efficiency criteria are allowed to be affixed with energy labels. Energy labels enable consumers to choose products that consume less energy and thereby save money.

In this new millennium, the new consumption pattern takes energy efficiency of products into purchase consideration in addition to the brand, quality, and price. Products affixed with energy labels stand for high energy efficient products which consume less energy and hence save operating costs. For durable, frequently used, high energy consuming products, the savings in energy costs over the product lifetime can be specially significant. Therefore, it would be wise to compare not just the price of the products but also the energy efficiency while shopping!

In India, the Bureau of Energy Efficiency has launched energy labelling scheme for electrical appliances. The objectives of Standards & Labeling Programme is to provide the consumer with an informed choice about the energy saving and thereby the cost saving potential of the marketed household and other equipment. The scheme was launched in May 2006. The Energy Label specifies the energy consumption of the appliance under standard test conditions.

The present issue provides the information on different energy labels used by different countries. After the economic liberalisation in 1991, the Indian retail market has seen considerable growth and has been opened up for different consumer products. Products with energy labels will boost the confidence of consumers in buying energy efficient products.

Energy efficiency: a need of hour

Energy efficiency is taking its place as a major energy resource in the context of national and international efforts to achieve sustainability targets. Energy efficiency is a way of managing and restraining the growth in energy consumption. Something is more energy efficient if it delivers more services for the same energy input or the same services for less energy input. Energy efficiency can bring multiple benefits, such as enhancing the sustainability of the energy system, supporting strategic objectives for economic and social development, promoting environmental goals and increasing prosperity.

Nowadays, attention has been paid to the notion that energy efficiency helps to achieve a much broader range of outcomes that contribute to the human ambition to improve welfare and wealth. Energy has become so much a part of our life that we cannot think without it. We use it without thinking about its sources and its impacts on the environment.

Most of the energy is generated from burning fossil fuels like coal, gas or oil. As of today, fossil fuels provide around 66% of the world's electrical power, and 95% of the world's total energy demands, including heating, transport, electricity generation and other uses. Accumulation of carbon dioxide in the atmosphere, released from the burning of fossil fuel, contributes to global warming and triggers changes in surrounding environment and, ultimately, on our social and economic realities.

Increasing efficiency of energy consumption seems to be the most straightforward and practical way to climate change mitigation. It has other environmental benefits; like local air quality, for

instance can be improved by reducing emissions through lower energy consumption.

Today's consumer is concerned about the environment; consequently, designers and manufacturers are persistently developing ways to improve energy efficiency in their products. From cell phone manufacturers to PC makers, new industry standards are emerging that will significantly impact the rate of power consumption in electronic devices.

Efficiency vs Conservation

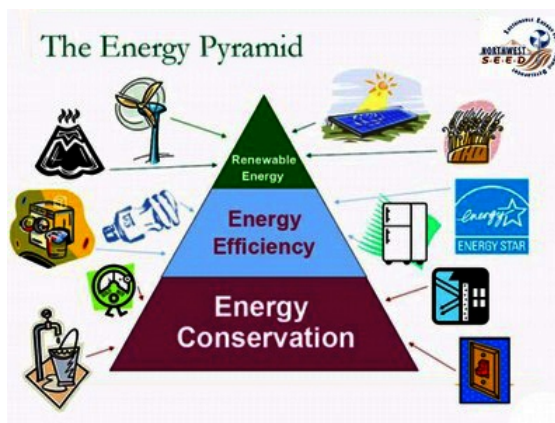
These are different but related. The terms energy conservation and energy efficiency have two distinct meanings. There are many ways people can use less energy (conservation) and many ways people can use

energy more wisely (efficiency). Energy conservation results in the use of less energy. For example turning the lights off and recycling aluminium cans are both ways of conserving energy. Energy efficiency is the use of technology that requires less energy to perform the same function. A compact fluorescent light bulb (CFL)

requires less energy than an incandescent bulb to produce the same amount of light is an example of energy efficiency. The same way light-emitting diodes (LEDs) require less energy than compact fluorescent light bulb (CFL) to produce the same amount of light.

