ECO

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Energy Conservation and Commercialization Project

A Program of USAID, Ministry of Power & ICICI

PROCUREMENT POLICIES AND PRACTICES FOR PURCHASE OF HIGH-ENERGY USE PRODUCTS BY GOVERNMENT BODIES AND ORGANIZATIONS

March 2001

Activity 9 Milestone A

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ECO

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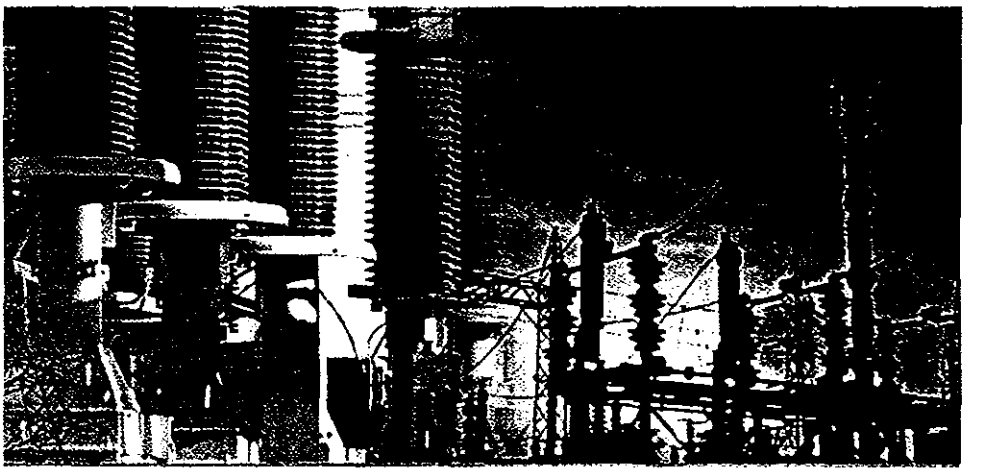

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Preface

This report consists of ECO Milestone A of Activity 9 "Prepare a report (using life cycle costing) on at least 2 high volume and high-energy use appliance/equipment procured by the Government for which minimum standards could be developed". Corresponding to the objectives of the study, work has been organized in two parts. Step-1 refers to identifying two suitable high-volume, high-energy use appliance/equipment (products) procured by the Government bodies and institutions for which minimum energy efficiency standards could be developed. Step-2 emphasis on developing life cycle costing procedures for the Government and procurement for two appliances/equipment. This report documents the findings of the work done under Step-1.

(Is this sentence required?)

The ECO Project is being implemented by Bechtel National Inc., (Nexant Inc.) under a USAID contract, LAG-1-00-98-0000. This contract has been issued by the USAID Mission in New Delhi as a part of the IQC (Indefinite Quantity Contract) currently in place through USAID's Global Bureau. The project contract was signed on February 29, 2000 and continuous through December 2003.

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Background

The Energy Conservation and Commercialization ('ECO') Project is a joint initiative of the Ministry of Power, U.S. Agency for International Development ('USAID') and ICICI Ltd ('ICICI'). An important factor of the ECO project involves developing strategies/incentives to encourage end-users such as government departments, bodies and organizations to select energy efficient products to encourage manufacturers in producing energy efficient products.

Large energy consumers such as government departments, bodies and organizations can have a major influence on energy efficiency in the economy, not only because they are big consumers and can reduce their energy consumption and improve their energy efficiency if they use energy efficient products, but also because they can influence and encourage manufacturers to produce procure only energy efficient equipment and appliances by implementing a policy decision.

Under the ECO Project, implemented by Nexant, Inc., a study is carried out by Innotem Services Pvt. Ltd. on the procurement policies, procedures and practices for purchase of commonly used, high volume, high electricity consuming products by government departments and government agencies/institutions/organizations.

This study is undertaken to meet the requirements of Milestone A under Activity 9. The objective of this Activity (Energy efficiency improvement in government facilities and private buildings) is to facilitate the improvement in energy efficiency of both government and private buildings through various programmes and the promulgation of a building energy code. (Mentioned in Approach & Methodology)

Executive Summary

Under the Energy Conservation and Commercialization ('ECO') Project of the Ministry of Power, U.S. Agency for International Development and ICICI Ltd. which is implemented by Nexant, Inc., a study is undertaken by Innotem Services Pvt. Ltd. on the procurement policies, procedures and practices for purchase of commonly used, high volume, high electricity consuming products by government departments and government agencies/institutions/organisations. This study is to meet the requirements of Milestone A under Activity 9.

Relevant to the objectives of the study, the work has been organised in two steps:

- *Step 1:* Identify two suitable high-volume, high-electricity use appliances/equipment (products) procured by government bodies and institutions for which minimum energy efficiency standards could be developed; and
- *Step 2:* Develop life cycle costing procedures for government procurement for two appliances/equipment.

The devices considered includes incandescent ('GLS') lamps, compact fluorescent lamps ('CFLs'), fluorescent lamps ('FTLs'), HPMV lamps, HPSV lamps, electro-magnetic ballasts, electronic ballasts, ceiling fans, air coolers, air conditioners, room heaters, exhaust fans and geysers. The devices having the highest annual purchase quantities are lamps of all types and their ballasts, ceiling fans, exhaust fans, air coolers and window air conditioners. The devices with the highest stock are fluorescent lamps, electro-magnetic ballasts for fluorescent lamps, GLS lamps, and ceiling fans. The devices with the highest electricity consumption of annual purchases are GLS lamps, fluorescent lamps, HPSV lamps, HPMV lamps, window air conditioners, ceiling fans, electro-magnetic ballasts for fluorescent lamps, split air conditioners, and exhaust fans. The devices with the highest electricity consumption of total population are GLS lamps, fluorescent lamps, window air conditioners, ceiling fans, HPSV lamps, electro-magnetic ballasts for fluorescent lamps, split air conditioners, and exhaust fans.

Although, the objective of Step 1 was to identify only two suitable high-volume, high-electricity use appliances/equipment, the products and energy efficiency options on which further work carried out in Step 2 are GLS lamps (replacement by compact fluorescent lamps), fluorescent lamps (replacement of 40 W lamp by 36 W lamp), window air conditioners, ceiling fans, and electro-magnetic ballasts for fluorescent lamps (replacement by electronic ballasts).

In Step 2, the procurement policies, procedures and practices of government users regarding purchase of such products were reviewed. Some of the key findings are:

- Government procurement was earlier being done by DGS&D is now considerably decentralised. Decentralisation has resulted in most of the procurement by central and non-central government departments/offices being now implemented directly and not through DGS&D;
- Consequent to decentralisation, concluding rate contracts for common user items is now the major activity and responsibility of DGS&D;
- The main feature of procurement by government departments, bodies, agencies, institutions and organisations is that the procurement is done on the basis of the DGS&D rate contract for goods under rate contract;
- In the case of central government departments/offices, the procurement is completed against the rate contract. In the case of non-central government departments/offices, the procurement is generally done outside the rate contract, but based on the rate contract.

- The purchase specifications for the devices are based on the specifications in the relevant Indian Standard ('IS') standards. By virtue of the procurement being based on the rate contract, these specifications are implicitly followed by users. Additional or more stringent specifications are not prescribed. By Indian standards, energy consumption is specified as a parameter within the standard, it is usually in the form of a maximum value of energy consumption that should not be exceeded. This is also the requirement in the tender specifications. During the process of concluding rate contracts, no consideration or weightage is optedif the given specifications are bettered;
- The result of the practices followed by DGS&D in concluding rate contracts is that, for all practical purposes, there is no rate difference among different suppliers for items available under DGS&D rate contract;
- The impact of all firms offering goods at the same rate is that initial cost is not a factor considered by users in the decision making process. The main factors considered are service and quality. Delivery period, supplier size and supplier reputation are other factors; and
- Energy consumption and energy efficiency are not considered, by and large, as factors in the decision making process.

Life cycle costing procedures for evaluation of cost-effectiveness of energy-efficient devices have been developed. For the options identified in Step 1, the energy savings benefits in terms of the life cycle energy cost savings potential of annual purchases range between Rs. 525 crores to Rs. 10 crores.

Options for promoting energy efficiency in government procurement have been identified. These can be categorised into changes required on the part of DGS&D and on the part of users.

Changes required on the part of DGS&D includes:

- Changes in purchase specifications;
- Bringenergy-efficient devices under rate contract;
- Allow devices with different levels of energy consumption under rate contract;
- Introduce life cycle cost analysis;
- Provide more information and make information more accessible to users; and
- Organise training on life cycle cost analysis and other changes in procurement system.

On the part of users, the changes required is to introduce life cycle cost analysis. The following recommendations are made:

- To assess the scope for improvement for various devices, a technology evaluation and upgradation study for each product should be undertaken. DGS&D should be associated in these studies, to enable to draw on their knowledge and expertise as well to enable interaction with industry. Considering the potential, initial studies could be carried out for ceiling fans and exhaust fans;
- The supplier base for new energy-efficient products needs to be increased considerably by DGS&D. For this, a more pro-active approach by DGS&D is necessary;
- Within an item, provision should be made for allowing devices with different levels of energy consumption under rate contract. Devices having similar energy consumption would have the same rates (as is already so), but devices having different energy consumption would have different rates. Implementation of this would require suitable energy consumption ranges to be established for each device, based not only on data for devices of manufacturers under rate contract but also of devices available in the market but not under rate contract. Once the ranges are established, the same process as being followed would apply;

- DGS&D can assist in enhancing the availability of information on their website. The information necessary for users to determine the life cycle costs in their application and information on the technique and tools of life cycle cost analysis can be provided by DGS&D. Another possibility for extracting this information could be links to other sites; and
- Assistance can be provided to DGS&D in organising training programmes on life cycle cost analysis and various changes in procurement system. Training can be organised by DGS&D's Institute of Supply and Quality Management.

Approach and Methodology

The objectives of the study has been implemented in two steps:

- *Step 1:* Identify two suitable high-volume, high-electricity use appliances/equipment (products) procured by government bodies and institutions for which minimum energy efficiency standards could be developed; and
- *Step 2:* Develop life cycle costing procedures for government procurement for two appliances/equipment.

The identification of products in Step 1 has been carried out based on consideration of several factors and initial discussions with various government bodies, agencies, institutions and organisations (users). These discussions wereheld with central government bodies (Directorate General of Supplies & Disposals ('DGS&D'), Central Public Works Department ('CPWD')), a local government body (New Delhi Municipal Council ('NDMC')), a government institution (Railways), a government hospital (Safdarjung Hospital), and a government educational institution (Indian Institute of Technology, Delhi).

In Step 2, the procurement policies, procedures and practices of government users regarding purchase of such products have been reviewed. Life cycle costing procedures for evaluation of cost-effectiveness of energy-efficient devices have been developed. Options for promoting energy efficiency in government procurement have been identified and recommendations made in this regard.

Organization of Report

This report is divided into various sections and one appendix. The role of DGS&D, Key findings regarding procurement policies, procedures and practices of government users, the concept and application of life cycle costing and various options that may be considered to promote purchase of energy efficient products in government procurement and the recommendations relevant are covered in this report. . Information compiled from rate contracts on firms and their rates for each item of stores is given in Appendix A.

Identification of Appliances/Equipment

This section covers the identification of high-volume, high-electricity use appliances/equipment (products). This has been implemented considering several factors as elucidated below and discussions with various government bodies, agencies, institutions and organisations (users). These discussions were held with central government bodies (Directorate General of Supplies & Disposals ('DGS&D'), Central Public Works Department ('CPWD')), a local government body (New Delhi Municipal Council ('NDMC')), a government institution ('Railways'), a government hospital (Safdarjung Hospital), and a government educational institution (Indian Institute of Technology, Delhi). Discussions were also held with certain firms supplying goods under rate contract.

The factors considered for identification of products are:

- Annual electricity consumption of products is high considering consumption per device or consumption of the total population;
- Annual purchase quantity of products is high;
- products are procured and used by a large number of government bodies, agencies, institutions and organisations (users);
- Products are procured repeatedly and periodically during the year;
- Products are common and generic, i.e. their use is not limited to certain users or certain types of users only;
- Products are used widely, i.e. their use is not limited to certain locations or certain types of locations only; and
- Within the product, energy efficient models or makes exist and are available in the Indian market.

Based on the abovementioned factors, a common and generic list of appliances and equipment was developed initially, as given below:

Lighting

- Incandescent ('GLS') lamps ;
- Compact fluorescent lamps ('CFLs') ;
- Fluorescent lamps ('FTLs') ;
- HPMV lamps ;
- HPSV lamps ;
- Electro-magnetic ballasts; and
- Electronic ballasts.

Space cooling

- Ceiling fans;
- Table fans/Pedestal fans;
- Air coolers; and
- Air conditioners.

Space heating

- Room heaters.

Others

- Exhaust fans;
- Geysers;
- Water coolers;
- Refrigerators;
- Motors; and
- Pumps.

It is noted that pumps and motors considered are for general use only. Pumps and motors for industrial use (i.e. process or manufacturing applications) are not to be covered, in accordance with the overall focus and coverage of the study. Similarly, pumps limited to certain users and certain locationssuch as pumps for municipal water supply, are also not to be considered here.

Based on initial discussions with government users, several key findings emerged:

- Government procurement was earlier carried out by DGS&D, is now considerably decentralized;
- Procurement of products is done against or based on the rate contracts concluded by DGS&D. In the case of central government departments and offices, the supply of the required goods is directly issued to the firms selected . The supply order is routed through DGS&D for inspection and payment. In the case of non-central government departments and offices, such as state governments and local governments, and other government bodies and organisations such as public sector undertakings, autonomous bodies, etc., whether belonging to the central government or state governments, if desire to use the rate contract, they must raise their demands along with the requisite funds through DGS&D and the supply orders are issued by DGS&D on their behalf. However, the practice generally followed by such users is to place orders directly to the selected firms on the rates specified as per the rate contract. Thus, in the case of such users, the procurement is not against the rate contract (as that can only be through DGS&D), but is based on the rate contract.
- Based on the orders routed through DGS&D, an estimate of the annual purchase value, or estimated drawal, of items under rate contract. However, these estimates does not include cases where procurement is done based on the rate contract but not against the rate contract as mentioned above. These purchases are believed to be quite significant. There is, however, no mechanism or any basis to enable making an estimate of such procurements done outside the rate contract. Hence, the estimated drawals are the best indicators of overall government procurement.

As mentioned above, the main feature of procurement by different government departments, bodies, agencies, institutions and organisations is that the procurement is done against the DGS&D rate contract. Accordingly, the list of items on DGS&D rate contract was examined and 21 items were found to be included in the DGS&D list. The list of these items is given in Table 1.

Apart from the products above, table fans/pedestal fans, refrigerators, and motors are not included under DGS&D rate contract . Table fans/pedestal fans and refrigerators are items, which DGS&D intend to bring under rate contract.

Further information regarding these items and the rate contracts was obtained and compiled from the following sources: DGS&D Directory of Stores on Rate Contracts-2000 (July, 2000), Monthly issues of DGS&D Bulletin (up to the November 2000 issue), and the DGS&D website (**http://commin.nic.in/dgsnd**). It was observed that each items in the DGS&D list further includes a number of goods (which are termed as stores) having different size, capacity, rating or features; thus, the items in the DGS&D list are essentially in the nature of item categories or item

However, all stores included within an item may not necessarily be applicable for the purpose of this study as mentioned later. The list of applicable stores under each item is given in Table 2.

For each contracted firm concluded by DGS&D, a list of stores agreed to be supplied and their respective rates are available in the above-mentioned sources. This information is given firm-wise. However, it is more useful to examine and anaylise this information stores-wise. Accordingly, 21 items were identified; the information on rate contracts was compiled to generate a list of firms and their rates for each item of stores. A detailed list is compiled in this report.

Table 3 gives a summary of number of suppliers, the range of rates and the typical rate for each stores which were compiled from the information. It is observed that the rate of all suppliers is the same for many stores,. Further, for stores where different rates appear, the differences are minimal. Thus, for all practical purposes, there is no rates differential among different suppliers for items available under DGS&D rate contract.

For the designated items, Table 4 gives the estimated drawals for the current rate contracts. It is observed that the items having the highest drawals are window air conditioners (Rs. 33.50 crores), ceiling fans (Rs. 18.50 crores), split air conditioners (Rs. 14.00 crores), fluorescent tubes (Rs. 8.70 crores), and GLS lamps (Rs. 8.20 crores). The estimated drawal for electrical and decorative fittings is Rs. 17.50 crores; however, the bulk of this amount would be accounted for by lamp fittings and fixtures which comprise the major stores under this item, while the specific product of interest under this item for the purpose of this study is electro-magnetic ballasts for fluorescent lamps, value would be lower.

Based on the typical rates given in Table 3 and the estimated drawals given in Table 4, estimates of the annual purchase quantities and purchase values of devices have been made which are shown in Table 5. In the case of ceiling fans and geysers, the stores under the item include several goods, which are spare parts of low value. Although, the estimated drawal includes the value of these goods, their total value would be minimum and hence, the estimated drawal itself will be considered as the purchase value. In the case of electro-magnetic ballasts for fluorescent lamps, HPMV lamps and HPSV lamps, the estimated drawals are for all the stores under the respective items. For these devices, the purchase quantities were estimated first considering the purchase quantities of the respective lamps and the differences in device life of the lamp and the ballast. The purchase values were determined considering the typical rates.

It is observed that the devices having the highest purchase quantities are lamps of all types and their ballasts, ceiling fans, exhaust fans, air coolers and window air conditioners. The range, however, is extensive -- while purchase quantities of GLS lamps and FTL lamps are of the order of millions, the purchase quantity of window air conditioners is of the order of tens of thousands.

Estimates of annual electricity consumption of these devices were then developed considering typical values of usage hours per year and power ratings. These estimates are shown in Table 6. It would be seen that the highest electricity consuming devices in terms of annual electricity consumption per device are split air conditioner, window air conditioner, room heater, HPSV lamp and HPMV lamp. It should be noted that the ballast consumption and lamp consumption are given separately in the case of all discharge lamps except for compact fluorescent lamps where the lamp with integrated ballast is being increasingly used. In the case of water coolers and submersible pumps, no information was available to make an estimate of typical usage hours. However, the electricity consumption would not be very high.

Estimates of the total population (stock) of these devices were developed. For this purpose, the life of the devices in terms of number of years was estimated considering the typical usage hours per year, and based on the life and the annual purchase quantity, the total population was estimated.
These estimates are given in Table 7. The devices with the highest stock are fluorescent lamps, electro-magnetic ballasts for fluorescent lamps, GLS lamps, and ceiling fans. The total stock of GLS

lamps is less than the annual purchase quantity because GLS lamps have a life of about 0.3 years based on their typical usage hours and hence for each GLS lamp point, 3 lamps need to be purchased every year.

The annual purchases and total stock of devices are shown in Figures 1 and 2, respectively.

Annual electricity consumption of annual purchases and total stock of devices was determined from the number of devices and annual electricity consumption per device. These estimates are given in Table 8 and shown in Figures 3 and 4, respectively. The devices with the highest electricity consumption of annual purchases are GLS lamps, fluorescent lamps, HPSV lamps, HPMV lamps, window air conditioners, ceiling fans, electro-magnetic ballasts for fluorescent lamps, split air conditioners, and exhaust fans. The devices with the highest electricity consumption of total population are GLS lamps, fluorescent lamps, window air conditioners, ceiling fans, HPSV lamps, electro-magnetic ballasts for fluorescent lamps, split air conditioners, and exhaust fans.

To indicate the initial cost and the running cost in perspective, Table 9 indiacates the value of annual purchases and the value of electricity consumed annually by new purchases as well as the total stock of devices. These are also shown in Figure 5.

Any change in procurement policies will influence new purchases, the most appropriate parameter for identification of products for further work carried out in Step 2 is the annual electricity consumption of new purchases. This parameter incorporates both the annual purchase quantity of the device as well as the annual electricity consumption per device. As mentioned above, the devices with the highest electricity consumption of annual purchases are:

- GLS lamps ;
- Fluorescent lamps ;
- HPSV lamps ;
- HPMV lamps ;
- Window air conditioners;
- Ceiling fans;
- Electro-magnetic ballasts for fluorescent lamps;
- Split air conditioners; and
- Exhaust fans.

Some relevant aspects pertaining to these devices are discussed below:

GLS lamps purchased annually consume 792 million kWh/year, which is the highest amount of electricity consumption of all devices, and their consumption even exceeds the total consumption of all the other devices. The electricity consumption of GLS lamps of various make is not significantly different. However, the replacement of GLS lamps by compact fluorescent lamps would result in a huge reduction in the electricity consumption. Since GLS lamps need to be replaced very frequently, the opportunity for change is also quite high. Hence, even though this is a case involving change from one product to another product, the potential electricity savings warrant consideration of this device.

Fluorescent lamps purchased annually consume 235 million kWh/year, which is the second highest amount of electricity consumption. The replacement of a 40 W lamp by a 36 W lamp results in a 10 % reduction in electricity consumption. Fluorescent lamps too are replaced frequently, and hence, the change is high. These factors warrant consideration of this device.

Although, HPSV lamps and HPMV lamps are the next ranked devices, the electricity consumption of lamps of various make is not significantly different. Hence, these devices are not considered.

Window air conditioners purchased annually consume 32 million kWh/year, though their purchase quantity is not very large; the electricity consumption of the total population is 238 million kWh/year, which is the third highest among all devices. The annual electricity consumption of a single window air conditioner is among the highest of all devices. There is a wide range in the electricity consumption of window air conditioners of various make, particularly between those manufactured by large scale units in the organised sector compared to made by small scale units. These factors warrant consideration of this device.

Ceiling fans purchased annually consume 24 million kWh/year. Although, the consumption of a single ceiling fan is only 84 kWh/year, the purchase quantity is very large, resulting in overall high electricity consumption. In the case of fans too, there is a wide range in the electricity consumption of different makes, particularly between those manufactured by large scale units in the organised sector compared to those made by small scale units. These factors warrant consideration of this device.

Electro-magnetic ballasts for fluorescent lamps purchased annually consume 17 million kWh/year. These are mostly manufactured in the small scale sector and there is a wide range in the electricity consumption of different makes. Electro-magnetic ballasts for fluorescent lamps too need to be replaced periodically although not as frequently as fluorescent lamps. Replacement of standard electro-magnetic ballasts by low-loss electro-magnetic ballasts would result in reduced electricity consumption. Replacement of standard electro-magnetic ballasts by electronic ballasts would result in a significant reduction in the electricity consumption. Hence, even though this too is a case involving change from one product to another product, the potential electricity savings warrant consideration of this device.

Split air conditioners purchased annually consume 12 million kWh/year. The considerations for split air conditioners are similar to room air conditioners.

Exhaust fans purchased annually consume 11 million kWh/year. The considerations for exhaust fans are similar to those for ceiling fans.

The objective of Step 1 refers to identification of two suitable high-volume, high-electricity use appliances/equipment. However, based on the discussion above, it was felt that at this stage, the list could be kept more open and further screening could be done in Step 2. The products and energy efficiency options on which further work was carried out in Step 2 are the following:

- GLS lamps (replacement by compact fluorescent lamps);
- Fluorescent lamps (replacement of 40 W lamp by 36 W lamp);
- Window air conditioners;
- Ceiling fans; and
- Electro-magnetic ballasts for fluorescent lamps (replacement by electronic ballasts).

Table 1

HIGH ELECTRICITY USE ITEMS ON DGS&D RATE CONTRACT *

Item	Item No.
Electrical Stores Directorate	
GLS Lamps	14030101
Compact Fluorescent Lamps	14031400
Integrated CFL/EB	14031500
Fluorescent Tubes	14030200
HPMV Lamps	14030701
HPSV Lamps	14031200
Compact Fluorescent Fittings	14909943 **
Electrical and Decorative Fittings	14909937 ***
Electronic Ballasts	14059045
HPMV Lamps Fittings and Accessories	14909938 ****
HPSV Lamps Fittings	14909939 *****

Item	Item No.
Mechanical Engineering Directorate	
Ceiling Fans	14040100
Desert Coolers (Steel Body)	14080701
Plastic Body Cooler (Desert Type)	14080702
Window Mounted Type Air Conditioner	14080205
Split Type Air Conditioner	14080201
Heat Convectors	14080905
Exhaust Fans	14040400
Geysers	14080902
Water Coolers	14080300
Submersible Pump	13021300

Notes

* Items on rate contract as on 25 October 2000

** *Electro-magnetic ballasts for Compact fluorescent lamps* are covered under Compact Fluorescent Fittings

*** Electro-magnetic ballasts for Fluorescent lamps are covered under Electrical and Decorative Fittings

**** Electro-magnetic ballasts for HPMV lamps are covered under HPMV Lamps Fittings and Accessories

***** Electro-magnetic ballasts for HPSV lamps are covered under HPSV Lamps Fittings

Sources:

DGS&D Directory of Stores on Rate Contracts-2000
DGS&D Bulletin (monthly, various issues)
DGS&D website

Table 2

ITEMS AND STORES ON DGS&D RATE CONTRACT

GLS Lamps Item No. 14030301 *	Compact Fluorescent Lamps Item No. 14031400 *
Single Coil/Coiled Coil, 230 V, 25 W	9W, 2700K, 600 Min. Lumens
230 V, 40 W, BC	9W, 4000K, 600 Min. Lumens
250 V, 40 W, BC	9W, 6000K, 600 Min. Lumens
230 V, 40 W, SC	11W, 2700K, 900 Min. Lumens
250 V, 40 W, SC	11W, 4000K, 900 Min. Lumens
Mushroom, 230 V, 40 W	11W, 6000K, 900 Min. Lumens
230 V, 60 W, BC	FT, 20 W, Col. Temp. 6500 K
250 V, 60 W, BC	FT, 20 W, Col. Temp. 4300 K
230 V, 60 W, SC	FT, 36 W, Col. Temp. 6500 K
250 V, 60 W, SC	FT, 36 W, Col. Temp. 4300 K
Mushroom, 230 V, 60 W	FT, 80 W, Col. Temp. 6500 K
230 V, 100 W, BC	
250 V, 100 W, BC	
230 V, 100 W, SC	
250 V, 100 W, SC	
Mushroom, 230 V, 100 W	
Coiled Coil, 230 V, 150 W, BC	
Coiled Coil, 250 V, 150 W, BC	
Coiled Coil, 230 V, 200 W, BC	
Coiled Coil, 250 V, 200 W, BC	

Integrated CGL/EB Item No. 14031500 *	Fluorescent Lamps Item No. 14030200 *
CFL, EB, 11 W, 2700 K, Lumens 600	FT, 20 W, Col. Temp. 6500 K
CFL, EB, 11 W, 4000 K, Lumens 600	FT, 20 W, Col. Temp. 4300 K
CFL, EB, 11 W, 6000 K, Lumens 565	FT, 40 W, Col. Temp. 6500 K
CFL, EB, 15 W, 2700 K, Lumens 900 (2 Tube)	FT, 36 W, Col. Temp. 6500 K
CFL, EB, 15 W, 4000 K, Lumens 900 (2 Tube)	
CFL, EB, 15 W, 6000 K, Lumens 850 (2 Tube)	
CFL, EB, 20 W, 2700 K, Lumens 1200	
CFL, EB, 20 W, 4000 K, Lumens 1200	
CFL, EB, 20 W, 6000 K, Lumens 1140	
CFL, EB, 23 W, 2700 K, Lumens 1500	
CFL, EB, 23 W, 4000 K, Lumens 1500	
CFL, EB, 23 W, 6000 K, Lumens 1400	

