

THE COLLABORATIVE LABELING AND APPLIANCE STANDARDS PROGRAM

India Labeling Program Impacts: Case Study



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1 Description of the situation in India before the start of the Labeling Program development

1.1 Appliance saturation and appliance sales levels as well as efficiency of appliances around the time of the initiation of the labeling project ("as found" condition)

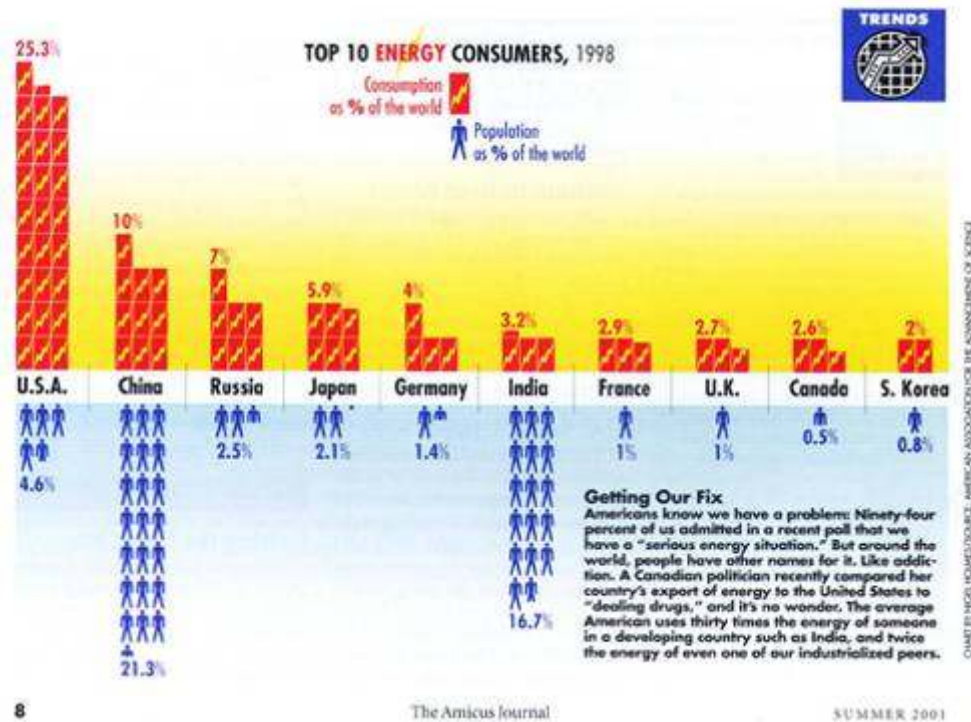


Figure 1. India is world 6th largest energy using country

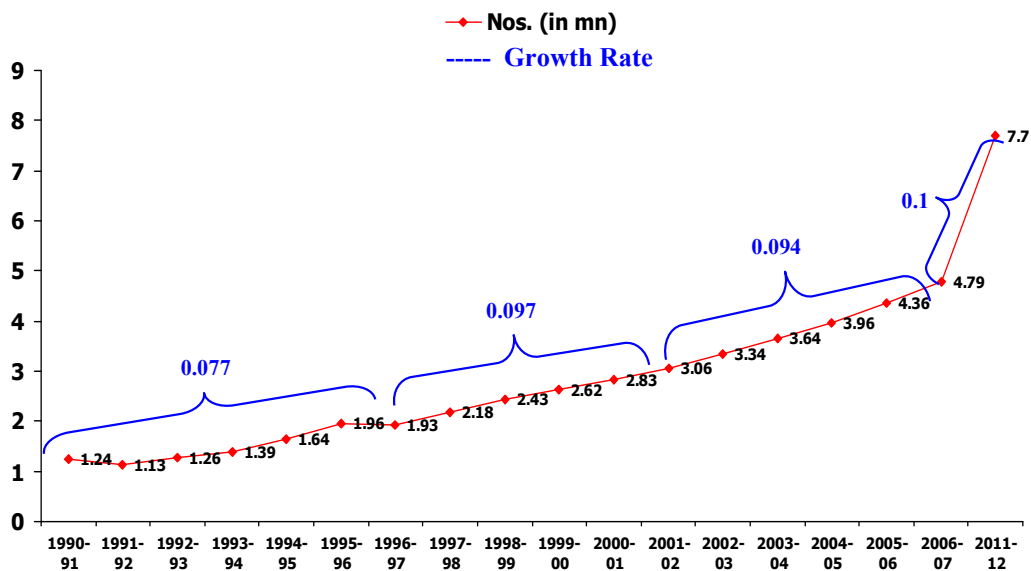
Despite being the world's 6th largest energy consumer per Figure 1 above, at the time the labeling program officially started in 2002¹, overall India had a very low saturation rate of appliances, especially refrigerators and air conditioner. As can be seen in Table 1, the penetration rate of household refrigerators in India is 13% compared to well over 90% in Algeria, Australia, Hong Kong, Korea, Malaysia and Singapore; around 80% in Thailand; close to 40% in Philippines and China, and 20% in Vietnam and Indonesia. The penetration rate for household air-conditioners is about 1% compared to 20% in Indonesia, 24% in China, 40% in Thailand, and 45% in Malaysia.²

¹ CLASP had led a mission to India in 2001 to scope S&L opportunities in India, but the official tasks to initiate S&L did not start until the Energy Conservation Act 2001 was passed.

² Source: Extracts from speech by President, Refrigeration and Air-conditioning Manufacturers' Association (RAMA) India, 2003

Table 1: Distribution of electricity end-use by appliances in Indian households³

Fans	34%
Lighting	28%
Refrigerators	13%
Room AC	7%
Evaporative coolers	4%
Televisions	4%
Others	10%

Figure 2 Refrigerator Sales and Demand Growth⁴

³ Source: Energy Management Centre, Ministry of Power, Government of India

⁴ Intecos-Centre for Industrial and Economic Research (CIER) is a non-government body that tracks the growth of various categories. The information presented here has been collected from the Internet.

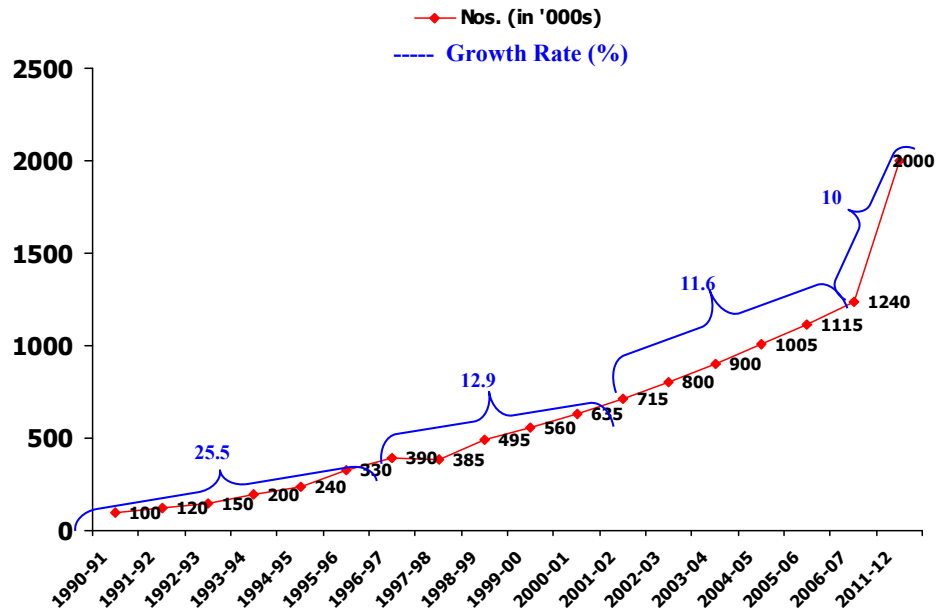


Figure 3 AC Sales and demand Growth

However, per Figures 2 and 3 significant rates of growth in penetration were expected in the near-term for both refrigerators and air conditioners. Based on the expected higher growth rate of these energy-consuming products and the fact that most energy consuming products in the future are not yet built, any change in energy efficiency of these appliances will have a significant impact on the overall energy use in the future.

As can be seen in Figures 4 and 5, durables like mobile phones, mixer-grinders, music systems, and washing machines are more “convenience” products” and in even more even affluence-related and rarified strata in terms of penetration. The only low-ticket item, interestingly, in the list is CFLs.

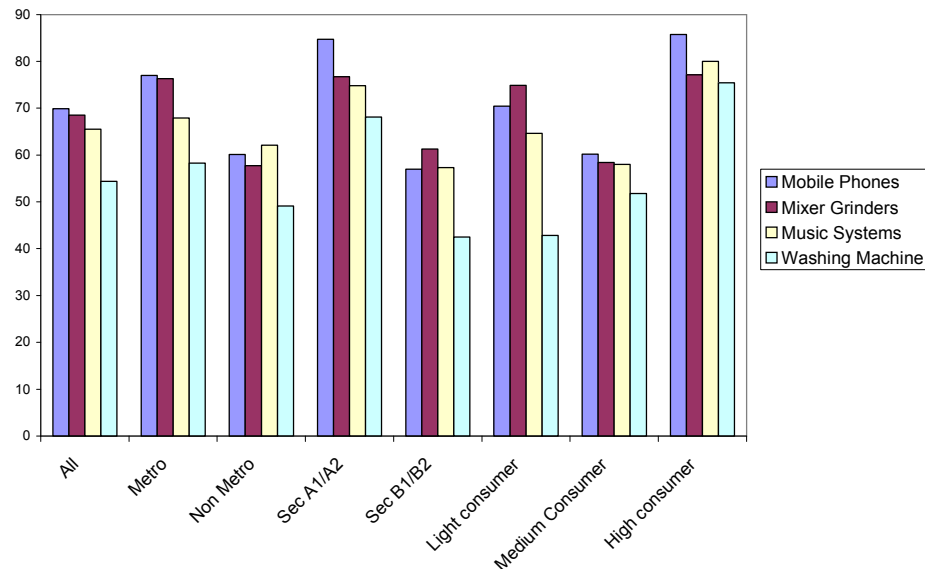


Figure 4: Product categories which are convenience related

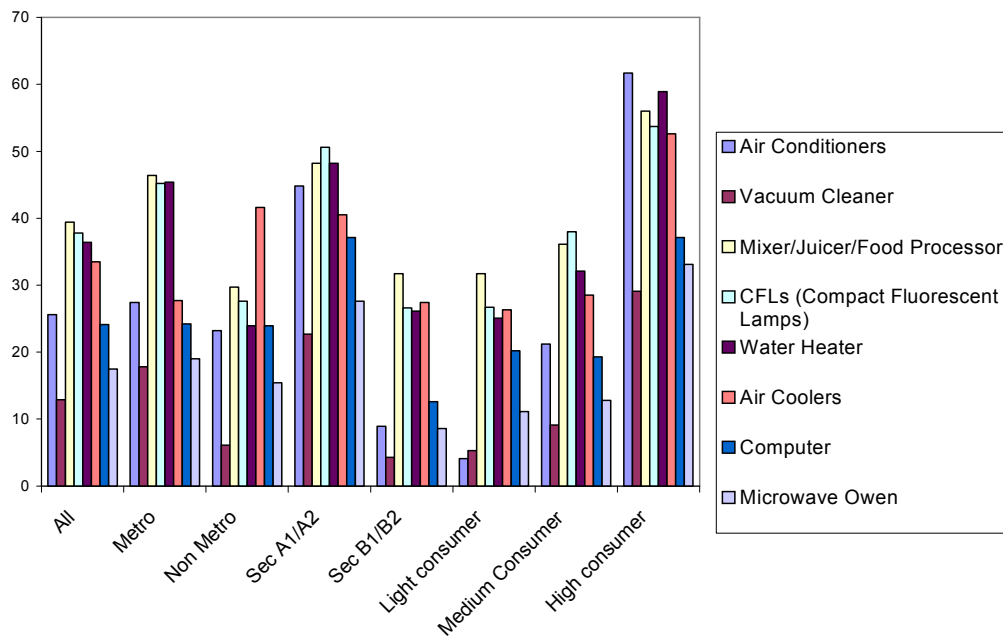


Figure 5: Product categories which are high affluence-related

1.2 Description of how the priority products were determined from the point of view of energy consumption and conservation potential.

The standards and labeling development process and approach being followed in India is shown in the Figure 6 below.

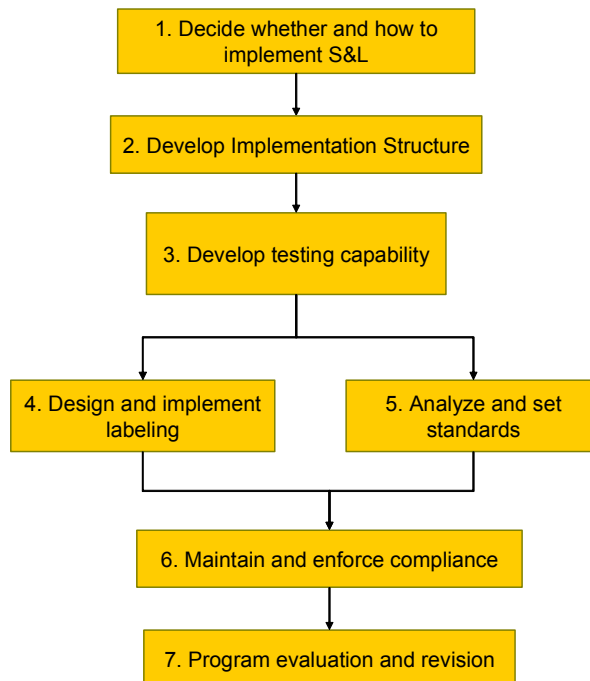


Figure 6 Standards and Labeling Program design Process

1.2.1.1 Selection Criteria

The Government of India decided to introduce a comparative label as the first step, in a market-based process which was: collaborative in nature; consensus driven; protects consumer interests as the underlying factor; and also protects the interests of SMEs.

For the standards and labeling program, products were identified based on the following criteria:

- The equipment or appliances were commonly used;
- The energy intensity of the equipment and appliances was high;
- They contributed to significant portion of electricity used in that category;
- They contributed to the peak demand; and
- The potential for savings, in terms of both energy consumption as well as peak demand, was high.

BEE developed an Action Plan for the year 2002-03. The plan details the steps and tasks for the first year. The following appliances and equipment were identified for the initial 5-year S&L program:

1. Domestic refrigerators;
2. Air conditioners;
3. Fluorescent lamp ballasts;
4. Fluorescent tube lamps;
5. Electric motors;
6. Washing machines;
7. Boilers;
8. Furnaces;
9. Storage water heaters;
10. Heat pumps;
11. Pumps;
12. Fans; and
13. Television sets.

Out of the above-identified products, BEE has already taken up: refrigerators; air-conditioners; and fluorescent tube lights for labeling. Motors, agriculture pump sets, industrial fans as well as blowers and compressors are intended to have minimum energy performance standards (MEPS) first followed by labeling, since these products are not home appliances and used by only selective consumers.

1.2.1.2 Market and Energy Efficiency Improvement Opportunities - Select Products

Several studies were conducted to assess the potential of electricity savings in equipment and appliances selected by the BEE. Table 2 below presents the available data for energy efficiency potential of the products initially targeted for labeling:

Table 2: Energy saving potential

S. No.		Refrigerators (Frost Free)	Refrigerators (Direct Cool)	Refrigerators (All)	ACs	CFL
Energy Savings Potential (Million kWh/Year)						
1.	2007	50	119	169	34	3016
2.	2011	674	1136	1810	479	4644
3.	2015	3153	3235	6388	2071	8122
4.	2020	9436	8166	17602	8682	13081
Demand Saving Potential(MW)						
1.	2007	10	24	35	7	617
2.	2011	138	232	370	98	950
3.	2015	645	662	1307	424	1662
4.	2020	1930	1671	3601	1776	2676

1.3 Description of the energy consumption levels of the priority appliances in India before the establishment of the labeling program.

Several factors suggest opportunities in the Indian appliance market for increased energy efficiency:

- The appliance market is already large and yet, out of 192 million households, only 107 million households have access to electricity. The Policy of the Government of India is to provide electricity to all households in the country by 2012.
- Preliminary assessments have shown that household refrigerators & air-conditioners consume up to 20% of household electric power consumption. Air conditioners are a fairly new appliance, but sales and use of air conditioning are growing very rapidly in the residential sector.
- Many appliances available to consumers are not energy-efficient, as no specific program nor incentive to promote energy efficiency have been organized so far.
- In surveys, consumers note that they would like to reduce recurring expenditure on electricity consumption & save money by using energy efficient products. Once the energy efficient labeling is in force, consumers would be encouraged to buy energy efficient products.
- Nationwide consumer research conducted in 2003 and 2005 indicate that majority of the consumers would prefer to identify and buy high quality, reliable & energy-efficient appliances

Based on the data that we received from the manufacturers, the average power consumed by refrigerators and the total units produced as per capacity are given in the Table 3 below. The maximum number of units manufactured were in 165-175 liters capacity, accounting for nearly 57% of the total sales.