Multiple Benefits of Energy Efficiency

The International Energy Agency (IEA), an autonomous agency, established in November 1974 published a report on the “**Multiple Benefits of Energy Efficiency.**” Over 300 international experts participated in this



research and consultation process. The IEA has identified numerous benefits because of their apparent scale and value to economic and social development. Thirteen broader benefit areas are listed which fall into several thematic categories: energy system security, economic development, social development, environmental sustainability and increasing prosperity.

Multiple benefits of measures to improve energy efficiency

A study on the “**Multiple Benefits of Measures to Improve Energy Efficiency**” by UNEP DTU Partnership provides the world and G20 national- and sector-specific estimates of the emissions reduction potential associated with energy efficiency measures. UNEP DTU Partnership is a leading international research and advisory institution on energy, climate and sustainable development. It has analysed the multiple benefits being delivered by energy efficiency programmes. It combines energy modelling with a survey of 25 national programmes, to provide an overview of the



various benefits associated with improvements in energy efficiency. It is the first study providing comparable country- and sector-specific forecasts of energy use, greenhouse gas emissions and macroeconomic variables for most G20 countries.

Sustainable Energy for All (SE4All)

The “**Sustainable Energy for All**” (SE4All) is one of the most overarching global initiatives that can help governments meet these challenges. This initiative

was launched by the UN Secretary-General in 2011, with three interlinked objectives to be achieved by 2030: 1) ensure universal access to modern energy service; 2) double the global rate of improvement in energy efficiency, and 3) double the share of renewable energy in the global energy mix. Governments from 106 countries and the European Union have partnered with SE4All to advance the three objectives at the country level. India is also one



SUSTAINABLE ENERGY FOR ALL

of the partner countries. Over 50 High Impact Opportunities (HIOs) have been identified, with a wide range of stakeholders undertaking actions that will have significant potential to advance Sustainable Energy for All. Governments, the private sector, and multilateral institutions alike are mobilising resources in support of the initiative's three objectives.

Ultimately, the more efficient use of energy country-wide will result in less money spent on energy by households, schools, government agencies, businesses, and industries. The money that would have been spent on energy can instead be spent on consumer goods, education, services, and products.

Source:

<http://www.iea.org/topics/energyefficiency/>,
http://www.iea.org/publications/freepublications/publication/Captur_the_MultiplBenef_ofEnergyEfcie ncy.pdf, http://www.eia.gov/energyexplained/index.cfm?page=about_energy_efficiency
<http://www.am.undp.org/content/armenia/en/home/ourwork/environmentandenergy/successtories/environmental-and-social-benefits-of-energy-efficiency-.html>, [http://orbit.dtu.dk/en/projects/the-multiple-benefits-of-measures-to-improve-energy-efficiency\(9e32fca7-f494-4a26-8cc5-186b139d87ef\).html](http://orbit.dtu.dk/en/projects/the-multiple-benefits-of-measures-to-improve-energy-efficiency(9e32fca7-f494-4a26-8cc5-186b139d87ef).html)

Energy labels



To promote deployment of energy efficiency technologies as well as to encourage manufacturers to invest in research and development of energy-efficient products, the governments of different countries initiated the “Energy Label” programme. Products which meet the energy efficiency criteria are allowed to be affixed with energy labels.

It is axiomatic that the market for household energy services would be enhanced where buyers are able to take into account not just the cost of the appliance but the otherwise invisible factor of energy consumption. Energy labels improve the market's operation by displaying accurate energy consumption information on products, which is useful in the purchase decision.

BEE Star- India

The Bureau of Energy Efficiency, Ministry of Power has developed a scheme for energy efficiency labelling. The scheme was launched 2006. Under this programme, for the benefit of the consumer, the appliance manufacturers could affix

BEE Star Label on their appliances showing the level of energy consumption by the appliance both in terms of absolute values as well as an equivalent number of stars varying from one to five, in accordance with the specific stipulation. The greater the number of stars on the label, higher the appliance energy efficiency and lower its electricity consumption. Affixing BEE star label has been made

mandatory for Frost Free Refrigerators, Tubular Florescent Lamps, Room Air-conditioners, Distribution Transformers and Room Air Conditioners (Cassette, Floor Standing Tower, Ceiling, and Corner AC). It is voluntary for Direct Cool Refrigerator, Colour TV, Electric Geysers, Induction Motors, Agricultural Pump Sets, Ceiling Fans, LPG Stoves, Washing Machines, Laptops/Notebooks, Office Equipment's, Ballast, Diesel Engine Driven Monoset Pumps for Agricultural Purposes, Solid State Inverters, Diesel Generator, Variable Capacity Air Conditioner (Inverter AC's) and LED Retrofit lamps.