HPMV Lamps Item No. 14030701 *	HPSV Lamps Item No. 14031200 *
HPMV Lamp, 80 W, Cap Desi.E-27	HPSV Lamp, SON, 70 W
HPMV Lamp, 80 W, Cap Desi.B-22 D3	HPSV Lamp, SON-T, 70 W, (Tubular)
HPMV Lamp, 125 W, Cap Desi.E-27	HPSV Lamp, SON, 150 W
HPMV Lamp, 125 W, Cap Desi.B-22 D3	HPSV Lamp, SON-T, 150 W, (Tubular)
HPMV Lamp, 250 W, Cap Desi.E-40	HPSV Lamp, SON, 250 W
HPMV Lamp, 400 W, Cap Desi.E-40	HPSV Lamp, SON-T, 250 W, (Tubular)
	HPSV Lamp, SON, 400 W

ITEMS AND STORES ON DGS&D RATE CONTRACT *(contd..)*

Compact Fluorescent Fittings Item No. 14909943 **	Electrical & Decorative Fittings Item No. 14909937 **
Ballast, Copper Wire Wound, 9 W Ballast, Copper Wire Wound, 11 W	Ballast, Copper Wound, 20 W Ballast, Copper Wound, 40 W Ballast, Copper Wound, 80 W

Electronic Ballasts Item No. 14059045 *	HPMV Lamps Fittings & Accessorries Item No. 14909938 **
Electronic Ballast, Size 1x36 W; 33 W Max Electronic Ballast, Size 1x40 W; 37 W Max	HPMV Fittings, Copper Wound Ballast, 125 W HPMV Fittings, Copper Wound Ballast, 250 W HPMV Fittings, Copper Wound Ballast, 400 W

HPMV Lamps Fittings Item No. 14909939 **	HPMV Lamps Fittings & Accessorries Item No. 14909938 **
Electronic Ballast, Size 1x36 W; 33 W Max Electronic Ballast, Size 1x40 W; 37 W Max	HPSV Fittings, Copper Wound Ballast, 70 W HPSV Fittings, Copper Wound Ballast, 150 W HPSV Fittings, Copper Wound Ballast, 250 W HPSV Fittings, Copper Wound Ballast, 400 W

Ceiling Fans Item No. 14040100 **	Desert Coolers (Steel Body) Item No. 14080701 *
Ceiling Fans, Capacitor Type, Double Ball Bearing, 900 mm Sweep Ceiling Fans, Capacitor Type, Double Ball Bearing, 1200 mm Sweep Ceiling Fans, Capacitor Type, Double Ball Bearing, 1400 mm Sweep Ceiling Fans, Capacitor Type, Double Ball Bearing, 1500 mm Sweep Speed Regulator for Ceiling Fans (Resistance Type)	Desert Cooler, (Evaporative Air Cooler), 1800 CuM/hr (RAC) Desert Cooler, (Evaporative Air Cooler), 3000 CuM/hr (RAC) Desert Cooler, (Evaporative Air Cooler), 4000 CuM/hr (RAC) Desert Cooler, (Evaporative Air Cooler), 5000 CuM/hr (RAC) Desert Cooler, (Evaporative Air Cooler), 6000 CuM/hr (RAC)

Plastic Body Cooler (Desert Type) Item No. 10480702 *	Window Mounted Type Air Conditioner Item No. 14080205 *
Air Cooler, (Plastic Body Evaporative), 2000 CuM/hr, 230/240 V Air Cooler, (Plastic Body Evaporative), 3000 CuM/hr, 230/240 V	Air Conditioner, (Window Mounted Type), Cap 1.0 Ton, 230 Volts, 50 Hz Air Conditioner, (Window Mounted Type), Cap 1.5 Ton, 230 Volts, 50 Hz Air Conditioner, (Window Mounted Type), Cap 2.0 Ton, 230 Volts, 50 Hz

ITEMS AND STORES ON DGS&D RATE CONTRACT *(contd..)*

Spilt Type Air Conditioner Item No. 14080201 *	Heat Convectors Item No. 14080905 *
Spilt Type, Cap 1.0 Ton, 230 Volts, 50 Hz Spilt Type, Cap 1.5 Ton, 230 Volts, 50 Hz Spilt Type, Cap 2.0 Ton, 230 Volts, 50 Hz Spilt Type, Cap 3.0 Ton, 230 Volts, 50 Hz Multisplit Type, Cap 3.0 Ton, 230 Volts, 50 Hz	Hot Air Fan cum Room Heater, 2000 Watts, Single

Exhaust Fan Item No. 14040400 *	Geysers Item No. 14080902 **
Propeller Type, A.C. Ventilating Fan, 300 mm, 6 Pole Propeller Type, A.C. Ventilating Fan, 300 mm, 4 Pole Propeller Type, A.C. Ventilating Fan, 380 mm, 6 Pole Propeller Type, A.C. Ventilating Fan, 380 mm, 4 Pole Propeller Type, A.C. Ventilating Fan, 450 mm, 6 Pole Propeller Type, A.C. Ventilating Fan, 450 mm, 4 Pole Propeller Type, A.C. Ventilating Fan, 600 mm, 6 Pole Louvre Shutters, 300 mm, 6 Pole Louvre Shutters, 300 mm, 4 Pole Louvre Shutters, 380 mm, 6 Pole Louvre Shutters, 380 mm, 4 Pole Louvre Shutters, 450 mm, 6 Pole Louvre Shutters, 450 mm, 4 Pole Louvre Shutters, 600 mm, 6 Pole Regulators, (Resistance Type), 300 mm, 6 Pole Regulators, (Resistance Type), 300 mm, 4 Pole Regulators, (Electronics Type), 300 mm, 6 Pole Regulators, (Electronics Type), 300 mm, 4 Pole Regulators, (Electronics Type), 380 mm, 6 Pole Regulators, (Electronics Type), 380 mm, 4 Pole Regulator, (Electronics Type), 450 mm, 6 Pole Regulator, (Electronics Type), 450 mm, 4 Pole Regulator, (Electronics Type), 600 mm, 6 Pole	Vertical Type, Copper, 25 Ltrs, 1000 W (A) Vertical Type, Copper, 25 Ltrs, 1000 W (B) Vertical Type, Copper, 25 Ltrs, 1500 W (A) Vertical Type, Copper, 25 Ltrs, 1500 W (B) Vertical Type, Copper, 35 Ltrs, 1500 W (A) Vertical Type, Copper, 35 Ltrs, 1500 W (B) Vertical Type, Copper, 50 Ltrs, 2000 W (A) Vertical Type, Copper, 50 Ltrs, 2000 W (B) Vertical Type, Steel, 25 Ltrs, 1000 W (A) Vertical Type, Steel, 25 Ltrs, 1000 W (B) Vertical Type, Steel, 25 Ltrs, 1500 W (A) Vertical Type, Steel, 25 Ltrs, 1500 W (B) Vertical Type, Steel, 35 Ltrs, 1500 W (A) Vertical Type, Steel, 35 Ltrs, 1500 W (B) Vertical Type, Steel, 50 Ltrs, 2000 W (A) Vertical Type, Steel, 50 Ltrs, 2000 W (B) Vertical Type, Steel, 50 Ltrs, 2000 W (C) Horizontal, Copper, 25 Ltrs, 1000 W, C/T 30 N/cm2 Horizontal, Copper, 25 Ltrs, 1000 W, R/P 60 N/cm2 Horizontal, Copper, 25 Ltrs, 1500 W, C/T 30 N/cm2 Horizontal, Copper, 25 Ltrs, 1500 W, R/P 60 N/cm2 Horizontal, Copper, 35 Ltrs, 1500 W, C/T 30 N/cm2 Horizontal, Copper, 35 Ltrs, 1500 W, R/P 60 N/cm2 Horizontal, Copper, 50 Ltrs, 2000 W, R/P 30 N/cm2 Horizontal, Copper, 50 Ltrs, 2000 W, R/P 60 N/cm2 Horizontal, Steel, 25 Ltrs, 1000 W, C/T 30 N/cm2 Horizontal, Steel, 25 Ltrs, 1000 W, R/P 60 N/cm2 Horizontal Type, Steel, 25 Ltrs, 1500 W, 30 N/cm2 Horizontal Type, Steel, 25 Ltrs, 1500 W Horizontal Type, Steel, 35 Ltrs, 1500 W, 30 N/cm2 Horizontal Type, Steel, 35 Ltrs, 1500 W Horizontal Type, Steel, 50 Ltrs, 2000 W, 30 N/cm2 Horizontal Type, Steel, 50 Ltrs, 2000 W Stationary Type, Copper, 25 Ltrs, 1500 W

ITEMS AND STORES ON DGS&D RATE CONTRACT *(contd..)*

Water Coolers Item No. 14080300 *	Submersible Pump Item No. 13021300 *
S.C.W.C, Pressure Type, 230 V, 50 c/s, P/A.C.S, 40 Ltrs	2.2 kW, Bore size 150 mm, Item No. 1.1
S.C.W.C, Pressure Type, 230 V, 50 c/s, P/A.C.S, 150 Ltrs	3.0 kW, Bore size 150 mm, Item No. 1.2
S.C.W.C, Storage Type, 230 V, 50 c/s, P/A.C.S, 40/40 Ltrs	3.7 kW, Bore size 150 mm, Item No. 1.3
S.C.W.C, Storage Type, 230 V, 50 c/s, P/A.C.S.C.S, 80/40 Ltrs	4.5 kW, Bore size 150 mm, Item No. 1.4
S.C.W.C, Storage Type, 230 V, 50 c/s, P/A.C.S.C.S, 120/60 Ltrs	5.5 kW, Bore size 150 mm, Item No. 1.5
S.C.W.C, Storage Type, 230 V, 50 c/s, P/A.C.S.C.S, 150/150 Ltrs	7.5 kW, Bore size 150 mm, Item No. 1.6
	9.3 kW, Bore size 150 mm, Item No. 1.7
	11.0 kW, Bore size 150 mm, Item No. 1.8
	5.5 kW, Bore size 150 mm, Item No. 2.1
	7.5 kW, Bore size 150 mm, Item No. 2.2
	9.3 kW, Bore size 150 mm, Item No. 2.3
	11.0 kW, Bore size 150 mm, Item No. 2.4
	15.0 kW, Bore size 150 mm, Item No. 2.5
	7.5 kW, Bore size 200 mm, Item No. 3.1
	13.0 kW, Bore size 200 mm, Item No. 3.2
	20.0 kW, Bore size 200 mm, Item No. 3.3
	15.0 kW, Bore size 200 mm, Item No. 4.1
	20.0 kW, Bore size 200 mm, Item No. 4.2
	22.5 kW, Bore size 200 mm, Item No. 4.3
	22.5 kW, Bore size 200 mm, Item No. 5.1

Notes

* Full list of stores

** Partial list of relevant stores

Sources

DGS&D Directory of Stores on Rate Contracts-2000

DGS&D Bulletin (monthly, various issues)

DGS&D website

Table 3

NUMBER OF SUPPLIERS, RANGE OF RATES AND TYPICAL RATES OF ITEMS & STORES ON DGS&D RATE CONTRACT

GLS Lamps Item No. 14030301	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Single Coil/Coiled Coil, 230 V, 25 W	2	6.60-6.62	6.60
	3	7.15	7.15*
230 V, 40 W, BC	9	6.50-6.67	6.67
	9	7.20	7.20*
250 V, 40 W, BC	2	6.45	6.45
230 V, 40 W, SC	2	7.00	7.00
250 V, 40 W, SC	3	7.00	7.00
Mushroom, 230 V, 40 W	1	6.45	6.45
230 V, 60 W, BC	9	6.50-6.67	6.67
	9	7.20	7.20*
250 V, 60 W, BC	3	6.45-6.70	6.45
230 V, 60 W, SC	2	7.00	7.00
250 V, 60 W, SC	3	7.00	7.00
Mushroom, 230 V, 60 W	1	6.45	6.45
230 V, 100 W, BC	9	6.63-6.83	6.83
	9	7.41	7.41*
250 V, 100 W, BC	4	6.60-6.79	6.60
230 V, 100 W, SC	2	7.00-7.10	7.00
250 V, 100 W, SC	3	7.00-7.15	7.10
Mushroom, 230 V, 100 W	1	6.70	6.70
Coiled Coil, 230 V, 150 W, BC	1	10.00	10.00
Coiled Coil, 250 V, 150 W, BC	1	9.98	9.98
Coiled Coil, 230 V, 200 W, BC	1	10.50	10.50
Coiled Coil, 250 V, 200 W, BC	3	10.50-10.86	10.86

Compact Fluorescent Lamps Item No. 14031400	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
9W, 2700K, 600 Min. Lumens	3	88.00	88.00*
9W, 4000K, 600 Min. Lumens	3	88.00	88.00*
9W, 6000K, 600 Min. Lumens	3	88.00	88.00*
11W, 2700K, 900 Min. Lumens	3	99.00	99.00*
11W, 4000K, 900 Min. Lumens	3	99.00	99.00*
11W, 6000K, 900 Min. Lumens	3	99.00	99.00*
FT, 20 W, Col. Temp. 6500 K	1	71.72	71.72*
FT, 20 W, Col. Temp. 4300 K	1	71.72	71.72*
FT, 36 W, Col. Temp. 6500 K	1	71.72	71.72*
FT, 36 W, Col. Temp. 4300 K	1	84.76	84.76*
FT, 80 W, Col. Temp. 6500 K	1	84.76	84.76*

NUMBER OF SUPPLIERS, RANGE OF RATES AND TYPICAL RATES OF ITEMS & STORES ON DGS&D RATE CONTRACT *(contd..)*

Integrated CFL/EB Item No. 14031500	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
CFL, EB, 11 W, 2700 K, Lumens 600	1	370.00	370.00*
CFL, EB, 11 W, 4000 K, Lumens 600	1	370.00	370.00*
CFL, EB, 11 W, 6000 K, Lumens 565	1	370.00	370.00*
CFL, EB, 15 W, 2700 K, Lumens 900 (2 Tube)	1	380.00	380.00*
CFL, EB, 15 W, 4000 K, Lumens 900 (2 Tube)	1	380.00	380.00*
CFL, EB, 15 W, 6000 K, Lumens 850 (2 Tube)	1	380.00	380.00*
CFL, EB, 20 W, 2700 K, Lumens 1200	1	470.00	470.00*
CFL, EB, 20 W, 4000 K, Lumens 1200	1	470.00	470.00*
CFL, EB, 20 W, 6000 K, Lumens 1140	1	470.00	470.00*
CFL, EB, 23 W, 2700 K, Lumens 1500	1	510.00	510.00*
CFL, EB, 23 W, 4000 K, Lumens 1500	1	510.00	510.00*
CFL, EB, 23 W, 6000 K, Lumens 1400	1	510.00	510.00*

Fluorescent Tubes Item No. 14030200	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
FT, 20 W, Col. Temp. 6500 K	1	28.00	28.00
	6	32.90	32.90*
FT, 20 W, Col. Temp. 4300 K	1	28.00	28.00
	2	34.11	34.11*
FT, 40 W, Col. Temp. 6500 K	6	34.11-36.11	34.11*
FT, 36 W, Col. Temp. 6500 K	1	32.81	32.81*

HPMV Lamps Item No. 14030701	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
HPMV Lamp, 80 W, Cap Desi.E-27	7	112.79	112.79*
HPMV Lamp, 80 W, Cap Desi.B-22 D3	8	112.79	112.79*
HPMV Lamp, 125 W, Cap Desi.E-27	8	118.97	118.97*
HPMV Lamp, 125 W, Cap Desi.B-22 D3	8	118.97	118.97*
HPMV Lamp, 250 W, Cap Desi.E-40	8	292.20	292.20*
HPMV Lamp, 400 W, Cap Desi.E-40	7	402.90	402.90*

NUMBER OF SUPPLIERS, RANGE OF RATES AND TYPICAL RATES OF ITEMS & STORES ON DGS&D RATE CONTRACT *(contd..)*

HPSV Lamps Item No. 14031200	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
HPSV Lamp, SON, 70 W	9	355.00-364.00	364.00*
HPSV Lamp, SON-T, 70 W, (Tubular)	3	380.00-390.00	390.00*
HPSV Lamp, SON, 150 W	9	470.00-476.00	476.00*
HPSV Lamp, SON-T, 150 W, (Tubular)	5	505.00-517.00	517.00*
HPSV Lamp, SON, 250 W	9	515.00-528.00	520.00*
HPSV Lamp, SON-T, 250 W, (Tubular)	6	550.00-583.00	563.00*
HPSV Lamp, SON, 400 W	9	620.00-632.00	632.00*

Compact Fluorescent Fittings Item No. 14909943	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Ballast, Copper Wire Wound, 9 W	3	50.40	50.40
Ballast, Copper Wire Wound, 11 W	6	50.40	50.40

Electrical & Decorative Fittings Item No. 14909937	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Ballast, Copper Wound, 20 W	10	83.00	83.00
Ballast, Copper Wound, 40 W	18	83.00	83.00
Ballast, Copper Wound, 80 W	1	168.00	168.00

Electronic Ballasts Item No. 14059045	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Electronic Ballast, Size 1x36 W; 33 W Max	2	335.00-345.00	335.00
Electronic Ballast, Size 1x40 W; 37 W Max	2	335.00-345.00	335.00

HPMV Lamps Fittings & Accessories Item No. 14909938	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Copper Wound Ballast, 125 W	15	170.00-178.00	170.00
Copper Wound Ballast, 250 W	15	295.00	295.00
Copper Wound Ballast, 400 W	13	382.00-392.00	392.00

NUMBER OF SUPPLIERS, RANGE OF RATES AND TYPICAL RATES OF ITEMS & STORES ON DGS&D RATE CONTRACT *(contd..)*

HPSV Lamps Fittings Item No. 14909939	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Copper Wound Ballast, 70 W	33	185.00-195.00	195.00
Copper Wound Ballast, 150 W	33	256.00-276.00	276.00
Copper Wound Ballast, 250 W	33	391.00-394.00	394.00
Copper Wound Ballast, 400 W	24	480.00-483.00	483.00

Ceiling Fans Item No. 14040100	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Capacitor Type, Double Ball Bearing, 900 mm Sweep	2	600.00	600.00
Capacitor Type, Double Ball Bearing, 1200 mm Sweep	41	612.00-636.00	636.00
Capacitor Type, Double Ball Bearing, 1400 mm Sweep	41	655.00-683.70	683.70
Capacitor Type, Double Ball Bearing, 1500 mm Sweep	2	702.77	702.77
Speed Regulator for Ceiling Fans (Resistance Type)	41	35.00-36.00	36.00

Desert Coolers Item No. 14080701	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Evaporative Air Cooler, 1800 CuM/hr (RAC)	13	2210.00	2210.00
Evaporative Air Cooler, 3000 CuM/hr (RAC)	24	2935.00-3040.00	3040.00
Evaporative Air Cooler, 4000 CuM/hr (RAC)	25	3165.00-3270.00	3270.00
Evaporative Air Cooler, 5000 CuM/hr (RAC)	24	3595.00-3650.00	3650.00
Evaporative Air Cooler, 6000 CuM/hr (RAC)	21	3900.00-4095.00	4095.00

Plastic Body Cooler (Desert Type) Item No. 14080702	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Air Cooler, (Plastic Body Evaporative), 2000 CuM/hr, 230/240 V	2	3956.90-4590.00	3956.90
Air Cooler, (Plastic Body Evaporative), 3000 CuM/hr, 230/240 V	2	4274.86-460.00	4274.86

NUMBER OF SUPPLIERS, RANGE OF RATES AND TYPICAL RATES OF ITEMS & STORES ON DGS&D RATE CONTRACT *(contd..)*

Window Mounted Type Air Conditioner Item No. 14909939	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Air Conditioner, (Window Mounted Type), Cap 1.0 Ton, 230 Volts, 50 Hz	9	14000.00	14000.00
Air Conditioner, (Window Mounted Type), Cap 1.5 Ton, 230 Volts, 50 Hz	22	17000.00	17000.00
Air Conditioner, (Window Mounted Type), Cap 2.0 Ton, 230 Volts, 50 Hz	14	22000.00	22000.00

Spilt Type Air Conditioner Item No. 14080201	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Spilt Type, Cap 1.0 Ton, 230 Volts, 50 Hz	3	21740.00-21746.15	21746.15
Spilt Type, Cap 1.5 Ton, 230 Volts, 50 Hz	16	23850.00-24053.00	24053.00
Spilt Type, Cap 2.0 Ton, 230 Volts, 50 Hz	15	27750.00-27900.00	27900.00
Spilt Type, Cap 3.0 Ton, 230 Volts, 50 Hz	2	39900.00	39900.00
Multisplit Type, Cap 3.0 Ton, 230 Volts, 50 Hz	1	35900.00	35900.00

Heat Convectors Item No. 14080905	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Heater Convectors, Hot Air Fan cum Room Heater, 2000 Watts, Single	8	545.00-570.00	570.00

Exhaust Fan Item No. 14040400	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 300 mm, 6 Pole	19	949.00-953.00	953.00
Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 300 mm, 4 Pole	19	964.00-976.00	968.00
Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 380 mm, 6 Pole	19	1115.00-1119.30	1119.30
Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 380 mm, 4 Pole	20	1130.00-1142.87	1142.00
Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 450 mm, 6 Pole	19	1411.00-1415.52	1415.00

NUMBER OF SUPPLIERS, RANGE OF RATES AND TYPICAL RATES OF ITEMS & STORES ON DGS&D RATE CONTRACT *(contd..)*

Exhaust Fan Item No. 14040400	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 450 mm, 4 Pole	20	1590.00-1599.00	1599.00
Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 600 mm, 6 Pole	12	3600.00-3611.07	3611.07
Exhaust Fan, Louvre Shutters, 300 mm, 6 Pole	19	135.00-137.35	137.35
Exhaust Fan, Louvre Shutters, 300 mm, 4 Pole	19	135.00-137.35	137.35
Exhaust Fan, Louvre Shutters, 380 mm, 6 Pole	19	144.00-146.57	146.00
Exhaust Fan, Louvre Shutters, 380 mm, 4 Pole	20	144.00-146.57	146.00
Exhaust Fan, Louvre Shutters, 450 mm, 6 Pole	18	165.00-167.07	167.00
Exhaust Fan, Louvre Shutters, 450 mm, 4 Pole	19	165.00-167.07	167.00
Exhaust Fan, Louvre Shutters, 600 mm, 6 Pole	13	322.00-322.87	322.00
Exhaust Fan, Regulators, (Resistance Type), 300 mm, 6 Pole	17	65.00-66.00	66.00
Exhaust Fan, Regulators, (Resistance Type), 300 mm, 4 Pole	10	65.00-66.00	66.00
Exhaust Fan, Regulators, (Electronics Type), 300 mm, 6 Pole	11	90.00	90.00
Exhaust Fan, Regulators, (Electronics Type), 300 mm, 4 Pole	11	90.00	90.00
Exhaust Fan, Regulators, (Electronics Type), 380 mm, 6 Pole	10	90.00	90.00
Exhaust Fan, Regulators, (Electronics Type), 380 mm, 4 Pole	12	95.00	95.00
Exhaust Fan, Regulator, (Electronics Type), 450 mm, 6 Pole	11	95.00	95.00
Exhaust Fan, Regulator, (Electronics Type), 450 mm, 4 Pole	13	147.00-150.00	150.00
Exhaust Fan, Regulator, (Electronics Type), 600 mm, 6 Pole	4	147.00-150.00	150.00

NUMBER OF SUPPLIERS, RANGE OF RATES AND TYPICAL RATES OF ITEMS & STORES ON DGS&D RATE CONTRACT *(contd..)*

Geysers Item No. 14080902	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Vertical Type, Copper, 25 Ltrs, 1000 W (A)	6	1740.20-1810.00	1757.78
Vertical Type, Copper, 25 Ltrs, 1000 W (B)	12	1942.30-2080.00	2020.00
Vertical Type, Copper, 25 Ltrs, 1500 W (A)	7	1740.20-1810.00	1757.78
Vertical Type, Copper, 25 Ltrs, 1500 W (B)	16	1961.73-2090.00	2029.71
Vertical Type, Copper, 35 Ltrs, 1500 W (A)	7	1961.34-2040.00	1981.15
Vertical Type, Copper, 35 Ltrs, 1500 W (B)	16	2165.67-2340.00	2272.50
Vertical Type, Copper, 50 Ltrs, 2000 W (A)	7	2355.53-2450.00	2379.32
Vertical Type, Copper, 50 Ltrs, 2000 W (B)	15	2592.00-2670.00	2592.98
Vertical Type, Steel, 25 Ltrs, 1000 W (A)	7	1845.19-2000.00	1942.30
Vertical Type, Steel, 25 Ltrs, 1000 W (B)	9	2000.57-2090.00	2029.71
Vertical Type, Steel, 25 Ltrs, 1500 W (A)	8	1864.61-2020.00	1961.73
Vertical Type, Steel, 25 Ltrs, 1500 W (B)	12	2020.00-2090.00	2029.71
Vertical Type, Steel, 35 Ltrs, 1500 W (A)	7	2097.69-2165.67	2165.67
Vertical Type, Steel, 35 Ltrs, 1500 W (B)	13	2194.80-2340.00	2272.50
Vertical Type, Steel, 50 Ltrs, 2000 W (A)	6	2447.30-2592.98	2592.98
Vertical Type, Steel, 50 Ltrs, 2000 W (B)	13	2567.00-2670.00	2592.98
Vertical Type, Steel, 50 Ltrs, 2000 W (C)	2	2567.05-2670.00	2567.05
Horizontal, Copper, 25 Ltrs, 1000 W, C/T 30 N/cm2	6	1826.73-2020.00	1845.19
Horizontal, Copper, 25 Ltrs, 1000 W, R/P 60 N/cm2	8	2029.71-2120.00	2058.84
Horizontal, Copper, 25 Ltrs, 1500 W, C/T 30 N/cm2	7	1845.96-2029.71	1864.61
Horizontal, Copper, 25 Ltrs, 1500 W, R/P 60 N/cm2	9	2029.71-2140.00	2078.26
Horizontal, Copper, 35 Ltrs, 1500 W, C/T 30 N/cm2	7	2076.98-2272.50	2097.69
Horizontal, Copper, 35 Ltrs, 1500 W, R/P 60 N/cm2	8	2272.50-2410.00	2340.48
Horizontal, Copper, 50 Ltrs, 2000 W, R/P 30 N/cm2	7	2422.82-2592.00	2447.30
Horizontal, Copper, 50 Ltrs, 2000 W, R/P 60 N/cm2	9	2592.98-2750.00	2670.67
Horizontal, Steel, 25 Ltrs, 1000 W, C/T 30 N/cm2	7	1980.57-2060.00	2000.57
Horizontal, Steel, 25 Ltrs, 1000 W, R/P 60 N/cm2	9	2220.57-2310.00	2243.36
Horizontal Type, Steel, 25 Ltrs, 1500 W, 30 N/cm2	7	2000.00-2080.00	2020.00
Horizontal Type, Steel, 25 Ltrs, 1500 W	9	2239.38-2330.00	2262.78
Horizontal Type, Steel, 35 Ltrs, 1500 W, 30 N/cm2	8	2182.00-2340.00	2194.80
Horizontal Type, Steel, 35 Ltrs, 1500 W	9	2500.00-2894.03	2525.00
Horizontal Type, Steel, 50 Ltrs, 2000 W, 30 N/cm2	8	2614.59-2720.00	2641.53
Horizontal Type, Steel, 50 Ltrs, 2000 W	9	2865.00-2980.00	2894.03
Stationary Type, Copper, 25 Ltrs, 1500 W	1	2029.71	2029.71