Table 3: Capacity wise Power & Sales for Refrigerators

Capacity (Ltrs.)	Power Consumption (watts)	Total Production in 2002	% market share
100	100	6480	0.3%
165	105	445408	21.5%
170	98	454846	22.0%
175	100	276591	13.3%
180	113	136631	6.6%
190	93	61109	2.9%
195	N/A	118881	5.7%
200	125	66743	3.2%
205	130	19725	1.0%
210	120	15091	0.7%
215	130	46249	2.2%
220	110	125294	6.0%
230	125	75899	3.7%
235	150	19794	1.0%
250	120	48619	2.3%
260	150	61360	3.0%
270	N/A	180	0.0%
280	142	2568	0.1%
285	N/A	33700	1.6%
290	N/A	10000	0.5%
300	130	17217	0.8%
310	142	21550	1.0%
325	180	3544	0.2%
375	180	240	0.0%
410	170	4443	0.2%
Total units = 2072162			100%

The average power rating and capacity of the air conditioners is given in Table 4 below. The maximum number of units as of 1.5 ton capacity, accounting for 79% of the total sales.

Table 4: Capacity wise Power & Sales for ACs

Capacity (in Tons)	Wattage (in watts)(Power)	Total Production in 2002(in 000 units)	% market share
0.75	1033	203	0.0%
1	1442	54246	8.8%
1.25	1450	2800	0.5%
1.5	1916	483294	78.7%
2	2497	70168	11.4%
2.2	2930	283	0.0%
3	4400	2339	0.4%
4	6600	1140	0.2%
Total Units = 614473			100%

2 Description of the markets for the products of interest, suppliers, market channels, local manufacturing, importers, used appliance market, etc.

2.1 Description of the changes in the laws and regulations introduced in support of energy efficiency labeling, minimum energy efficiency levels, verification, penalties, etc.

The Government of India (GOI) passed the Energy Conservation Bill in 2001. The important features of the act are listed below:

- Improvement in the energy efficiency of equipment and appliances through standards and labeling (this part of the law is explained in greater detail in further sections);
- Revision in the list of energy intensive industries and establishing energy consumption norms and standards for designated consumers;
- Enforcement of mandatory energy audits through certified energy auditors in the designated consumers;
- Institutionalization of energy managers in the designated consumers to ensure compliance of energy conservation norms;
- Development of energy conservation building codes to suit the regional and local climatic conditions; and
- Build awareness in energy conservation in India and disseminate information so that consumers can discriminate among products.

The Bureau of Energy Efficiency (BEE) developed an Action Plan in 2002 identifying the following key "Thrust Areas" for implementing the Energy Conservation Act:

1. Indian Industry Program for Energy Conservation;
2. Demand Side Management;
- 3. Standard and Labeling Program;**
4. Energy Efficiency in Buildings and Establishments;
5. Energy Conservation Building Code;
6. Professional Certification and Accreditation;
7. Manuals and Codes;
8. Energy Efficiency Policy Research Program;
9. School Education; and
10. Delivery Mechanism for Energy Efficiency Services.

2.2 S&L Provisions in the Energy Conservation Act:

Role of Central Government:

Under the provisions of the Energy Conservation Act (ECA), Section (14) The Central Government may, by notification, in consultation with the Bureau:

- a. specify the norms for processes and energy consumption standards for any equipment, appliances which consumes, generates, transmits or supplies energy;

- b. (d) direct display of such particulars on label on equipment or on appliance specified under clause (b) and in such manner as may be specified by regulations;
- c. specify equipment or appliance or class of equipments or appliances, as the case may be, for the purposes of this Act;
- d. prohibit manufacture or sale or purchase or import of equipment or appliance specified under clause (b) unless such equipment or appliances conforms to energy consumption standards;

The Role of BEE:

Under section 13 (b) of the ECA, the Bureau of Energy Efficiency (BEE) has the responsibility to recommend to the Central Government the particulars required to be displayed on label on equipment or on appliances and manner of their display under clause (d) of section 14. Thus, legal authority for recommendations related to S&L is given to BEE per the ECA.

3 Description of Institutional Arrangements in India's Labeling Program

3.1 Key players

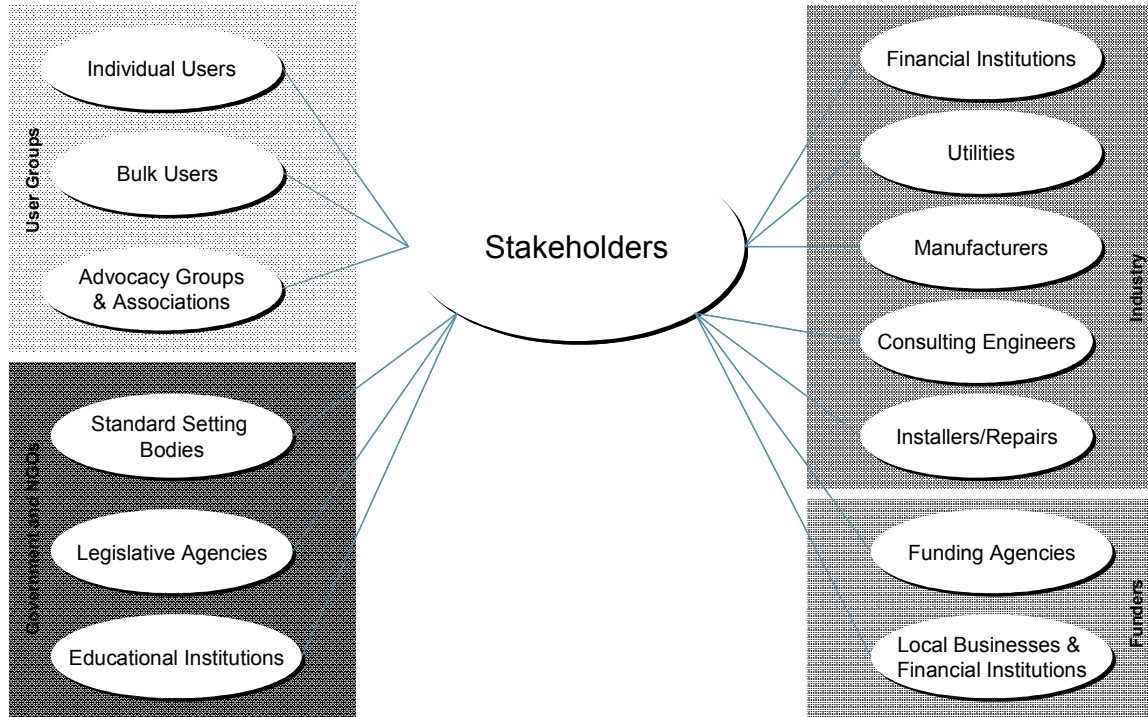


Figure 7 Stakeholders in the S&L process

3.1.1 Ministry of Power (MOP)

The Ministry of Power (MOP) has the primary responsibility of implementing reforms in the power sector under EC Act 2001. MOP with the help of central- and state-level departments controls the electricity generation, transmission, and distribution network. MOP has the overall responsibility of implementing the programs notified under the EC Act 2001. As noted above, standards and labeling are one of the major thrust areas identified by MOP for implementation.

As a positive step, long before the enactment of EC Act 2001, MOP had created the Energy Management Centre (EMC) for coordinating the process of power sector reform and to liaison with other national and international organizations for the exchange of information helpful in formulating strategies in India for power sector reforms. The EMC has now been integrated into the Bureau of Energy Efficiency.

3.1.2 Bureau of Energy Efficiency (BEE)

Under the provisions of the EC Act 2001, the Bureau of Energy Efficiency (BEE) was established effective 1st March 2002 by integrating the staff of Energy Management Centre (EMC). BEE works under the Ministry of Power, with a mandate to address issues related to energy efficiency improvement. BEE has the mandate to implement the S&L program in India. It is getting initial financial support from MOP through the central energy conservation fund. The MoP has

earmarked a sum of INR⁵ 500 million (\$10 million) for energy conservation broadly. BEE is also getting technical support from a number of international donors through CLASP for standards and labels as well as for other issues and through other mechanisms.

3.1.3 Bureau of Indian Standards (BIS)

The Bureau of Indian Standards (BIS) is the national standards organization, which has been instrumental in setting overall voluntary quality standards for appliances and product. BIS works through Committees of Technical experts and stakeholders, such as manufacturers, government agencies, consumer societies, and testing facilities to draft these standards.

BEE and BIS are working together to implement the current S&L programs in India. BIS is supporting the BEE initiatives on formulating energy efficiency standards for equipment such as storage water heaters, refrigerators and air-conditioners.

3.1.4 Collaborative Labeling and Appliance Standards Program (CLASP)

CLASP, a global NGO whose mission is to promote S&L as a cost-effective energy saving policy, is facilitating energy efficiency standards and labeling programs in developing countries including India. CLASP assists with the design, implementation, and enforcement of energy efficiency standards and labels for appliances, equipment, and lighting products through partnerships with agencies, stakeholders, and relevant institutions in targeted countries. CLASP works with representatives of countries that have successfully adopted standards to join the program in reaching out to neighboring countries. CLASP also partners with a variety of policy and technical specialists from around the world, including representatives from European organizations, developing country non-governmental organizations (NGOs), testing laboratories, manufacturers, research organizations, and universities.

In India, CLASP is providing technical support to BEE, MoP, and BIS for implementing the standards and labeling program. Historically, the bulk of CLASP's work in India on refrigerators and ACs was funded by the United States Agency for International Development (USAID) and the United States Environmental Protection Agency (USEPA) and the United Nations Foundation (UNF). More recently, The Ministry of Economy, Trade and Industry (METI) of Japan has provided support to CLASP's work in India and there is strong potential for future work via a recently approved United Nations Development Program (UNDP) Global Environment Facility (GEF) project of \$6 million for market transformation of the refrigerators and AC markets.

3.1.5 Indo-German Energy Efficiency Program (IGEEP)

IGEEP is a joint initiative of the governments of India and Germany. It seeks to mitigate barriers impeding the rational use of energy in Indian industries. The German contribution is routed through Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, and financed by the Federal Ministry of Economic Cooperation and Development (BMZ) as a part of their international cooperation policy. This funding does not flow through CLASP but is in direct cooperation with the GOI and the MOP/BEE.

3.1.6 International Development & Funding Agencies

In summary, the S&L program in India was actively supported by several international funding agencies (for technical assistance as well as direct costs) including the following through CLASP:

⁵ Indian Rupees

- **United States Agency for International Development (USAID)**
- **United States Environmental Protection Agency (USEPA)**
- **United Nations Foundation (UNF)**

3.1.7 Manufacturers Associations

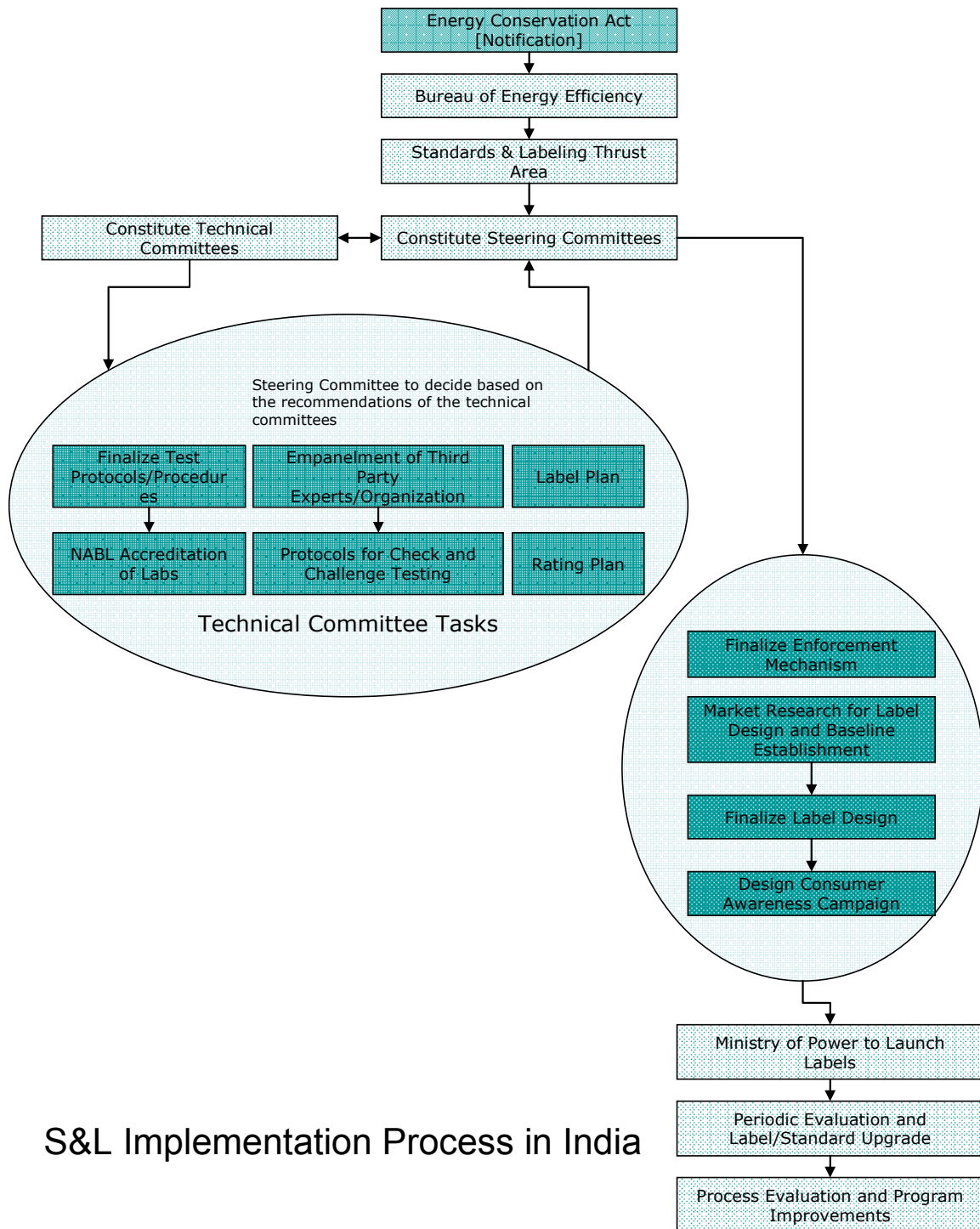
Table 5 lists the key manufacturing association which represent industry in the S&L process.

Table 5: Market players

Product	Market players	Representation/Associations
Refrigerators	Focused market with 5 major players with a production capacity of 800,000 per year (various models)	Refrigerator and Air-conditioner Manufacturers Association, under the guidance of Confederation of Indian Industries
Air-conditioners	Dispersed market with 6 large-scale manufacturers and up to 200 small-scale manufacturers	Refrigerator and Air-conditioner Manufacturers Association, under the guidance of Confederation of Indian Industries
Motors	Dispersed market for small motors – (up to 15 kW) – small and medium enterprises from South, North, and Western India Focused market for medium size motors – (up to 150 kW) – 6 large-scale manufacturers	Indian Electrical and Electronics Manufacturers' Association (IEEMA) All India Electric Motors Manufacturers' Association (AIEMA)
Agricultural Pump-sets	Small manufacturers dispersed across the country	Indian Pump Manufacturers' Association (IPMA) Southern India Engineering Manufacturers Association (SIEMA)

3.2 Roles and Responsibilities

Figure 8 summarizes the S&L implementation process and Figure 9 summarizes the roles and responsibilities of different agencies within that process. The sections below summarize those roles in a bit more detail. Taken together, they provide a clear picture of who does what in the Indian S&L program.



S&L Implementation Process in India

Figure 8 S&L Implementation Process

3.2.1 S&L Development Structure: Steering Committee

BEE played the role of a facilitator in the overall process of program design, process and procedures, implementation and enforcement mechanisms. Therefore, to coordinate with the manufactures and manufacturing associations, BEE set up Steering Committees for all selected appliances and equipments.

The objectives of setting up of Steering Committees were:

1. To form a body of select individuals from manufactures, manufacturing associations, BEE representatives and technical experts (CLASP, donors, etc.) to coordinate the program design and implementation process;
2. To decide about the technical, economic and socio-political needs of the program and suggest ways for BEE to organize the appropriate resources; and
3. To monitor the progress of the program and present it to BEE.

The role and responsibilities of the Steering Committees are to:

1. Ensure that the Technical Committees are organizing their meetings in time and the process of data collection, data analysis, setting technical parameters and sharing of responsibilities is in place;
2. Present the recommendations of the Technical Committees to BEE for further action;
3. Establish a compliance mechanism and review the progress of the program at fixed intervals;
4. Organize the technical and economic resources required for the program with the help of BEE;
5. Maintain all the records relating to the program and make them available to BEE when desired; and
6. Decide about the actions and penalties for non-compliance of the decision of the TC and Steering Committees by any manufacturer. BEE can also be asked to intervene if the non-compliance is serious in nature.

3.2.2 Technical Committee

The Technical Committees (TC) are comprised of technical persons from BEE, BIS, manufacturers and manufacturing associations. There are separate Technical Committees for each appliance and equipment. The objective of setting up of TC was to discuss and decide about the technical matters involved in standards-setting process and assist the Steering Committee in formulating the strategy for their execution.

The role and responsibilities of TC are to:

1. Collect and analyze the required data from manufacturers and manufacturing associations and present the results to the Steering Committee;
2. Discuss and finalize with consensus, the steps in the labeling and standards-setting processes;
3. Discuss and resolve the issues related to the procedures to be adopted for testing, data collection, data analysis, standard setting and design of labels;
4. With consensus, fix the design parameters essential for the standard-setting process and submit to the Steering Committee.