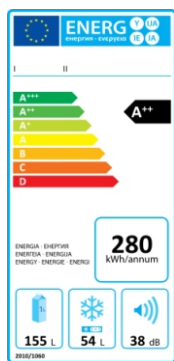


European Union (EU) Energy Label

The EU energy label shows how efficiently a product uses energy. The label rates products from dark green (most efficient) to red (least efficient). The label also shows total energy consumption and provides other information relevant to that product, such as water consumption and noise levels for washing machines, and screen size for televisions. Products in the darkest green category are the most energy efficient. Dark green-rated products use less energy and help to lower energy bills and CO₂ emissions. The higher categories appear in the green bands of A+, A++ and A+++ as products become more energy efficient.



Now the Commission proposed a single energy efficiency label to a single A to G label scale.



Currently, several different energy label scales exist (from A to G, A+++ to D, etc), but over the years since 1995 when the label was introduced, energy efficiency has improved so much that most of the products now on the market are in the top energy efficiency class. The single A to G label would help consumers distinguish the most efficient products of today more easily.

Energy Star- USA

An international standard ENERGY STAR is a US Environmental Protection Agency (EPA) voluntary programme. It is for energy efficient consumer products. It helps businesses and individuals save money and protect climate through superior energy efficiency. It was launched in 1992 and has been instrumental in reducing this energy use in order to realise significant greenhouse gas (GHG) emission reductions - contributing to the important health and environmental benefits. It certifies products, homes, and commercial facilities. The label is



available on major appliances, office equipment, lighting, home electronics, new homes and commercial and industrial buildings and plants.

UL Energy Efficiency Verified

In energy efficiency product testing and certification, UL supports businesses throughout the entire product development, testing and certification cycle. Its energy efficiency certification programme tests and certifies products for their compliance to a broad range of local, national and international standards. It provides a complete set of services for energy efficiency testing programmes, enabling customers to streamline essential compliance and validation processes, improve operational efficiencies and meet time to market requirements. Its database helps the consumer to find energy efficient products verified by UL. UL is not affiliated with any manufacturer or product.



Energy Label, Taiwan, ROC



To promote deployment of energy efficiency technologies as well as to encourage manufacturers to invest in research and development of energy-efficient products, the Bureau of Energy (BOE), Ministry of Economic Affairs launched the voluntary “Energy Label” programme in 2001. Products which meet the energy efficiency criteria are allowed to be affixed with energy labels. After passing testing for compliance with certain standards, successful applicants are entitled to attach Energy Labels to their products.

The basis for determining the energy efficiency criteria for qualified products under the “Energy Label” programme is to evaluate the energy performance of products on the market and select the middle to top performers on the efficiency distribution curve. The efficiency criteria are then periodically reviewed and revised to reflect technology and product advancement. The above measures ensure the credibility of energy labels in denoting high energy efficient products.

ENERGY STAR: Canada



ENERGY STAR® is the mark of high-efficiency products in Canada. The familiar symbol makes it easy to identify the best energy performers on the market. ENERGY STAR certified products meet strict technical specifications for energy performance—tested and certified.

This programme is a voluntary partnership between the Government of Canada and more than 2,000 organisations that manufacture, sell or promote ENERGY STAR-certified products and homes. The ENERGY STAR symbol and label indicate for consumers that certified products and homes meet strict technical requirements making them among the most energy-efficient on the market.

Energy Saving Recommended



The Energy Efficiency Recommended logo endorses products that are amongst the most efficient available. It covers appliances, light bulbs and fittings, gas and oil boilers, heating controls, hot water cylinders, loft insulation, cavity wall insulation and draught-proofing.