NUMBER OF SUPPLIERS, RANGE OF RATES AND TYPICAL RATES OF ITEMS & STORES ON DGS&D RATE CONTRACT *(contd..)*

Water Coolers Item No. 14080300	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
Water Coolers, S.C.W.C, Pressure Type, 230 V, 50 c/s, P/A.C.S, 40 Ltrs	2	12500.00	12500.00
Water Coolers, S.C.W.C, Pressure Type, 230 V, 50 c/s, P/A.C.S, 150 Ltrs	1	16840.00	16840.00
Water Coolers, S.C.W.C, Storage Type, 230 V, 50 c/s, P/A.C.S, 40/40 Ltrs	4	15375.00-15395.00	15395.00
Water Coolers, S.C.W.C, Storage Type, 230 V, 50 c/s, P/A.C.S.C.S, 80/40 Ltrs	7	16800.00-16840.00	16840.00
Water Coolers, S.C.W.C, Storage Type, 230 V, 50 c/s, P/A.C.S.C.S, 120/60 Ltrs	6	21800.00-21885.00	21885.00
Water Coolers, S.C.W.C, Storage Type, 230 V, 50 c/s, P/A.C.S.C.S, 150/150 Ltrs	7	25800.00-25885.00	25885.00

Submersible Pump Item No. 13021300	Number of Firms	Range of Typcial Rate	Rates Rs/Unit
2.2 kW, Bore size 150 mm, Item No. 1.1	1	9660.00	9660.00
3.0 kW, Bore size 150 mm, Item No. 1.2	1	9765.00	9765.00
3.7 kW, Bore size 150 mm, Item No. 1.3	1	10657.00	10657.00
4.5 kW, Bore size 150 mm, Item No. 1.4	1	11550.00	11550.00
5.5 kW, Bore size 150 mm, Item No. 1.5	1	13125.00	13125.00
7.5 kW, Bore size 150 mm, Item No. 1.6	1	14910.00	14910.00
9.3 kW, Bore size 150 mm, Item No. 1.7	1	16275.00	16275.00
11.0 kW, Bore size 150 mm, Item No. 1.8	1	17850.00	17850.00
5.5 kW, Bore size 150 mm, Item No. 2.1	1	13450.00	13450.00
7.5 kW, Bore size 150 mm, Item No. 2.2	1	15225.00	15225.00
9.3 kW, Bore size 150 mm, Item No. 2.3	1	15750.00	15750.00
11.0 kW, Bore size 150 mm, Item No. 2.4	1	18060.00	18060.00
15.0 kW, Bore size 150 mm, Item No. 2.5	1	23100.00	23100.00
7.5 kW, Bore size 200 mm, Item No. 3.1	1	16543.00	16543.00
13.0 kW, Bore size 200 mm, Item No. 3.2	1	25985.00	25985.00
20.0 kW, Bore size 200 mm, Item No. 3.3	1	30450.00	30450.00
15.0 kW, Bore size 200 mm, Item No. 4.1	1	25400.00	25400.00
20.0 kW, Bore size 200 mm, Item No. 4.2	1	35962.50	35962.50
22.5 kW, Bore size 200 mm, Item No. 4.3	1	32800.00	32800.00
22.5 kW, Bore size 200 mm, Item No. 5.1	1	31000.00	31000.00

Notes

* Excise Duty Inclusive

Sources:

DGS&D Directory of Stores on Rate Contracts-2000
DGS&D Bulletin (monthly, various issues)
DGS&D website

Table 4

ESTIMATED DRAWALS OF ITEMS ON DGS&D RATE CONTRACT

Rupees in Crores

Item	Item Number	Estimated Drawl Rate	Contract Validity
GSL Lamps	14030101	8.20	December 31, 2000
Compact Fluorescent Lamps	14031400	0.60	August 31, 2001
Integrated CFL/EB	14031500	1.00	June 15, 2001
Fluorescent Tubes	14030200	8.70	August 31, 2000
HPMV Lamps	14030701	1.00	October 31, 2000
HPSV Lamps	14031200	4.60	February 28, 2001
Compact Fluorescent Fittings	14909943	5.00	September 14, 2001
Electrical and Decorative Fittings	14909937	17.50	October 16, 2001
Electronic Ballasts	14059045	0.80	June 02, 2001
HPMV Lamps Fittings and Accessories	14909938	0.70	January 31, 2001
HPSV Lamps Fittings	14909939	4.70	November 23, 2000
Ceiling Fans	14040100	18.50	November 18, 2000
Desert Coolers (Steel Body)	14080701	4.83	January 12, 2001
Plastic Body Cooler (Desert Type)	14080702	0.50	April 06, 2001
Window Mounted Type Air Conditioner	14080205	33.50	August 23, 2001
Split Type Air Conditioner	14080201	14.00	November 15, 2000
Heat Convectors	14080905	0.09	March 31, 2001
Exhaust Fans	14040400	4.04	September 05, 2001
Geysers	14080902	2.00	May 31, 2001
Water Coolers	14080300	5.85	September 30, 2001
Submersible Pump	13021300	0.50	August 03, 2000

Sources
DGS&D Directory of Stores on Rate Contracts-2000
DGS&D Bulletin (monthly, various issues)
DGS&D website

Table 5

VALUE AND QUANTITY OF ANNUAL PURCHASES OF DEVICES ON DGS&D RATE CONTRACT

Item	Purchase Value Rs. Crores/Year	Purchase Quantity Nos/Year
GLS Lamp	8.20	10,640,500
Compact Fluorescent Lamp	1.60	78,800
Fluorescent Lamp	8.70	2,452,500
HPMV Lamp	1.00	80,800
HPSV Lamp	4.60	92,900
Electro-magnetic ballast, Fluorescent Lamp	4.21	487,900
Electronic ballast, Fluorescent Lamp	0.80	23,000
Electo-magnetic ballast, HPMV Lamp	0.27	15,500
Electo-magnetic ballast, HPSV Lamp	1.48	51,700
Ceiling Fan	18.50	279,700
Air Cooler, Steel body	4.83	21,000
Air Cooler, Plastic body	0.50	1,200
Air Conditioner, Window	33.50	14,400
Air Conditioner, Split	14.00	3,700
Room Heater	0.09	1,500
Exhaust Fan	4.04	40,800
Geyser, Storage	2.00	9,500
Water Cooler	5.85	2,900
Submersible Pump	0.50	300

Source
Innotem estimates

Table 6

ANNUAL USAGE HOURS & ELECTRICITY CONSUMPTION OF DEVICES

Device	Capacity/ Rating	Watts	Hours/ Day	Days/Hrs Year	Hours/ Year	KWh/ Year	Rs/ Year *
GLS Lamp	100 W	100	8	300	2400	240	960
CFL Lamp **	20 W	23	8	300	2400	55	221
FTL Lamp	40 W	40	8	300	2400	96	384
Electo-mangnetic ballast, FTL	40W	15	8	300	2400	36	144
Electonic ballast, FTL	40 W	5	8	300	2400	12	48
HPMV Lamp	125 W	125	12	365	4380	548	2190
Electro-mangnetic ballast, HPMV	125 W	25	12	365	4380	110	438
HPSV Lamp	150 W	150	12	365	4380	657	2628
Electro-mangnetic ballast, HPSV	150 W	35	12	365	4380	153	613
Ceiling Fan	1200 mm	70	8	150	1200	84	336
Air cooler, Steel body	1800 m3/h	230	8	100	800	184	736
Air cooler, Plastic body	2000 m3/h	250	8	100	800	200	800
Air conditioner, Window	1.5 T	2200	8	125	1000	2200	8800
Air conditioner, Spilt	2.0 T	3200	8	125	1000	3200	12800
Room heater	2.0 kW	2000	8	50	400	800	3200
Exhaust Fan	300 mm	110	8	300	2400	264	1056
Geyser, Storage	25 I	1500	1	125	125	188	750

Notes

* Assuming electricity cost = 4.00 Rs./kWh

** Includes lamp and ballast consumption

Source

Innotem estimates

Table 7

ANNUAL PURCHASES AND TOTAL STOCK OF DEVICES

Devices	Annual Purchases Nos/Year	Total Stock Numbers
GLS Lamp	10,640,500	3,298,600
Compact Fluorescent Lamp	78,800	189,100
Fluorescent Lamp	2,452,500	3,678,800
HPMV Lamp	80,800	80,800
HPSV Lamp	92,900	232,300
Electro-magnetic ballast, Fluorescent Lamp	480900	3,510,900
Electronic ballast, Fluorescent Lamp	23,000	167,900
Electo-magnetic ballast, HPMV Lamp	18400	80,800
Electo-magnetic ballast, HPSV Lamp	52800	232,300
Ceiling Fan	279,700	2,797,000
Air Cooler, Steel body	21,000	157,500
Air Cooler, Plastic body	1,200	9,000
Air Conditioner, Window	14,400	108,000
Air Conditioner, Split	3,700	27,800
Room Heater	1,500	18,000
Exhaust Fan	40100	240,600
Geyser, Storage	9,500	114,000

Source
Innotem estimates

Table 8

ANNUAL ELECTRICITY CONSUMPTION OF ANNUAL PURCHASES & TOTAL STOCK OF DEVICES

(million kWh/Year)

Devices	Electricity Consumption of Annual Purchases	Electricity Consumption of Total Stock
GLS Lamp	791.7	791.7
Compact Fluorescent Lamp	3.4	8.1
Fluorescent Lamp	235.4	353.2
HPMV Lamp	44.2	44.2
HPSV Lamp	61.0	152.6
Electro-magnetic ballast, Fluorescent Lamp	17.3	126.4
Electronic ballast, Fluorescent Lamp	0.3	2.0
Electo-magnetic ballast, HPMV Lamp	2.0	8.8
Electo-magnetic ballast, HPSV Lamp	8.1	35.6
Ceiling Fan	23.5	234.9
Air Cooler, Steel body	3.9	29.0
Air Cooler, Plastic body	0.2	1.8
Air Conditioner, Window	31.7	237.6
Air Conditioner, Split	11.8	89.0
Room Heater	1.2	14.4
Exhaust Fan	10.6	63.5
Geyser, Storage	1.8	21.4

Source
Innotem estimates

Table 9

VALUE OF ANNUAL PURCHASES & ANNUAL ELECTRICITY CONSUMPTION OF ANNAL PURCHASES & TOTAL STOCK OF DEVICES

(Rs. crores/Year)

Devices	Value of Annual Purchases	Electricity Consumption of Annual Purchases	Electricity Consumption of Total Stock
GLS Lamp	8.2	316.7	316.7
Compact Fluorescent Lamp	1.6	1.3	3.2
Fluorescent Lamp	8.7	94.2	141.3
HPMV Lamp	1.0	17.7	17.7
HPSV Lamp	4.6	24.4	61.0
Electro-magnetic ballast, Fluorescent Lamp	4.2	6.9	50.6
Electronic ballast, Fluorescent Lamp	0.8	0.1	0.8
Electo-magnetic ballast, HPMV Lamp	0.3	0.8	3.5
Electo-magnetic ballast, HPSV Lamp	1.5	3.2	14.2
Ceiling Fan	18.5	9.4	94.0
Air Cooler, Steel body	4.8	1.5	11.6
Air Cooler, Plastic body	0.5	0.1	0.7
Air Conditioner, Window	33.5	12.7	95.0
Air Conditioner, Split	14.0	4.7	35.6
Room Heater	0.1	0.5	5.8
Exhaust Fan	4.0	4.2	25.4
Geyser, Storage	2.0	0.7	8.6

Source
Innotem estimates

Figure 1

ANNUAL PURCHASES OF DEVICES

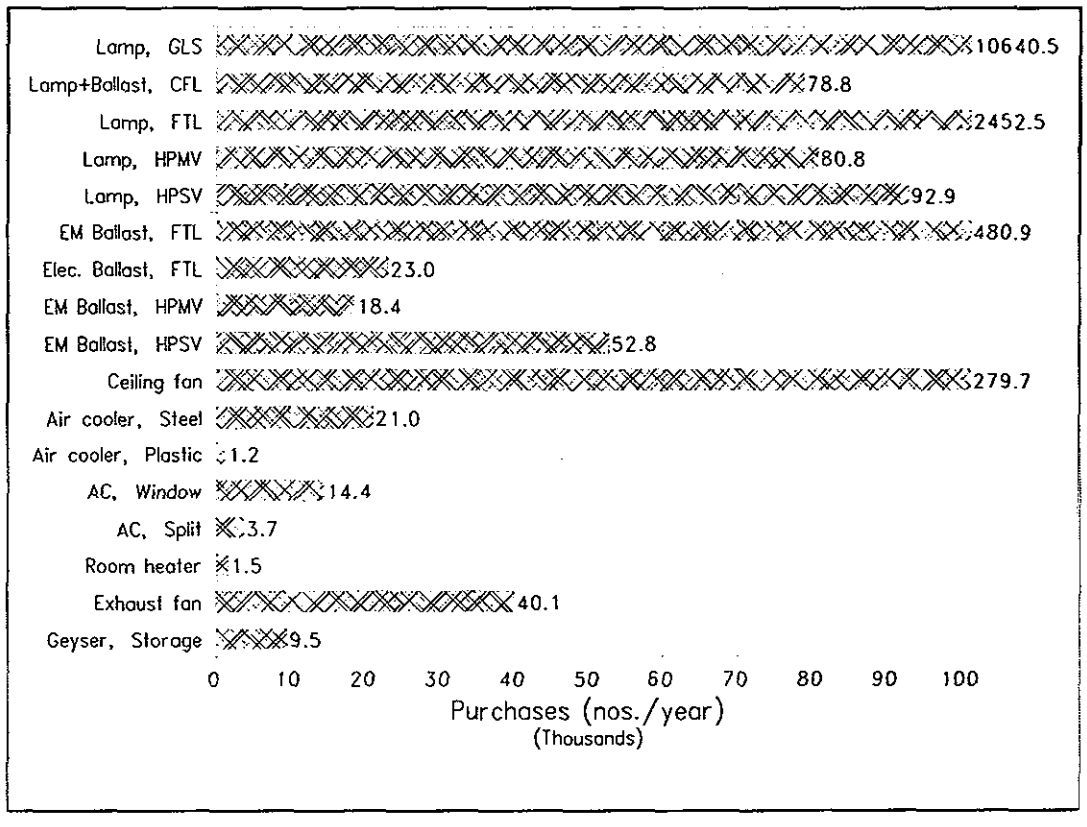


Figure 2

TOTAL STOCK OF DEVICES

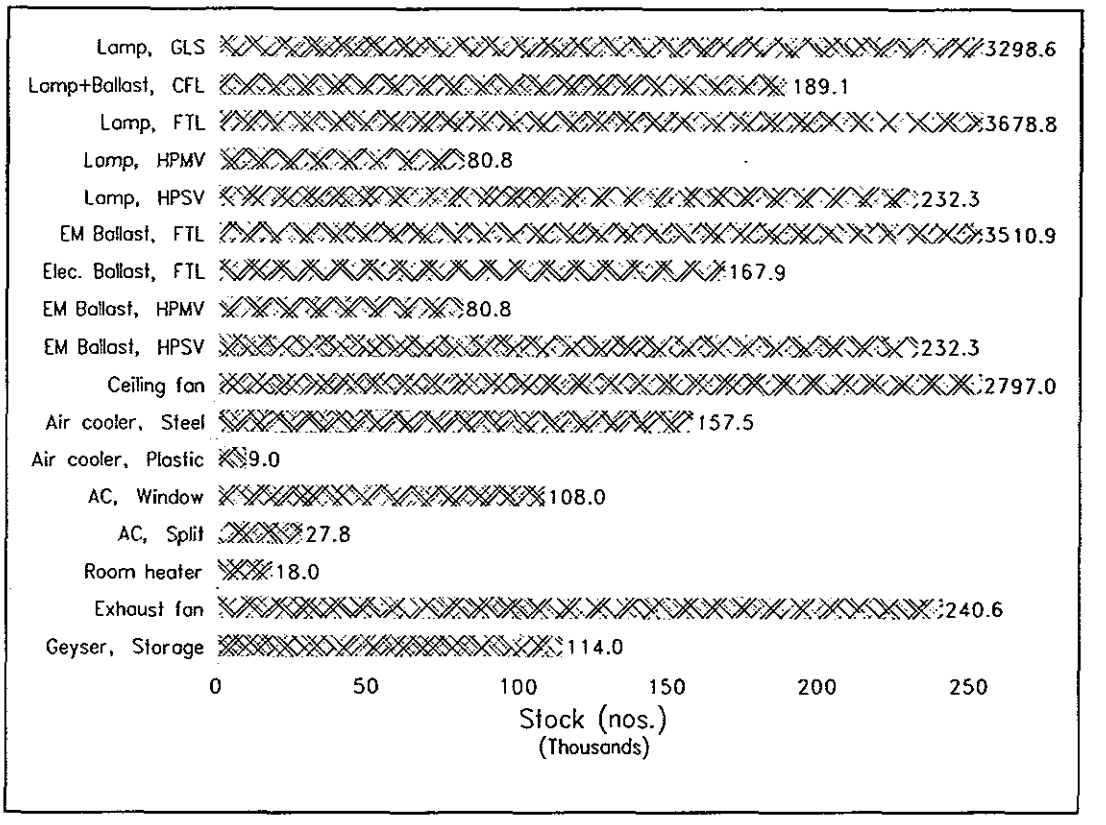


Figure 3

ANNUAL ELECTRICITY CONSUMPTION OF ANNUAL PURCHASES OF DEVICES

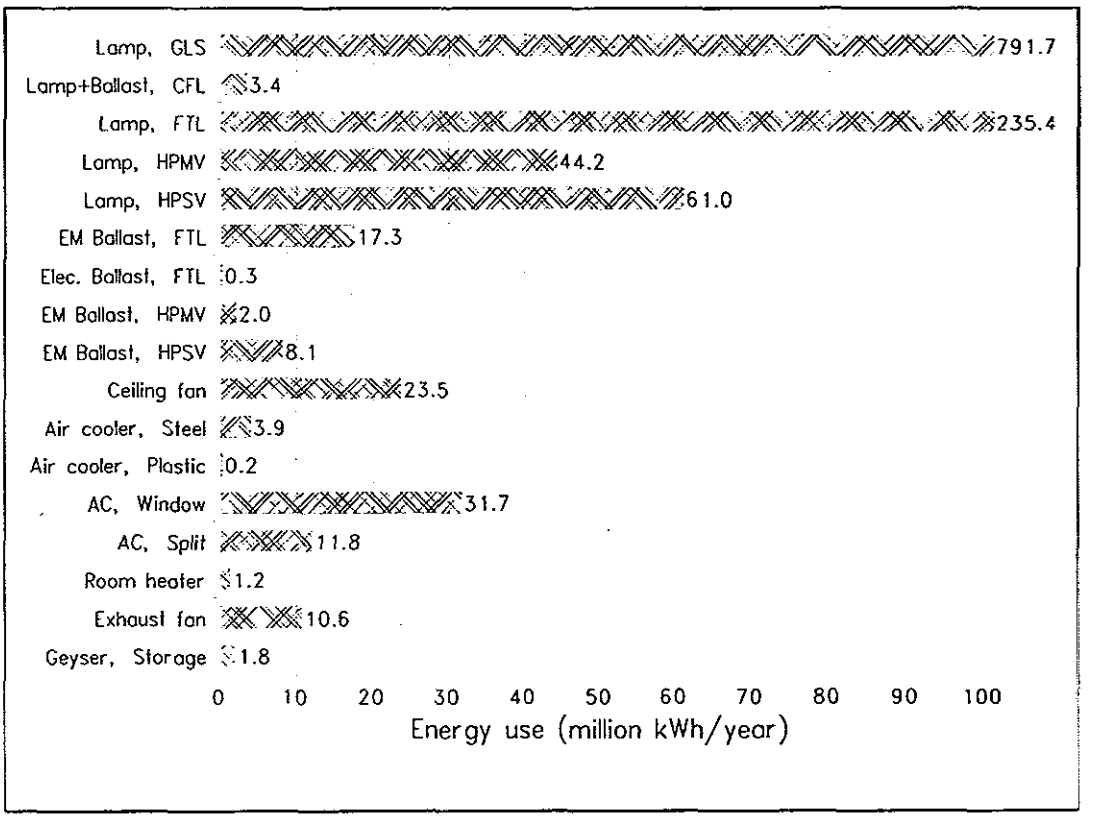


Figure 4

ANNUAL ELECTRICITY CONSUMPTION OF TOTAL STOCK OF DEVICES

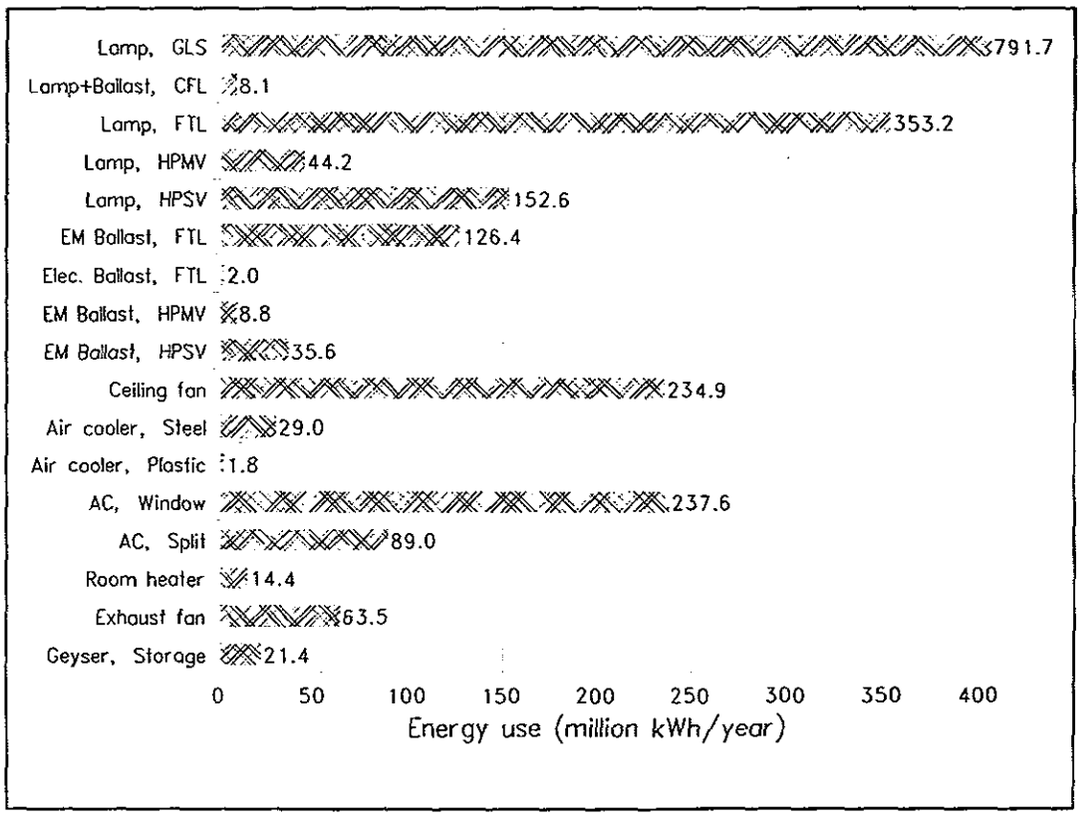
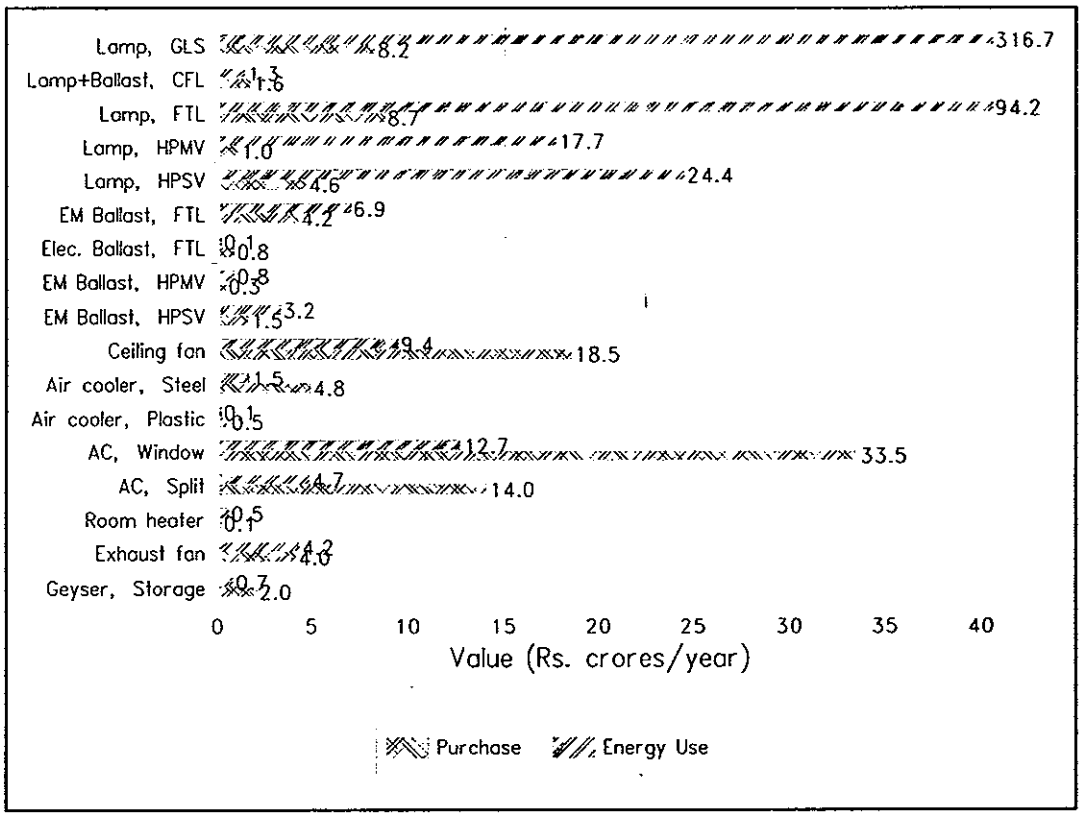


Figure 5

VALUE OF ANNUAL PURCHASES AND ANNUAL ELECTRICITY CONSUMPTION OF DEVICES



Role of directorate general of supplies & disposals in government procurement

The Directorate General of Supplies & Disposals ('DGS&D'), under the Department of Supply, Ministry of Commerce, is the central purchase and quality assurance organization of the Government of India. This section describes the role of DGS&D to provide the background and context on procurement by government departments, bodies and organisations (users). It covers the following:

- DGS&D structure and functions;
- Indentors;
- Suppliers;
- Purchase preferences;
- Rate contracts;
- Procurement process;
- Procurement items; and
- Procurement specifications.

DGS&D structure and functions

DGS&D is entrusted with the responsibility of:

- Purchase and/or inspection of stores for central government departments (which means any ministry, department, secretariat or office of the Government of India) and on behalf of state governments, public undertakings, autonomous bodies, quasi-public bodies, etc. which desire to avail of its services;
- Concluding rate contracts for common user items;
- Arranging clearance of stores imported against orders placed by DGS&D and also orders placed by other central government departments, state governments, autonomous bodies, etc. if called upon to do so. Arranging shipment of stores against contracts placed by DGS&D wherever necessary or where such work is entrusted to DGS&D by other authorities;
- Registration of manufacturers, suppliers, stockists, Indian agents of foreign manufacturers;
- Imparting/arranging training for government departments and industries in the field of Purchase and Quality Management.

The main wings of DGS&D are:

- Purchase;
- Quality Assurance;
- Shipping - clearance and forwarding;
- Registration; and
- Training and Consultancy.