3.3 Interactions of Government & Other Stakeholders

The key steps in the S&L development process are as follows:

1. Identify and prioritize products for labeling;
2. Set up Steering Committee including all stakeholders;
3. Identify critical issues and organize technical subcommittees;

4. Finalize test procedures, lab specifications, minimum technical qualifications;
5. Assess market and product characteristics related to energy efficiency;
6. Develop technical criteria for labeling;
7. Develop implementation and enforcement plan;
8. Draft notification after finalizing all the technical and admin details;
9. Launch labels;
10. Consumer awareness campaign;
11. Check and challenge testing; and
12. Program monitoring, review, and updates.

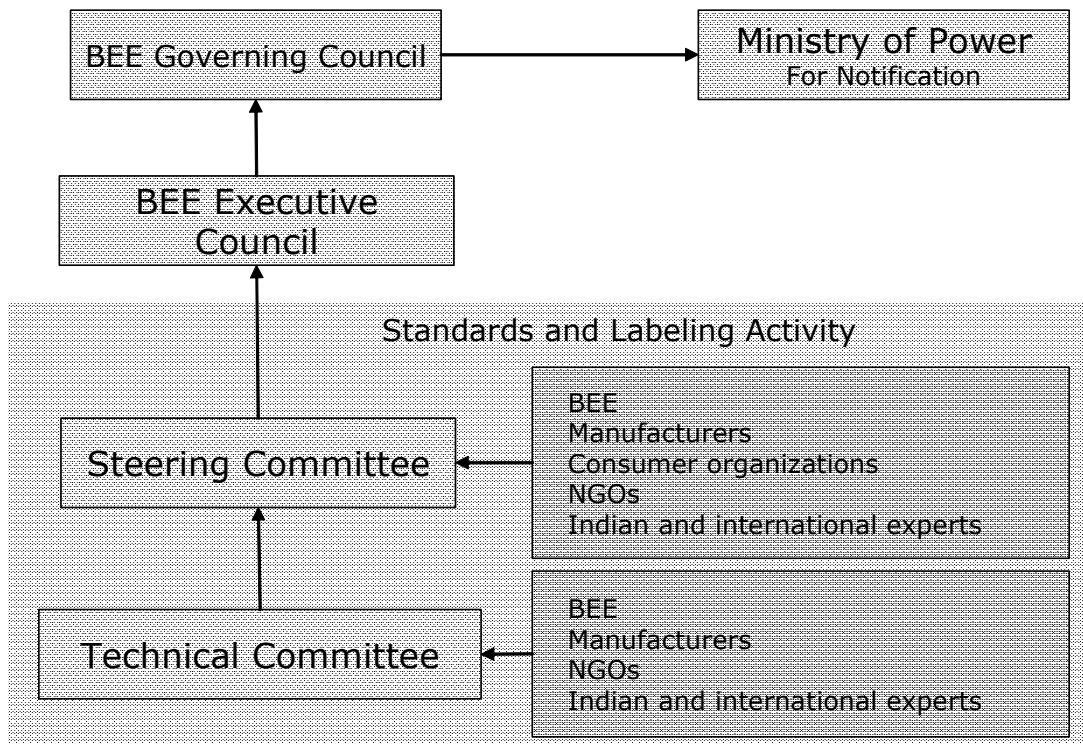


Figure 9 Roles and responsibilities

4 Description of the labeling options considered

4.1 Research Process and Stages

It is important to note that the introduction of a new energy labeling system (where energy labels have not been present beforehand) is usually accompanied by a significant fall in the energy consumption of available products within a very short space of time. It is therefore important to take into account the potential for energy reductions when setting up an energy labeling system to make sure that the labeling algorithms have reasonable longevity. Experience in other countries has indicated that re-grading of energy label rating systems is a significant amount of work and requires significant resources in terms of education and enforcement during the transition. So re-grading of labeling levels should be planned for intervals of not less than 5 years where possible.

In India, it was important to ensure that the 1-star level was set at realistic levels initially. If the 1 star line was too weak, the lower star rating levels would become obsolete in a very short period. Similarly, it was important to make the 5-star levels reasonably stringent initially in order to ensure that the star-rating plan had a reasonable life once implemented.

Of course, stringent star rating levels are likely to face strong opposition from manufacturers. This is normal and should be expected. But it illustrates the potential power of the star rating system. There should always be room for manufacturers to improve their product in the early stages. There is no point in having empty star ratings at the lower level (e.g. all products rate 4 to 5 stars on a 5 star rating scale). Conversely, empty star rating grades at the higher level encourage manufacturers to make improvements. A strong government position on these issues is critical.

Instead of setting a very tough standard and rating plan at the onset of the program, a phased approach is being adopted in India, wherein the rating plan will be upgraded every three years until an internationally benchmarked energy efficiency level is achieved. The frequency of updating the rating plan may change after 2012, once the target is achieved. The entire standards and labeling program shall be re-evaluated at that time.

The following rules were used during the energy label transition in India:

1. New star ratings should be a geometric progression;
2. Elimination of size bias where this is significant;
3. Worst products on the market should generally be around 1 star;
4. Best products currently on the market should not generally exceed 4 stars at the time of introduction of the new algorithm; and
5. 5 star should be set as difficult but achievable in the next 5 years;

4.1.1 Example of the Frost-Free (No-Frost/NF) Label rating plan

The 5-star level is based on the 2005 minimum efficiency standard in the AS/NZ standard, which was evaluated to be one of the toughest standard in the world, and will be the target for Indian refrigerators. In the proposed star-rating plan for NF and direct-cool (DC) refrigerators, the median efficiency of products in the Indian market is 3-star. The efficiency of the 5-star level has been set to be about 20% better than the best product available in the market at the program start. The members of the Technical committee considered this to be a stringent yet achievable target. There were existing products that were within an easy reach of the proposed 4-star level.

The incremental difference between consecutive star levels has been set to 20%. Overall, this approach enables more products to fall in 3-star levels when the program is launched. The star rating gets tougher significantly in the successive updates.

The star rating plan is proposed to be implemented in three year phases. Specifically:

- The initial rating plan applicable w.e.f 1 June 2006, is based on the efficiency of the products currently available in the country and sets a target for higher efficiency (~25% improvement expected for typical refrigerators).
- Further rating plans applicable w.e.f 1 January 2009 and 1 January 2012, are progressively more stringent, with the objective of achieving highest international efficiency standards in six years. With this progressive rating plan, the industry will know the target efficiency levels in advance and will have sufficient time to upgrade designs and production to meet the more stringent label levels.

In addition, the 1-Star level in the rating plan will be the de-facto minimum efficiency performance standard (MEPS) for the product. A product not meeting the 1-Star level is not eligible to participate in the labeling program.

A detailed rating plan and minimum energy efficiency threshold have been developed for refrigerators. The air-conditioner rating plan and label design are expected to be finalized in 2007. The target of the label rating plans will be to gradually reach or exceed the international standards. The rating plan will be upgraded every three years until an internationally benchmarked energy efficiency level is achieved.

In Summary, the rating plan (as shown for NFs in Figure 10 and Figure 11) has a phased approach, with increasingly stringent efficiency thresholds every 3 years. This approach will allow the industry to plan for the target efficiency levels in advance. They will have sufficient time to upgrade designs and production to meet the more stringent label levels. **The 1-Star rating plan will be the de-facto minimum efficiency standard (MEPS) for the product.**

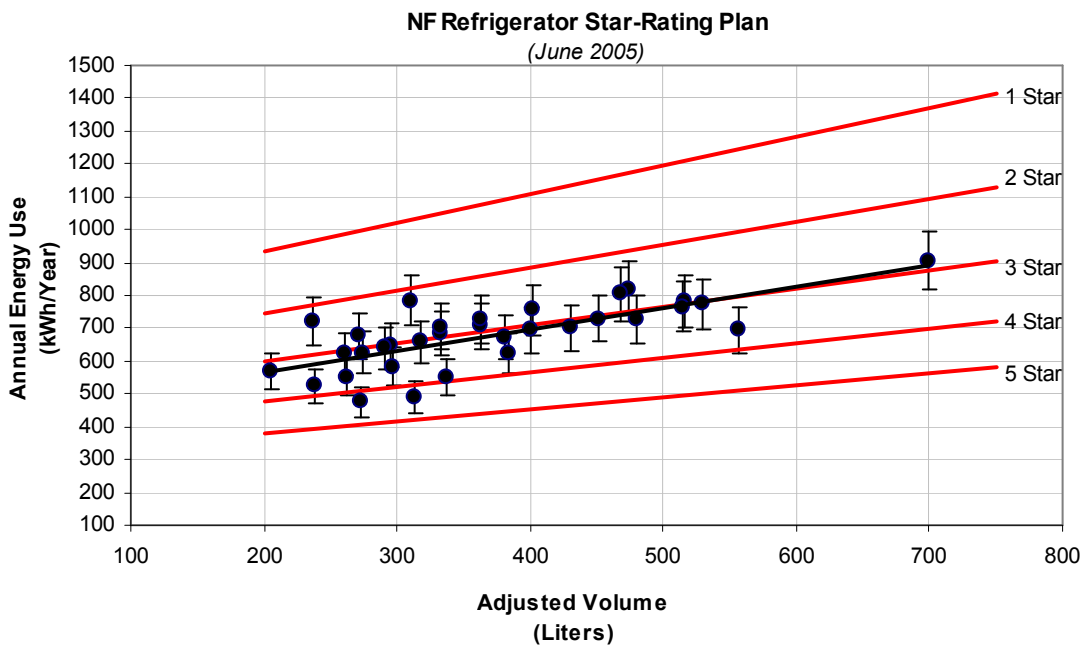


Figure 10 The initial labeling plan proposed by the Technical Committee

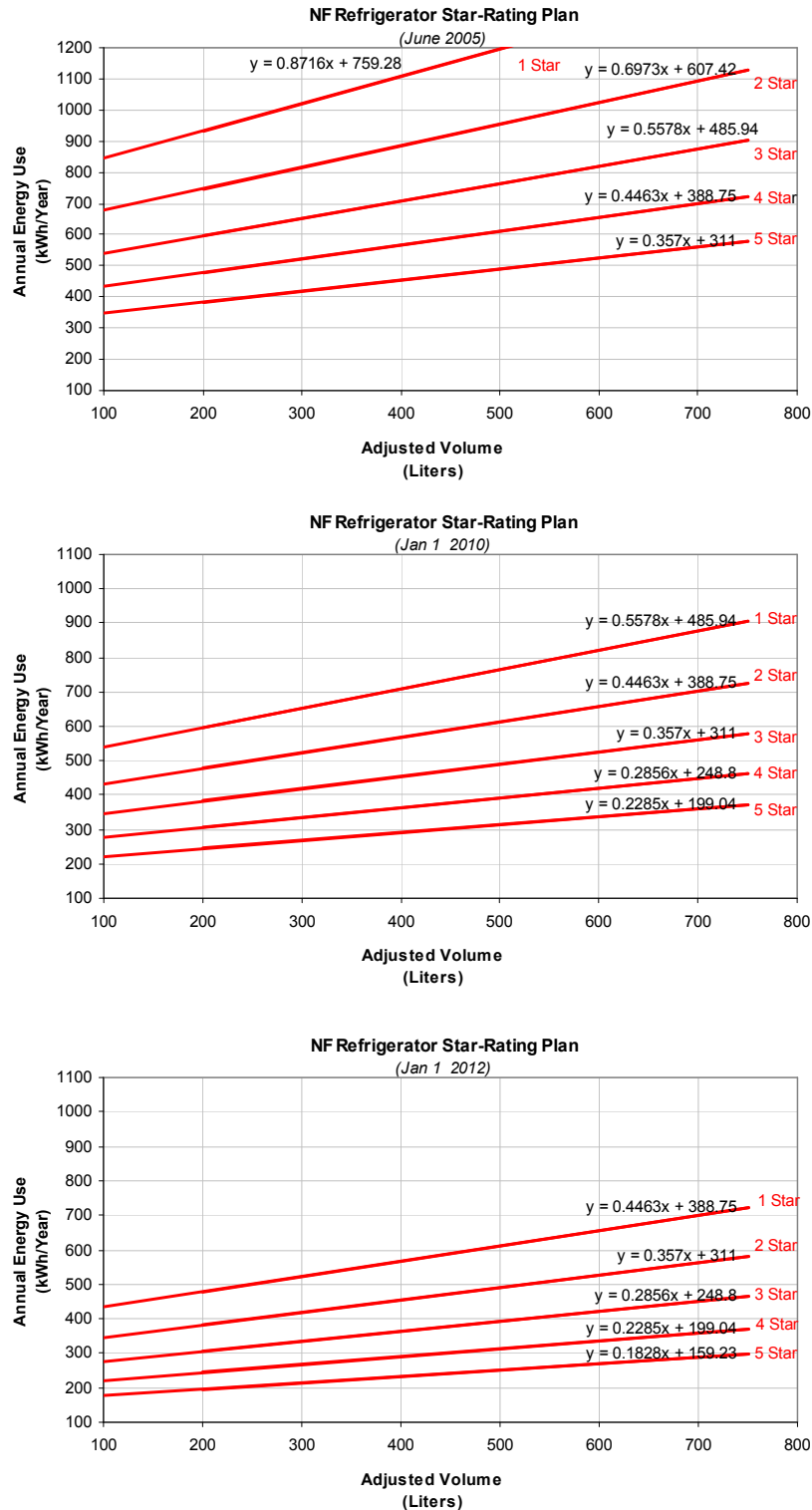


Figure 11: No-Frost Refrigerator Energy Efficiency Rating Plan (2005-2012)

4.2 Label design.

The label design research was initiated in 1999 through a survey conducted by The International Resources Group and Sofres-Mode As part of a USAID project in India. The following label design and features emerged from the initial research.

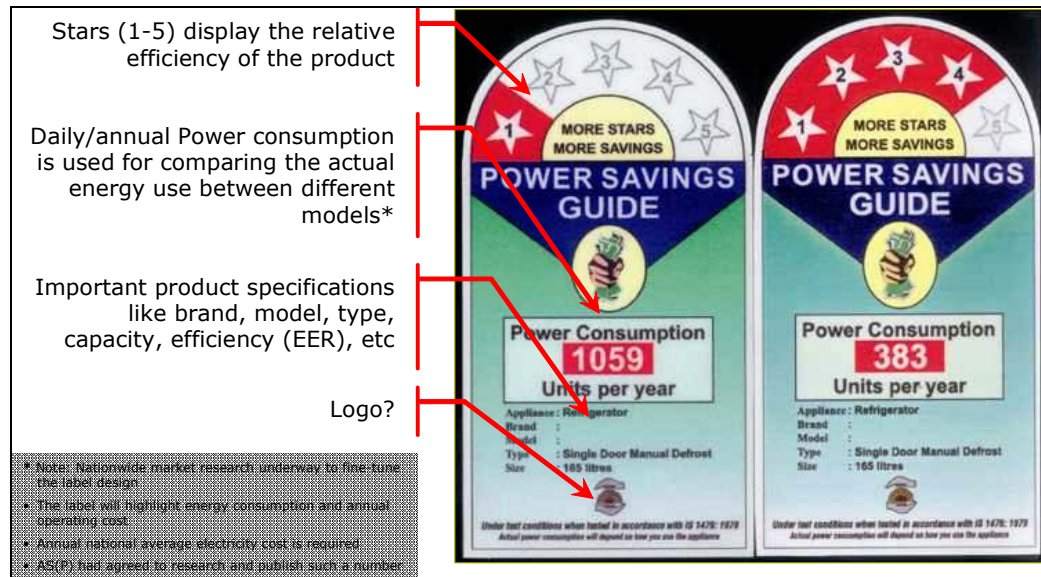


Figure 12 Proposed Label Design by the IRG study in 1999

With CLASP support, the label design was reviewed and a nationwide consumer research was undertaken to finalize the label design. The label design was reviewed based on the following parameters:

- Level of appeal;
- Level of comprehension; and
- Level of persuasiveness.

A detailed market survey was conducted to assess the proposed label designs for these criteria through the following process:

- **First Impressions of Content and Appeal.** Respondents were asked a series of questions to gauge first impressions of a single label, displayed on one of two refrigerators in a room. They were asked to say what noticed about the label, what they liked and disliked about it, and how they would rate its overall appeal.
- **Overall Understandability.** Respondents were then ushered into a second room, again with two refrigerators. This time both refrigerators had labels of the same design but with a different energy efficiency rating. Respondents were then asked a series of questions to determine what they understood about the meaning of the label.
- **Evaluation of Specific Label Elements.** These questions asked respondents to evaluate the appeal and understandability of key label elements.
- **Persuasiveness of the Label.** The final set of questions asked respondents to rate how useful the label would be in helping them buy a refrigerator and why.

Figures 13 and 14 show the final label designs while Figure 15 shows some of the other label designs that were evaluated.