Energy Efficiency Recommended is an Energy Saving Trust initiative backed by the UK Government. The logo is only found on products that have been carefully selected for their energy efficiency. This is a certification mark.

China Energy Conservation Programme (CECP)

The certification for energy-saving and environmental-friendly products is a voluntary programme aiming to save energy and reduce emissions through stimulating manufacturers to produce more resource efficient products and helping consumers to make more sustainable purchase decisions.



In 1998, CECP began the energy conservation certification programme with residential refrigerators. This soon expanded to more than ninety product categories covering home appliances, lighting, electronic, office equipment, industrial products, water saving products and environmental-friendly products. The voluntary Energy Conservative Certification had become CQC's (China Quality Certification) product certification line. A logo with “节” wording is affixed to certified products. The Cerpass Group based in Taiwan has been in the product safety and certification business since 2003.

China Energy Label

China's energy efficiency labelling management system, also known as the China Energy Label, is a type of information tag attached to the product or the

smallest part of its packaging, which indicates the energy efficiency grade, energy consumption and other indices of energy-using products. It is a mandatory energy efficiency labelling programme with China's Energy Conservation Law, Product Quality Law and Regulations on Certification and Accreditation forming its legal basis. Based on the energy efficiency distribution and technical potential/cost-effectiveness of energy efficiency improvement, energy efficiency labels display different grade classifications. It provides consumers with the information they need (including all levels of government, enterprises and individuals) when they are making purchasing decisions, to guide and help them to choose energy-efficient products.



Energy Saving Labelling Programme : Japan

An appliance standard and labeling program is the major energy efficiency policy tool to increase the efficiency of electrical appliances in Japan. In addition to the regulatory appliance standard programme, there are two key energy efficiency label programmes targeting electrical appliances: “Energy Efficiency Label” and “Unified Energy Conservation Label”.

Energy Efficiency Label:

The labelling has two colours in which an orange label demonstrates that the product doesn't achieve the target standards set out in the Energy Conservation Act (Top Runner standard), whereas a green label demonstrates that the product achieves the Top Runner standard. With the additional information such as the target achievement rate being presented adjacent to the label, this will help



consumers recognise which energy efficiency level the product is in. The labelling programme is voluntary and its description and procedures are defined under the Japanese Industrial Standard (JIS).

Unified Energy Conservation Label:

In addition to the above “Energy Efficiency Label”, based on the amendment of the Act in 2005, a new labeling concept was introduced. This new label is called a “Unified Energy Conservation Label”. This label is different from the first-introduced label in that this label has a concept of energy efficiency comparison by a means of star rating. The label presents the product is more efficient if it has more stars. Also, the label has to carry the cost information of the expected electricity cost or fuel usage.



Energy Label Programme: New Zealand

Energy Efficiency and Conservation Authority (EECA) is the government agency that works to improve the energy efficiency of New Zealand's homes and businesses and encourages the uptake of renewable energy. It promotes energy efficiency, energy conservation and the use of energy from renewable sources. It awards the **ENERGY STAR**® mark to products and appliances with superior energy efficiency within their category. It's a voluntary programme where industry partners identify and promote superior energy efficient products. ENERGY STAR is New Zealand's mark of energy efficiency.



The **Equipment Energy Efficiency Programme**, known as E3, works to make residential, commercial and industrial products more energy efficient, through the implementation of minimum energy performance standards (MEPS) and energy rating



labels (ERL). It is a trans-Tasman programme that works to align energy efficiency requirements between Australia and New Zealand.

Energy Labelling of Buildings: European Union

The 2010 Energy Performance of Buildings Directive and the 2012 Energy Efficiency Directive are the EU's main legislation when it comes to reducing the energy consumption of buildings. Energy performance certificates provide information for consumers on buildings they plan to purchase or rent. They include an energy performance rating and recommendations for cost-effective improvements. The certification also includes advice and information on how to improve energy performance. It concerns such elements as building envelope, windows, heating, electrical and ventilation



installations, lighting, heat sources (incl. boilers, CHP units) cooling systems and others.