The functions of these wings are carried out through the Purchase and Quality Assurance Directorates in the headquarters at New Delhi and in regional offices throughout the country.

The Purchase Wing is the main functional arm of DGS&D carryingout procurement action for conclusion of rate contracts and adhoc purchases.

The Quality Assurance ('QA') Wing of DGS&D is the technical arm of DGS&D providing technical support to the purchase functions by laying down procurement specifications, assessment of vendors, registration of suppliers, technical evaluation of bids and assuring the quality of stores. The QA Wing of DGS&D is the inspection agency of the Government of India.

The QA Wing performs the following functions:

- Quality assurance of products at various stages of manufacture, commissioning & testing;
- Preparation of technical specifications for tender enquiry and technical evaluation of bids;
- Vendor assessment for registration and placement of contracts;
- Development of small scale industries and KVIC units;
- Quality audit of supplies at user's end;
- Testing, evaluation and failure investigation of stores;
- Providing single window service by giving information about DGS&D functions to the indentors and the industry; and
- Assisting BIS in preparation and updating of National Standards.

In addition to the above, there are various supporting units within DGS&D namely Institute of Supply and Quality Management, Management Information Systems Directorate, Market Intelligence Cell, and Costs Cell. The Institute of Supply and Quality Management imparts training to DGS&D officers, as well as from other government departments and private sector. The Management Information Systems Directorate is responsible for maintenance and dissemination of data. It receives indents, registers and allocates them to the concerned Purchase Directorates for procurement. It also prepares and issues the annual administration report of DGS&D. The Market Intelligence Cell gathers and compiles information on prices of end products and raw materials, and price trends of items on rate contract. It also collects names of suppliers with a view to improve participation by industry in DGS&D purchases. The Costs Cell does analysis and works out the reasonable cost for items and compares rate contract prices with market prices.

In April 2000, a new Directorate, Rate Contract Promotion ('RCP;) Directorate, was created in DGS&D headquarters to pay special attention to this area of activity to bring more and more items on rate contract. RCP Directorate is responsible for:

- Identification of new items for rate contracts;
- Dropping of low drawal items;
- Transfer of items to the regions;
- Market Intelligence Cell;
- Gathering information and taking appropriate action where rate contract items are purchased by other departments directly; and
- Monitoring of timely conclusion of rate contracts.

The National Small Industries Corporation Ltd. ('NSIC;) maintains a Liaison Cell in DGS&D with a view to implement the policy of the government for increasing the quantum of government purchases from the cottage and small scale industries sectors. A Liaison Cell is also maintained by the Railways.

Indentors

DGS&D was established in 1951 for rendering procurement services to central and state governments by placing rate contracts for common user items and supply orders against their adhoc demands. Considerable changes have occurred since 1991 in the policies, procedures and practices being followed consequent to the measures taken by the government for liberalisation of rules, decentralisation of powers, and transparency in the decision-making process. One critical change in DGS&D was the decentralisation of adhoc purchases from December 1991, whereby all central government departments were delegated full powers to make their own arrangements for making adhoc purchases. DGS&D was assigned the task of concluding rate contracts for common user items. Notwithstanding this, central government departments and other organisations not having the infrastructure could still utilise the services of DGS&D even for adhoc purchases if required. DGS&D continues to be the nodal agency of the Government of India for purchase policy and procedure. QA functions continue to remain centralised as before.

DGS&D renders procurement services to government departments, bodies and organisations (called indentors) consisting of the following:

- Central government departments;
- State government departments;
- Public sector undertakings ('PSUs');
- Autonomous bodies ; and
- Quasi-public bodies, local bodies, etc.

The indentors are divided into two categories subject to the provision of funds and the manner of adjustment thereof, as stated below:

- Central government departments/Union Territories, constitutional bodies like Union Public Service Commission, Election Commission, Supreme Court, Comptroller & Auditor General, etc. These indentors draw funds for their expenditures from the Consolidated Fund of India; and
- State government departments, public sector undertakings, autonomous bodies, local bodies, etc.

Consequent to the decentralisation policy introduced in December 1991, central government departments are delegated full powers to meet their adhoc requirements and authorised to issue the supply orders directly to suppliers holding valid rate contracts. This has resulted in most of the procurement being now carried out directly and not through DGS&D. In case of urgent requirements, the items on rate contract can even be purchased by the departments from the open market as long as the price for such items does not exceed those stipulated in the rate contracts. Such purchases should not exceed Rs. 20,000 at a time and Rs. 1 lakh in aggregate in a year. The limit of Rs. 1 lakh is applicable to the value of each article or class of similar articles or inter-connected nature of articles. The following conditions should be contented:

- The items of stores should belong to the same trade group; and
- The items should be obtainable from the same source of supply.

Notwithstanding the powers delegated to central government departments, they may indent on DGS&D for stores covered under rate contract and for other class of stores, where the indenting officers are unable to make suitable arrangements for supply. Such adhoc indents are entertained by DGS&D as exceptions as per certain guidelines, which include the stipulation that the items being indented should normally come under the following categories:

- Items indented should be of sophisticated and not of a routine nature;
- Items indented should be such where the purchasing department/organisation is not having expertise or adequate man-power, and cannot create additional man-power only for the sake of a particular store required for purchase; and
- The stores should be such where even though the purchasing department/organisation has a purchase unit but the item does not have standard specification, and/or the existing broad specification needs to be defined/redefined by the QA Wing of DGS&D. Further, it should be ensured that the cases require in-process quality control or multi-stage inspection.

However, procurement done directly or through DGS&D, for indentors in the first category mentioned above, i.e. central government departments/offices drawing funds for their expenditures from the Consolidated Fund of India, payments are routed through DGS&D and made on their behalf to the suppliers by the Chief Controller of Accounts ('CCA'), Department of Supply, New Delhi or its regional offices at Kolkata, Chennai and Mumbai. The payments made for the cost of stores along with the departmental charges levied thereon are adjusted by the CCA against the Accounts Officer of the consignee by obtaining the reimbursement.

Indentors in the second category, i.e. state governments, PSUs, quasi-public bodies, etc. wants to utilise the DGS&D rate contract must place their indents on DGS&D together with pre-deposit of requisite funds including the necessary departmental charges, and DGS&D will, in turn, place orders as per the requirements. These indentors can also place direct orders for rate contract items with the proviso for pre-despatch inspection by QA Wing (non-departmental orders) for which service charges ranging from 0.25 to 2 % are payable to DGS&D.

Suppliers

DGS&D procures stores only from approved or registered firms. Any firm, in India or abroad, in the business of manufacturing, stocking or marketing of stores is eligible for DGS&D registration.

Registration is a process by which firms get enlisted with DGS&D as an approved supplier for their stores to enable them to adequately prequalify before participating in any procurement programme of DGS&D or other procurement agencies. Firms are registered for a fixed period as given below, depending on the category of registration. At the end of the given period, fresh registration has to be applied for. The categories of registration are:

- Firms supplying indigenous items:
  - Manufacturers: registered for a maximum period of five years;
  - Assemblers: registered for a maximum period of five years;
  - Converters: registered for a maximum period of five years;
  - Sole selling agents/Authorised agents/Distributors of Indian manufacturers: registered for a maximum period of five years or until their manufacturer is registered with DGS&D, whichever is earlier; and
  - Stockists for indigenous stores: registered for a maximum period of two years.
- Firms supplying imported stores:
  - Foreign manufacturers and their accredited agents in India: registered for a maximum period of five years or for the period for which their Indian agent's agreement is valid. Foreign manufacturing firms can also be registered without Indian agents if they have necessary arrangements for after-sales service where required in India;
  - Stockists of imported stores: registered for a maximum period of two years. Firms are required to have valid agreement with their foreign principals; and
  - Suppliers of imported stores: registered for a maximum period of two years. Firms are required to have valid agreement with their foreign principals.

After preliminary scrutiny of the application for registration, DGS&D further require:

- Banker's report;
- Annual turnover report;
- Inspection report on capability and capacity by concerned QA Wing field office; and
- Test reports (for stores where test report from a laboratory is required).

DGS&D registration centres are required to complete this process within 30 days.

Under the Single Point Registration scheme introduced with effect from 1 July 1976, small-scale units can also apply for registration to National Small Industries Corporation Ltd. ('NSIC'), New Delhi. Firms registered under this scheme are entitled to all benefits of DGS&D registration subject to certain conditions.

Purchase Preferences

The purchase policy adopted by DGS&D in the procurement process is as per the guidelines of the General Financial Rules. In accordance with administrative instructions issued by the government, the purchase policy provides preferences to stores manufactured by cottage and small scale industries and public sector undertakings over those manufactured by private large scale industries. These preferences relate to:

- Product reservation;
- Price preference; and
- Purchase preference.

Product reservation

Of the various product reservations, the relevant one in the context of this study is the reservation of items for procurement from small-scale industry ('SSI'). Presently, 358 items are reserved for exclusive purchase from firms in the small scale sector. Relevant items are listed below:

- Chokes for light fittings;
- Streetlight fittings;
- Air/room coolers;
- Domestic electric appliances as per BIS specifications: Electric toaster, Electric iron, Hot plates, Electric mixer, Grinders, Room heaters & convectors and Ovens;
- Squirrel cage induction motors up to and including 10 kW, 440 volts, 3 phase;
- Diesel engines up to 15 hp;
- Centrifugal steel plate blowers; and
- Centrifugal pumps, suction and delivery 150 mm x 150 mm.

Price preference

As a general rule, if offers are received from both large scale units and SSI units but some of the lowest offers are from the large scale units, the offers of the SSI units should merit acceptance by according price preference up to 15 % over the lowest acceptable offer from the large scale private sector units provided the stores are technically acceptable and the firms satisfy the basic considerations of delivery and capacity. The price preference admissible to small scale industrial units is accorded on a tender to tender basis. However, the question of granting price preference is exempted in the following cases:

- Where competition exists amongst the small scale units alone or where the items are exclusively reserved for purchase from SSI units; and
- Where tenders are received from both SSI units and large-scale units, and the lowest offers are from SSI units and their capacity is more than adequate to meet the demand in hand.

Purchase preference

Purchase preference may be granted to public sector undertakings when they compete with private sector large scale units. Where the price quoted by PSUs is within 10 % of lowest acceptable price, other things being equal, purchase preference may be granted at the lowest acceptable price.

The government has recently decided to extend purchase preference for products and services to central public sector undertakings for another 2 years, i.e. up to 31 March 2002.

Rate Contracts

Rate contracts are the principal instruments used for procurement action by government departments, bodies and organisations. As mentioned above, with the implementation of the decentralisation policy w.e.f December 1991 onwards, concluding rate contracts for common user items is a major activity and responsibility of DGS&D.

A rate contract is an agreement between the purchaser and the supplier to supply specified stores at specified prices for a specified time period. A rate contract is not a supply contract; it forms the basis where a supply order is placed by the indentor on the supplier. The period of a rate contract is normally limited to a year.

The items fulfiling the following criteria are considered for rate contract:

- Items identified as common user items and are needed on recurring basis;
- Items of standard types preferably having BIS specifications;
- Prices of items likely to be stable and not subject to considerable market fluctuations. However, certain items, which are common and in regular demand and are material intensive, prices are subject to market price fluctuations. Rate contract for such items could be considered with provision of price variation to account for fluctuation of market rates of raw material, etc;
- Items for which rate contract is convenient to operate. For instance, in the case of items of low value required by indentors in small quantities, rate contracts may not be convenient to operate;
- Items with an estimated annual drawal of Rs. 25 lakhs or more; and.
- Items that are not scarce/critical/short supply.

The rate contract is in the nature of a standing offer from the supplier firm. No quantities are mentioned in the rate contract, nor is any minimum drawal guaranteed. The contractor is liable to execute any supply order, which may be placed upon, during the currency of the contract at the rates specified therein. The supply orders can be placed either directly by the authorised officers, known as Direct Demanding Officers ('DDOs'), of the indentors or by DGS&D subject to restrictions as mentioned in the rate contract.

The following steps are involved in conclusion of rate contracts:

- Initiation of proposal and approval of planning note;
- Checking of specification by QA Wing;
- Issue of tender enquiry;
- Tenders submission and opening of tenders;
- Tender analysis;
- Initial proposals by the base officer;
- Finalisation of proposals up to the level of DG;
- Forwarding of proposals to Department of Supply (for cases exceeding Rs. 5 crores);
- Processing of proposals and approval by Department of Supply; and
- Issue of formal rate contract.

As per the schedule laid down for timely conclusion of rate contracts, the entire process is expected to complete in 210 days.

After receipt of tenders, negotiations/counter-offer may be resorted to the lowest tenderer (L-1) only to arrive at a reasonable/acceptable price and the rate contract awarded at the agreed negotiated price. The same is then counter offered by DGS&D to all other higher quoting firms, and the firms accepting the counter offered prices or below are awarded parallel rate contracts.

Rate contracts are generally concluded for a period of one year and renewed on a yearly basis. For any item, rate contracts are generally concluded with more than one supplier in order to provide wider range to the indentors. Rate contracts for government purchases are concluded only with firms registered with DGS&D or NSIC. Earlier, rate contracts were awarded even to firms registered within 90 days from the date of tender opening. Effective Janaury 1, 2001, rate contracts will be awarded only to firms registered on the date of tender opening.

For present and past rate contract holders, the offers of the firms for the next rate contract are considered on basis of their performance against the current and preceding rate contracts, if any, is satisfactory and otherwise eligible. The firm should have supplied minimum 85-100% of the stores due for supply against the current and the two previous rate contracts respectively, on or before the cut-off date as indicated in the tender enquiry, which is generally two weeks prior to the date of tender opening. A rate contract holder not obtaining any supply order against the current rate contract prior to the cut-off date and also against immediate previous rate contract will be considered to have a nil performance and will not be eligible for award of next rate contract.

326 items were on the rate contract on December 25, 2000.. The DGS&D Directory of Stores on Rate Contracts, published annually, gives the complete information regarding the items and particulars of the rate contracts such as names and addresses of suppliers, rate contracts no. and date, and the rates. This information is updated in the monthly issues of DGS&D Bulletin. The complete information is also available on the DGS&D website (**http://commin.nic.in/dgsnd**) along with other information related to DGS&D.

The decision to bring or delete an item on rate contract is taken by the Standing Review Committee ('SRC') under the chairmanship of DG (S&D). The committee associates representatives from major indenting departments such as Defence, Railways, Home Affairs, Health, Telecommunications, state governments and trade organisations. After an item is approved by SRC, fresh approval of SRC is not required for each and every size/capacity of items to be brought on rate contract.

As mentioned earlier, it is observed from Table 3, the rate of all suppliers is the same for many of the stores.. Further, those stores with some differences in rates, the differences are minimal. Thus, for all practical purposes, no difference in rates among different suppliers for items is available under DGS&D rate contract. The guidelines for rate contracts allow for a reasonable price range (5 % is considered to be reasonable, although the decision may be taken on the merits of each case) to include products of established and reputed manufacturers as also items produced by different sectors to enable indenting departments to have a wider choice. However, as mentioned above, the practice followed by DGS&D of L-1 being counter offered to all other higher quoting firms, and the firms accepting the counter offered prices or below being awarded rate contracts, results in the situation of the rates of all suppliers being around the same.

Procurement Process

As mentioned above, with the decentralisation of adhoc purchases from December 1991, all central government departments were delegated full powers to make their own arrangements for making adhoc purchases, although those not having the infrastructure could still utilise the services of DGS&D even for adhoc purchases if they so desired. The effect of this policy is that most government procurement is now done by users directly and not through DGS&D.

The drawals against the rate contract are permitted for the bonafide use of central government departments, state government departments, PSUs, quasi-public bodies, etc. Only central government departments can operate the DGS&D rate contract as Direct Demanding Officers and are authorised to issue the supply order directly. State governments, PSUs, quasi-public bodies, etc. utilising the DGS&D rate contract must place their indents on DGS&D together with pre-deposit of requisite funds including the necessary departmental charges, and DGS&D will then place orders for their requirements. These indentors can also place direct orders for rate contract items with the proviso for pre-despatch inspection by QA Wing (non-departmental orders) by paying a service charges ranging from 0.25 to 2 % to DGS&D.

Supply orders against the rate contract are prepared in the standard Form No. DGS&D-131. Copies of supply orders should be endorsed to following:

- Paying Authority (concerned CCA office);
- Quality Assurance Officer (DGS&D);
- Concerned Purchase Directorate (DGS&D); and
- Consignee.

The stores can be despatched/delivered by the supplier only after getting the same inspected and issue of inspection notes by the QA Officer nominated in the contract. If previously inspected stocks are available, the contractor shall notify the QA Officer with the request for issue of Inspection Notes to enable the contractor to despatch the stores. If inspected stocks are not available, the contractor shall offer goods for inspection ensuring that sufficient time is given to the QA Officer in arranging inspection and testing of the goods keeping in view the delivery date. The result of the inspection will be notified to the supplier by the QA Officer and inspection notes issued. The contractor should ensure that goods accepted by the QA Officer after inspection is properly and legibly stamped by the latter's identification stamp/seal.

The payment terms are 98 % of the price of the stores of each consignment, which shall be paid on proof of despatch through railways ('RR') or provisional receipt certificate from consignee, and on production of valid inspection note issued by the QA Wing. The balance 2 % shall be paid on receipt and acceptance of stores by the consignee. In respect of complaint-prone items, where quantity of rejection by the consignee is between 5-10 % and replacement of the rejected quantity is difficult, the payment terms are 90 % on proof of despatch and balance 10 % on receipt of consignee's receipt certificate.

For supply orders from central government departments, payment is made on their behalf by the Chief Controller of Accounts, Department of Supply, New Delhi or its regional offices nearest to the supplier; there is no need to approach the indentor or consignee. For supply orders from state government departments, PSUs, quasi-public bodies, etc., payment is made directly by them. The inspection documents issued by QA Wing is a pre-requisite for the payment.

The procurement process consists of four types:

Procurement by central government departments/offices against the rate contract

In the case of central government departments/offices, they directly issue the supply order for the required goods on the firm selected by them from among the suppliers having valid rate contracts. The supply order is routed through DGS&D for inspection and payment. This is a procurement against the rate contract.

Procurement by non-central government departments/offices against the rate contract

In the case of non-central government departments/offices such as state governments and local governments, and other government bodies and organisations such as public sector undertakings, autonomous bodies, etc., belonging to either the central government or state governments, if desire to use the rate contract, must raise their demands along with pre-deposit of the requisite funds through DGS&D and the supply orders are issued by DGS&D on their behalf. This too is a procurement against the rate contract.

Procurement by non-central government departments/offices outside the rate contract, with inspection by DGS&D

The practice generally followed by such users is to place orders directly on the selected firms on the rates specified in the rate contract, with the proviso of pre-despatch inspection by DGS&D. This procurement is not against the rate contract, as for such users that can only be if the procurement is through DGS&D. This is a procurement outside the rate contract, but based on the rate contract.

Procurement by non-central government departments/offices outside the rate contract, without inspection by DGS&D

Procurement can also be done as above but without the requirement for pre-despatch inspection by DGS&D. This too is a procurement outside the rate contract, but based on the rate contract.

Procurement Items

DGS&D procurement covers a wider range of stores. These are handled by various Directorates within the Purchase Wing, as listed below:

- Automobile Directorate;
- Drugs and Medicines Directorate;
- Electrical Stores Directorate;
- Hardware Directorate;
- Information Technology Directorate;
- Mechanical Engineering Directorate;
- Miscellaneous Directorate;
- Oil and Chemicals Directorate;
- Paper and Paper Products Directorate;
- Steel and Cement Directorate;
- Structural Directorate;
- Wool and Leather Directorate;
- Workshop and Machine Tools Directorate;
- DS&D, Chennai;
- DS&D, Kolkata ;
- DS&D, Mumbai; and
- DS (Textiles), Mumbai.

As on 25 December 2000, 326 items were on rate contract.

As mentioned earlier, the list of items on DGS&D rate contract was examined vis-à-vis the list of common and generic appliances and equipment developed initially, and 21 items were included in the DGS&D list. The list of these items is given in Table 1.

Of the 55 new items under process for concluding rate contracts whose tenders are already floated or are likely to be floated shortly, 2 items are relevant in the context of this study:

- Table fan/Pedestal fan (ME Directorate); and
- Vacuum cleaner (ME Directorate).

Further, of the 41 new items identified by Standing Review Committee for conclusion of rate contracts, 2 items are relevant in the context of this study:

- Heat pillar (Radiator type room heater) (ME Directorate); and
- Distribution transformer (ME Directorate).

As mentioned above, one of the criteria for including items under rate contract is the estimated annual drawal of Rs. 25 lakhs or more. Of the 47 items in the list of low drawals items on rate contract, 1 item is relevant in the context of this study:

- Heat convectors (estimated drawals: Rs. 0.09 crores).

Of the items under rate contract, certain items are considered by DGS&D to be difficult/safety/complaint-prone items. Of the 111 such items, 15 items are relevant in the context of this study:

- GLS lamps ;
- Compact fluorescent lamps ;
- Integrated CFL/EB;

- HPMV lamps;
- HPSV lamps;
- Compact fluorescent fittings;
- Electronic ballasts;
- HPMV lamps fittings and accessories;
- HPSV lamps fittings;
- Desert coolers (steel body);
- Window mounted type air conditioner;
- Split type air conditioner;
- Heat convectors;
- Water coolers; and
- Geysers.

For items under the category of difficult/safety/complaint-prone items, QA Wing of DGS&D considers SSI firms registered with NSIC under single point registration scheme for award of rate contracts after inviting for special capacity reports, based on capacity assessment .

Procurement Specifications

The procurement specifications by DGS&D could be as per:

- Indian Standard ('IS') specifications when the relevant product specifications are comprehensive and complete to enter into contracts;
- IS specifications with improved parameters or additional parameters, like performance criteria, alternative raw materials etc.;
- Indentor's specifications;
- DGS&D specifications/drawings, which are developed in line with requirements of the user departments; and
- Standard specifications formulated by major departments like Defence, Railways, Posts, Electronics, etc.

IS specifications shall be the barest minimum to which the stores are to be procured. Where the stores are to conform to only IS specifications, then the same shall be procured by giving preference to ISI marked goods. By an administrative direction, it is enjoined upon DGS&D to buy only ISI marked goods, and in the alternative, to buy goods conforming to IS specifications where (i) either ISI marked goods are not available or (ii) the prices of ISI marked goods are not competitive. In other words, while no price preference will be available for ISI marked goods, these will enjoy purchase preference, other things being equal.

If the stores are to be procured as per IS specifications, it may also be decided at the planning stage whether stores with ISI mark only are to be procured. Depending upon the planning stage decision, suitable clause should be incorporated in the tender enquiry and resultant contracts. The requirement of ISI mark for the stores to be incorporated only after an advance notification has been made to the trade about the intention and the prospective date from which it would be implemented.

Of the 16 items to be purchased with ISI marking only, 3 items are relevant in the context of this study:

- GLS lamps (above 100 W);
- Fluorescent tubes; and
- Exhaust fans.

Table 10 indicates the Indian or other standards that serve as specifications for the devices considered here. In these standards, wherever there is reference to energy consumption as a parameter specified within the standard, it is in the form of a maximum value of energy consumption not to be exceeded. During the process of concluding rate contracts, no consideration or weightage is given in case the given specifications exceeds.

Table 10

STANDARDS SPECIFIED FOR DEVICES *

Item	Item No.	Standard
Electrical Stores Directorate		
GLS Lamps	14030101	IS 418:1978
Compact Fluorescent Lamps	14031400	IEC-901
Integrated CFL/EB	14031500	IEC-968, IEC-969
Fluorescent Tubes	14030200	IS 2418:1977
HPMV Lamps	14030701	IS 9900 (Part 1-4):1981
HPSV Lamps	14031200	IS 9974 (Part 1-4):1981
Compact Fluorescent Fittings	14909943 **	IS 10322:1984
Electrical and Decorative Fittings	14909937 ***	IS 10322:1982,1985
Electronic Ballasts	14059045	IS 13021:1991
HPMV Lamps Fittings and Accessories	14909938 ****	IS 1569:1976
HPSV Lamps Fittings	14909939 *****	IS 10322:1987

Item	Item No.	Standard
Mechanical Engineering Directorate		
Ceiling Fans	14040100	IS 374:1979
Desert Coolers (Steel Body)	14080701	IS 3315:1994
Plastic Body Cooler (Desert Type)	14080702	IS 11951:1987
Window Mounted Type Air Conditioner	14080205	IS 1391 (Part 1):1992
Split Type Air Conditioner	14080201	IS 1391 (Part 2):1992
Heat Convectors	14080905	IS 4283:1981
Exhaust Fans	14040400	IS 2312:1967
Geysers	14080902	As per Rate Contract
Water Coolers	14080300	IS 1475:1978
Submersible Pump	13021300	IS 8034:1989

Notes

* Items on rate contract as on 25 October 2000

** Electro-magnetic ballasts for Compact fluorescent lamps are covered under Compact Fluorescent Fittings

*** Electro-magnetic ballasts for Fluorescent lamps are covered under Electrical and Decorative Fittings

**** Electro-magnetic ballasts for HPMV lamps are covered under HPMV Lamps Fittings and Accessories

***** Electro-magnetic ballasts for HPSV lamps are covered under HPSV Lamps Fittings

Sources

DGS&D Directory of Stores on Rate Contracts-2000

DGS&D Bulletin (monthly, various issues)

DGS&D website

Procurement Policies, Procedures and Practices of Government Users

This section covers the key findings regarding procurement policies, procedures and practices of government departments, bodies, agencies, institutions and organisations (users) with respect to purchase of high-volume, high-electricity use appliances/equipment (products). This is based on discussions with various government users. These discussions were held with central government bodies DGS&D, CPWD, NDMC, Railways, Safdarjung Hospital, and Indian Institute of Technology, Delhi. Discussions have also been held with several firms supplying goods under rate contract. It is noted that during these discussions, the focus was only on procurement of energy using devices and, in particular, consideration of the energy efficiency of the devices, and not on procurement in general.

The key findings are summarised below.

- Government procurement was earlier being done by DGS&D, it is now considerably decentralized;
- Decentralisation has resulted in most of the procurement by central government departments/ offices being now done directly and not through DGS&D;
- Procurement by non-central government departments/offices such as state governments and local governments, and other government bodies and organisations such as public sector undertakings, autonomous bodies, etc., either belonging to the central government or state governments, is also generally done directly and not through DGS&D.
- Even within large government bodies and organisations, procurement is considerably decentralised. For example, in the Railways, procurement policies and procurement is at the zonal level.
- DGS&D continues to be the nodal agency of the Government of India for purchase policy and procedure. Quality assurance functions continue to remain centralised as before.
- Consequent to decentralisation, concluding rate contracts for common user items is now the major activity and responsibility of DGS&D.
- The main feature of procurement by government departments, bodies, agencies, institutions and organisations is that the procurement is done on the basis of the DGS&D rate contract for goods under rate contract.
- For items under rate contract, tenders for procurement are not floated. Procurement is done from among suppliers having valid rate contracts on the basis of the rates specified in the rate contract.
- In the case of central government departments/offices, the supply order for the required goods is directly issued on the firm selected from among the suppliers having valid rate contracts. The supply order is routed through DGS&D for inspection and payment. This is procurement against the rate contract.