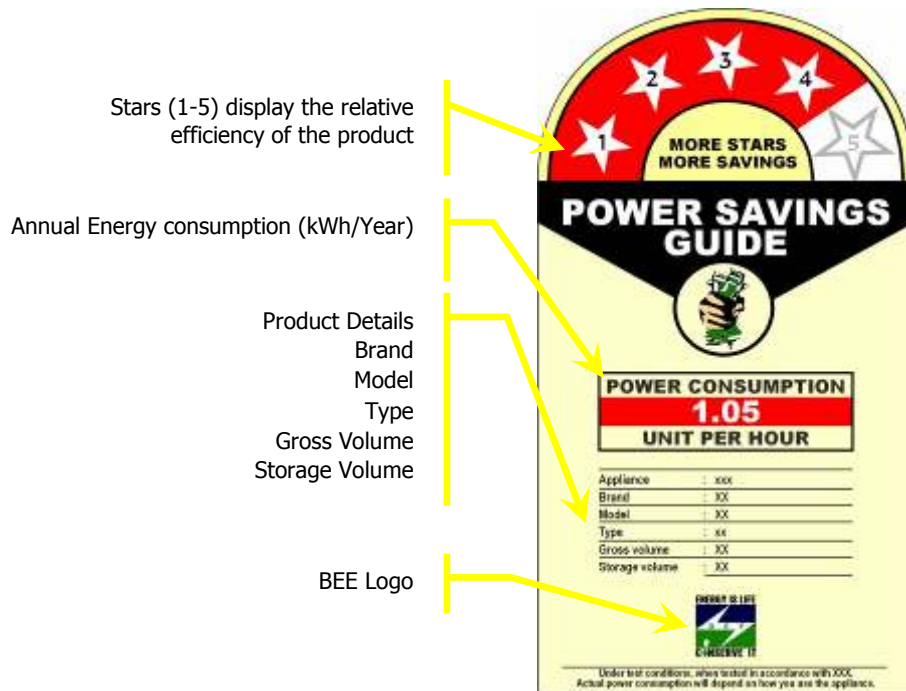


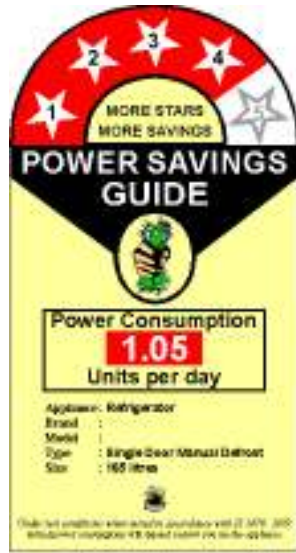
Figure 13 Final Label design for Refrigerators and ACs

BEE STAR RATING PLAN					
STAR RATING	1	2	3	4	5
Lumens per Watt at 6100 hrs of use	<51	>=51 & <57	>=57 & <63	>=63 & <69	>=69
Lumens per Watt at 2000 hrs of use	<52	>=52 & <57	>=57 & <67	>=67 & <83	>=83
Lumens per Watt at 3500 hrs of use	<49	>=49 & <54	>=54 & <73	>=73 & <78	>=78

Under test conditions when tested in accordance to IS 2418. Actual efficiency will vary as per site conditions.

Figure 14 Final Label design for tube lights





Label 3



Label 4

Panel 1

Label 1

Label 2

Label 3



Panel 2

Label 1

Label 2

Label 3



Figure 15 Other label designs tested

4.3 Content of the label

The final label design has the following key features:

- The relative efficiency of the product displayed through Highlighted Stars as the “Power Saving Guide”. The guide highlights the efficiency through a star rating, one star indicating the least efficient and five stars indicating the most efficient product;
- The rating scale or dial, with the phrase “More Stars/Diamonds, More Savings” or “Uses Most Power/Uses Least Power;”
- The banner “Power Savings Guide;”
- A box with power consumption information; and
- Detailed appliance specifications.

4.4 Process for labeling

The process of displaying labels is self-regulatory. Manufacturers have to print and affix the labels as per the label design and the rating plan prescribed for the particular equipment. BEE will conduct regular check tests to verify the labels and other manufacturers and the labels can be challenged.

Manufacturers will be given the authority (empowerment) to affix energy efficiency labels on appliances. They will self-certify the efficiency of their products following the approved testing procedure, and will be liable for the accuracy of the information on the label. Manufacturers will print the labels based on the label design, color, and other technical specifications as finalized by the Steering Committee (See Annexure)

The methodology for testing (procedure, protocol, & testing facility specifications) and the rating plan (product classes, efficiency and star levels) will be as per the BEE scheme.

The GOI will conduct check testing at NABL accredited independent laboratories to verify the accuracy of the labels in order to protect consumer interest. Consumers and other manufacturers can also challenge the labels (See Annexure for the details of the labeling scheme).

5 Test Standards, Test Laboratories, and Testing

5.1 Description of Test Standards development process in India

BEE has decided to use the Indian Standards (IS) as far as possible as the underlying test procedure for the labeling program. In the case that the test procedure is not ready or is outdated, BEE will work with BIS through its technical committees to update or develop the test procedure. The S&L program can use an appropriate international program in the interim until the IS is updated.

5.2 Description of national standardization agency and its role in appliance labeling

As reported earlier, the BIS is the national standards organization, responsible for setting overall quality standards for appliances and product. BIS works through Committees of Technical experts and stakeholders, such as manufacturers, government agencies, consumer societies, and testing facilities to draft these standards.

BEE and BIS are working together to develop the current S&L programs in India. BIS is supporting the BEE initiatives on formulating energy efficiency standards for equipment such as storage water heaters, refrigerators and air-conditioners.

Any new MEPS being developed during the S&L program will be adopted by the BIS and they will be made mandatory by the BEE. This will avoid duplication of standards and ensure that S&L program is integrated as a part of the overall quality standard for the product.

5.3 Availability of testing laboratories

The BEE S&L program requires that all the check and challenge testing be conducted in independent labs. Independent/government testing facilities are needed to provide credible and unbiased results. At the beginning of the S&L program in India, there were no accredited test laboratories in place for supporting the program. This resulted in a significant delay in developing and launching the S&L program in the country. CLASP worked closely with several international and local bodies to support development of new labs to meet the demand.

5.4 Accreditation of laboratories

As per the BEE implementation plan, independent test laboratory have to register with the BEE, and be approved by National Accreditation Board for Laboratories (NABL) or other international accreditation agency as well as to be approved by the International Laboratory Accreditation Council (ILAC) for each product. NABL accreditation insures uniformity and accuracy of the test results between different accredited labs. All verification and challenge testing will be done in an independent (NABL-accredited) laboratory registered with the BEE.

Proficiency (round robin) testing is planned on a regular basis among the independent labs. BEE will also encourage the manufacturers' labs to be NABL-accredited, and harmonized (round robin) with the independent laboratories.

5.5 Harmonization with other countries' standards

India has committed to work with the neighboring countries and the larger international market towards lowering of trade barriers and harmonizing standards. Most of the test procedures and standards used in the S&L program are based on ISO or other major international standard. This makes the task of harmonization easier.

In an effort to harmonize refrigerator standards, key regional technical experts from the South Asian countries have met several times over the last 4 years. The purpose of the harmonization effort is as follows:

1. Assist the local standards institutions in each country to understand the benefits from energy efficiency standards and labeling;
2. Communicate the role and benefits from energy efficiency standards in competitive markets;
3. Develop a mechanism and network for regional standards setting;
4. Evaluate the benefits from regional testing facilities and recognize regional testing bodies for labeling to support energy efficiency standards; and
5. Establish a monitoring process to determine impacts.

A working group was formed with representatives from each of the countries participating in the USAID South Asia Regional Initiative (SARI) and a series of meetings and workshops were held to initiate and carry forth the harmonization agenda. Thus far, discussions of harmonization in the region have concentrated on the following products⁶:

1. Refrigerators;
2. Fluorescent Lamp Ballasts;
3. Compact Fluorescent Lamps;
4. Ceiling Fans; and
5. Room Air Conditioners.

The final SARI meeting endorsed an objective (regional harmonization) and targeted technologies, and developed specific recommendations for a Regional Steering Committee.

⁶ Roadmap for Harmonization of Energy Efficiency Standards in South Asia: Report on the Second SARI/Energy Harmonization Meeting, USAID-SARI/Energy Program

6 Verification and Compliance

6.1 Availability of laboratories for testing

Currently the following independent NABL-accredited labs are ready for implementing the S&L program for Refrigerators, Air conditioners and FTLs in India:

- CPRI, Bangalore;
- ERDA, Vadodara; and
- Intertek ETL SEMKO, New Delhi.

These labs will be used for the check and challenge testing. At the current scale of implementation of the S&L program, the capacity of the labs will be sufficient to meet the program requirements. Additional labs will be needed once the S&L program becomes mandatory for all classes and sizes of equipment. It is expected that new labs will come up as the demand for testing services increases. International testing and certification agencies are evaluating the feasibility of establishing new labs in the country.

6.2 Manufacturer testing facilities

Most manufacturers of refrigerators and air conditioners have access to testing facilities for product development and design-related testing. Most of these labs are being upgraded and accredited to meet the requirements of the S&L program. The main exception to this was the air-conditioner test labs. Air-conditioner testing requires a balanced, ambient calorimeter, which was not available with any of the manufacturers in the country at the start of S&L. After the announcement of the S&L program, most major AC manufacturers have started the process for building or tying up with other labs to conduct their testing. Two new balanced ambient calorimeter labs have already been established by the manufacturers and at least two more are expected.

6.3 Verification agencies in India

The implementation of standards and labeling program will require a considerable amount of technical and financial resources. The program will require regular traveling and supervising for conducting the check and challenge tests to ensure their effectiveness. Considering the size and complex requirements of the program, **an external independent agency will be appointed to implement and verify the program on a day-to-day basis under BEE's supervision.** The independent agency/agencies acceptable to both manufactures and Government (BEE) will work as third party agency to ensure transparency in the program implementation. The following activities/services will be under the scope of work of the independent third party agency/agencies:

- Collection of product samples from manufacturing facilities and market to conduct check testing;
- Providing support in supervising the challenge testing for cases recommended by the Advisory Committee;
- Performing as a third party agency to supervise the check and challenge testing;
- Submission of test results to BEE;
- Checking the accreditation status of manufacture and independent test labs;
- Checking and ensure fixation of labels on the appliances at the retailer level. Follow up and check the process of printing of label and quality of printing from notified printers; and

- Make sure that the security features on the labels are in place.

Major international verification companies like TUV Sudeutschland, UL, Intertek, and CSA have been a part of the S&L implementation discussion through the technical and steering committees. They have shown a keen interest in working with BEE to implement the program and it is expected that the process for appointing the independent agency will be completed in before the third quarter of 2007

6.4 Process used for checking products on the shelf for compliance

The details of the self regulatory approach and the checks and balances for implementing the S&L program are described below. (See Annexure for further details of the labeling scheme)

6.4.1 Check Testing:

A national level Standards and Labeling Advisory committee will monitor and enforce the program. The committee will appoint an independent agency to conduct the check testing on an annual basis. The aim of the check-testing program is to ensure that manufacturers' equipment meet their labeling performance claims.

The check test will be done after the manufacturers have done the internal testing and have completed the process of label application. Every model will be checked at least once at the factory (for refrigerators manufactured in India), and another model may be picked up from any retail/supplier in the country for additional testing. In order to pick up a sample from retailers/suppliers, the manufacturers/importers will give the agency the authority (in the form of a coupon or voucher) to select the samples from the retailers at the time of label application. The refrigerators will be returned to the manufacturer after the tests.

6.4.2 Protocol:

The initial check test will be a single test carried out on one unit of appliance model. The general rules for verification of manufacturer's declaration are:

1. A single initial check test must not be more than 5 per cent worse than the declaration;
2. If this is found to be the case, a further three units (randomly selected by the agency) are to be check tested at the supplier's expense (Stage II);
3. If the mean of the three additional units tested for stage II check testing is found to be more than 5 per cent worse than the declaration, the product shall be declared as failed;
4. If the product fails, that is, it does not meet the labeled level, then the manufacturer/importer will be asked to de-rate the product, change the label and also recall/compensate the sold units of that model or to stop production of that model and recall/compensate the sold units; and
5. If the manufacturer does not comply with the above then BEE will withdraw the right to affix the labels and inform the consumers.

6.4.3 Challenge Testing

1. The national level S&L Advisory committee will monitor the process.
2. A third party expert will be engaged to witness the challenge testing and verify the results.
3. The challenger will pay for the cost of the challenge testing initially. If the product fails then the failing company will pay for the testing.
4. If the product fails challenge testing then the manufacturer/importer can either

- a. Derate the product and change the label and also recall/compensate the sold units of that model or
 - b. Stop production of that model and recall/compensate the sold units.
5. If the manufacturer does not comply with the above then BEE will withdraw the right to affix the labels and inform the consumers.
6. Violations of the regulations, or those with any one of the following situations, must correct the situation within a set period of time fixed by the S&L Advisory Committee; if the deadline is exceeded, appropriate penal actions will be taken.
 - a. No preparation of file materials, or no preparation of updated materials
 - b. The style and specifications of the energy efficiency label do not meet requirement.
 - c. Use of energy efficiency label for the false propaganda and to mislead consumers.

6.5 Results

The S&L program has been launched on a voluntary basis right now, and is expected to be made mandatory by June 2007 for the refrigerators, air conditioners, and fluorescent tube lights. So far there are a very small number of labeled products in the market, and the BEE check and challenge testing process has not yet started.

7 Information programs

7.1 Advertising and promotional activities

A detailed media plan has been developed to support the implementation of the S&L program in the India. Based on research conducted with CLASP support, a two-level outreach strategy has been recommended:

1. The 1st level will focus on introductory advertisement and will explain the Star Rating system and introduce BEE as the agency responsible for introducing labeling in India.
2. The 2nd level advertising will be more specific and will address application of the Star Rating System on all household appliances. At this level, advertisements can be supported by product specific advertisements, like the Refrigerator advertisement which focuses on one of the household appliances.

A bi-polar strategy called **BRAND DO** and **BRAND THINK** was developed.

- Brand Do deals with the functional aspects of the benefit i.e. what the product does to the user at a TANGIBLE level.
- Brand Think deals with the emotional aspects of the benefit, like how does the product make the user feel at an INTANGIBLE level when in use. In the present case, the benefit is about SAVINGS!

There is conclusive consumer evidence from the survey which suggests that a refrigerator isn't seen as a big energy consuming device. Moreover, the quantum of energy (electricity) saved will be quite marginal in the overall outlay (initial costs and the running costs) towards that device. Therefore, it is suggested that the advertisements should not focus too much on the fact that these appliances will save consumer huge amounts of money.

Therefore, this part of the communication should be delivered at 2 levels:




- On the product as a sticker, and
- In the communications as a logo unit – This would play a support role and will not be the main message.

Since this part of the message is just INFORMATION – that is, the consumer needs to know that she will save money – it will work best in this manner, at the product level and as a reminder in communication.

It has been recommended that "Environmental conservation for a brighter world" should be the basis for all mass media communication. It will be like a benchmark or a standard that will tell the consumers about a product which uses energy conserving / efficient technologies. It will inspire the consumers to buy an energy-efficient product to play an important role in making a brighter tomorrow for the children of the world.

A detailed media strategy was developed and a few key advertisements were prepared to test the strategy. The following table provides a summary of the results. (See Annexure for details of labeling communication strategy)

Table 6: Evaluation of media strategy

Parameters	Refrigerator Ad	Piggy Bank Ad	Rs. 1000 Ad
			
Appeal	Medium	High	Medium to High
Key Messages	As a well focused advertisement it draws attention of very recent as well as intending buyers of the product It has clear emphasis on the Refrigerators It has weak linkage to money savings as few could relate the slit in the carton (meant to be like the opening of a piggy bank where coins are fed) with savings	The visual has strong impact, enough to draw attention of even less educated The concept is easy to understand through the visual of the piggy banks Opening line refers to all household appliances and not only refrigerators Misleads the advertisement to be of finance related services as this is the stronger association with piggy banks	The link with the category (refrigerators) is somewhat missing. Strong relation with better utilization of money relates it to financial and banking sector more than energy conservation Currency attracts attention and is well suited for hoardings As it is Indicative of Money saving, it meets the proposition of the concept
Attracts attention	Medium to Low The advertisement is dark and boring with no single attractive element	High The Head line attracts attention Neat visual looks	High to Very High The currency visual attracts attention
Category (refrigerator) Linkage	High	Medium	Low
Ability to relate with the concept	Medium	High	High
Concept Clarity	Medium	High The visual is direct and easy to understand	Medium to Low-High
Clutter Breakability	Low	Medium	High
User Image	Niche market of refrigerator buyers who are better educated	The visual is understandable by masses and appeals to the wider audience	It has wide audience appeal, however, there is confusion regarding the advertised product
Strength of the Head Line	Medium to Low	High to Very High	High
Strength of Opening Paragraph	Medium The opening paragraph is meaningful but not very prominent and scored low on looks and positioning	High The placement of the opening paragraph is good	High The placement of the opening paragraph is meaningful
Negative Reactions	The color combination gives the look & feel of an industrial product and comes with a very serious image	The Ad is misleading because it suggests relation to financial sector and the concept of the piggy bank is old. The opening paragraph is very long	The Ad because it suggests relation to financial sector is misleading and it has low category linkage with refrigerators

The advertising and media strategy has been shared with the manufacturers and other stakeholders, and a multi pronged concerted effort is underway to convey a coordinated non-conflicting message to the consumers from all channels.