Source : <https://www.beestarlable.com/>

<http://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficient-products>

<https://www.energystar.gov/>

<http://www.nrcan.gc.ca/energy/products/energystar/12519>

<http://services.ul.com/service/energy-efficiencycertification/http://www.ul.com/customer-resources/ul-energy-efficient-product-database/>

http://www.energylabel.org.tw/index_en.asp

<http://www.energylabels.co.uk/eerecommended.html>

http://www.cerpass.com.tw/en-us/china_cecp.aspx

<http://www.energylabel.gov.cn/en/index.html>,

<http://www.iea.org/policiesandmeasures/pams/japan/name-21246-en.php>

<https://www.eeca.govt.nz/standards-ratings-and-labels/energy-star/>

<https://www.eeca.govt.nz/standards-ratings-and-labels/equipment-energy-efficiency-programme/>

<http://www.buildup.eu/en>, <https://ec.europa.eu/energy/en/topics/energy-efficiency/buildings>

Tips on Save Money and Energy



Energy Conservation and Energy Efficiency are two sides of the same coin. Most consumers think both mean the same, but they don't. Energy conservation means reducing the level of energy use by turning down a thermostat, or turning off a light, or turning up the temperature of the electrical appliance. Energy efficiency means getting the same job done while using less energy. Efficiency is usually done by replacing an older, less efficient appliance with a new energy efficient one.

Switch off or unplug any chargers or gadgets you don't need on.

If they have a standby light, a display or are hot to the touch they will be using energy just by being plugged in. This prevents standby switches from needlessly consuming energy.

Replace old gadgets with new energy saving gadgets.

Select the most energy-efficient models when you replace your old appliances. Look for the Energy Star Label - your assurance that the product saves energy

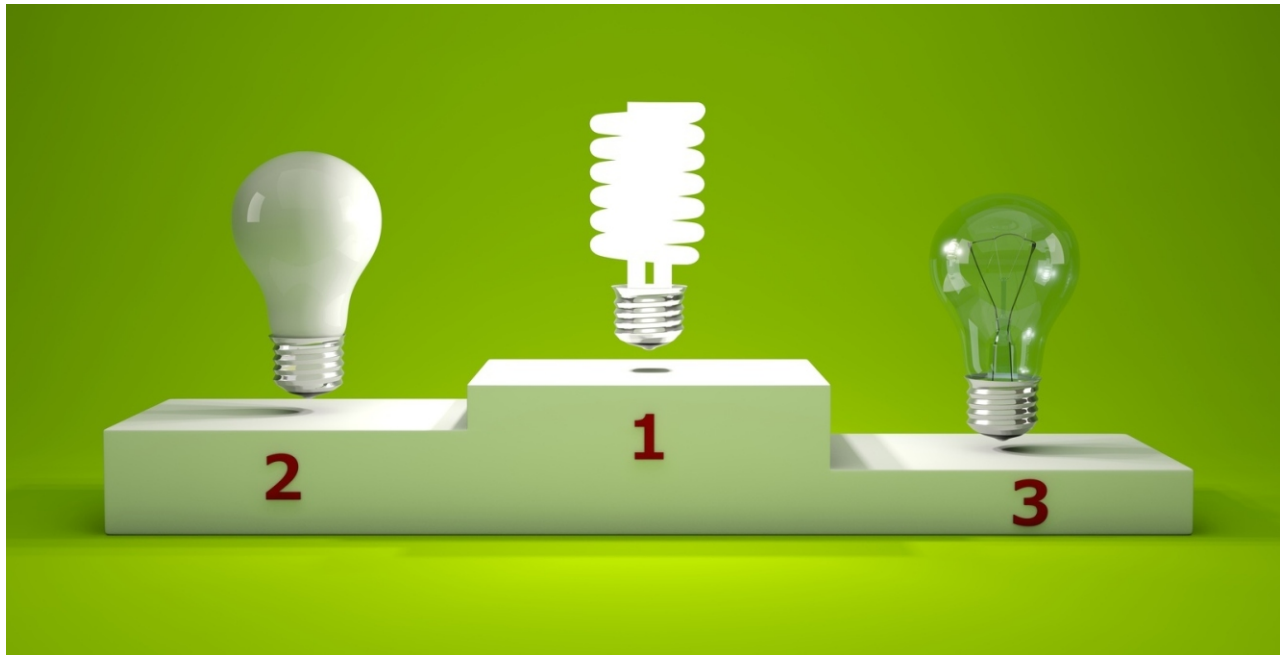
and prevents pollution. It gives the information of power requirements and how much energy can be saved.