- In the case of non-central government departments/offices such as state governments and local governments, and other government bodies and organisations such as public sector undertakings, autonomous bodies, etc., either belonging to the central government or state governments, the procurement is carried out by either way:

  - If such users desire to use the rate contract, they must raise their demands along with pre-deposit of the requisite funds through DGS&D and the supply orders are issued by DGS&D on their behalf. This too is procurement against the rate contract.
  - The users place orders directly on the selected firms on the rates specified in the rate contract, with the proviso of pre-despatch inspection by DGS&D. This procurement is not against the rate contract, as for such users that can only be if the procurement is through DGS&D. This is procurement outside the rate contract, but based on the rate contract. This is a general practice followed by such users.
  - Procurement can also be done as above but without the requirement for pre-despatch inspection by DGS&D. This too is procurement outside the rate contract, but based on the rate contract.

- Whether the procurement is done against or outside the rate contract, by virtue of being based on the rate contract, is not subject to any audit objections later.

- Based on the supply orders through DGS&D, DGS&D prepares an estimate of the annual purchase value, or estimated drawal, of items under rate contract. However, these estimates do not include cases where procurement is done based on the rate contract but not against the rate contract. These purchases are considered to be quite significant. There is, however, no mechanism or any basis to prepare an estimate of such procurements done outside the rate contract. Hence, the estimated drawals are the best indicators of overall government procurement.

- The purchase specifications for the devices are based on the specifications in the relevant Indian Standard (IS) standards. By virtue of the procurement based on the rate contract, users implicitly follow these specifications. Additional or more stringent specifications are not prescribed.

- By Indian standards, when energy consumption is specified as a parameter within the standard, it is usually in the form of a maximum value of energy consumption that should not be exceeded. This is also the requirement in the tender specifications. During the process of concluding rate contracts, no consideration or weightage is given if the specifications are bettered.

- Although, the specifications require compliance with Indian standards, the requirement of ISI marking is not essential. Amongst devices considered in this study, ISI marking only is prescribed for only 3 devices: GLS lamps (above 100 W), fluorescent tubes and exhaust fans.

- Due to the policy of purchase preference to SSI units, certain items are reserved for exclusive purchase from firms in the small-scale sector. These items include chokes for light fittings, air coolers, and room heaters & convectors. In the case of several other items, such as ceiling fans, air conditioners, exhaust fans, and geysers, the suppliers consist largely of small-scale units.

- The result of the practices followed by DGS&D in concluding rate contracts is that, for all practical purposes, there is no difference in rates among different suppliers for items available under DGS&D rate contract.

- For most of the devices considered here, the suppliers include both large-scale units in the organized sector and small-scale units in the SSI sector. The prices offered by small-scale units are lower than those of large-scale units based on various incentives available to theseunits and their inherent cost structure,. However, because of the practices followed by DGS&D in concluding rate contracts wherein the lowest price is counter offered to all other firms, large-scale units desiring to sell goods under rate contract can do so only if agreed to the lower rates of small scale units.

- While this practice is seen as ensuring that the government gets goods at the lowest price, one effect of this is to actually restrict choice. Since margins are lower due to the lower rates, most large-scale manufacturers offer only a limited number of models under DGS&D rate contract, while marketing a much wider range of models in the open market. Often, a particular model in their range is meant specifically for supply under DGS&D rate contract. Consequently, there are some differences in the features and performance of models offered under DGS&D rate contract and other models, although still meeting the requirements of the specifications.

- Despite the lower margins, large-scale manufacturers are still interested in selling goods under rate contract, mainly for two reasons. Firstly, it provides accessability to a larger market. Although, direct procurement by users means that manufacturers still have to make marketing efforts to get orders, marketing is considered to be relatively easier considering also the larger size of orders. Secondly, since 98 % of the payment is made within 10 working days of submission of documents, which can be done when goods are despatched, there is faster rotation of funds, compared to the usually much longer cycles in the general market.

- The effect of all firms offering goods at the same rate is that initial cost is not a factor considered by users in the decision making process. The main factors considered are service and quality. Delivery period, supplier size and supplier reputation are other factors. The actual consideration of these factors is based on prior experience regarding these goods and their suppliers, or on their subjective assessments in this regard. In the case of large orders, distribution of orders among different suppliers is also resorted to, so that audit objections do not rise.

- As noticed from the above, energy consumption and energy efficiency are not considered, by and large, as factors in the decision making process. Several reasons are attributed for this situation:

  - As the rates of devices of all makes are the same, a similarity in terms of performance and features is expected, including energy consumption.
  - The commonly observed situation is if performance or some features are superior, then the price is also higher reflecting a higher cost or a premium. Since price of devices of all makes are the same, the perception is that it would not make commercial sense for any manufacturer to offer a superior device.
  - Energy consumption is also not expected to vary among different devices, as all devices are condiered to be conforming to the specifications of the relevant standard.
  - Even though energy consumption could vary, any sense of the range of such variation is not there.

- As mentioned above, the specification regarding energy consumption is in the form of a maximum value of energy consumption, which should not exceeded. The same is mentioned in the product literature of suppliers. The actual energy consumption of the product is not given and hence not known. In the absence of this information, users have no knowledge

about the variation, if any, and have no basis to consider energy consumption variations in decision-making.

- Registration requirements of firms and the tendering process for conclusion of rate contracts, suppliers are required to submit type test reports for their products. Type tests are carried out to prove conformity with the requirements of the Indian standard mentioned in the specifications. The type test report would contain, apart from other data as prescribed in the standard, the value of energy consumption of the product. This value is used to check for compliance with the laid down maximum value of energy consumption. It is not incorporated into the rate contract, and thus is not available for reference. It is the view of DGS&D that since the tender specifications only require that the maximum consumption should not be exceeded, incorporating the value from the type test reports into the rate contract would not be proper.

- Regarding the frequency of procurement, items of consumable nature such as lamps are generally ordered considering the requirements of a few months at a time. The inventory is maintained appropriately. Items such as air conditioners or ceiling fans are ordered as and when the need arises, with some bunching of the requirement to the extent possible. These are generally not maintained in inventory. These are items where purchase is generally in the nature of a capital expenditure.

Life Cycle Costing

This section covers the concept and application of life cycle costing for evaluating the cost-effectiveness of energy-efficient devices.

Concept

There are several methods for evaluating the cost-effectiveness of energy-efficient devices. While a description and discussion of the merits and demerits of various measures of economic comparison is outside the scope of this work, all methods involve a comparison of the initial purchase or capital cost with operating or running cost. The capital cost of an energy-efficient device is typically higher, while the operating cost is lower. The higher capital cost is incurred initially at one point in time, while the benefit of lower operating cost is obtained over the life of the device. Commonly used measures of cost-effectiveness such as payback period do not adequately consider the benefits of savings over the entire life of the device.

The concept of Life Cycle Cost ('LCC'), also known as Total Owning Cost ('TOC'), involves consideration of all costs over the life of the device, i.e. the cost of purchase and the cost(s) of operation. LCC is the present value of any present and future costs associated with the device. LCC recognises that the cost of operation is incurred over the service life and hence involves capitalisation of the operating costs. Thus, life cycle cost = initial cost + capitalised value of future costs. The capitalized value of future costs is obtained by determining the present value of these costs based on their occurrence in time and using a suitable discount rate.

In general, all costs of operation, maintenance, repair and replacement should be included for determining life cycle cost. However, in the context of this study, the cost of operation that is most relevant is the cost of energy. Thus, life cycle cost = initial cost + capitalised value of future energy costs. For an energy-efficient device, LCC accounts for the benefits of lower energy costs over the service life of the device against a higher initial cost.

The capitalised value of future energy costs is the life cycle energy cost of a device. Life cycle energy cost is a function of 5 parameters:

- Device load/rating (watts);
- Device usage (hours/year);
- Device life (years);
- Cost of electricity (Rs/kWh); and
- Cost of capital (real discount rate, %).

Based on device load/rating and its usage, the annual energy consumption (kWh/year) can be determined. The annual cost (Rs/year) can be determined considering the tariff or cost of electricity. This cost is incurred annually over the life of the device. Applying an acceptable discount rate to obtain the present value of this periodically and regularly occurring cost can determine the capitalized value . Since, the electricity bills are generally paid monthly, the discounting can be done for monthly rather than yearly periods.

The life cycle energy cost of a device can be represented as the product of a life cycle energy cost factor, which is the life cycle energy cost of a device having a rating of 1 watt, and the device load/ rating (watts). Table 11 shows the values of life cycle energy cost factor considering device load = 1 watt for various values of device usage and device life, and considering cost of electricity = 4 Rs/kWh and discount rate = 12 %. As anticipated, life cycle energy cost factor increases proportionately as usage hours increase. Life cycle energy cost factor also increases as device life increases, but the increase is less than proportionate since the further in time the cost is incurred, the lower is its present

value. Although, not shown in the table, a change in the cost of electricity would have a corresponding proportionate effect on the life cycle energy cost factor.

The discount rate of 12 % is the value used by the Planning Commission of the Government of India for economic appraisal of investment projects. However, considering the downward movement of interest rates in the economy and the future possibility of complete convertibility of the Indian currency, a lower discount rate of 6 % can be considered. For discount rate = 6 %, all other parameters being the same, the life cycle energy cost factor values are shown in Table 12. As would be expected, all values are higher compared to those for the higher discount rate of 12 %. The lower the discount rate, the higher is the present value of future costs, and hence the life cycle energy cost factor is higher.

The variation of life cycle energy cost factor can be seen better in Figures 6, 7, 8 and 9 for the discount rates of 12% and 6 %, respectively.

The life cycle cost for a device can, therefore, determined in the following manner. First, the life cycle energy cost factor (Rs/watt) can be determined considering the device usage (hours/year), device life (years), cost of electricity (Rs/kWh), and the cost of capital (discount rate, %). The life cycle energy cost (Rs) can then be determined by multiplying the life cycle energy cost factor (Rs/watt) by the device load/rating (watts). Finally, the life cycle cost (Rs) can be obtained by adding the initial capital cost (Rs) to the life cycle energy cost (Rs). Thus, life cycle cost = initial cost + life cycle energy cost factor x device load/rating.

Life Cycle Cost of Devices

Table 13, shows typical life cycle energy cost factor and life cycle energy cost of devices considered in this study, based on typical values of the constituent parameters as also shown in the table. Note that life cycle energy cost factors are in terms of Rs/watt and are multiplied by the device load/rating to get life cycle energy cost. The values are shown for discount rate = 12, 6 and 0 %; values for discount rate = 0 % are essentially undiscounted values and represent the upper limit of life cycle energy cost factors and life cycle energy costs for the assumed values of the constituent parameters.

The life cycle energy cost factors for both the discount rate cases are shown in Figure 10. Broadly, devices can be considered to fall in 3 categories depending on the value of life cycle energy cost factor being low, medium or high. Devices having low life cycle energy cost factor are GLS lamp and storage geyser. Devices having medium life cycle energy cost factor are CFL, FTL lamp, HPMV lamp, HPSV lamp, air cooler (steel body and plastic body), air conditioner (window and split) and room heater. Devices having high life cycle energy cost factor are electro-magnetic ballast for FTL lamp, electronic ballast for FTL lamp, electro-magnetic ballast for HPMV lamp, electro-magnetic ballast for HPSV lamp, ceiling fan and exhaust fan. The higher the value of life cycle energy cost factor, the greater would be the effect on energy cost of any change in energy efficiency of the device.

For the 12 % discount rate, the life cycle energy cost varies from Rs. 293 for a 100 W GLS lamp to Rs. 78,828 for a 2.0 tonne split air conditioner. However, considering the discount rate at 6 %, while the life cycle energy cost of the GLS lamp would increase very marginally to Rs. 296, the life cycle energy cost of the split air conditioner would increase considerably to Rs. 104,530. The wide variation in life cycle energy cost of different devices (for a given tariff and discount rate) reflects the effect of wide variations in all of its parameters -- device load/rating, device usage and device life -- for the different devices, as indicated in the Table 13.

Table 14 indicates the life cycle cost, i.e. capital cost + life cycle energy cost, of devices. For a 12 % discount rate, the life cycle cost varies from Rs. 301 for a 100 W GLS lamp to Rs. 117,129 for a 2.0 tonne split air conditioner. The ratio of life cycle cost to capital cost indicates the relative magnitude of the energy costs. For a 100 W GLS lamp, the life cycle cost is 39 times its purchase

cost, even though its life is only 0.3 years. However, for a 1.5 tonne window air conditioner, the life cycle cost is 3.3 times its purchase cost; although the energy cost is very high, the capital cost is also very high. Figures 11 & 12 illustrates the ratio of life cycle cost to capital cost of devices for the 12 % and 6 % discount rates.

It is noted that for the same device, the life cycle energy cost factor and hence the life cycle energy cost for different users can vary widely depending on variations in any of its parameters. For example, consider the case of a 1200 mm ceiling fan. Referring to Table 13, a fan having a rating of 70 W, running for 1,200 hours/year, having life of 15.6 years, with the tariff being 4.00 Rs/kWh and using a discount rate of 12 %, the life cycle energy cost factor is 33.81 Rs/watt and the life cycle energy cost is Rs. 2,367. For a similar fan having a rating of 70 W, but running for 2,400 hours/year (twice as before), and therefore having life of 7.8 years (half as before), with the tariff being 4.00 Rs/kWh and using a discount rate of 12 %, the life cycle energy cost factor is 48.53 Rs/watt. The life cycle energy cost in this case is Rs. 3,397, i.e. higher by more than Rs. 1,000.

This example also brings out that the classification of devices into 3 categories mentioned above is only a relative one, and depends on the assumed typical values of the constituent parameters. However, since the usage patterns in office buildings do not vary significantly due to the reasonable uniformity in the working schedule in different offices, the implications of the classification are still relevant.

Application of Life Cycle Cost Analysis

There are two major aspects concerning the significance of life cycle energy costs and life cycle costs for a user considering the purchase of a device.

The first aspect is that life cycle energy cost gives an indication of the cost committed for operation of the device consequent to its purchase. For example, purchase of a 1.5 tonne window air conditioner would normally be observed by the user as involving an initial expenditure of Rs. 23,338, but what is not considered by the user is that by virtue of making the purchase, a commitment at the same time has been made implicitly towards future expenditures for energy costs equivalent to an additional initial expenditure of Rs. 54,194 (12 % discount). A budgeting decision based on an initial expenditure of Rs. 77,532 could well be different from a budgeting decision based on an initial expenditure of Rs. 23,338.

To put this in an overall perspective, Table 15 shows the value of life cycle energy costs compared to the value of annual purchases of devices. The devices considered for the purpose of this study, the value of annual purchases is Rs. 108 crores. The life cycle energy cost of all these devices is Rs. 786 crores (12 % discount) and Rs. 891 crores (6 % discount), i.e. about 8-9 times the purchase cost. Thus, having made purchases of devices worth about Rs. 100 crores, government users are also now committed to further spend around Rs. 800-900 croresin current scenario.

The second and the major feature is the life cycle cost analysis providing a powerful tool to evaluate the cost-effectiveness of energy-efficient devices. For evaluation of alternatives using life cycle cost analysis, the purchaser must know the purchase cost, energy consumption, value of energy consumption and useful life for each of the alternatives, and the cost of capital or discount rate. For comparison of alternatives with the same service/useful life, the device with the lowest life cycle cost is the most cost-effective option. For comparison of alternatives with different useful lives, multiple purchases of the device(s) having the shorter life to match the longest life among all the alternatives need to be considered.

This can be illustrated by taking the same ceiling fan example as mentioned above. Consider the purchase of a 1200 mm ceiling fan. For a fan having a rating of 70 W, under the assumptions given above, the life cycle energy cost is Rs. 2,367. The capital cost is Rs. 661 and the life cycle cost is

Rs. 3028. For a fan having a rating of 65 W, with all other parameters being the same, the life cycle energy cost would be Rs. 2,198, i.e. Rs. 169 less. If this fan also had the same capital cost, the net savings over the life of the fan would be Rs. 169 and it would, therefore, be cost-effective to purchase the 65 W fan. Even if the price of the 65 W fan was higher by up to Rs. 169, i.e. up to Rs. 830, its purchase would still be cost-effective, although the benefit would be very small.

For a similar fan having a rating of 70 W, but running for 2,400 hours/year (twice as before), and therefore having life of 7.8 years (half as before), with all other parameters being the same, the life cycle energy cost is Rs. 3,397. The capital cost being Rs. 661, the life cycle cost is Rs. 4058. For a 65 W fan, with all other parameters being the same, the life cycle energy cost would be Rs. 3,154, i.e. Rs. 243 less. In this case, the purchaser could pay an even higher price, up to Rs. 904, and still derive some savings (Note that the hours of usage in the first case may be typical of a location with a short (but hot) summer, as in places in North India; the second may be typical of a location with moderate conditions continuing for a longer time, as in places in South India.) However, if the fan was expected to be used for only 200 hours/year, the life cycle energy cost (with all other parameters being the same) for the same 70 W and 65 W fans would be only Rs. 424 and Rs. 394 respectively, i.e. a difference of only Rs. 30.

The above examples also illustrate a very important point being neglected: the cost-effectiveness of energy efficiency is application-specific and not necessarily universal.

Variations in tariff or in discount rate would also yield different results regarding the savings over the life of the device. The shorter the life, the lesser would be the effect on life cycle energy cost of discount rate. Conversely, for devices, which continue in service for a long time, say more than 10 years, the discount rate has a considerable effect on the life cycle cost. However, regardless of the specific values of the parameters, the use of life cycle cost analysis would enable proper assessment of the cost-effectiveness of alternate options.

As mentioned earlier, life cycle cost analysis of the following products and energy efficiency options was carried out in Step 2:

- GLS lamps (replacement by compact fluorescent lamps);
- Fluorescent lamps (replacement of 40 W lamp by 36 W lamp);
- Window air conditioners;
- Ceiling fans; and
- Electro-magnetic ballasts for fluorescent lamps (replacement by electronic ballasts).

The results are are:

GLS lamps: replacement by compact fluorescent lamps

As shown in Table 13, the life cycle energy cost factor for a 100 W GLS lamp taking a discount rate of 12 % is 2.93 Rs/watt, while that for an equivalent 20 W CFL is 20.65 Rs/watt. The life cycle energy costs are Rs. 293 and Rs. 475 respectively. Hence, it may appear at first glance that this is not a cost-effective replacement. However, this is not so. In this case, the two devices have different service lives; while the GLS lamp has a life of 0.3 years, the CFL has a life of 2.5 years. Hence, multiple purchases of the device having the shorter life, i.e. GLS lamp, to match the longer life of the other device, i.e. CFL, need to be considered.

The difference in life cycle energy cost factor of GLS lamp and CFL arises, although, both are considered to have the same usage hours, the lives are different. If the lives were to be kept the same, the life cycle energy cost factor too would be the same, i.e. 20.65 Rs/watt. The 77 W reduction in rating, after considering the additional consumption of 3 W in the CFL ballast, would yield life cycle energy cost savings of Rs. 1,590. However, considering that 8 GLS lamps would be required to be replaced to match the life of 1 CFL, the life cycle cost savings would be only Rs. 1,162.

Fluorescent lamps: replacement of 40 W lamp by 36 W lamp

As indiacted in Table 13, the life cycle energy cost factor for a 40 W fluorescent lamp taking a discount rate of 12 % is 13.62 Rs/watt. This reduction in a 4 W rating, by going from a 40 W lamp to a 36 W lamp, would yield life cycle energy cost savings of Rs. 54. Since, the rate for a 36 W FTL lamp is actually less than that of a 40 W lamp, the life cycle cost savings would be slightly higher at Rs. 55.

Window air conditioners: efficiency improvement

As indicated in Table 5-2, the life cycle energy cost factor for a 1.5 tonne window air conditioner considering a discount rate of 12 % is 24.63 Rs/watt. This means that a 400 W reduction in rating, from a typical existing level of 2200 W to an improved level of 1800 W, would yield life cycle energy cost savings of Rs. 9,852.

Ceiling fans: efficiency improvement

As indicated in Table 13, the life cycle energy cost factor for a 1200 mm ceiling fan taking a discount rate of 12 % is 33.81 Rs/watt. This means that a 10 W reduction in rating, from a typical existing level of 70 W to an improved level of 60 W, would yield life cycle energy cost savings of Rs. 338.

Electro-magnetic ballasts for fluorescent lamps: replacement by electronic ballasts

Table 13 also indicates the life cycle energy cost factor taking a discount rate of 12 % is 53.88 Rs/watt for both electro-magnetic and electronic ballasts. This means that a 10 W reduction in rating, from a typical existing level of 15 W for an electro-magnetic ballast to 5 W for an electronic ballast, would yield life cycle energy cost savings of Rs. 539. Considering the difference in rates, the life cycle cost savings would be only Rs. 277.

The energy savings benefits of the above options are indicated in Table 16, in terms of the life cycle energy cost savings potential of annual purchases. The highest potential is for the option of replacement of GLS lamps by compact fluorescent lamps. Due to both, the large number of lamps and the large savings in life cycle energy costs, the savings are of the order of Rs. 525 crores. Note that these are actually savings over the life of the CFL, which replaces 8 GLS lamps. Compared to this, the savings from the other options are all lower by an order of magnitude. The next largest savings of Rs. 26 crores are from replacement of electro-magnetic ballasts for fluorescent lamps by electronic ballasts. The savings arising from the other three options, efficiency improvement of window air conditioners, replacement of 40 W FTL lamp by 36 W FTL lamp, and efficiency improvement of ceiling fans would be Rs. 14, 13 and 10 crores, respectively.

Table 11

LIFE CYCLE ENERGY COST FACTORS (DISCOUNT RATE: 12 %, TARIFF: 4.00 RS/KWH)

Usage	Energy Cost	Life Cycle Energy Cost Factor (Rs/watt) Life (years)					
hrs/yr	Rs/mth/W	1	2	5	10	15	20
250	0.083	0.94	1.77	3.75	5.81	6.94	7.57
500	0.167	1.88	3.54	7.49	11.62	13.89	15.14
750	0.250	2.81	5.31	11.24	17.43	20.83	22.70
1000	0.333	3.75	7.08	14.99	23.23	27.77	30.27
1250	0.417	4.69	8.85	18.73	29.04	34.72	37.84
1500	0.500	5.63	10.62	22.48	34.85	41.66	45.41
1750	0.583	6.57	12.39	26.22	40.66	48.60	52.98
2000	0.667	7.50	14.16	29.97	46.47	55.55	60.55
2250	0.750	8.44	15.93	33.72	52.28	62.49	68.11
2500	0.833	9.38	17.70	37.46	58.08	69.43	75.68
2750	0.917	10.32	19.47	41.21	63.89	76.38	83.25
3000	1.000	11.26	21.24	44.96	69.70	83.32	90.82
3500	1.167	13.13	24.78	52.45	81.32	97.21	105.96
4000	1.333	15.01	28.32	59.94	92.93	111.10	121.09
4500	1.500	16.88	31.87	67.43	104.55	124.98	136.23
5000	1.667	18.76	35.41	74.93	116.17	138.87	151.37
5500	1.833	20.63	38.95	82.42	127.78	152.76	166.50
6000	2.000	22.51	42.49	89.91	139.40	166.64	181.64
6500	2.167	24.39	46.03	97.40	151.02	180.53	196.78
7000	2.333	26.26	49.57	104.90	162.63	194.42	211.91
7500	2.500	28.14	53.11	112.39	174.25	208.30	227.05
8000	2.667	30.01	56.65	119.88	185.87	222.19	242.19
8760	2.920	32.86	62.03	131.27	203.53	243.30	265.19

Basis
Electricity cost = 4.00 Rs/kWh
Discount rate = 12 %

Table 12

LIFE CYCLE ENERGY COST FACTORS (DISCOUNT RATE: 6 %, TARIFF: 4.00 RS/KWH)

Usage	Energy Cost	Life Cycle Energy Cost Factor (Rs/watt) Life (years)					
hrs/yr	Rs/mth/W	1	2	5	10	15	20
250	0.083	0.97	1.88	4.31	7.51	9.88	11.63
500	0.167	1.94	3.76	8.62	15.01	19.75	23.26
750	0.250	2.90	5.64	12.93	22.52	29.63	34.90
1000	0.333	3.87	7.52	17.24	30.02	39.50	46.53
1250	0.417	4.84	9.40	21.55	37.53	49.38	58.16
1500	0.500	5.81	11.28	25.86	45.04	59.25	69.79
1750	0.583	6.78	13.16	30.17	52.54	69.13	81.42
2000	0.667	7.75	15.04	34.48	60.05	79.00	93.05
2250	0.750	8.71	16.92	38.79	67.56	88.88	104.69
2500	0.833	9.68	18.80	43.10	75.06	98.75	116.32
2750	0.917	10.65	20.68	47.42	82.57	108.63	127.95
3000	1.000	11.62	22.56	51.73	90.07	118.50	139.58
3500	1.167	13.56	26.32	60.35	105.09	138.25	162.84
4000	1.333	15.49	30.08	68.97	120.10	158.00	186.11
4500	1.500	17.43	33.84	77.59	135.11	177.76	209.37
5000	1.667	19.36	37.60	86.21	150.12	197.51	232.63
5500	1.833	21.30	41.37	94.83	165.13	217.26	255.90
6000	2.000	23.24	45.13	103.45	180.15	237.01	279.16
6500	2.167	25.17	48.89	112.07	195.16	256.76	302.43
7000	2.333	27.11	52.65	120.69	210.17	276.51	325.69
7500	2.500	29.05	56.41	129.31	225.18	296.26	348.95
8000	2.667	30.98	60.17	137.93	240.20	316.01	372.22
8760	2.920	33.93	65.88	151.04	263.01	346.03	407.58

Basis
Electricity cost = 4.00 Rs/kWh
Discount rate = 6 %

Table 13

LIFE CYCLE ENERGY COST FACTOR AND LIFE CYCLE ENERGY COST OF DEVICES

Device	Capacity/ Rating	Watts	Usage Hrs/Day	Life Years	KWh/ Year	Rs/ Year *
GLS Lamp	100 W	100	2400	0.3	240	960
CFL Lamp + Ballast	20 W	23	2400	2.5	55	221
FTL Lamp	40 W	40	2400	1.6	96	384
Electo-mangnetic ballast, FTL	40 W	15	2400	9.4	36	144
Electonic ballast, FTL	40 W	5	2400	9.4	12	48
HPMV Lamp	125 W	125	4380	1.0	548	2190
Electro-mangnetic ballast, HPMV	125 W	25	4380	5.1	110	438
HPSV Lamp	150 W	150	4380	2.6	657	2628
Electro-mangnetic ballast, HPSV	150 W	35	4380	5.1	153	613
Ceiling Fan	1200 mm	70	1200	15.6	84	336
Air cooler, Steel body	1800 m3/h	230	800	11.3	184	736
Air cooler, Plastic body	2000 m3/h	250	800	11.3	200	800
Air conditioner, Window	1.5 T	2200	1000	11.3	2200	8800
Air conditioner, Spilt	2.0 T	3200	1000	11.3	3200	12800
Room heater	2.0 kW	2000	400	20.0	800	3200
Exhaust Fan	300 mm	110	2400	7.8	264	1056
Geyser, Storage	25 l	1500	125	20.0	188	750