7.2 Role of utilities, government

Awareness is the key to ensure success of labeling program, BEE is preparing a comprehensive communication strategy and would like to partner with the industry in spreading the message. The Union Minister of Power, Shri. Sushilkumar Shinde launched the National Energy Labeling Programme on 18-May-2006. The event was widely promoted and reported in the media.



Figure 15 Label Launch

Launch of National Energy Labeling Programme

(An initiative aimed at efficient consumption of energy)

at the hands of

Achievements

- 311 industrial establishments saved Rs. 689 Crores electricity cost in 2004-05
- Energy worth Rs. 4000 Crores saved by the participating industries of National Energy Conservation Awards during 1999-2005
- 680 MW power saved by adoption of energy efficient CFLs worth Rs. 475 crore during 2005-06
- Over 35% reduction in electricity consumption achieved in four prestigious central government buildings
- Sale of Compact Fluorescent Lamps (CFL) increased from 18 million in 2002 to 57 million in 2005


Schedule for launching Energy Labeling


- First Phase Refrigerators: May, 2006
- Fluorescent Tubes: May, 2006
- Direct Cool Refrigerators: September, 2006
- General Purpose Electric Motors: October, 2006
- Air Conditioners: November, 2006
- Cooling Fans: December, 2006




Shri Sushilkumar Shinde
Hon'ble Union Minister of Power

1106, Mayapuri, 110066, New Delhi - 110005






Shri R. V. Shukla
Secretary (Power)
Govt. of India



Shri V. S. Varma
Director General
Bureau of Energy Efficiency

The next time you buy a house fan refrigerator or a tube light, look for the BEE label. BEE label rates the appliances on energy efficiency - the most energy efficient product gets 3 Stars and the least one gets 1 Star. It helps you make an informed choice, and it not does your electricity bill.

BEE labeled products are required to be available in the market from July 2006




SAVE ENERGY FOR BENEFIT OF SELF & THE NATION

Figure 16 Advertisement for Label Launch

BEE is in the process of adopting the media strategy and the necessary approvals are being processed for allocating a substantial budget for consumer awareness. The label is already being used to develop other incentive programs including utility demand side management (DSM) programs. The government will encourage state agencies as well as utilities to communicate the details and benefits of the labeling program to all consumers.

Discover the joy of saving energy with BSES this festive season

Buy one CFL. Get one free!*

SAVES UP TO 80% ENERGY

Available at BSES Customer Care Centres through Indo Asian Fusegear Ltd.

Offer valid for BSES customers only, on timely payment of electricity bills. Offer valid till December 31st, 2006.

CFL is endorsed by Bureau of Energy Efficiency, Govt. of India.

BSES YAMUNA
BSES Yamuna Power Limited
Plot 28, South West Bidding, Gurgaon, Haryana 122009

BSES RAJDHANI
BSES Rajdhani Power Limited
Plot 28, South West Bidding, Gurgaon, Haryana 122009

INDOASIAN
energy management
Power is joy

Figure 17 Advertisement for a Labeling based Incentive program for CFLs

8 Monitoring Results

8.1 Methodology for tracking energy savings via labeling program

As a part of the labeling program, the manufacturers are required to report the number of units of each labeled products sold to the BEE. This information will be used to track the change in the market. Apart from this the BEE proposes to conduct market research on annual basis to assess the impact of the consumer awareness and advertising efforts. The following key parameters will be monitored to assess the program impact:

1. Median electricity consumption of products;
2. CO₂ emissions in Kg/Yr/Appliance;
3. Change in consumer perception of energy efficiency and hence, in percentage sales of energy efficient models;
4. Number of energy efficient models available in the domestic market;
5. International benchmarking of product efficiency;
6. Number of dealers stocking new EE models; and
7. Number of accredited test facilities in the country.

8.2 Methodology for estimating GHG emission reductions

The energy savings through the S&L program are directly linked with its GHG reduction. India has recently established the baseline GHG emissions for the country on a regional basis. This makes it easy to evaluate the GHG emission impact of the S&L program. Preliminary research shows a significant potential for GHG emissions reduction through the S&L program. Specifically, there is a tremendous potential for reductions of GHG emissions through energy efficient refrigerators and air conditioners.

The refrigerators & room air-conditioners segment in the country has been growing at a rate of approximately 15-20 % per year for the last 3 years. Lower prices, availability of easy finance, higher disposable income and the urge for better living has all combined to help this growth. . Initial estimates show a cumulative GHG emissions reduction potential of 96 Million Metric Tons (Million Tons) of CO₂ through air-conditioners⁷ and 299 Million Tons of CO₂ through refrigerators over a 15-year period. The Total avoided CO₂ emissions are expected to be 397 Million Tons over this period.

1. GHG Emissions Reduction Estimation – Indian Standards and Labeling Program, CLASP, 2003

Table 7: Avoided CO2 emissions

<i>Avoided CO2 Emissions (Million Tons)</i>		
<i>Period</i>	<i>2006-2010⁸</i>	<i>2011-2020⁹</i>
Refrigerators	40	259
Air Conditioners	18	78
Total	58	337

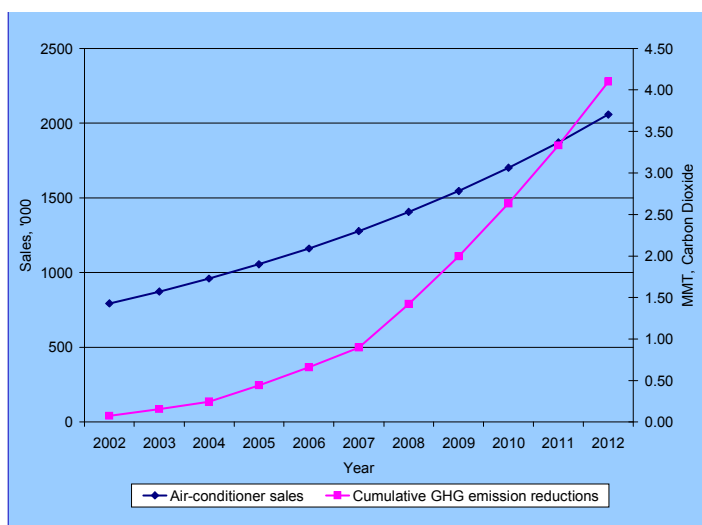


Figure 18 AC GHG emissions reduction potential

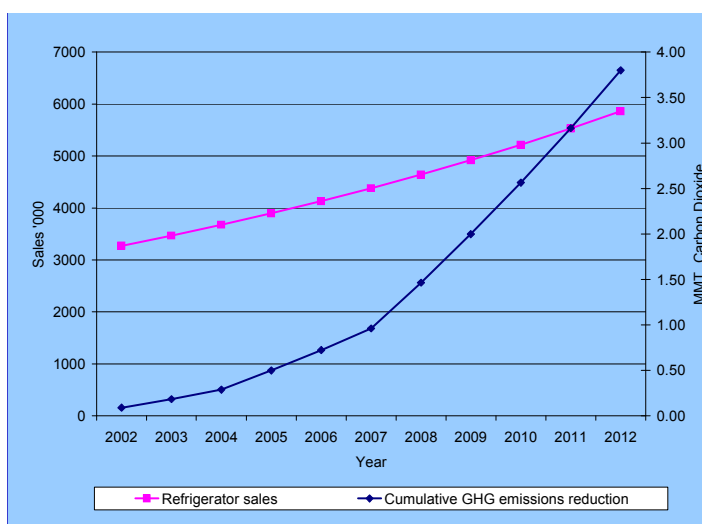


Figure 19 Refrigerator GHG emissions reduction potential

⁹ Source: Potential Net Benefits from Improved Efficiency of Key Electrical Products, International Copper Association Ltd., November 2005

9 Conclusions

9.1 Suggested Next Steps for India's S&L program

Despite positive trends facilitating application of energy efficient products, there are some key barriers to widespread commercialization of energy-efficient appliances in India, which need to be addressed in order to achieve the program goal:

1. Policy Barriers
 - a. Lack of institutional capacity to implement Energy Efficiency programs in the end-use sector
 - b. EE of appliances is not given due consideration at the fiscal policy level
2. Finance Barriers
 - a. Price sensitivity of the appliance market
 - b. No willingness/incentive for manufacturers to invest in energy efficiency
 - c. Lack of associated financial incentives and mechanisms to promote wider availability of energy efficient products
 - d. Lack of resources for design development and testing, especially amongst small scale manufacturers
3. Business and Management Barriers
 - a. Manufacturers uncertainty about market demand of high efficiency models
 - b. Lack of resources amongst small-scale manufacturers and informal assemblers
4. Information Barriers
 - a. Lack of awareness about residential energy end-use both at the consumer as well as government level
 - b. Lack of awareness about energy saving potential through appliance energy efficiency programs
 - c. Lack of information about state-of-the-art design and manufacturing of EE appliances
5. Technology Barriers
 - a. Lack of access to the state of the art energy efficiency technology
 - b. Lack of EE driven applied R&D
 - c. Lack of state of the art testing capability and trained testing engineers

To address these barriers and promote a sustainable pattern of energy end use in India, an integrated market transformation program is required, with a combination of both regulatory and market based activities.

The next steps in the process would include the state level implementation for improved policy environment and implementation structure for supporting nationwide mandatory energy efficiency standards and labeling program. The market-based efforts should be given a priority so that there is an increased availability (number of models) of energy efficient products in the market. Support to the manufacturers is also needed for encouraging state-of-the-art in energy-efficient designs, manufacturing technologies, and engineering skills.

9.2 Follow-on Potential for Development Assistance and Need for International Expertise in India

Some of the key areas where international expertise can help in achieving the optimum impact of the S&L program in the country are listed below.

1. Strengthening the institutional and technical framework for the implementing appliance standards and labeling program;
2. Supporting enforcement of S&L along with evaluation of the program
3. Evaluating options and developing strategies for fiscal and financial support for energy efficient products through reliable data collection and analysis
4. Manufacturers capacity-building and support for energy efficiency related R&D and product design/development
5. Designing and implementing incentives/award schemes for manufacturers/dealers/retailers for promoting design, manufacturing, and sales of energy efficient products

9.3 Lessons Learned for Other Countries

The S&L program in India has been one of the fastest in terms of the total time from inception to implementation. This process can be improved further based on the experience in India. The key lessons learnt in the Indian S&L development process are listed below.

- Policy support for the S&L program is critical;
- Involvement of all the stakeholders early in the process aides progress dramatically;
- Transparency in decision making is essential;
- Ensuring high level support for the effort, both from the government as well as the private sector, is very helpful;
- Support form reputed international agencies for providing technical information and international perspective is very important;
- Building technical capacity within the country for testing is a key 1st step; and
- Building a strong institutional structure for developing and implementing the program within the country is of paramount importance.

10 Annexure: TOR for Independent Operating Agency for Standards and Labeling Program

BEE is in the process of finalizing the procedures for implementing the Standards & Labeling program. The first candidate for the implementation of labeling is Refrigerators. The Technical and Steering Committees have finalized the test procedures; star-rating plan, and enforcement plan for the implementation of first comparative label. The nation wide market research for finalizing the label design is also completed. The drafts of test procedures, star rating plan and enforcement plan are ready for Government approval.

The implementation of standards and labeling program will require considerable amount of technical and financial resources. The program will require regular traveling and supervising from for conducting the check and challenge tests to ensure their effectiveness. Considering the size and complex requirements of the program, **an external independent agency will be appointed to implement the program on a day-to-day basis under BEE's supervision.** The independent agency/agencies acceptable to both manufactures and Government (BEE) will work as third party agency to ensure transparency in the program implementation. The following activities/services will be under the scope of work of the independent third party agency/agencies:

- Collection of product samples from manufacturing facilities and market to conduct check testing.
- Providing support in supervising the challenge testing for cases recommended by the Advisory Committee.
- Performing as a third party agency to supervise the check and challenge testing.
- Submission of test results to BEE.
- Checking the accreditation status of manufacture and independent test labs.
- Checking and ensure fixation of labels on the appliances at the retailer level. Follow up and check the process of printing of label and quality of printing from notified printers.
- Make sure that the security features on the labels are in place.

The independent agency/agencies may initially be hired for 2 years. Since we are in a process of finalizing implementation plan, this would be the right time to select and involve the independent agency so that they are part of the process right from the beginning.

The following tasks will be a part of the scope of work of the third party agency.

1. Scrutiny of the initial application: The agency shall screen the initial applications for adequacy as per Form I & II. The manufacturer may also submit the test data of the initial test carried out and the same may be reviewed by the Third Party agency for adequacy. Agency may then update the committee about the result of the review. As decided by the committee, the agency will inform the manufacturer about the issues (if any). If no issues found, the authorization to mark shall be issued.
2. Labels issued: Agency will track and record the number of labels printed annually for each of the manufacturer enrolled in the program. The data should be verified with the printer of hologram.
3. On Field Check: The agency shall arrange to check the labels for adequacy and authenticity in the field i.e. retail stores and similar outlets. On field check may also include the finished goods dispatch stores of the manufacturers to have a better post labeling check.
For the purpose of picking samples from the market for check testing and verifying

the adherence to labeling program, a total of 16 cities will be selected based on the following criteria:

1. Two cities from each zone (North, South, East, West) with population greater than 4 million
2. One city from each zone (North, South, East, West) with population between 1 and 4 million
3. One city from each zone (North, South, East, West) with population less than 1 million

** All metros should be included

* The retail outlets should be selected in such a way that all the models of the manufacturers of the notified equipment are covered.

4. Physical checking of label to ensure that:
 - a. The labels are printed correctly
 - b. The labels are displayed at the appropriate place on the equipment as per the display notice
 - c. The security features are included in the label
 - d. The correct label is displayed (label level, star rating, corresponding model number)
5. Product Check Testing
Check testing sampling is as per the sampling plan for the product.
 - a. For refrigerators (one sample to be picked up from the shop floor as per the IS sampling plan in the first year of program implementation, another sample may be picked up from the market from next year on)
 - b. Only one sample for each model will be picked up initially, in case of damage during transportation and handling, another sample will be picked up.
 - c. The equipment shall be insured during transportation and the manufacturer will be compensated in case of damage.
 - d. The agency shall deploy the duly qualified Engineer for checking the accreditation and calibration status of the equipment etc in the lab used for the verification and dispute testing.
 - e. After testing, the equipment will be returned to the manufacturer for safe keeping for a period of one year from the date of testing.
 - f. If the equipment fails the verification test a second sample would be tested in the presence of the manufacturer.
 - g. The freight charges will be borne by the third party agency and charged to the program. The third party agency should indicate the freight charges per kilometer per unit volume.
 - h. The independent labs for refrigerator check and challenge testing are:
 - i. ITS, Delhi
 - ii. ERDA, Vadodara
 - i. The refrigerators will be tested as per BEE test procedure
6. Lab Evaluation: The agency shall deploy the duly qualified Engineer for checking the accreditation and calibration status of the equipment etc in the lab used for the verification and dispute testing. The agency shall use the pre approved check list as per ISO 17025 guidelines for the lab evaluation and then submit the report of the lab evaluation to the BEE.
7. Witness Testing: The agency shall deploy the duly qualified Engineer for witnessing of the verification and dispute testing at the designated test laboratory. The Engineer should ensure that the testing is carried out as per the pre approved testing SOP. The report of the witness testing along with other related documents shall be submitted by the agency to BEE for any necessary action.

8. Website: The BEE website should give the details of all the approved manufacturers and the Energy Level of their respective products. These details would provide the required information to all the interested parties and contribute towards bringing in the credibility in the program. The third party agency can assist the BEE in maintaining this website.
9. Customer Support/ Information Desk: Agency should also provide the customer service executive to help and manage any coordination activities and record any consumer complaints. The customer service executive will be stationed in the BEE office and also provide any information about the BEE programs to any interested parties.
10. As a qualification, the third party agency should have the required resources for picking the samples and verification of labels on all India basis.

Third party agency should also have the Qualified Technical Engineer to review the test data and to witness the verification testing. Agency should provide the sufficient credentials of their manpower against the same.

The agency should also have the experience of running such program and preferably should have the laboratory experience of handling the energy efficiency testing.

1. Reporting and Formats: Report to BEE on a regular basis

11 Annexure: S&L Advertisements in the media

Do you know STARS[★]
could tell you more about
your REFRIGERATOR !!!