Laundry for maximum energy savings.

Use the shortest wash cycle and use cold water. Maximum energy used in washing clothes goes toward heating the water. Cold water washing not only saves energy, it also prevents fading and helps keep permanent press clothes from wrinkling. Only run the washer with full loads, but don't overload it. An overloaded washer has to work harder and uses more energy. Don't over dry clothes. Use free solar energy to do the drying.

Switch to Energy-efficient light bulbs.

Light-emitting diode (LEDs) or compact fluorescent light (CFL) bulbs use a fraction of the electricity an ordinary light bulb would use and last up to 10 times longer. Although they can initially cost more than traditional incandescent bulbs, during their lifetime they save you money, because they use less energy.



Weatherize your home.

Let the sunshine in. Use the natural light. On a sunny day, opening your curtains will let warmth into your house, but when it's colder or the sun goes down don't forget to close them to keep that heat in. Use reflective window film during the summer that can help reduce heat gain.

Home heating and cooling.

Do not overheat or overcool rooms. Clean or replace air filters as recommended. It can save 5% of the energy used.

Switch to the solar power system.

Use solar power to heat water and more. Switching to solar is a great way to reduce your electricity bill. Solar panels can be used to generate electricity for outdoor lighting.

Kill energy vampires.

Electronics guzzle lots of power even when not in use. These appliances - from TVs, computers and coffee makers to clothes dryer can suck up energy, costing you money. Stop wasting electricity: Plug them into a power strip, and then turn off the strip.

Save Water.

Repair leaking pipes, fixtures, and seals. Small leaks

add up to many litres of water. Install water-saving shower heads and low-flow faucet aerators. Collect water from your roof to water your garden.

Set Computers to Energy-Saving Modes.

Switching from a desktop machine to a laptop/notebook is a great way to save electricity. Configure your power saving/management options. LCD monitor uses about one-third the power of a cathode ray tube (CRT) display with the same screen area. Don't use a screensaver—they use double energy as when the computer is in use. Instead, set your monitor to go into sleep mode.

Reduce, reuse, recycle.

Reduce the amount of waste you produce by buying minimally packaged goods, choosing reusable products over disposable ones, and recycling. Recycle aluminium cans and plastic bottles. Reusing paper and recycling paper saves money and energy.

Source: <http://www.consumerenergycenter.org/tips/>, <http://www.ecomall.com/greenshopping/20things.htm>, <http://www.fujitsu.com/in/about/fts/environment-care/energy-tips/>
<http://energy.gov/articles/resolve-save-energy-year>

BEE Star Labels Explained



Look for stars on an appliance model. More stars means more electricity saving.

Look for the year on the label as star ratings change periodically when standards improve. A BEE 5 star rated model in 2013 may be equivalent to BEE 3/4 star model in 2014.

Appliance/Type	: XX/Split
Brand	: YYYY
Model/Year	: ABC/2007
Cooling Capacity (W)	: XX
Power Consumption (W)	: XX
Variable Speed Compressor	: Yes/No
Heat Pump	: Yes/No



Although BEE Star rated appliances do comply with Indian Standards, but higher star rating does not mean better quality.

BEE Star rating is available in following home appliances:
Refrigerators, Air Conditioners, Water Heaters, T8 Tubelights, 1200 mm sweep Ceiling Fans.



The Environmental Information System acronymed as ENVIS was implemented by the Ministry of Environment & Forests by end of 6th Five Year Plan as a Plan Scheme for environmental information collection, collation, storage, retrieval and dissemination to policy planners, decision makers, scientists and environmentalists, researchers, academicians and other stakeholders.

The Ministry of Environment and Forests has identified Consumer Education and Research Centre (CERC), Ahmedabad, as one of the centers to collect and disseminate information on "Eco-labelling and Promotion of Eco-friendly Products". The main objective of this ENVIS Centre is to disseminate information on Eco products, International, and National Eco labeling programs.

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