Device	Life Cycle Energy Cost (Rs/watt)			Cost	Life Cycle Energy Cost (Rs)		
	Discount Rate, %			(Rs)	Discount Rate, %		
	12.0	6.0	0.0		12.0	6.0	0.0
Lamp, GLS	2.93	2.96	3.00	8	293	296	300
Lamp+Ballast, CFL	20.65	22.24	24.00	489	475	511	552
Lamp, FTL	13.62	14.28	15.00	35	545	571	600
Lamp, HPMV	16.86	17.41	18.00	124	2107	2177	2250
Lamp, HPSV	38.56	41.61	45.00	495	5784	6241	6750
EM Ballast, FTL	53.88	68.71	90.00	86	808	1031	1350
Elec. Ballast, FTL	53.88	68.71	90.00	348	269	344	450
EM Ballast, HPMV	66.94	77.29	90.00	177	1673	1932	2250
EM Ballast, HPSV	66.94	77.29	90.00	287	2343	2705	3150
Ceiling fan	33.81	48.60	75.00	661	2367	3402	5250
Air cooler, Steel	19.71	26.13	36.00	2298	4533	6011	8280
Air cooler, Plastic	19.71	26.13	36.00	4115	4927	6533	9000
AC, Window	24.63	32.67	45.00	23338	54194	71865	99000
AC, Split	24.63	32.67	45.00	38301	78828	104530	144000
Room heater	12.11	18.61	32.00	593	24219	37222	64000
Exhaust fan	48.53	59.76	75.00	1007	5338	6573	8250
Geyser, Storage	3.78	5.82	10.00	2111	5676	8724	15000

Basis: Electricity cost = 4.00 Rs/kWh
Source: Innotem estimates

Table 14

LIFE CYCLE COST OF DEVICES

Device	Life Cycle Cost Discount Rate, %			Life Cycle Cost Discount Rate, %		
	12.0	6.0	0.0	12.0	6.0	0.0
GLS Lamp,	301	304	308	39.0	39.5	39.9
Lamp+Ballast, CFL	964	1000	1041	2.0	2.0	2.1
Lamp, FTL	580	607	635	16.4	17.1	17.9
Lamp, HPMV	2231	2301	2374	18.0	18.6	19.2
Lamp, HPSV	6279	6736	7245	12.7	13.6	14.6
EM Ballast, FTL	895	1117	1436	10.4	12.9	16.6
Elec. Ballast, FTL	618	692	798	1.8	2.0	2.3
EM Ballast, HPMV	1850	2109	2427	10.5	11.9	13.7
EM Ballast, HPSV	2630	2992	3437	9.2	10.4	12.0
Ceiling fan	3028	4063	5911	4.6	6.1	8.9
Air cooler, Steel	6831	8309	10578	3.0	3.6	4.6
Air cooler, Plastic	9042	10648	13115	2.2	2.6	3.2
AC, Window	77532	95202	122338	3.3	4.1	5.2
AC, Split	117129	142832	182301	3.1	3.7	4.8
Room heater	24811	37814	64593	41.9	63.8	109.0
Exhaust fan	6345	7580	9257	6.3	7.5	9.2
Geyser, Storage	7787	10835	17111	3.7	5.1	8.1

Basis: Electricity cost = 4.00 Rs/kWh
Source: Innotem estimates

Table 15

VALUE OF ANNUAL PURCHASES AND LIFE CYCLE ENERGY COST OF DEVICES

(Rs. Crores/Year)

Devices	Annual Purchases	Life Cyle Energy Cost Discount Rate, %	
		12.0	6.0
GLS Lamp	8.2	311.8	315.5
Compact Fluorescent Lamp	1.0	1.0	1.0
Fluorescent Lamp	8.7	133.6	140.1
HPMV Lamp	1.0	17.0	17.6
HPSV Lamp	4.6	53.7	58.0
Electro-magnetic ballast, Fluorescent Lamp	4.2	38.9	49.6
Electronic ballast, Fluorescent Lamp	0.8	0.6	0.8
Electro-magnetic ballast, HPMV Lamp	0.3	3.1	3.6
Electro-magnetic ballast, HPSV Lamp	1.5	12.4	14.3
Ceiling Fan	18.5	66.2	95.2
Air Cooler, Steel body	4.8	9.5	12.6
Air Cooler, Plastic body	0.5	0.6	0.8
Air Conditioner, Window	33.5	78.0	103.5
Air Conditioner, Split	14.0	29.2	38.7
Room Heater	0.1	3.6	5.6
Exhaust Fan	4.0	21.4	26.4
Geyser, Storage	2.0	5.4	8.3
TOTAL	**107.8**	**786.0**	**891.3**

Basis: Electricity cost = 4.00 Rs/kWh
Source: Innotem estimates

Table 16

LIFE CYCLE ENERGY COST SAVINGS POTENTIAL OF ANNUAL PURCHASES

Device	Life Cycle Energy Cost Savings (Rs/device)	Savings Potential of Annual Purchases (Rs. Crores)
Lamp, GLS	1590	524.5
Lamp, FTL	54	13.2
EM Ballast, FTL	539	25.9
Ceiling fan	338	9.5
AC, Window	9852	14.2

Basis: Electricity cost = 4.00 Rs/kWh; Discount rate = 12 %
Source: Innotem estimates

Figure 6

LIFE CYCLE ENERGY COST FACTOR (DISCOUNT RATE: 12 %, TARIFF: 4.00 RS/KWH, USAGE: 500-3000 HOURS/YEAR)

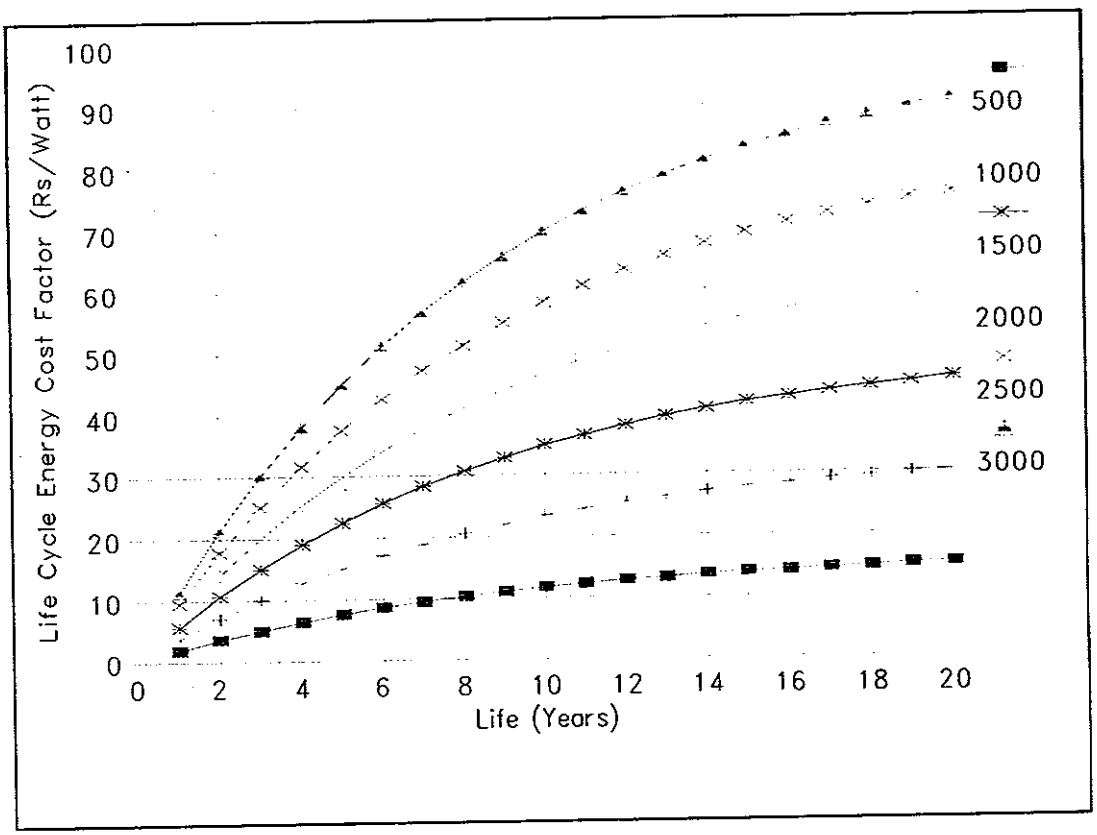


Figure 7

LIFE CYCLE ENERGY COST FACTOR (DISCOUNT RATE: 12 %, TARIFF: 4.00 RS/KWH, USAGE: 4000-8760 HOURS/YEAR)

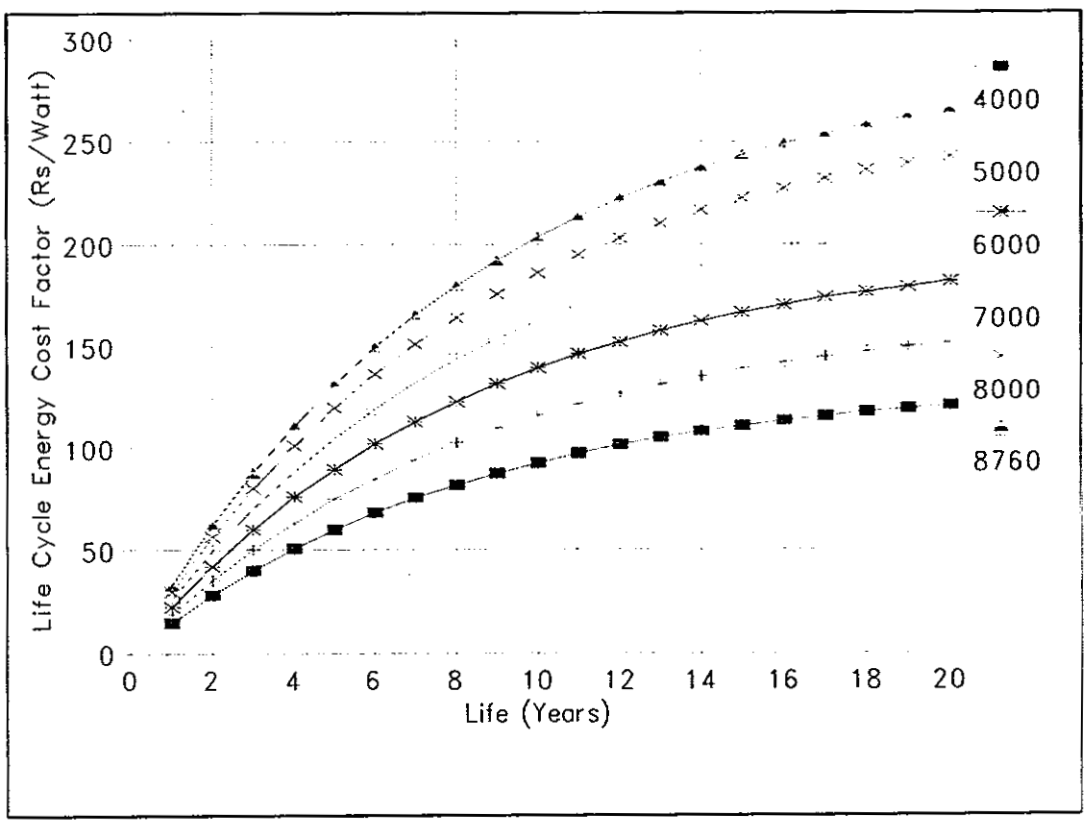


Figure 8

LIFE CYCLE ENERGY COST FACTOR (DISCOUNT RATE: 6 %, TARIFF: 4.00 RS/KWH, USAGE: 500-3000 HOURS/YEAR)

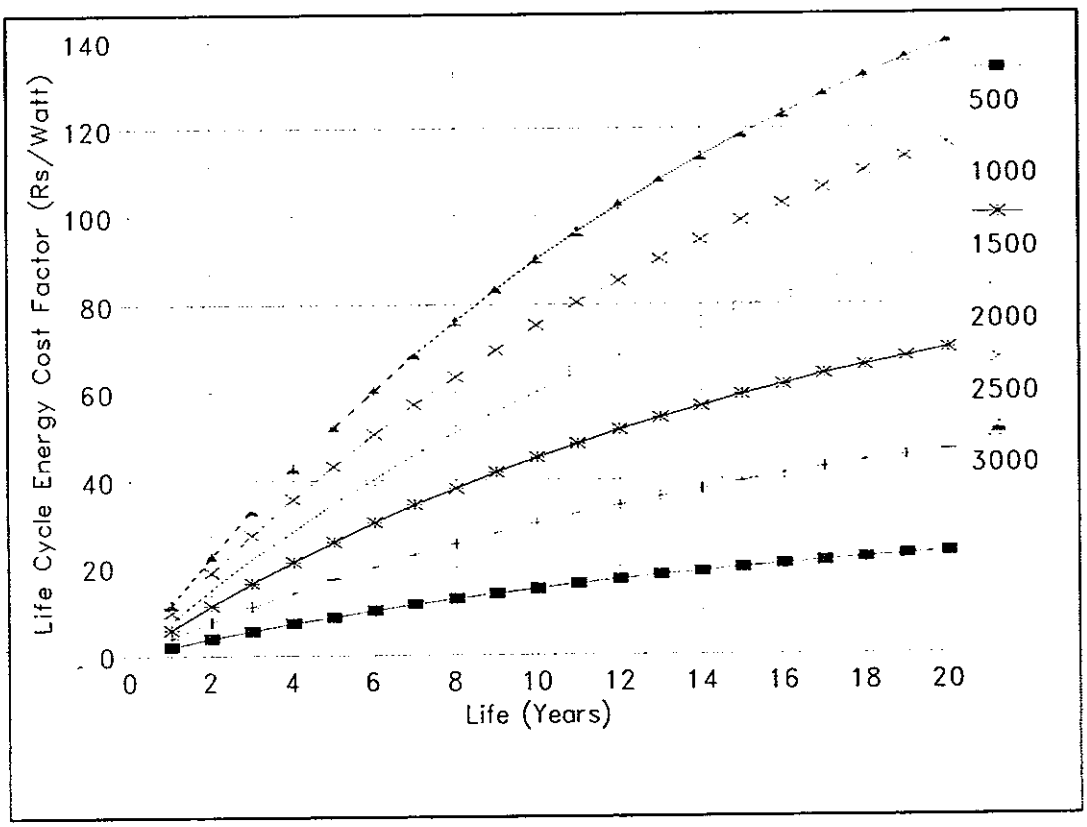


Figure 9

LIFE CYCLE ENERGY COST FACTOR (DISCOUNT RATE: 6 %, TARIFF: 4.00 RS/KWH, USAGE: 4000-8760 HOURS/YEAR)

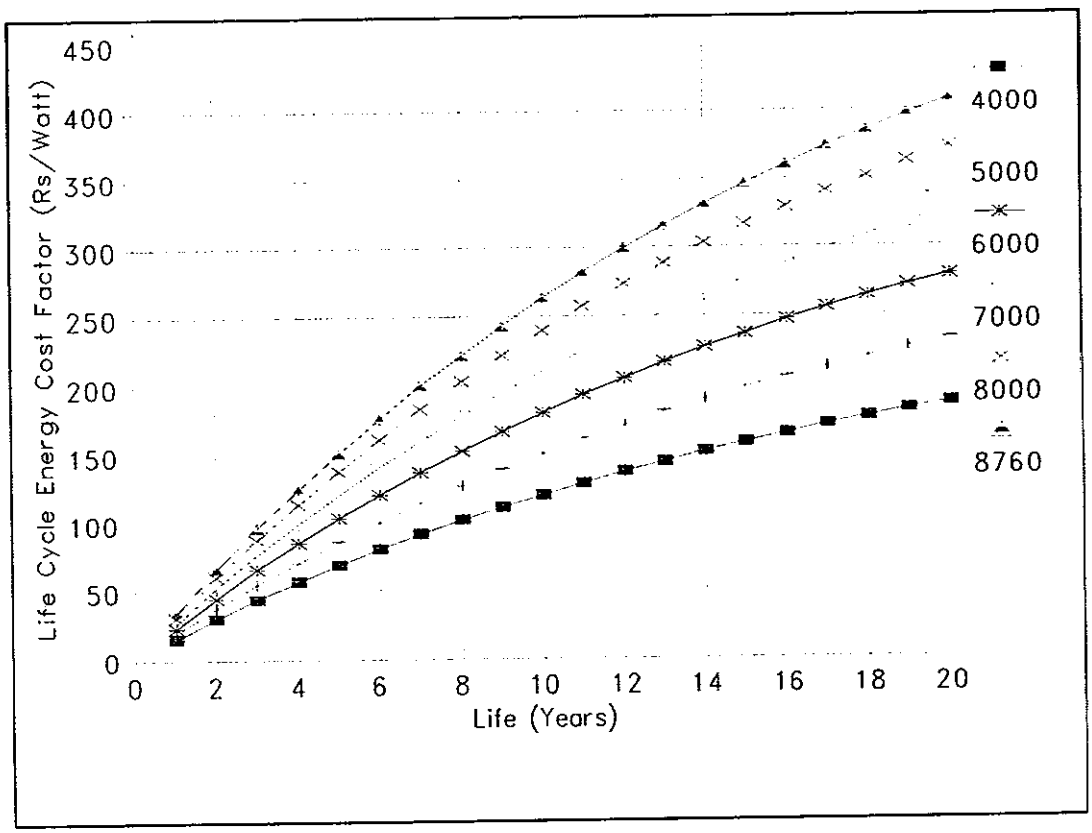


Figure 10

LIFE CYCLE ENERGY COST FACTOR OF DEVICES (TARIFF: 4.00 RS/KWH)

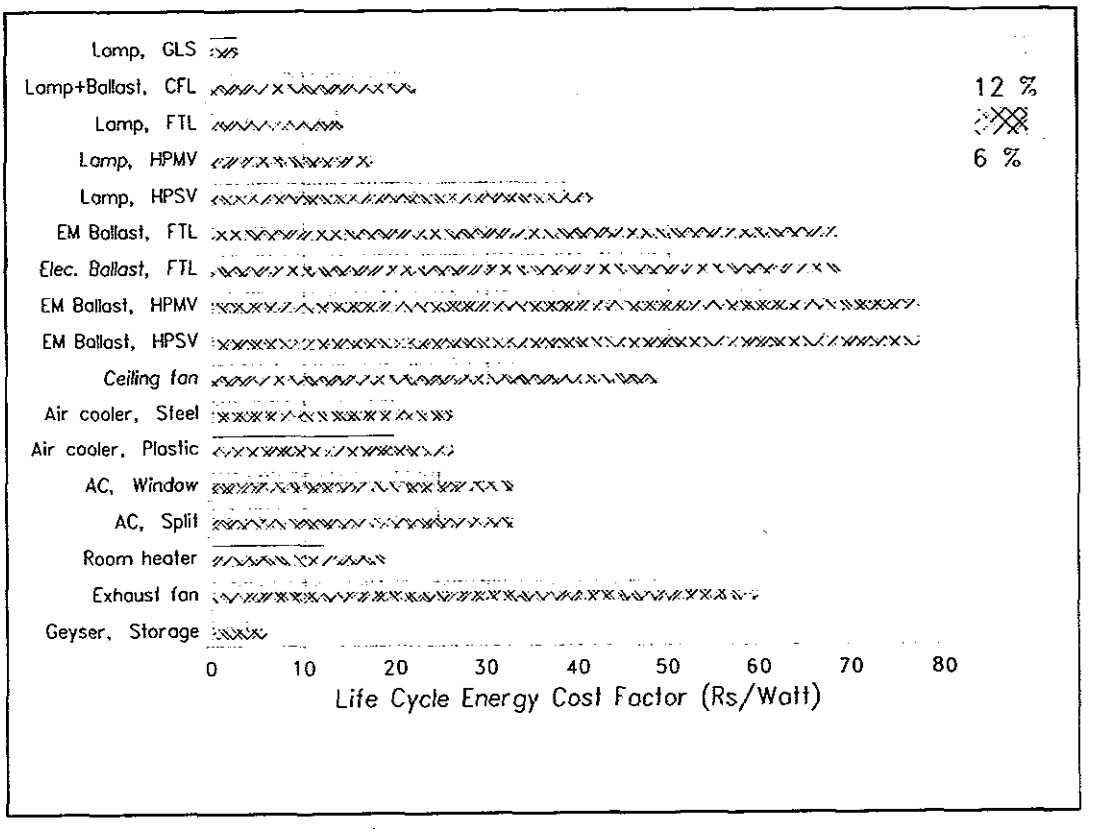


Figure 11

RATIO OF LIFE CYCLE COST TO CAPITAL COST (DISCOUNT RATE: 12 %, TARIFF: 4.00 RS/KWH)

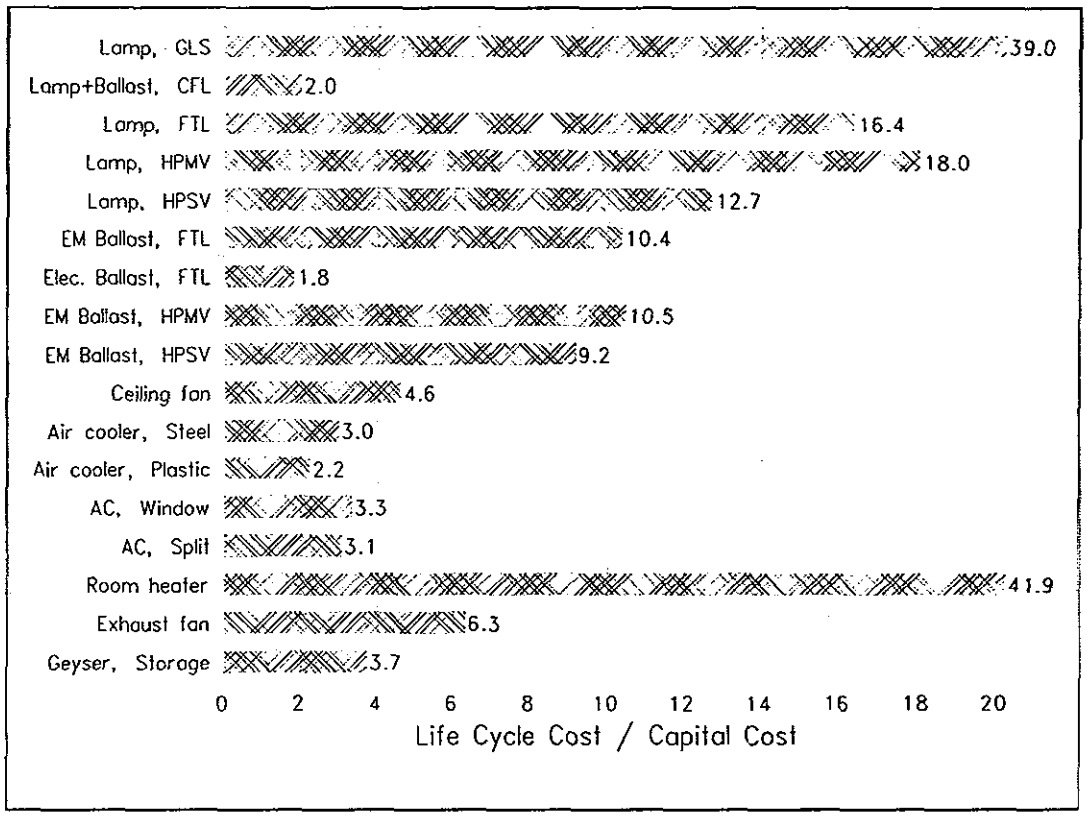
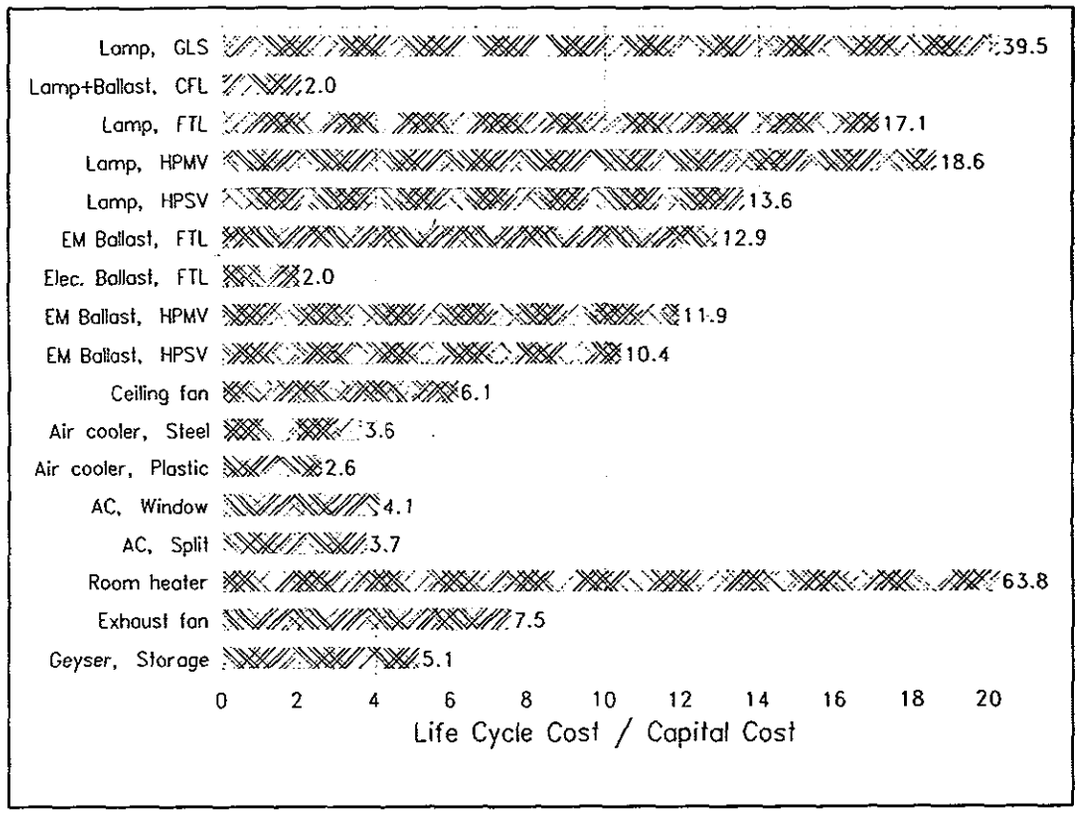


Figure 12

RATIO OF LIFE CYCLE COST TO CAPITAL COST (DISCOUNT RATE: 6 %, TARIFF: 4.00 RS/KWH)



Options to Promote Purchase of Energy Efficient Products in Government Procurement

This section discusses various options may be considered to promote purchase of energy efficient products in government procurement. These options relate to changes in procurement policies, procedures and practices being followed currently, and can be categorised into changes required on the part of DGS&D and changes required on the part of users.
Recommendations emerging from discussions are as follows:

❑ *Changes required on the part of DGS&D*

Changes in purchase specifications

The purchase specifications for the devices considered are based on the specifications in the relevant Indian Standard (IS) standards, as listed in Table 10. By Indian standards, when energy consumption is specified as a parameter within the standard, it is usually in the form of a maximum value of energy consumption not to be exceeded. This is also the requirement in the tender specifications for rate contracts. However, the purchase specifications could also be based on IS specifications but with improved parameters or additional parameters. With more stringent performance specification for energy consumption, only devices with higher energy efficiency are eligible under rate contract whereas, less efficient devices to be excluded from the procurement process.

DGS&D has already undertaken several initiatives of this manner. For example, in the case of window air conditioners, the requirement in IS 1391 (Part 1): 1992, is that the power consumption, under specified test conditions, shall not exceed the values given below:

Rated capacity (tonnes)	Maximum power consumption (kW)
0.50	1.10
0.75	1.40
1.00	1.60
1.25	2.00
1.50	2.40
2.00	3.20
2.50	4.25
3.00	5.20

For a 1.5 tonne window air conditioner, compared to the IS requirement of maximum power consumption of 2.4 kW, the value given in the DGS&D specification is 2.1 kW, which is considered to correspond to the performance of an energy efficient window air conditioner. This value has now been further reduced to 1.8 kW, which is considered to correspond to the performance of a higher energy efficient window air conditioner. In the DGS&D specifications, the average reduction in the maximum power consumption values for window air conditioners of different ratings is 0.5 kW compared to IS specifications. DGS&D has thus, kept abreast of technological developments relating to the efficiency of the compressors used in window air conditioners which have enabled this improvement in performance. It is noted that there are several small-scale units among the suppliers of window air conditioners under rate contract. However, since the compressor is a bought-out item, the small-scale units too would be using the same compressors as large-scale units, and would be able to meet the required specifications of DGS&D. Thus, the improved specification is not a threat for SSI units, nor would it necessarily result in a lower share of sales due to technological reasons.