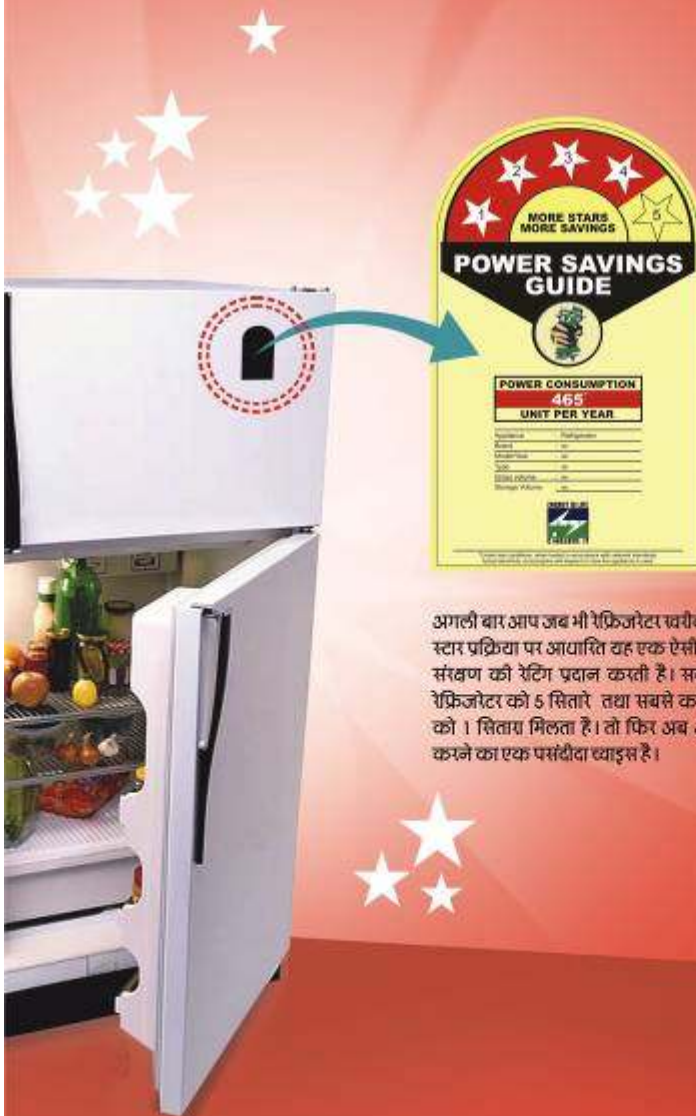
Spot this to
know more.



BUREAU OF ENERGY EFFICIENCY
MINISTRY OF POWER

www.bee-india.nic.in

पेश है बीईई लेबल. पैसे की बचत का एक नया साईन.



अगली बार आप जब भी रेफ्रिजरेटर खरीदने जाएँ उसका बीईई लेबल जरूर जाँच लें। स्टार प्रक्रिया पर आधारित यह एक ऐसी प्रणाली है जो प्रत्येक रेफ्रिजरेटर को ऊर्जा संरक्षण की रेटिंग प्रदान करती है। सबसे ज्यादा ऊर्जा का संरक्षण करने वाले रेफ्रिजरेटर को 5 सितारे तथा सबसे कम ऊर्जा का संरक्षण करने वाले रेफ्रिजरेटर को 1 सितारा मिलता है। तो फिर अब आपको पास अपने बिजली बिल को कम करने का एक पसंदीदा ध्वाइस है।

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धन बढ़ाएँ
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विद्युत मंत्रालय, भारत सरकार

www.bee-india.nic.in

क्या आप जानते हैं **सितारे** आपके
रेफ्रिजरेटर के बारे में आपको
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विद्युत मंत्रालय, भारत सरकार
www.bee-india.nic.in

Introducing the BEE LABEL.

The new sign of cost savings.





POWER CONSUMPTION	
465* UNITS PER YEAR	
Appliance	Refrigerator
Brand	XX
Model	XX
Size	XX
Star rating	XX
Weight (kg)	XX

*Under conditions that meet a standard set of test procedures. Actual energy consumption will depend on how the appliance is used.

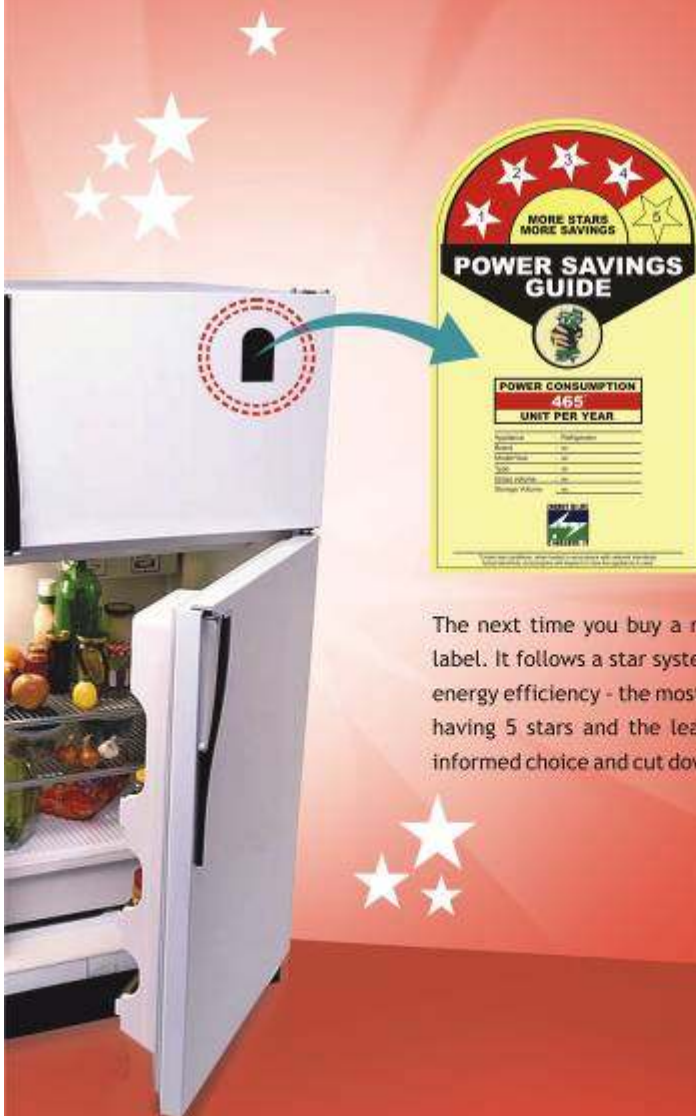
ENERGY IS LIFE
CONSERVE IT

The next time you buy a refrigerator, look for the BEE label. It follows a star system to rate the refrigerator on energy efficiency - the most energy efficient refrigerator having 5 stars and the least one with 1 star. Make an informed choice and cut down your electricity bill.

**BUREAU OF ENERGY EFFICIENCY
MINISTRY OF POWER**

www.bee-india.nic.in

Introducing the BEE LABEL. The new sign of cost savings.



The next time you buy a refrigerator, look for the BEE label. It follows a star system to rate the refrigerator on energy efficiency - the most energy efficient refrigerator having 5 stars and the least one with 1 star. Make an informed choice and cut down your electricity bill.

Save energy
Save money
BEE happy



**BUREAU OF ENERGY EFFICIENCY
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SAMSUNG

When it's Samsung, the difference shows!

Introducing technology that improves quality and reduces running costs.

Samsung Frost-Free range gets a FOUR STAR RATING.
A recognition of Samsung's energy efficiency initiatives.

Electricity Consumption

- 4 Star Power Saving Rating
- Stabilizer Free Operation

Technology

- High Versatility Compressor
- Silver Nano Technology
- Durability


Stabilizer-Free Operation
130V to 290V

In Samsung frost free refrigerators:
in the capacity range between
230L & 345L


POWER SAVING GUIDE

Look out for this 4 star rating
sticker when you buy a
refrigerator*

SAMSUNG HELPLINE
3030-8282
1800 1100 11
support.india@samsung.com




SURYA IS PROUD TO BE THE 1st RECIPIENT OF THE BEE's AUTHORIZATION TO USE ENERGY EFFICIENCY LABEL



*Mr. R.V. Shahi, Secretary, (Ministry of Power - Govt. of India) presenting the
Authorization Letter to Mr. B.D. Agarwal, Chairman and Managing Director, Surya Roshni Ltd.*

SURYA Roshni feels proud to be the first recipient of the BEE (Bureau of Energy Efficiency) authorization letter to use energy efficiency label. The tubelights of the company will now be carrying the BEE label as **3 - Star and 4 - Star** lighting products. The number of stars represent the energy efficiency of the products as compared to other similar products available in market. This is due to our relentless endeavour to bring very best to the consumers. Be it innovative lighting or coming up with cutting edge technology to increase energy efficiency, we have always spearheaded the mission to offer superior products.



SURYA ROSHNI LIMITED
Padma Tower-1, Rajendra place, New Delhi-110008,
E-mail: surya@sroshni.com Website: suryaroshnilighting.com

12 Annexure: BEE LABELING CAMPAIGN - Communication Document

Designing Labeling Campaign for Refrigerators

September 2006

Money Saved is Money Earned



Introducing REE label for household appliances.
Because energy saved means you can use them longer.

The government is taking a big step towards saving energy by introducing the REE (Rational Energy Efficiency) label for household appliances. This label will help consumers choose energy-efficient products and save money on their electricity bills. The label will be based on the energy consumption of the appliance and will be displayed on the product's packaging.

THE NEW LABELING PROGRAM will help consumers to choose the most energy-efficient products. The government has decided to implement this program for household appliances. The products covered under this program are: Refrigerators, Air Conditioners, and Washing Machines.




Does your refrigerator save you money every time it's switched on?



Introducing BEE label for household appliances.
Because energy saved is money saved.



The government is taking a big step towards saving energy by introducing the BEE (Bureau of Energy Efficiency) label for household appliances. This label will help consumers choose energy-efficient products and save money on their electricity bills. The label will be based on the energy consumption of the appliance and will be displayed on the product's packaging.

THE NEW LABELING PROGRAM will help consumers to choose the most energy-efficient products. The government has decided to implement this program for household appliances. The products covered under this program are: Refrigerators, Air Conditioners, and Washing Machines.



Stretch your money

Energy Star is a symbol of energy efficiency. It is a label that is placed on products that are energy efficient. It is a way for consumers to know that a product is energy efficient and that it will save them money on their electricity bills.

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Communication Document for Labeling Campaign in Indian Refrigerator Market

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14 Background

The Government of India introduced the Energy Conservation Act (EC Act) in August 2001. The Bureau of Energy Efficiency (BEE) was created as a statutory body to implement the Act. BEE began functioning in March 2002, implementing various program areas identified under the EC Act. Standards and Labeling are two major program areas being implemented by BEE with the help of Collaborative Labeling and Appliance Standards Program (CLASP), an organization specializing in energy efficiency standards and labeling program design and implementation.

BEE has designed a graphical label with a five-star rating gradient (5 stars indicates the most energy-efficient products and one star the least). The labels were launched in July 2006 as voluntary labels for frost-free refrigerators (with voluntary labels following for direct-cool refrigerators in XXXX). Over time, the labels will be introduced for other products (e.g., air conditioners) as well.

BEE is now in the phase of developing an integrated marketing communications that will promote the government's appliance standards and labeling program and encourage consumers to purchase energy efficient appliances. For this purpose, a research on awareness, attitude and practices was conducted by CLASP and its partners through locally-based market research firms. Based on these research findings, three options of advertisements have been designed by a locally-based communications and marketing firms. BEE can take any of the three suggested advertisements for the communications campaign.

The following section summarizes the initial research findings.

15 Research Summary

The main objective of the research was to understand consumer perceptions, knowledge and current practices with respect to energy conservation. The research was conducted to understand Indian consumers' interpretation of the label and its potential for use among various target audiences in order to explore key communication themes that would have high resonance.

15.1.1 Target Audience

The research targeted consumers, retailers/dealers and restaurateurs (because they make use of residential products targeted by S&L as do individual consumers) within the following frame.

Consumers

- Age group of 25 - 55 years
- SEC A/B: SEC A/B have been chosen on the assumption that penetration of refrigerators is more amongst these households
- Women
- Couples responsible for joint purchase decisions

Retailers/ Dealers

Owners/ managers of retail outlets who are involved in the process of dealing with consumer durables were part of the research.

Restaurants

Refrigerators are used extensively in restaurants; hence their inputs to the research were also considered important. Owners/ managers of restaurants with a capacity to seat 60+ people at any point of time and a fair grade (A or I or Green) at their last inspection from the food safety department were contacted.

15.1.2 Research Design and Tools

Exploratory qualitative and quantitative research was conducted through Focus Group Discussions of consumers and in-depth interviews of retailers and dealers.

Summary of the Research on Awareness, Attitude and Practices

15.1.3 Association with term “Energy Conservation”

The term “Energy Conservation” was not understood spontaneously by many respondents. When probed, most associated the term with reduction in electricity bills but not saving of gas or water in particular. Electricity Conservation was considered important as it was understood to have direct and tangible benefits such as money savings and to a lesser extent environmental benefit.

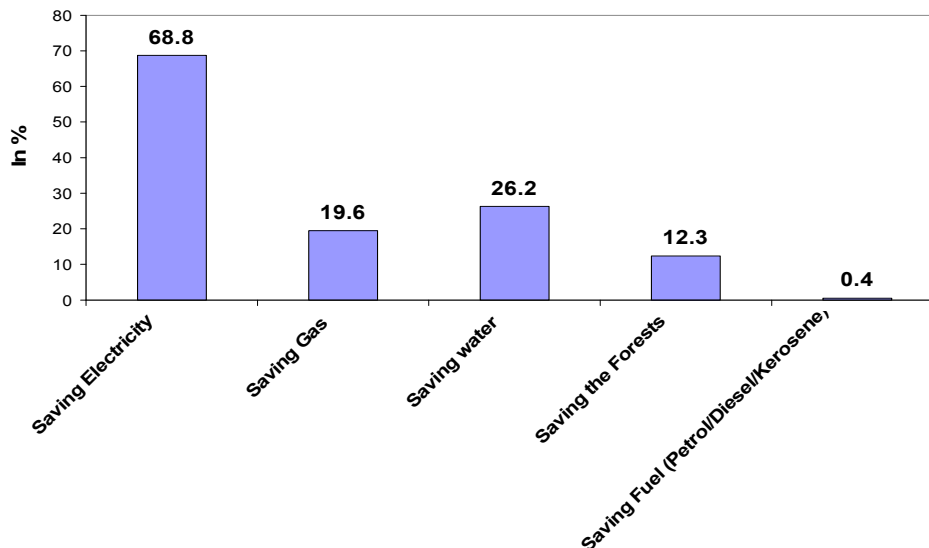


Figure 20: Association with term "Energy Conservation"

According to the research findings, 38% of the total respondents perceived ‘Energy Conservation’ as ‘Money Saving’. According to 69% of the total respondents, saving electricity is the best way towards ‘energy conservation’. 98% of the respondents admitted that ‘energy conservation’ is important and amongst them 22.4% said it to be important for the next generation.

15.1.4 Importance of “Electricity Consumption”

Brand name and product price are the two most important factors that are considered while purchasing refrigerators. Electricity consumption is not considered as an important factor while purchasing refrigerator because it is considered to be out of consumer control. About 40% of the respondents gave no particular reason for not considering energy factor. Non-metro and lower SEC believes that ‘Brand’ doesn’t make any difference towards electricity consumption.

15.1.5 Inputs from Restaurants and Retailers

48% of all respondents perceived ‘energy conservation’ as ‘money saving’ whereas 13% mentioned ‘conservation for future generation’ as objective for energy conservation. 48% of the respondents’ perceived ‘standardization’ as

‘lower electricity consumption’ and 75% think it is ‘better quality’ but not ‘Energy Conservation’.

Research shows that retailers believe quality of compressor and thermostat to have close relation with power consumption. Insulation and quality of condenser were less seen to be so. Amongst the specific features most of the retailers rank multi-door as the one consuming high energy/electricity. Regular/defrost are perceived to be lower in energy consumption.

Smaller and non-metro retailers place strong emphasis on after sales service. On the other hand, medium and larger retailers mentioned brand and electricity consumption as the critical factors. Lesser number of larger retailers recommended setting airflow, switching off the fridge while on short trips and keeping the interior temp constant as important factors. Price, cooling ability and the guarantee period offered are the top 3 factors mentioned spontaneously by the respondents. ‘Energy Consumption’ is important, said 97% retailers, out of which 20% believes that energy consumption is important for our future generation.

15.1.6 Awareness and Reaction towards “Standardization”

Standardization seems to be an important parameter of evaluation of a product for its quality, and is possibly a reflection of the quality of Labels. It is also interpreted as a Standard Product. 98% of the respondents mentioned that ‘Standardization’ is important for the following reasons:

- Ensures the quality of products
- Ensures a good company image
- Ensures government approval for the product
- Ensures Value for money
- Ensures Price Standard

15.1.7 Awareness/Reaction towards “Labeling”

At the spontaneous level most respondents were **NOT** able to comprehend a label. Most did not understand the concept in the first instance, and when comprehended, it was not related / interpreted as “More stars, more savings”. A few found the concept of 5 stars difficult to understand with ‘5 Stars’ connoting ‘Efficiency’, ‘Quality’, ‘Best Product’, ‘Cost Effective Product’ and ‘Less Electricity Consumption’. Benefits of a 5 Star label were interpreted as ‘Less consumption of electricity’ and ‘Good Quality’.

Given that the labeling program is completely new and unknown to consumers, this reaction is not very surprising. It does indicate, however, that there is a large

job for the communications campaign to do in specifically explaining how the labeling system works.