Similarly, DGS&D has reduced the allowable maximum power consumption for some other devices. For electro-magnetic ballasts for fluorescent lamps, the value has been reduced by 3 W, and for water coolers, by 100 W on an average. It should be noted that electro-magnetic ballasts for fluorescent lamps is one of the items that are reserved for exclusive purchase from firms in the small scale sector. Consequent to this change, while there were 17 suppliers for the period up to 16 October 2000, only 1 supplier has so far been awarded rate contract for the period up to 16 October 2001.

In case of almost all devices being considered , the relevant IS are ancient and are not revised or updated for quite some time. The process of revision of a standard is a time consuming process. Further, it is also well known and accepted that the consensus approach adopted by the Bureau of Indian Standards ('BIS') for revision of standards often leads to a compromise between the interests of different groups of manufacturers, notably large scale and small scale manufacturers. The values adopted in the standard, therefore, often do not correspond to or adequately represent the technological capability of the industry. Hence, only by adopting specifications better than mentioned in the IS a push can be given for energy-efficient products.

Apart from window air conditioners, electro-magnetic ballasts for fluorescent lamps and water coolers, there is scope for improving the energy consumption specifications for all devices considered here except for the various types of lamps. For example, for ceiling fans, a study carried out for The World Bank and U.S. Agency for International Development (S.M. Nadel, V. Kothari, S. Gopinath; "Opportunities for Improving End-use Electricity Efficiency in India," American Council for an Energy-Efficient Economy, Innotem Services Private Limited, National Productivity Council; November 1991) had stated that the efficiency of an average new fan could be increased by 10-20 % at a cost of Rs. 50-175. Similar improvements could also be expected for exhaust fans.

As mentioned earlier, in the case of several items such as ceiling fans, air conditioners, exhaust fans, and geysers, the suppliers consist largely of small-scale units. Hence, the scope for improvement has to be seen in the context of its technological aspects and the aspects related to the industry. The latter assumes some importance considering the policies of the government regarding the small-scale sector.

For assessing the scope for improvement for various devices, a technology evaluation and upgradation study for each product should be undertaken. DGS&D should be associated in these studies, to draw on their knowledge and expertise as well to enable interaction with industry. Considering the potential, these studies could initially be carried out for ceiling fans and exhaust fans.

Bringing energy-efficient devices under rate contract

Apart from improving the energy consumption specifications for devices, energy efficiency could also be promoted by bringing under rate contract new energy-efficient devices which are emerging as alternatives to existing devices having higher energy consumption. DGS&D has already undertaken several initiatives of this nature too. For example, in the past few years, CFLs have established their presence and acceptability as an alternative to GLS lamps, in particular, the commercial sector. In view of this, CFLs have been brought under rate contract by DGS&D. Similarly, electronic ballasts are now increasingly been considered and accepted in place of electro-magnetic ballasts. These too have been brought under rate contract. A third example is that of the 36 W FTL, which have been brought under rate contract, while still continuing with the conventional 40 W FTL.

At present, with respect to the devices being considered, there are no other such devices that need to be brought under rate contract. However, what is required is that for the existing such cases, i.e. CFLs, electronic ballasts and 36 W FTLs, the base of suppliers needs to be increased considerably. The number of suppliers presently is CFLs: 2, electronic ballasts: 2, and 36 W FTLs: 1. It is noted that electronic ballasts too are covered under the reservation provision for SSI units.

Allowing devices with different levels of energy consumption under rate contract

The option discussed above is one way to bring in energy efficiency. By improving the energy consumption specifications, all devices available would only be those corresponding to a higher level of energy efficiency. However, as illustrated by the ceiling fan example, the cost-effectiveness of energy efficiency is application-specific and not necessarily universal. An energy-efficient product may be highly cost-effective in certain situation but may not at all be cost-effective in another situation. However, depending upon the specifics of the situation, different energy-efficient options may be preferred in different situations. By allowing for choice, the device having an energy efficiency level more appropriate to the given situation would be more likely to be purchased.

In the present system of procurement, there is no such element of choice. As perceived by users, and perhaps also likely so, the energy consumption among products of different manufacturers does not vary, so that the purchase decision is influenced by other factors. However, given a choice of devices with different levels of energy consumption, it would necessarily require consideration of energy efficiency in the purchase decision as well.

Hence, what is required is to bring in devices under rate contract, which have different levels of energy consumption but are otherwise similar in all other respects. An example of this already exists: 36 W and 40 W fluorescent lamps; both lamps are essentially similar but differ in their energy consumption. While in this specific case, there may be good reasons to ultimately remove the 40 W lamp from being under rate contract, the example illustrates and affirms the basic possibility of this concept, and also the basic requirement for this concept to work which is that the rates need to be different.

Conceptually, energy consumption can be considered to be another attribute of a device just like its size. When considering device size, one could always go in for purchase of multiple numbers of a smaller size device. Hence, there is no need to have more than one size of a device under rate contract. The reason this is not so is because economic factors justify the selection of a larger size device, if needed, and hence there is a need for providing a choice of devices of different sizes. The same argument applies equally well with regard to the attribute of energy consumption.

Just as devices of the same size have same rates, but devices of different size have different rates, devices having similar energy consumption would have the same rates (as is already so), but devices having different energy consumption would have different rates. Thus, instead of the present system with one specified value of maximum energy consumption, there could be ranges or bands of energy consumption. Within each such range, the rate would be the same, but for different ranges, the rates would be different.

It may be argued that this practice would allow inefficient products to continue to be available for procurement. It may be noted again that inefficiency is relative and not absolute, and if overall economic considerations justify the use of such a product, it should be acceptable. In the long term, inefficient products would go out of the market naturally due to the effect of a number of factors.

Introduction of this practice would also implicitly take care of one of the weaknesses in the present system that during the process of concluding rate contracts, no consideration or weightage is given if the purchase specifications are bettered. Another weakness that would also be overcome is that the practice of one rate precludes manufacturers from offering products, which have higher energy efficiency under rate contract, but with a system of different rates, this may no longer need to be so.

Implementation would require suitable energy consumption ranges to be established for each device, based not only on data for devices of manufacturers under rate contract but also of devices available in the market but not under rate contract. Once the ranges are established, the same process as being followed now would apply.

Introduce life cycle cost analysis

As discussed and illustrated earlier, life cycle cost analysis is a powerful tool that can be used for evaluating the cost-effectiveness of energy-efficient devices. DGS&D should consider using life cycle costs in negotiating prices for the rate contracts. Thus, instead of ensuring that the initial price of different manufacturers is the same or within a narrow range, the life cycle cost could be kept the same or within a narrow range. Price can then be within a band, instead of fixing price at the same level for all suppliers.

This may, however, be difficult, as the factors on which life cycle costs depend --load/rating, usage, service life, electricity cost, discount rate -- will vary for different users. Hence, some standard values will need to be developed. However, this may not be easy, or it may even not be possible as some manufacturer or the other can dispute the standard values .

Provide more information and make information more accessible to users

DGS&D provides the information necessary for users to determine the life cycle costs in their application, as well as on the technique and tools of life cycle cost analysis. Information regarding energy consumption based on values declared by the manufacturer and verified through type tests can be incorporated in the rate contract. This information can also be furnished on the DGS&D website. The website will provide information on how life cycle cost analysis is done as well as enable the life cycle cost to be calculated after inputting the appropriate data. Another possibility could be providing links to other sites where this information could be made available. Sensitisation of users in this regard could also be done by DGS&D through its normal channels of communication.

Organise training on life cycle cost analysis and other changes in procurement system

Training can be organised by DGS&D's Institute of Supply and Quality Management, which imparts training to DGS&D officers, as well as from other government departments and private sector.

❑ *Changes Required On The Part Of Users*

The practices followed by users are influenced to some extent by the practices followed by DGS&D. Change in the DGS&D practices , as outlined above, would also result in changes at the users end. Thus, devices with different levels of energy consumption were available under rate contract, it would necessarily require consideration of energy efficiency also in the purchase decision.

Introduce life cycle cost analysis

As discussed above, the cost-effectiveness of an energy-efficient device is application-specific, and the use of life cycle cost analysis by users would be more appropriate and useful. This needs to be done recognising the relevance and importance of considering life cycle costs, but also recognising that these will vary from user to user and from application to application. As mentioned above, DGS&D could provide relevant information for determining life cycle costs within the rate contract or on its website. Sensitisation of users in this regard could also be done by DGS&D through its normal channels of communication.

Recommendations

From the abovementioned discussions, the following recommendations are suggested:

- For assessing the scope for improvement for various devices, a technology evaluation and upgradation study for each product should be undertaken. DGS&D should be associated in these studies, to draw on their knowledge and expertise as well to enable interaction with industry. Considering the potential, initial studies could be carried out for ceiling fans and exhaust fans.

- The supplier base for new energy-efficient products needs to be increased considerably by DGS&D. For this, a more pro-active approach by DGS&D may be necessary.

- Within an item, provision should be made for allowing devices with different levels of energy consumption under rate contract. Devices having similar energy consumption would have the same rates (as is already so), but devices having different energy consumption would have different rates. Thus, instead of the present system of having one specified value of maximum energy consumption, there could be ranges or bands of energy consumption. Within each such range, the rate would be the same, but for different ranges, the rates would be different. Implementation of this would require suitable energy consumption ranges to be established for each device, based not only on data for devices of manufacturers under rate contract but also of devices available in the market but not under rate contract. Once the ranges are established, the same process as being followed now would apply.

- DGS&D can be assisted in enhancing the availability of information on the DGS&D website. DGS&D can provide the information necessary for users to determine the life cycle costs in their application, and also provide information on the technique and tools of life cycle cost analysis. Another possibility could be to provide links to other sites where this information could be made available.

- DGS&D can be assisted in organising training programmes on life cycle cost analysis and other changes in procurement system. Training can be organised by DGS&D's Institute of Supply and Quality Management.

Items and stores on DGS&D rate contract and rates

- GLS Lamps
- Compact Fluorescent Lamp
- Integrated CFL/EB
- Fluorescent Tubes
- HPMV Lamps
- HVSV Lamps
- Compact Fluorescent Fittings
- Electrical and Decorative Fittings
- Electronic Ballast
- HVMV Lamps, Fittings and Accessories
- HPSV Lamp & Fittings
- Celling Fans
- Desert Coolers (Steel Body)
- Desert Coolers (Plastic Body)
- Window Mounted Air Conditioners
- Split Type Air Conditioners
- Heat Converters
- Exhaust Fans
- Geysers
- Water Heater "Geysers Horizontal Type Copper 25 Ltrs. 1500W C/T 30N/CM"
- Water Coolers
- Submersible Pumps

GLS Lamps

*Item No.: **14030101***
*Specification: **IS 418:1978***
*Estimated Drawl: **Rs. 8.20 crores***
*Valid up to: **December 31, 2000***

- *GLS Lamp, Single Coil/Coiled Coil, 230 V, 25 W*

Stores	Rates	
Asha Electrical & Electronic Ind., Siliguri	6.62	*
Bajaj Electricals Ltd., Mumbai	7.15	* & **
Edison Lamps Pvt. Ltd., Howrah	6.60	*
G.E. Lighting (I) Ltd., Nadiad	7.15	* & **
Philips India Ltd., New Delhi	7.15	* & **

- *GLS Lamp, 230 V, 40 W, BC*

Stores	Rates	
Bajaj Electricals Ltd., Mumbai	7.20	* & **
Crompton Greaves Ltd., Vadodara	7.20	* & **
Delhi Electric Industries, Delhi	6.67	*
Diamond Lamps Mfg. Industries, Calcutta	6.50	*
ECE Industries Ltd., New Delhi	7.20	* & **
Edison Lamps Pvt. Ltd., Howrah	6.67	*
G.E. Lighting (I) Ltd., Nadiad	7.20	* & **
Glory Lamps Works, Calcutta	6.65	*
Harmilan Electricals, Delhi	6.67	*
Jayanta Lamp Inds. Pvt. Ltd., Calcutta	6.50	*
Mercury Lighting Pvt. Ltd., Muzaffarnagar	7.20	* & **
Mysore Lamp Works Ltd., Bangalore	7.20	* & **
Osram India Ltd., New Delhi	7.20	* & **
Philips India Ltd., New Delhi	7.20	* & **
Ruchika Industries, New Delhi	6.67	*
Shiva Lamp Industries, Delhi	6.67	*
Surya Roshni Ltd., New Delhi	7.20	* & **
Unique Electrical Works, Calcutta	6.60	*

- *GLS Lamp. 250 V, 40 W. BC*

Stores	Rates	
Prestige Lights Ltd., Rishikesh	6.45	*
Unique Electrical Works, Calcutta	6.45	*

GLS Lamps

- *GLS Lamp, 230 V, 40 W, SC*

Stores	Rates	
Edison Lamps Pvt. Ltd., Howrah	7.00	*
Jayanta Lamp Inds. Pvt. Ltd., Calcutta	7.00	*

- *GLS Lamp, 250 V, 40 W, SC*

Stores	Rates	
Edison Lamps Pvt. Ltd., Howrah	7.00	*
Jayanta Lamp Inds. Pvt. Ltd., Calcutta	7.00	*
Prestige Lights Ltd., Rishikesh	7.00	*

- *GLS Lamp, Mushroom, 230 V, 40 W*

Stores	Rates	
Edison Lamps Pvt. Ltd., Howrah	6.45	*

- *GLS Lamp, 230 V, 60 W, BC*

Stores	Rates	
Bajaj Electricals Ltd., Mumbai	7.20	* & **
Crompton Greaves Ltd., Vadodara	7.20	* & **
Delhi Electric Industries, Delhi	6.67	*
Diamond Lamps Mfg. Industries, Calcutta	6.60	*
ECE Industries Ltd., New Delhi	7.20	* & **
Edison Lamps Pvt. Ltd., Howrah	6.67	*
G.E. Lighting (I) Ltd., Nadiad	7.20	* & **
Glory Lamps Works, Calcutta	6.65	*
Harmilan Electricals, Delhi	6.67	*
Jayanta Lamp Inds. Pvt. Ltd., Calcutta	6.50	*
Mercury Lighting Pvt. Ltd., Muzaffarnagar	7.20	* & **
Mysore Lamp Works Ltd., Bangalore	7.20	* & **
Osram India Ltd., New Delhi	7.20	* & **
Philips India Ltd., New Delhi	7.20	* & **
Ruchika Industries, New Delhi	6.67	*
Shiva Lamp Industries, Delhi	6.67	*
Surya Roshni Ltd., New Delhi	7.20	* & **
Unique Electrical Works, Calcutta	6.60	*

GLS Lamps

- *GLS Lamp, 250 V, 60 W, BC*

Stores	Rates	
Prestige Lights Ltd., Rishikesh	6.45	*
Solwyn & Arg. Pitrusmruti, Cuttack	6.70	*
Unique Electrical Works, Calcutta	6.45	*

- *GLS Lamp, 230 V, 60 W, SC*

Stores	Rates	
Edison Lamps Pvt. Ltd., Howrah	7.00	*
Jayanta Lamp Inds. Pvt. Ltd., Calcutta	7.00	*

- *GLS Lamp, 250 V, 60 W, SC*

Stores	Rates	
Edison Lamps Pvt. Ltd., Howrah	7.00	*
Jayanta Lamp Inds. Pvt. Ltd., Calcutta	7.00	*
Prestige Lights Ltd., Rishikesh	7.00	*

- *GLS Lamp, Mushroom, 230 V, 60 W*

Stores	Rates	
Edison Lamps Pvt. Ltd., Howrah	6.55	*

GLS Lamps

- *GLS Lamp, 230 V, 100 W, BC*

Stores	Rates	
Bajaj Electricals Ltd., Mumbai	7.41	* & **
Crompton Greaves Ltd., Vadodara	7.41	* & **
Delhi Electric Industries, Delhi	6.83	*
Diamond Lamps Mfg. Industries, Calcutta	6.80	*
ECE Industries Ltd., New Delhi	7.41	* & **
Edison Lamps Pvt. Ltd., Howrah	6.83	*
G.E. Lighting (I) Ltd., Nadiad	7.41	* & **
Glory Lamps Works, Calcutta	6.80	*
Harmilan Electricals, Delhi	6.83	*
Jayanta Lamp Inds. Pvt. Ltd., Calcutta	6.80	*
Mercury Lighting Pvt. Ltd., Muzaffarnagar	7.41	* & **
Mysore Lamp Works Ltd., Bangalore	7.41	* & **
Osram India Ltd., New Delhi	7.41	* & **
Philips India Ltd., New Delhi	7.41	* & **
Ruchika Industries, New Delhi	6.83	*
Shiva Lamp Industries, Delhi	6.63	*
Surya Roshni Ltd., New Delhi	7.41	* & **
Unique Electrical Works, Calcutta	6.70	*

- *GLS Lamp, 250 V, 100 W, BC*

Stores	Rates	
Delhi Electric Industries, Delhi	6.60	*
Prestige Lights Ltd., Rishikesh	6.60	*
Solwyn & Arg. Pitrusmruti, Cuttack	6.79	*
Unique Electrical Works, Calcutta	6.60	*

- *GLS Lamp, 230 V, 100 W, SC*

Stores	Rates	
Edison Lamps Pvt. Ltd., Howrah	7.10	*
Jayanta Lamp Inds. Pvt. Ltd., Calcutta	7.00	*

GLS Lamps

- *GLS Lamp, 250 V, 100 W, SC*

Stores	Rates	
Edison Lamps Pvt. Ltd., Howrah	7.10	*
Jayanta Lamp Inds. Pvt. Ltd., Calcutta	7.00	*
Prestige Lights Ltd., Rishikesh	7.15	*

- *GLS Lamp, Mushroom, 230 V, 100 W*

Stores	Rates	
Edison Lamps Pvt. Ltd., Howrah	6.70	*

- *GLS Lamp, Coiled Coil, 230 V, 150 W, BC*

Stores	Rates	
Unique Electrical Works, Calcutta	10.00	*

- *GLS Lamp, Coiled Coil, 250 V, 150 W, BC*

Stores	Rates	
Unique Electrical Works, Calcutta	9.98	*

- *GLS Lamp, Coiled Coil, 230 V, 200 W, BC*

Stores	Rates	
Unique Electrical Works, Calcutta	10.50	*

- *GLS Lamp, Coiled Coil, 250 V, 200 W, BC*

Stores	Rates	
Edison Lamps Pvt. Ltd., Howrah	10.86	*
Prestige Lights Ltd., Rishikesh	10.86	*
Unique Electrical Works, Calcutta	10.50	*

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 66-71

** Excise Duty Inclusive

Compact Fluorescent Lamps

*Item No.: **14031400***
*Specification: **IEC-901***
*Estimated Drawl: **Rs. 0.60 crores***
*Valid up to: **August 31, 2000 *, August 31, 2001 *****

- *Compact Fluorescent Lamp, 9 W, 2700 K, 600 Min. Lumens*

Stores	Rates	
Indo Asian Fusegear Ltd., Noida	88.00	* & ***
Osram India Pvt. Ltd., New Delhi	88.00	* & ***
Surya Roshni Ltd., New Delhi	88.00	* & ***

- *Compact Fluorescent Lamp, 9 W, 4000 K, 600 Min. Lumens*

Stores	Rates	
Indo Asian Fusegear Ltd., Noida	88.00	* & ***
Osram India Pvt. Ltd., New Delhi	88.00	* & ***
Surya Roshni Ltd., New Delhi	88.00	* & ***

- *Compact Fluorescent Lamp, 9 W, 6000 K, 600 Min. Lumens*

Stores	Rates	
Indo Asian Fusegear Ltd., Noida	88.00	* & ***
Osram India Pvt. Ltd., New Delhi	88.00	* & ***
Surya Roshni Ltd., New Delhi	88.00	* & ***

- *Compact Fluorescent Lamp, 11 W, 2700 K, 900 Min. Lumens*

Stores	Rates	
Indo Asian Fusegear Ltd., Noida	99.00	* & ***
Osram India Pvt. Ltd., New Delhi	99.00	* & ***
Surya Roshni Ltd., New Delhi	99.00	* & ***

Compact Fluorescent Lamps

- *Compact Fluorescent Lamp, 11 W, 4000 K, 900 Min. Lumens*

Stores	Rates	
Indo Asian Fusegear Ltd., Noida	99.00	* & ***
Osram India Pvt. Ltd., New Delhi	99.00	* & ***
Surya Roshni Ltd., New Delhi	99.00	* & ***

- *Compact Fluorescent Lamp, 11 W, 6000 K, 900 Min. Lumens*

Stores	Rates	
Indo Asian Fusegear Ltd., Noida	99.00	* & ***
Osram India Pvt. Ltd., New Delhi	99.00	* & ***
Surya Roshni Ltd., New Delhi	99.00	* & ***

- *FT, 20 W, Col. Temp. 6500 K*

Stores	Rates	
Phoenix Lamps India Ltd., Noida	71.72	** & ***

- *FT, 20 W, Col. Temp. 4300 K*

Stores	Rates	
Phoenix Lamps India Ltd., Noida	71.72	** & ***

- *FT, 36 W, Col. Temp. 6500 K*

Stores	Rates	
Phoenix Lamps India Ltd., Noida	71.72	** & ***

Compact Fluorescent Lamps

- *FT, 36 W, Col. Temp. 4300 K*

Stores	Rates	
Phoenix Lamps India Ltd., Noida	84.76	** & ***

- *FT, 80 W, Col. Temp. 6500 K*

Stores	Rates	
Phoenix Lamps India Ltd., Noida	84.76	** & ***

Notes:

* DGS&D Directory of Stores on Rate Contracts 2000, p. 35

** DGS&D Bulletin, October 2000, p. 17

*** Excise Duty Inclusive

Integrated CFL/EB

*Item No.: **14031500***
*Specification: **IEC-968, IEC-969***
*Estimated Drawl: **Rs. 1.00 crores***
*Valid up to: **June 15, 2001***

- *CFL, EB, 11 W, 2700 K, Lumens 600*

Stores	Rates	
Indo-Asian Fusegear Ltd., Noida	370.00	* & **

- *CFL, EB, 11 W, 4000 K, Lumens 600*

Stores	Rates	
Indo-Asian Fusegear Ltd., Noida	370.00	* & **

- *CFL, EB, 11 W, 6000 K, Lumens 565*

Stores	Rates	
Indo-Asian Fusegear Ltd., Noida	370.00	* & **

- *CFL, EB, 15 W, 2700 K, Lumens 900 (2 Tube)*

Stores	Rates	
Indo-Asian Fusegear Ltd., Noida	380.00	* & **

- *CFL, EB, 15 W, 4000 K, Lumens 900 (2 Tube)*

Stores	Rates	
Indo-Asian Fusegear Ltd., Noida	380.00	* & **

Integrated CFL/EB

- *CFL, EB, 15 W, 6000 K, Lumens 850 (2 Tube)*

Stores	Rates	
Indo-Asian Fusegear Ltd., Noida	380.00	* & **

- *CFL, EB, 20 W, 2700 K, Lumens 1200*

Stores	Rates	
Indo-Asian Fusegear Ltd., Noida	470.00	* & **

- *CFL, EB, 20 W, 4000 K, Lumens 1200*

Stores	Rates	
Indo-Asian Fusegear Ltd., Noida	470.00	* & **

- *CFL, EB, 20 W, 6000 K, Lumens 1140*

Stores	Rates	
Indo-Asian Fusegear Ltd., Noida	470.00	* & **

- *CFL, EB, 23 W, 2700 K, Lumens 1500*

Stores	Rates	
Indo-Asian Fusegear Ltd., Noida	510.00	* & **

- *CFL, EB, 23 W, 4000 K, Lumens 1500*

Stores	Rates	
Indo-Asian Fusegear Ltd., Noida	510.00	* & **

Integrated CFL/EB

- *CFL, EB, 23 W, 6000 K, Lumens 1400*

Stores	Rates	
Indo-Asian Fusegear Ltd., Noida	510.00	* & **

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 104

** Excise Duty Inclusive

Fluorescent Tubes

Item No.: 14030200
Specification: IS 2418
Estimated Drawl: Rs. 8.70 crores
*Valid up to:August 31, 2000 *, August 31, 2001 ***

- *FT, 20 W, Col. Temp. 6500 K*

Stores	Rates	
Bajaj Electricals Ltd., Mumbai	32.90	* & ***
G.E. Lighting India Ltd., Nadiad	32.90	** & ***
Ganga Lamps & Tubes Pvt. Ltd., Bangalore	28.00	*
Kalpna Lamps & Components Ltd., Chennai	32.90	* & ***
Mysore Lamps Works Ltd., Bangalore	32.90	* & ***
Philips India Ltd., New Delhi	32.90	* & ***
Surya Roshni Ltd., New Delhi	32.90	* & ***

- *FT, 20 W, Col. Temp. 4300 K*

Stores	Rates	
G.E. Lighting India Ltd., Nadiad	34.11	** & ***
Ganga Lamps & Tubes Pvt. Ltd., Bangalore	28.00	*
Philips India Ltd., New Delhi	34.11	* & ***

- *FT, 40 W, Col. Temp. 6500 K*

Stores	Rates	
Bajaj Electricals Ltd., Mumbai	34.11	* & ***
Crompton Greaves Ltd, Vadodara	34.11	* & ***
Kalpna Lamps & Components Ltd., Chennai	34.11	* & ***
Mysore Lamps Works Ltd., Bangalore	36.11	* & ***
Philips India Ltd., New Delhi	34.11	* & ***
Surya Roshni Ltd., New Delhi	34.11	* & ***

- *FT, 36 W, Col. Temp. 6500 K*

Stores	Rates	
Surya Roshni Ltd, New Delhi	32.81	** & ***

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 65-66
** DGS&D Bulletin, October 2000, p. 27
*** Excise Duty Inclusive

HPMV Lamps

Item No.: 14030701
Specification: IS 9900 (Part I-IV): 1981
Estimated Drawl: Rs. 1.00 crores
Valid up to: October 31, 2000

- *HPMV Lamp, 80 W, Cap Desi.E-27*

Stores	Rates	
Myna Electronics Pvt. Ltd., Gurgaon	112.79	* & **
Mysore Lamp Works Ltd., Bangalore	112.79	* & **
Philips India Ltd., New Delhi	112.79	* & **
Ramani Power Cables Pvt. Ltd., Delhi	112.79	* & **
Shinkolite Lamp & Light Inds. Pvt. Ltd., Noida	112.79	* & **
Solarson Industries Ltd., New Delhi	112.79	* & **
Surya Roshni Ltd., New Delhi	112.79	* & **

- *HPMV Lamp, 80 W, Cap Desi.B-22 D3*

Stores	Rates	
Myna Electronics Pvt. Ltd., Gurgaon	112.79	* & **
Mysore Lamp Works Ltd., Bangalore	112.79	* & **
Philips India Ltd., New Delhi	112.79	* & **
Ramani Power Cables Pvt. Ltd., Delhi	112.79	* & **
Shinkolite Lamp & Light Inds. Pvt. Ltd., Noida	112.79	* & **
Solarson Industries Ltd., New Delhi	112.79	* & **
Surya Roshni Ltd., New Delhi	112.79	* & **
Twinkle Lamps Inds. Pvt. Ltd., Noida	118.97	* & **