15.1.8 Way Forward


- The refrigerators users claim high awareness about energy conservation
- Impacting buying behavior will have greater effect than trying to impact usage patterns in promoting energy efficient models for refrigerators
- Conservation is a well known concept
- Labeling should be promoted in a big way to encourage selection of more energy efficient brands and challenging the belief that all brands are equal.
- Labels should have some quantified information about energy efficiency of that product/model.
- The current perception of Standardization relates to the performance and quality of the products and does not focus on energy efficiency of the product. A change in this perception is required.
- Alignment with more energy efficient brands is important to promote labeling.
- LG, Samsung and Godrej are the current market leaders for air conditioners
- Housewives should be targeted with education, communication and awareness generation programs for household durables.
- The presence of Ministry of Power builds trust and adds credibility to the labeling program. Hence, its presence should be highlighted, made more prominent and bold in the advertisements.
- There is a fear that the companies may use illegal means to target EE labels in their products. This fear should be clarified as it will defeat the whole purpose of the labels.

16 Guidelines for Designing Advertisements

Based on the research findings discussed earlier, three sample concept designs of communications were designed and tested for their ability to advertise and communicate the message of inter-linkability of ENERGY SAVINGS with MONEY SAVINGS. The sample advertisements are illustrated and discussed below.

Sample Advertisements

16.1.1 Concept 1: Refrigerator Advertisement



Does your refrigerator save you money every time it's switched on?

Introducing BEE label for household appliances. Because energy saved is money saved.

The next time you are buying an electrical appliance, choose one that comes with the BEE (Bureau of Energy Efficiency) label. Built on a star rating system, it standardizes and measures the energy efficiency of household appliances. A 5-star depicts maximum energy efficiency and 1-star means least energy efficient. So make an informed choice, and cut down your electricity bill.

THE BEE LABELLING PROGRAMME follows well-defined guidelines to ensure the procedure is both comprehensive and correct. The methodology has been developed by a special advisory committee. The process involves manufacturers, NGOs, national and international experts, consumer organizations and of course, the government.

ENERGY IS LIFE
C'NSERVE IT
Bureau of Energy Efficiency
Ministry of Power
www.beeindia.nic.in

16.1.2 Concept 2: Piggy Bank Advertisement

Money Saved Is Money Earned



Savings on ordinary refrigerator

Savings on BEE labelled refrigerator

Introducing BEE label for household appliances. Because energy saved means you can run them longer.

The next time you are buying an electrical appliance, choose one that comes with the BEE (Bureau of Energy Efficiency) label. Built on a star rating system, it standardises and measures the energy efficiency of household appliances. A 5-star depicts maximum energy efficiency and 1-star means least energy efficient. So make an informed choice, and cut down your electricity bill.

THE BEE LABELLING PROGRAMME follows well-defined guidelines to ensure the procedure is both comprehensive and correct. The methodology has been developed by a special advisory committee. The process involves manufacturers, NGOs, national and international experts, consumer organisations and of course, the government.



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www.bee-india.nic.in

ENERGY IS LIFE
BEE
CONSERVE IT
Bureau of Energy Efficiency
Ministry of Power
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16.1.3 Concept 3: INR 1000 Advertisement

Methodology for Testing Draft Concepts

Three different Advertisement ideas for refrigerator segment were designed on the concept - 'saving money through energy efficient appliances' as the research showed this was the main benefit Indian consumers perceived and valued from the concept of energy conservation.

The three suggested ideas above were tested through qualitative research (Eight FGDs across four zones were conducted with Intending and Recent buyers of refrigerators, between the age band of 25-40 years and, SEC A & B) to help understand the reactions and perceptions, attitudes and image associations and obtain feedback on each of the ads as further input to important communications themes.

Before starting the detailed discussion about advertisements, each group was provided with a Questionnaire Battery, to be filled in by each respondent based on their understanding of each Ad execution – in terms of Main / Key messages, Likeability and Persuasiveness. After filling in the battery, detailed discussions were held to get their reactions on the following:

- 1st level feedback / reactions to the executions
- Comprehension – clarity and ease of understanding
- Net message takeout – Key messages and other messages
- Relevance
- The linkage of the advertisement content, style and its presentation to the key message
- Category fit (refrigerator in this case)
- Linkage with the likely target audience / core segments
- Appeal
- Detailed reactions to the concept, star rating and logos
- Negativities (if any)

Summary of Reactions to the Draft Concepts

16.1.4 Concept 1: Refrigerator Advertisement

- The advertisement has high and clear linkage with the refrigerator category
- The headline has strong linkage with the money saving concept. However, the phrase 'when you switch it on' is less meaningful as refrigerator is switched on 24hrs a day and seven days a week.
- The concept of energy savings in appliances seems to have been pushed to the corner. The refrigerator visual is very dominating instead.

- Use of dark colors, black and white picture of refrigerator, an old looking box, makes the visual less appealing and seems cluttered. It is suggested to use Green (or any other bright) color instead with a real picture of the refrigerator supported by Star and BEE logo on it.
- The advertisement is suitable as product specific advertisement due to its strong linkage with the product.

16.1.5 Concept 2: Piggy Bank Advertisement

- The advertisement has high and clear linkage with the refrigerator category
- The advertisement has better linkage with the concept of money saving, which has been very clearly brought out with the help of visuals
- It is suggested to add visuals of appliances in the advertisement to enhance linkage with the product category. A refrigerator with BEE logo and one without the logo can replace the Piggy Banks in the current visual OR the piggy banks can be placed over the visuals of two refrigerators with and without logos as mentioned above.
- The green color in the visual was appreciated as it symbolized energy and to be positive. The color of captions under the Piggy Banks should be enhanced and their font size increased.
- The difference between 1 Star and 5 Stars should be highlighted either through color or in font style
- The logo and font size of 'Ministry of Power' should be increased to enhance its visibility and impact.

16.1.6 Concept 3: INR 1000 Advertisement

- This advertisement has low linkage with the concept of energy savings in appliances. The linkage with the category should be enhanced by adding an appliance visual.
- The visual is very suitable for use in advertisement through hoardings
- The opening paragraph line 'save energy and get more out of your money' seems incomplete as it does not provide any clue to how to achieve the suggested.
- The head line 'stretch your money' is easy to understand and also generates attention, however, its linkage with the category is missing. A headline like 'Energize your money' is recommended instead.
- The advertisement has information provided in long sentences and paragraphs, which makes its comprehension difficult. Bulleted information is likely to capture more attention and for longer duration.

The reactions to the sample draft designs have brought forward the criteria that should be considered while designing the advertisements. These criteria are summarized as follows:

- Use of common elements like money, piggy banks etc make the advertisements easier to understand and connects with country's main motivation around energy conservation. The overall advertisement must, however, must establish clear linkage with energy to avoid confusion as a financial sector advertisement.
- The placement of the opening /main line is critical to the clarity of the concept and message conveyed by the advertisement
- The visual should be clear and simple enough to be able to relate with wider audiences
- The visuals in the advertisements should not use dark, dull or boring colors
- The advertisements should have clear emphasis on the product it is advertising

Strategic Recommendations

Based on the above reactions on the three advertisements, a two-level launch is recommended:

- 1st level will focus on introductory advertisement and will explain the Star Rating system and introduce BEE as the agency responsible of introduction of labeling system in India. Tools like comparative advertisement should be used to greater effect.
- 2nd level advertising will be more specific and will address application of Star Rating System on all household appliances. Example of this will be the Piggy Bank advertisement discussed earlier. At this level, advertisements can be supported by product specific advertisements, like the Refrigerator advertisement which focuses on one of the household appliances.

A bi-polar strategy called **BRAND DO** and **BRAND THINK** is recommended. Brand Do deals with the functional aspects of the benefit i.e. what the product does to the user at a TANGIBLE level. Brand Think deals with the emotional aspects of the benefit, like how does the product make the user feel at an INTANGIBLE level when in use. In present case, clearly, the benefit is about *SAVINGS!*

Experience is that the biggest trigger/motivator for an Indian housewife/parent is to secure a brighter future for their children. Therefore it is suggested to keep the emotional payoff in the area of ENERGY SAVINGS for ENVIRONMENTAL CONSERVATION towards BRIGHTER WORLD.

BRAND DO: Savings

There is conclusive consumer evidence from the survey which suggests that a refrigerator isn't seen as a big energy consuming device. Moreover, the quantum of energy (electricity) saved will be quite marginal in the overall outlay (initial costs and the running costs) towards that device. Therefore, it is suggested that the advertisements should not focus too much on the fact that these appliances will save consumer huge amounts of money.

Therefore, this part of the communication should be delivered at 2 levels:

- On the product as a sticker, and
- In the communications as a logo unit – This would play a support role and will not be the main message.

Since this part of the message is just INFORMATION – that is, the consumer needs to know that she will save money – it will work best in this manner, at the product level and as a reminder in communication.

BRAND THINK: Environmental conservation for a brighter world

This is recommended to be the basis for all mass media communication. It will be like a benchmark or a standard that will tell the consumers about a product which uses energy conserving / efficient technologies. It will inspire the consumers to buy an energy efficient product to play an important role in making a brighter tomorrow for the children of the world.

It is recommended to support a two-level launch by a two-phased media plan. The recommended media plan is discussed in the following section.

17 Recommended Media Plan

A two-phase media plan is recommended. While the first phase would focus on greater reach with basic understanding about energy conservation through efficient appliances, the second phase would advertise the 5 STAR label as a tool to mark level so energy efficiency in an appliance (refrigerators) and explain the label's system of use.

Phase I - Phase I would aim at maximization of reach among relevant audiences at high level of frequency

Phase II - Phase II will include isolation of relevant Target Group with intent to communicate specific messages at high level of frequency

The following sections provides the financial details of the two Phase options. These financial calculations are based on the refrigerator markets only.

Recommended Media Plan: Phase – I

A three month television burst along with inserts in dailies and magazines is recommended for the phase I of the communication plan. The estimated budget for the Phase I is INR 7.4 crores. The details are tabulated as follows:

17.1.1 Television Plan- Three Month Burst

Table 8: Recommended Television Plan for Phase I

Genre	Channel	# Spots	Spends (INR)	GRPs	HH Types
	DD1	70	7,350,000	653	Non C&S Homes
Hindi News		1,080	14,400,000	330	Hindi Speaking
	Aaj Tak	120			
	DD News	240			
	Star News	240			
	Zee News	240			
	CNBC TV 18	240			
Hindi Mass		230	16,820,000	340	Hindi Speaking
	Star Plus	60			
	Zee TV	100			
	Star One	70			

Hindi Movie	300	1,100,000	120	Hindi Speaking
MAX	100			
Zee Cinema	100			
Star Gold	100			
Regional	530	5,630,000	1431	C&S Regional
Sun TV	100			
Surya TV	70			
Teja	160			
Zee Bangla	200			
Total Cost		45,300,000		
GRPs	2,874			
Reach 1+	77			
Reach 3+	67			

17.1.2 Dailies Plan

Table 9: Recommended Dailies Plan for Phase I

Publication	Edition	Language	Type	Size sqcm/cc	# Ins.	Total Cost (INR)
Dainik Jagran	All Edition	Hindi	Column	400	4	5011200
TOI	All Edition	English	Column	400	4	6576000
Punjabi Kesari	Punjab	Hindi	Column	400	4	680000
Lokmat	Maharashtra	Marathi	Column	400	4	3571200
Daily Thanthi	TN	Tamil	Column	100	4	2040000
Hindu	All South	English	Column	400	4	3048000
Gajarat Samachar	Gujarat	Gujarati	Column	100	4	1680000
Rajasthan Patrika	Rajasthan	Hindi	Column	400	4	1536000
Total					32	24142400

17.1.3 Magazine Plan

Table 10: Recommended Magazine Plan for Phase I

Magazine	Edition	Freq.	#	Cost (INR)
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Insertions				
India Today (English)	All	Weekly	4	2640000
Grihsobha (Hindi)	All	Monthly	3	825000
Meri Saheli (Hindi)	All	Monthly	3	630000
Vanitha (Mal)	All	Monthly	3	600000
Total			13	4695000

17.1.4 Budget allocations- Phase I

Table 11: Three month budget allocation plan for Phase I

Channels	Cost (INR Crores)	Percentage Allocation
TV	4.5	61%
Dailies	2.4	33%
Magazines	0.5	6%
Total	7.4	100%

Recommended Media Plan: Phase – II

A four month television burst along with inserts in dailies is recommended for Phase II of the communication plan. The details are tabulated as follows:

17.1.5 Television Plan- Four Month Burst

Table 12: Recommended Television Plan for Phase II

Genre	Channel	#Spots	Spends (INR)	GRPs	HH Types
Hindi News		560	8480000	160	Hindi Speaking
	Aaj Tak	80			
	DD News	120			
	Star News	120			
	Zee News	120			
	CNBC TV 18	120			
Hindi Mass		130	12620000	270	Hindi

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					Speaking
	Star Plus	40			
	Zee TV	50			
	Star One	40			
Hindi Movies		240	960000	160	Hindi Speaking
	MAX	120			
	ZEE Cinema	120			
Regional		300	3240000	1010	C & S Regional
	Sun TV	60			
	Surya TV	60			
	Teja TV	80			
	Zee Bangla	100			
Total Cost GRPs	25300000 INR 1600				

17.1.6 Dailies Plan

Table 13: Recommended Dailies Plan for Phase II

Publications	Edition	Language	Type	Size Sq. cm.	#Ins.	Total Cost
Dainik Jagran	All Edition	Hindi	Col.	400	6	7516800
TOI	All Edition	English	Col.	400	6	9684000
Punjab Kesari	Punjab	Hindi	Col.	400	6	1020000
Lokmat	Maharashtra	Marathi	Col.	400	6	5356800
Daily Thanthi	TN	Tamil	Col.	100	6	3060000

Hindu	All South	English	Col.	400	6	4572000
Gujarat Samachar	Gujarat	Gujarat	Col.	100	6	2520000
Rajasthan Patrika	Rajasthan	Hindi	Col.	400	6	2304000
Grand Total					48	36213600

17.1.7 Budget allocations- Phase II

Table 14: Four Month Budget Allocation for Phase II

Channels	Cost (INR Crores)	Percentage Allocation
TV	2.5	41
Dailies	3.6	59
Total	6.2	100

Total Estimated Costing of Recommended Media Plan

The estimated budget for Phase I is approximately INR 7.4 crores, INR 6.2 crores for Phase II. The following table illustrates the phase by phase and the total cost of the recommended media plan.

Table 15: Estimated costs of Media Plans for both Phases

Channels	Phase I	Phase II	INR Crores
TV	4.5	2.5	7.1
Dailies	2.4	3.6	6.0
Magazines	0.5		0.5
Total Cost in INR Crores	7.4	6.2	13.6

18 Annex

Annex I: Snap shot of Consumers

Recent buyers of refrigerators (within the previous 6 months than the interview day) were selected for the interviews. Following tables describe the respondents, based on the criteria mentioned in the report.

18.1.1 Refrigerator

Base: Respondents owned Refrigerators	698
Less than 3 months	5.3%
3 to 6 months	94.7%

Following are the top five brands that should be targeted for the energy labels.

Top five Brands in Refrigerators

Godrej	LG	Whirlpool	Samsung	Videocon
23.6%	23.4%	17%	11.7%	10.3%

18.1.2 Air Conditioner

Base: Respondents owned AC	124
Less than 3 months	3.4%
3 to 6 months	16.8%
More than 6 months	79.9%

LG and Samsung are the common ones in the list towards the target brands. The findings show that refrigerator is omni present and AC is a high power-consuming device. Manufacturers of these two products should be targeted initially.

Top five Brands in AC

LG	Samsung	Voltas	Hitachi	Onida/Godrej
38%	11.2%	11.2%	8.9%	3.4%

18.1.3 Lighting Appliances

Base: All Respondents	698
------------------------------	------------

Electric Bulb	97.4%
Tube Lights	99.1%
CFL	42%

An encouraging fact is that universal usage of tube lights is more, probably due to its low power-consuming tendency. Philips, Surya and Bajaj are leaders in both incandescence and tubes. Philips seems to be the leading brand in CFL market. Interestingly Chinese and other local brands are under 10% in the market.

In most households, the husband is still the decision-maker for all major decisions and high-ticket purchase items whereas the wife is more of a homemaker. However, the lady of the house is becoming conscious of the world outside her home and influences her husband and at last takes a key roll in decision making.

If necessity products are seen to be the ones to have high/universal penetration, the following figure provides the list of product categories, which are absolute imperatives.

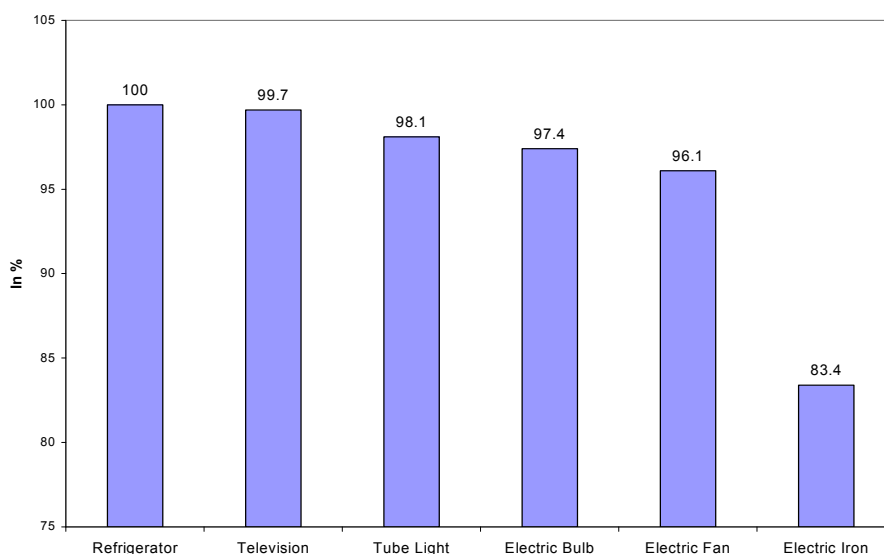


Figure 21: Product categories which are absolute imperatives

Durables like mobile phone, mixer-grinder, music system, and washing machine are more convenience even affluence related and in even more rarified strata in terms of penetration. Only low-ticket item, interestingly, in the list is CFL.

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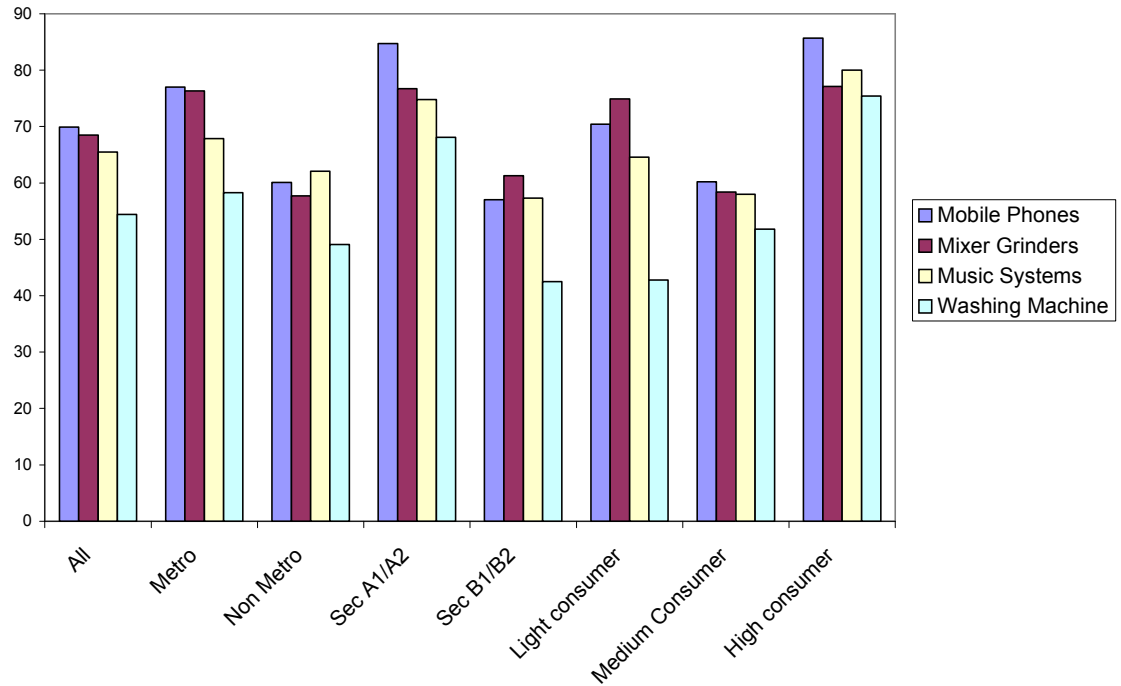


Figure 22: Product categories which are convenience related

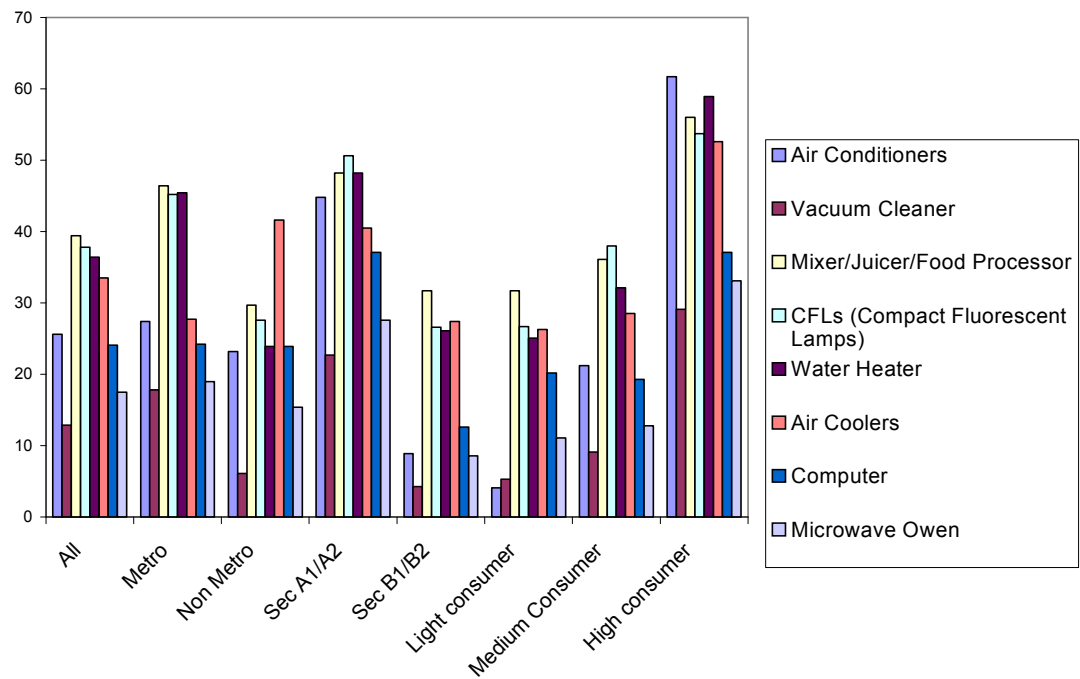


Figure 23: Product categories which are high affluence related

Annex II: Demographic variations in response to the advertisements

Response in terms of Likeability:

- Refrigerator Advertisement: Highest likeability by women in Kolkata, Overall and men in Delhi & men in Mumbai. The advertisement was, however, least liked in Chennai - both by men and women, overall in Mumbai and Kolkata & by men in Kolkata
- Piggy Bank Advertisement: Highest likeability by women in Kolkata, women in Delhi & men in Mumbai. The advertisement is, however, least liked by men and overall in Delhi. In other places, it fairs medium
- Rs '1000' Advertisement: Highest likeability in Kolkata – overall and by men. It also scored high amongst women in Kolkata, by men in Delhi, overall and women in Mumbai & overall, men and women in Chennai. The advertisement does not have a particularly 'Low' likeability anywhere.

The following table summarizes the Likeability-score for each of the three advertisements. The maximum score being 5.

		PIGGY AD	REF AD	'1000' AD
KOLKATA	Women	4.43	4.43	4
	Men	3.33	3.33	3.33
	TOTAL	3.75	3.33	3.34
DELHI	Women	4.44	4	3.33
	Men	3.44	3.33	3.33
	TOTAL	3.34	3.33	3.33
MUMBAI	Women	3.53	3	4.44
	Men	3.33	3.33	3.5
	TOTAL	3.3	3.33	3.35
CHENNAI	Women	4	3.75	4.44
	Men	3.5	3.33	3.33
	TOTAL	3.3	3.43	3.33

Figure 24: Scores of the three advertisements in terms of Likeability

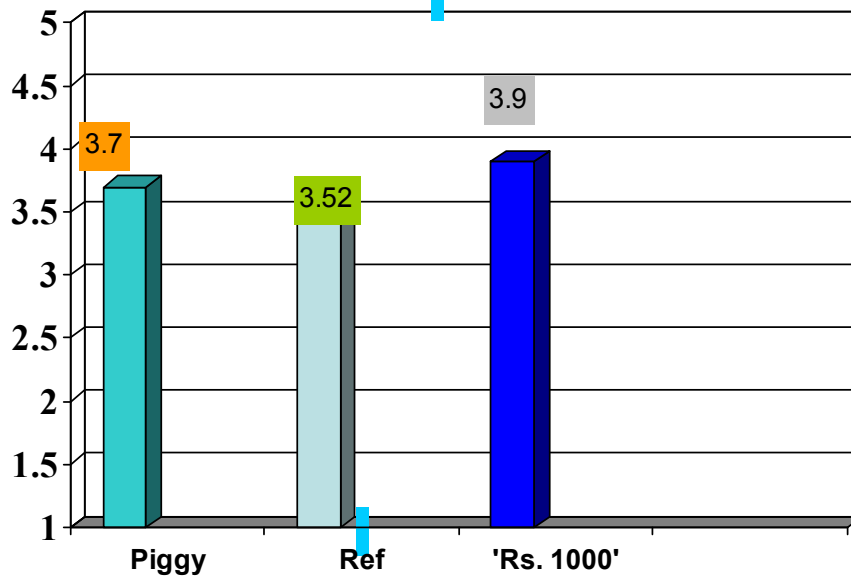


Figure 25: Likeability chart for three advertisements

Three advertisements in terms of Persuasiveness:

- Refrigerator Advertisement – along with Piggy Bank advertisement is most persuasive amongst the women in Delhi. Refrigerator advertisement is least persuasive amongst men and overall in Kolkata, overall, men as well as women in Mumbai & amongst women and overall in Chennai.
- Piggy Bank Advertisement: The advertisement is most persuasive amongst women in Delhi – along with 'Refrigerator Advertisement', men as well as overall in Delhi, women in Mumbai – along with '1000 ad', men and overall in Mumbai, women, men as well as overall in Chennai. The ad is least persuasive amongst Women in Kolkata ONLY.
- Rs '1000' Advertisement: Most persuasive in Kolkata – overall, men and women, amongst women in Mumbai – along with 'Piggy Bank Advertisement'. The advertisement is least persuasive in Delhi – overall, men and women, amongst men in Mumbai – along with 'Refrigerator advertisement' & men in Chennai.

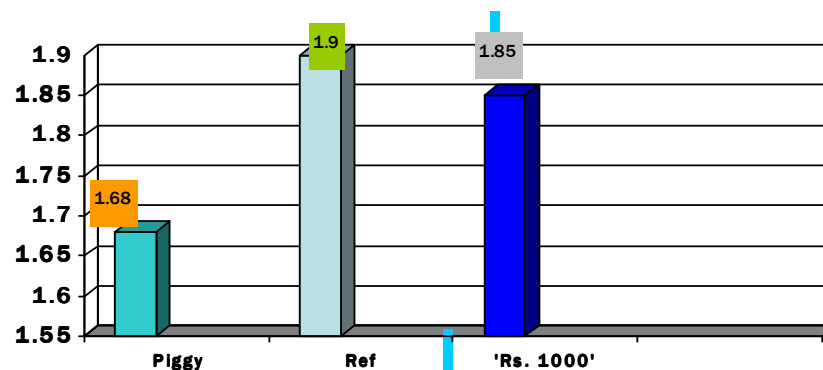


Figure 26: Three advertisements on persuasiveness

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		PIGGY AD	RFF AD	'10000' AD
KOLKATA	Women	2 14	2	1 88
	Men	1 71	2 14	1 63
	TOTAL	1 93	2 07	1 73
DELHI	Women	1 71	1 71	1 88
	Men	1 5	1 63	1 75
	TOTAL	1 6	1 67	1 8
MUMBAI	Women	1 71	2	1 71
	Men	1 75	2	2
	TOTAL	1 73	2	1 87
CHENNAI	Women	1 38	1 88	1 63
	Men	1 57	1 88	2 43
	TOTAL	1 47	1 88	1 67

Figure 27: Three advertisements in terms of Persuasiveness

19 Annexure: Details of the labeling Scheme

Energy Efficiency Labels

Details of Scheme for Energy Efficiency Labeling
May 2006



Bureau of Energy Efficiency
Ministry of Power, Govt. of India,
2nd Floor, NBCC Tower,
15 Bhikaji Cama Place
New Delhi 110066
www.bee-india.nic.in

20 Annexure: Details of the Refrigerator Label

Schedule – 1

Frost Free (No-Frost) Refrigerator

1. Scope

1.1 This scheme specifies the energy labeling requirements for electric mains powered Frost Free (No-Frost) refrigerating appliance of the vapour compression type intended for household and similar use being manufactures, imported, or sold in India.

1.2 This Standard shall be read in conjunction with AS/NZS 4474.1:1997: Energy Consumption and performance and AS/NZS 4474.2:2001: Energy labeling and minimum energy performance standard.¹

1.3 In particular, this schedule specifies the following:

- (a) Frost Free (No-Frost) Appliance
- (b) Projected Annual Energy Consumption (PAEC)
- (c) Tested Energy Consumption (E_t)
- (d) Comparative Energy Consumption (CEC)
- (e) Total Adjusted Storage Volume for No Frost ($V_{adj_tot_nf}$)
- (f) Star Rating Plan
- (g) Printing requirements for refrigerating appliances energy labels

The above terms have been defined in Annexure I – Section 1 (DEFINITIONS) of this schedule.

2. Schedule of tests

2.1 Method of tests

The testing code and procedure for Frost Free (No-Frost) Refrigerator would be as per AS/NZS 4474.1:1997: Energy Consumption and performance with all amendments.

2.2 Parameters to be tested

2.2.1 Energy Consumption

The Energy Consumption of the Frost-Free (No-Frost) refrigerator will be tested as per Appendix K & Appendix O of AS/NZS 4474.1:1997.

¹ THE AS/NZS 4474.1:1997 TEST PROCEDURES ARE BEING USED IN THE INTERIM, TILL THE RELEVANT INDIAN STANDARD (IS) ARE DEVELOPED / REVISED.

21 Annexure: Details of the Air Conditioner Label

Schedule – 5 Room Air Conditioners

1. Scope

- 1.1 This Standard specifies the energy labeling requirements for single-phase split and unitary air conditioners of the vapour compression type for household use up to a rated cooling capacity of 11 kW and that fall within the scope of IS1391 Part 1 and Part 2, being manufactured, imported, or sold in India.
- 1.2 This Standard shall be read in conjunction with IS1391 Part 1 and Part 2 with all amendments¹, as applicable

In particular, this scheme specifies the following:

1. Rated power (input).
2. Rated capacity (output).
3. Energy Efficiency Ratio (EER) for cooling.
4. Star rating.
5. Some of the requirements for energy label validity.
6. The performance criteria for energy labeling validity.
7. Test report format.
8. Printing requirements for air conditioner appliance energy labels.

Exclusions:

1. Air conditioners which are not included within the scope of IS 1391 Part 1 and Part 2, pending the development of a suitable test method.
2. Multi-split systems (i.e., those having more than one indoor unit with an independent control for each indoor unit)
3. Evaporative coolers or any other cooling systems that are not of the vapour compression type.

2. Schedule of tests

2.1 Method of tests

The testing code and procedure for air conditioners shall be as per IS1391 Part 1 and Part 2 with all amendments.

Exception to IS 1391 part 1 and 2: All tests, including the Energy Consumption and Capacity tests, shall be conducted in Balanced Ambient Calorimeters for the purpose of check and challenge testing.

2.2 Parameters to be tested

2.2.1 Energy Consumption

The Energy Consumption test of the air conditioner shall be conducted as per IS 1391 Part 1 and Part 2 with all amendments.

2.2.2 Cooling Capacity

The Capacity Rating test of the air conditioner shall be conducted as per IS 1391 Part 1 and Part 2 with all amendments.

¹ Including amendments made during May 2006 meeting of BIS committee on the subject.

22 Annexure: Details of the Fluorescent Tube Light Label

Schedule – 2

Tubular Fluorescent Lamps

The test procedure, schedule of tests, rating plan and other parameters in respect of Tubular Fluorescent Lamps is as follows:

1. Scope

- 1.1 This standard specifies the requirements for participating in the energy labelling scheme for Tubular Fluorescent lamps for General lighting service.
- 1.2 The referred Indian Standard are IS 2418 (part I) and (part II) – 1977 including all the amendments.
- 1.3 The energy labelling scheme covers 1200 mm tubular fluorescent lamps for wattages upto 40W.
- 1.4 The scheme shall cover 6500K colour temperature for halo-phosphates and 6500K, 4000K & 2700K for tri-phosphate category.

2. Schedule of Tests:

2.1 Method of Tests:

The testing code and procedure for Tubular Fluorescent lamps for General lighting service would be as per IS 2418 (part I) – 1977 with all amendments.

2.2 Parameters to be tested:

Parameter for initial, verification and challenge testing are the type test parameters (tests for electrical, luminous, colour characteristics, life test, etc.) listed under clause 6.1.1 of IS: 2418 (part I) – 1977 and including all amendments as of date. In addition the samples would be tested for lumen efficacy values at 3500 hours.

3. Tolerance limits:

The tolerance limits for lamp wattage, luminous flux, lumen maintenance and chromaticity co-ordinates shall be as defined in IS: 2418 (part I) & part II) – 1977 for the purpose of qualification requirements to be eligible for participation in the Scheme. However, no tolerances shall be applicable on declared performance values on the label.

4. Conditions of compliance:

The conditions of compliance shall be as specified in IS: 2418 (part I) – 1977.

5. Star rating plan:

STAR RATING	★	★★	★★★	★★★★	★★★★★
Lumens per Watt at 0100 hrs of use	<81	>=81 & <87	>=87 & <88	>=88 & <92	>=92
Lumens per Watt at 2000 hrs of use	<52	>=52 & <57	>=57 & <77	>=77 & <83	>=83
Lumens per Watt at 3500 hrs of use	<49	>=49 & <54	>=54 & <73	>=73 & <78	>=78