- *HPMV Lamp, 125 W, Cap Desi.E-27*

Stores	Rates	
Myna Electronics Pvt. Ltd., Gurgaon	118.97	* & **
Mysore Lamp Works Ltd., Bangalore	118.97	* & **
Philips India Ltd., New Delhi	118.97	* & **
Ramani Power Cables Pvt. Ltd., Delhi	118.97	* & **
Shinkolite Lamp & Light Inds. Pvt. Ltd., Noida	118.97	* & **
Solarson Industries Ltd., New Delhi	118.97	* & **
Surya Roshni Ltd., New Delhi	118.97	* & **
Twinkle Lamps Inds. Pvt. Ltd., Noida	118.97	* & **

HPMV Lamps

- *HPMV Lamp, 125 W, Cap Desi.B-22 D3*

Stores	Rates	
Myna Electronics Pvt. Ltd., Gurgaon	118.97	* & **
Mysore Lamp Works Ltd., Bangalore	118.97	* & **
Philips India Ltd., New Delhi	118.97	* & **
Ramani Power Cables Pvt. Ltd., Delhi	118.97	* & **
Shinkolite Lamp & Light Inds. Pvt. Ltd., Noida	118.97	* & **
Solarson Industries Ltd., New Delhi	118.97	* & **
Surya Roshni Ltd., New Delhi	118.97	* & **
Twinkle Lamps Inds. Pvt. Ltd., Noida	292.20	* & **

- *HPMV Lamp, 250 W, Cap Desi.E-40*

Stores	Rates	
Myna Electronics Pvt. Ltd., Gurgaon	292.20	* & **
Mysore Lamp Works Ltd., Bangalore	292.20	* & **
Philips India Ltd., New Delhi	292.20	* & **
Ramani Power Cables Pvt. Ltd., Delhi	292.20	* & **
Shinkolite Lamp & Light Inds. Pvt. Ltd., Noida	292.20	* & **
Solarson Industries Ltd., New Delhi	292.20	* & **
Surya Roshni Ltd., New Delhi	292.20	* & **
Twinkle Lamps Inds. Pvt. Ltd., Noida	402.90	* & **

- *HPMV Lamp, 400 W, Cap Desi.E-40*

Stores	Rates	
Myna Electronics Pvt. Ltd., Gurgaon	402.90	* & **
Mysore Lamp Works Ltd., Bangalore	402.90	* & **
Philips India Ltd., New Delhi	402.90	* & **
Ramani Power Cables Pvt. Ltd., Delhi	402.90	* & **
Shinkolite Lamp & Light Inds. Pvt. Ltd., Noida	402.90	* & **
Solarson Industries Ltd., New Delhi	402.90	* & **
Surya Roshni Ltd., New Delhi	402.90	* & **

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 71-73

** Excise Duty Inclusive

HPSV Lamps

Item No.: 14031200
Specification: IS 9974 (Part I-II): 1981
Estimated Drawl: Rs. 4.60 crores
Valid up to: February 28, 2001

- *HPSV Lamp, SON, 70 W*

Stores	Rates	
G. E. Lighting (I) Ltd, Nadiad	364.00	* & **
Myna Electronics Pvt. Ltd., Gurgaon	364.00	* & **
Mysore Lamp Works Ltd., Bangalore	364.00	*/** & ***
Philips India Ltd., New Delhi	364.00	* & **
Ramani Power Cables Pvt. Ltd., Delhi	364.00	* & **
Shinkolite Lamp & Light Inds. Pvt. Ltd., Noida	364.00	* & **
Solarson Industries Ltd., New Delhi	364.00	* & **
Surya Roshni Ltd., New Delhi	364.00	* & **
Twinkle Lamps Inds. Pvt. Ltd., Noida	364.00	* & **
Viliant Electronics Pvt Ltd, Indore	355.00	* & **

- *HPSV Lamp, SON-T, 70 W, (Tubular)*

Stores	Rates	
Ramani Power Cables Pvt. Ltd., Delhi	390.00	* & **
Shinkolite Lamp & Light Ind. Pvt. Ltd., New Delhi	390.00	* & **
Viliant Electricals Pvt. Ltd., Indore	380.00	* & **

- *HPSV Lamp, SON, 150 W*

Stores	Rates	
Crompton Greaves Ltd, Baroda	476.00	* & **
G. E. Lighting (I) Ltd, Nadiad	476.00	* & **
Philips India Ltd., New Delhi	476.00	*/** & ***
Ramani Power Cables Pvt. Ltd., Delhi	476.00	* & **
Shinkolite Lamp & Light Inds. Pvt. Ltd., Noida	476.00	* & **
Solarson Industries Ltd., New Delhi	476.00	* & **
Surya Roshni Ltd., New Delhi	476.00	* & **
Twinkle Lamps Inds. Pvt. Ltd., Noida	476.00	* & **
Viliant Electronics Pvt Ltd, Indore	470.00	* & **

HPSV Lamps

- *HPSV Lamp, SON-T, 150 W, (Tubular)*

Stores	Rates	
Philips India Ltd., New Delhi	513.00	*/** & ***
Ramani Power Cables Pvt. Ltd., Delhi	517.00	* & **
Shinkolite Lamp & Light Inds. Pvt. Ltd., Noida	517.00	* & **
Surya Roshni Ltd., New Delhi	617.00	* & **
Viliant Electronics Pvt Ltd, Indore	505.00	* & **

- *HPSV Lamp, SON, 250 W*

Stores	Rates	
Crompton Greaves Ltd, Baroda	520.00	* & **
G. E. Lighting (I) Ltd, Nadiad	520.00	* & **
Philips India Ltd., New Delhi	528.00	*/** & ***
Ramani Power Cables Pvt. Ltd., Delhi	520.00	* & **
Shinkolite Lamp & Light Inds. Pvt. Ltd., Noida	520.00	* & **
Solarson Industries Ltd., New Delhi	520.00	* & **
Surya Roshni Ltd., New Delhi	520.00	* & **
Twinkle Lamps Inds. Pvt. Ltd., Noida	520.00	* & **
Viliant Electronics Pvt Ltd, Indore	515.00	* & **

- *HPSV Lamp, SON-T, 250 W, (Tubular)*

Stores	Rates	
G. E. Lighting (I) Ltd, Nadiad	563.00	* & **
Philips India Ltd., New Delhi	583.00	*/** & ***
Ramani Power Cables Pvt. Ltd., Delhi	563.00	* & **
Shinkolite Lamp & Light Inds. Pvt. Ltd., Noida	563.00	* & **
Surya Roshni Ltd., New Delhi	563.00	* & **
Viliant Electronics Pvt Ltd, Indore	550.00	* & **

HPSV Lamps

- *HPSV Lamp, SON, 400 W*

Stores	Rates	
Crompton Greaves Ltd, Baroda	632.00	* & **
G. E. Lighting (I) Ltd, Nadiad	632.00	* & **
Philips India Ltd., New Delhi	632.00	*/** & ***
Ramani Power Cables Pvt. Ltd., Delhi	632.00	* & **
Shinkolite Lamp & Light Inds. Pvt. Ltd., Noida	632.00	* & **
Solarson Industries Ltd., New Delhi	632.00	* & **
Surya Roshni Ltd., New Delhi	632.00	* & **
Twinkle Lamps Inds. Pvt. Ltd., Noida	632.00	* & **
Viliant Electronics Pvt Ltd, Indore	620.00	* & **

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 73-76

** Excise Duty Inclusive

*** Price Variable

Compact Fluorescent Fittings

Item No.: 14909943
Specification: IS 10322:1984
Estimated Drawl: Rs. 5.00 crores
Valid up to: September 14, 2000, September 14, 2001***

- *Ballast, Copper Wire Wound, 9 W*

Stores	Rates	
Myna Electronics Pvt. Ltd., Gurgaon	50.40	**
Raj Electricals, Delhi	50.40	*
Shinkolite Pvt. Ltd., New Delhi	50.40	*

- *Ballast, Copper Wire Wound, 11 W*

Stores	Rates	
Fixo-Lite Industries, Mumbai	50.40	* & ***
Myna Electronics Pvt. Ltd., Gurgaon	50.40	**
Raj Electricals, Delhi	50.40	*
Ram-Lite Industries, Mumbai	50.40	* & ***
Shinkolite Pvt. Ltd., New Delhi	50.40	*
Sky-Lite Electro Fittings Pvt. Ltd., Mumbai	50.40	*

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 36-37
** DGS&D Bulletin, October 2000, p.18
*** Price Variable

Electrical and Decorative Fittings

Item No.: 14909937
Specification: IS 10322:1982, 1985
Estimated Drawl: Rs. 17.50 crores
Valid up to: October 16, 2000, October 16, 2001***

- *Ballast, Copper Wound, 20 W*

Stores	Rates	
Cee Dee Electricals, Delhi	83.00	*
Electrocine Industries, Delhi	83.00	*
Electronics Components Mfg. Co., Mumbai	83.00	*
Emkay Light Industries, Nagpur	83.00	*
Keselec India Pvt. Ltd., Faridabad	83.00	*
Kinjal Electricals Pvt. Ltd., Delhi	83.00	*
Modular Lighting, New Delhi	83.00	*
Myna Electronics Pvt. Ltd., Gurgaon	83.00	*
Raj Electrical, Delhi	83.00	*
Shinkolite Pvt. Ltd., New Delhi	83.00	*

- *Ballast, Copper Wound, 40 W*

Stores	Rates	
Allied Engineering Works, Delhi	83.00	**
Cee Dee Electricals, Delhi	83.00	*
Citizen Electricals Pvt. Ltd., New Delhi	83.00	*
Deepak Electric Industries, Mumbai	83.00	*
Electrocine Industries, Delhi	83.00	*
Electronics Components Mfg. Co., Mumbai	83.00	*
Emkay Light Industries, Nagpur	83.00	*
Jain Industrial Lighting Corp., Delhi	83.00	*
Keselec India Pvt. Ltd., Faridabad	83.00	*
Kinjal Electricals Pvt. Ltd., Delhi	83.00	*
Lord Krishna Electronics Industries, New Delhi	83.00	*
Lumen Control (I) Pvt. Ltd., New Delhi	83.00	*
Modular Lighting, New Delhi	83.00	*
Myna Electronics Pvt. Ltd., Gurgaon	83.00	*
Raj Electrical, Delhi	83.00	*
Satya Engg. Works Pvt. Ltd., New Delhi	83.00	*
Shinkolite Pvt. Ltd., New Delhi	83.00	*
The N.S.I.C. Ltd., Chennai	83.00	*

Electrical and Decorative Fittings

- *Ballast, Copper Wound, 80 W*

Stores	Rates	
Shinkolite Pvt. Ltd., New Delhi	168.00	*

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 42-50

** DGS&D Bulletin, November 2000, p.20-21

Electronic Ballasts

*Item No.: **14059045***
*Specification: **IS 13021:1991***
*Estimated Drawl: **Rs. 0.80 crores***
*Valid up to: **June 2, 2001***

- *Electronic Ballast, Size 1x36 W; 33 W Max.*

Stores	Rates	
Kumar Industries (MSD), Delhi	345.00	**
Myna Electronics Pvt. Ltd., Gurgaon	335.00	*

- *Electronic Ballast, Size 1x40 W; 37 W Max.*

Stores	Rates	
Kumar Industries (MSD), Delhi	345.00	**
Myna Electronics Pvt. Ltd., Gurgaon	335.00	*

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 59

** DGS&D Bulletin, November 2000, p.21

HPMV Lamps Fittings and Accessories

*Item No.: **14909938***
*Specification: **IS 1569:1976***
*Estimated Drawl: **Rs. 0.70 crores***
*Valid up to: **January 31, 2001***

- *HPMV Fittings, Copper Wound Ballast, 125 W*

Stores	Rates	
Chandigarh Lighting Industries, Mohali	170.00	*
Enkay Electricals (I) Regd., Delhi	170.00	*
Fixolite Industries, Mumbai	170.00	*
Integ Electronics, Delhi	170.00	*
Khinkolite Pvt. Ltd., New Delhi	170.00	*
Kumar Industries (MSD), Delhi	170.00	*
Myna Electronics Pvt. Ltd., Gurgaon	170.00	*
New Light Industries, Delhi	170.00	*
Raj Electricals, Delhi	170.00	*
Ramlite Industries, Mumbai	170.00	*
Satya Engg. Works Pvt. Ltd., New Delhi	170.00	*
Shinkolite Lamps & Light Inds. Pvt. Ltd., New Delhi	170.00	*
Sky-lite Electric Fixtures Pvt. Ltd., Mumbai	178.00	*
Star Light Industries, Delhi	170.00	*
Twinkle Industries, Delhi	170.00	*

- *HPMV Fittings, Copper Wound Ballast, 250 W*

Stores	Rates	
Chandigarh Lighting Industries, Mohali	295.00	*
Enkay Electricals (I) Regd., Delhi	295.00	*
Fixolite Industries, Mumbai	295.00	*
Integ Electronics, Delhi	295.00	*
Khinkolite Pvt. Ltd., New Delhi	295.00	*
Kumar Industries (MSD), Delhi	295.00	*
Myna Electronics Pvt. Ltd., Gurgaon	295.00	*
New Light Industries, Delhi	295.00	*
Raj Electricals, Delhi	295.00	*
Ramlite Industries, Mumbai	295.00	*
Satya Engg. Works Pvt. Ltd., New Delhi	295.00	*
Shinkolite Lamps & Light Inds. Pvt. Ltd., New Delhi	295.00	*
Sky-lite Electric Fixtures Pvt. Ltd., Mumbai	295.00	*
Star Light Industries, Delhi	295.00	*
Twinkle Industries, Delhi	295.00	*

HPMV Lamps Fittings and Accessories

- *HPMV Fittings, Copper Wound Ballast, 400 W*

Stores	Rates	
Chandigarh Lighting Industries, Mohali	392.00	*
Fixolite Industries, Mumbai	392.00	*
Integ Electronics, Delhi	392.00	*
Khinkolite Pvt. Ltd., New Delhi	392.00	*
Kumar Industries (MSD), Delhi	392.00	*
Myna Electronics Pvt. Ltd., Gurgaon	392.00	*
Raj Electricals, Delhi	392.00	*
Ramlite Industries, Mumbai	392.00	*
Satya Engg. Works Pvt. Ltd., New Delhi	392.00	*
Shinkolite Lamps & Light Inds. Pvt. Ltd., New Delhi	392.00	*
Sky-lite Electric Fixtures Pvt. Ltd., Mumbai	392.00	*
Star Light Industries, Delhi	392.00	*
Twinkle Industries, Delhi	392.00	*

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 89-95

HPSV Lamps Fittings

Item No.: 14909939
Specification: IS 10322:1987
Estimated Drawl: Rs. 4.70 crores
Valid up to: November 23, 2000

- *HPSV Fittings, Copper Wound Ballast, 70 W*

Stores	Rates	
Allied Engg. Works, Delhi	195.00	*
Atlas Industries, Delhi		
Cee Dee Electricals, Delhi	195.00	*
Chandigarh Lighting Industries, Mohali	195.00	*
Citizen Electricals Pvt. Ltd., New Delhi	193.00	*
Crown Steel Fabricators, New Delhi	195.00	*
Deepak Electric Industries, Mumbai	195.00	*
Deepsun Indl. Corp., Calcutta	195.00	*
Electrocine Industries, Delhi	195.00	*
Enkay Electricals (I) Regd., Delhi	195.00	*
Fixolite Industries, Mumbai	195.00	*
Florida Electrical Ind. Ltd., New Delhi	195.00	*
G.S. Lighting Pvt. Ltd., Gurgaon	195.00	*
Integ Electronics, Delhi	195.00	*
Jain Industries Lighting Corp., Delhi	195.00	*
Kinjal Electricals Pvt. Ltd., Delhi	195.00	*
Kohli & Co., New Delhi	185.00	*
Kumar Inds. (MSD), Delhi	195.00	*
Kumar Industries, Delhi	195.00	*
Lumen Control (I) Pvt. Ltd., Delhi	195.00	*
Modern Lighting Systems, Delhi	195.00	*
Modular Lighting, New Delhi	195.00	*
Myna Electronics Pvt. Ltd., Gurgaon	195.00	*
New Light Industries, Delhi	195.00	*
Raj Electricals, Delhi	195.00	*
Ramlite Industries, Mumbai	195.00	*
Safeway Electrical Indl. Pvt. Ltd., New Delhi	195.00	*
Satya Engg. Works Pvt. Ltd., New Delhi	195.00	*
Shinkolite Lamps & Light Inds. Pvt. Ltd., New Delhi	195.00	*
Shinkolite Pvt. Ltd., New Delhi	195.00	*
Sky-lite Electro Fixtures Pvt. Ltd., Mumbai	195.00	*
Star Light Industries, Delhi	195.00	*
Twinkle Industries, Delhi	195.00	*

HPSV Lamps Fittings

- *HPSV Fittings, Copper Wound Ballast, 150 W*

Stores	Rates	
Allied Engg. Works, Delhi	276.00	*
Atlas Industries, Delhi		
Cee Dee Electricals, Delhi	276.00	*
Chandigarh Lighting Industries, Mohali	276.00	*
Citizen Electricals Pvt. Ltd., New Delhi	272.00	*
Crown Steel Fabricators, New Delhi	276.00	*
Deepak Electric Industries, Mumbai	276.00	*
Deepsun Indl. Corp., Calcutta	276.00	*
Electrocine Industries, Delhi	276.00	*
Enkay Electricals (I) Regd., Delhi	276.00	*
Fixolite Industries, Mumbai	276.00	*
Florida Electrical Ind. Ltd., New Delhi	276.00	*
G.S. Lighting Pvt. Ltd., Gurgaon	276.00	*
Integ Electronics, Delhi	276.00	*
Jain Industries Lighting Corp., Delhi	276.00	*
Kinjal Electricals Pvt. Ltd., Delhi	276.00	*
Kohli & Co., New Delhi	276.00	*
Kumar Inds. (MSD), Delhi	276.00	*
Kumar Industries, Delhi	276.00	*
Lumen Control (I) Pvt. Ltd., Delhi	276.00	*
Modern Lighting Systems, Delhi	276.00	*
Modular Lighting, New Delhi	276.00	*
Myna Electronics Pvt. Ltd., Gurgaon	274.00	*
New Light Industries, Delhi	276.00	*
Raj Electricals, Delhi	276.00	*
Ramlite Industries, Mumbai	276.00	*
Safeway Electrical Indl. Pvt. Ltd., New Delhi	276.00	*
Satya Engg. Works Pvt. Ltd., New Delhi	276.00	*
Shinkolite Lamps & Light Inds. Pvt. Ltd., New Delhi	276.00	*
Shinkolite Pvt. Ltd., New Delhi	256.00	*
Sky-lite Electro Fixtures Pvt. Ltd., Mumbai	276.00	*
Star Light Industries, Delhi	276.00	*
Twinkle Industries, Delhi	276.00	*

HPSV Lamps Fittings

- *HPSV Fittings, Copper Wound Ballast, 250 W*

Stores	Rates	
Allied Engg. Works, Delhi	394.00	*
Atlas Industries, Delhi		
Cee Dee Electricals, Delhi	394.00	*
Chandigarh Lighting Industries, Mohali	394.00	*
Citizen Electricals Pvt. Ltd., New Delhi	391.00	*
Crown Steel Fabricators, New Delhi	394.00	*
Deepak Electric Industries, Mumbai	394.00	*
Deepsun Indl. Corp., Calcutta	394.00	*
Electrocine Industries, Delhi	394.00	*
Enkay Electricals (I) Regd., Delhi	394.00	*
Fixolite Industries, Mumbai	394.00	*
Florida Electrical Ind. Ltd., New Delhi	394.00	*
G.S. Lighting Pvt. Ltd., Gurgaon	394.00	*
Integ Electronics, Delhi	394.00	*
Jain Industries Lighting Corp., Delhi	394.00	*
Kinjal Electricals Pvt. Ltd., Delhi	394.00	*
Kohli & Co., New Delhi	394.00	*
Kumar Inds. (MSD), Delhi	394.00	*
Kumar Industries, Delhi	394.00	*
Lumen Control (I) Pvt. Ltd., Delhi	394.00	*
Modern Lighting Systems, Delhi	394.00	*
Modular Lighting, New Delhi	394.00	*
Myna Electronics Pvt. Ltd., Gurgaon	392.00	*
New Light Industries, Delhi	394.00	*
Raj Electricals, Delhi	394.00	*
Ramlite Industries, Mumbai	394.00	*
Safeway Electrical Indl. Pvt. Ltd., New Delhi	394.00	*
Satya Engg. Works Pvt. Ltd., New Delhi	394.00	*
Shinkolite Lamps & Light Inds. Pvt. Ltd., New Delhi	394.00	*
Shinkolite Pvt. Ltd., New Delhi	394.00	*
Sky-lite Electro Fixtures Pvt. Ltd., Mumbai	394.00	*
Star Light Industries, Delhi	394.00	*
Twinkle Industries, Delhi	394.00	*

HPSV Lamps Fittings

- *HPSV Fittings, Copper Wound Ballast, 400 W*

Stores	Rates	
Atlas Industries, Delhi		
Cee Dee Electricals, Delhi	483.00	*
Chandigarh Lighting Industries, Mohali	483.00	*
Citizen Electricals Pvt. Ltd., New Delhi	480.00	*
Deepsun Indl. Corp., Calcutta	483.00	*
Enkay Electricals (I) Regd., Delhi	484.00	*
Fixolite Industries, Mumbai	483.00	*
Florida Electrical Ind. Ltd., New Delhi	483.00	*
G.S. Lighting Pvt. Ltd., Gurgaon	483.00	*
Integ Electronics, Delhi	483.00	*
Kinjal Electricals Pvt. Ltd., Delhi	483.00	*
Kohli & Co., New Delhi	483.00	*
Kumar Inds. (MSD), Delhi	483.00	*
Kumar Industries, Delhi	483.00	*
Myna Electronics Pvt. Ltd., Gurgaon	480.00	*
New Light Industries, Delhi	483.00	*
Raj Electricals, Delhi	483.00	*
Ramlite Industries, Mumbai	483.00	*
Satya Engg. Works Pvt. Ltd., New Delhi	483.00	*
Shinkolite Lamps & Light Inds. Pvt. Ltd., New Delhi	483.00	*
Shinkolite Pvt. Ltd., New Delhi	483.00	*
Sky-lite Electro Fixtures Pvt. Ltd., Mumbai	483.00	*
Star Light Industries, Delhi	483.00	*
Twinkle Industries, Delhi	483.00	*

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 76-88

Ceiling Fans

Item No.: 14040100
Specification: IS 374:1979
Estimated Drawl: Rs. 18.50 crores
Valid up to: November 18, 2000

- *Ceiling Fans, Capacitor Type, Double Ball Bearing, 1200 mm Sweep*

Stores	Rates	
Allied Engineering Works, Delhi	636.00	*
Aman Electric Works Pvt. Ltd., Delhi	636.00	*
Bajaj Electricals Ltd., Pune	636.00	*
Bharat Industrial Corp. (Regd.), New Delhi	636.00	*
Breezy Fans & Furniture Co., Akola	636.00	*
Cipla Electrical Industries, New Delhi	636.00	*
Crompton Greaves Ltd., Mumbai	636.00	*
Devi Fans Pvt. Ltd., Hyderabad	625.00	*
Dynasty India Pvt. Ltd., Noida	636.00	*
Fan Makers, Calcutta	636.00	*
Fiorida Electrical Industries, New Delhi	636.00	*
Frac Power Motors, New Delhi	636.00	*
Gautami Electrical Appliances, Hyderabad	636.00	*
Goel Electronics, Delhi	633.00	*
Guru Technologies (India) Pvt. Ltd., Delhi	636.00	*
Himadri Electricals Pvt. Ltd., Calcutta	636.00	*
Jain Industrial Lighting Corp., Delhi	636.00	*
Jay Engineering Works Ltd., New Delhi	636.00	*
Kedia Electricals Ltd., Hyderabad	636.00	*
Khaitan Electricals Ltd., Calcutta	636.00	*
Khaitan Electricals Ltd., Hyderabad	636.00	*
M.P. Electricals, Calcutta	635.00	*
Mamta Products, Delhi	636.00	*
Marsons Fan Industries, Calcutta	636.00	*
Metro Appliances Ltd., New Delhi	636.00	*
Modern Home Comforts Pvt. Ltd., Gwalior	636.00	*
Modern Industrial Enterprises, New Delhi	636.00	*
Modern Lighting Systems, Delhi	636.00	*
Nayyar & Associates Pvt. Ltd., New Delhi	636.00	*
Orient Fan, Calcutta	636.00	*
Pancheshwar Electrical Appliances, Hyderabad	612.00	*
Polar Fan Industries Ltd., Calcutta	636.00	*
Polar Industries Ltd., Noida	636.00	*
Relex Fans Industries, Calcutta	634.00	*
Royal Electro Tech Ltd., Delhi	636.00	*
Sahyog Electricals Pvt. Ltd., Rajkot	636.00	*
Shri Durga Industries (Regd.), New Delhi	636.00	*
Sujana Industries Ltd., Hyderabad	636.00	*
Super Cassettes Industries Ltd., Noida	636.00	*
Ujala Industries, Delhi	636.00	*
Zen Electrical, Delhi	636.00	*

Ceiling Fans

- *Ceiling Fans, Capacitor Type, Double Ball Bearing, 900 mm Sweep*

Stores	Rates	
Kedia Electricals Ltd., Hyderabad	600.00	*
Ujala Industries, Delhi	600.00	*

- *Ceiling Fans, Capacitor Type, Double Ball Bearing, 1500 mm Sweep*

Stores	Rates	
Fan Makers, Calcutta	702.77	*
Himadri Electricals Pvt. Ltd., Calcutta	702.77	*

Ceiling Fans

- *Ceiling Fans, Capacitor Type, Double Ball Bearing, 1400 mm Sweep*

Stores	Rates	
Allied Engineering Works, Delhi	683.70	*
Aman Electric Works Pvt. Ltd., Delhi	683.00	*
Bajaj Electricals Ltd., Pune	683.70	*
Bharat Industrial Corp. (Regd.), New Delhi	683.70	*
Breezy Fans & Furniture Co., Akola	683.70	*
Cipla Electrical Industries, New Delhi	683.70	*
Crompton Greaves Ltd., Mumbai	683.70	*
Devi Fans Pvt. Ltd., Hyderabad	655.00	*
Dynasty India Pvt. Ltd., Noida	683.70	*
Fan Makers, Calcutta	683.70	*
Fiorida Electrical Industries, New Delhi	683.70	*
Frac Power Motors, New Delhi	683.70	*
Gautami Electrical Appliances, Hyderabad	683.70	*
Goel Electronics, Delhi	681.00	*
Guru Technologies (India) Pvt. Ltd., Delhi	683.70	*
Himadri Electricals Pvt. Ltd., Calcutta	683.70	*
Jain Industrial Lighting Corp., Delhi	683.70	*
Jay Engineering Works Ltd., New Delhi	683.70	*
Kedia Electricals Ltd., Hyderabad	683.70	*
Khaitan Electricals Ltd., Calcutta	683.70	*
Khaitan Electricals Ltd., Hyderabad	683.70	*
M.P. Electricals, Calcutta	680.00	*
Mamta Products, Delhi	683.00	*
Marsons Fan Industries, Calcutta	683.70	*
Metro Appliances Ltd., New Delhi	683.70	*
Modern Home Comforts Pvt. Ltd., Gwalior	683.70	*
Modern Industrial Enterprises, New Delhi	683.70	*
Modern Lighting Systems, Delhi	683.70	*
Nayyar & Associates Pvt. Ltd., New Delhi	683.00	*
Orient Fan, Calcutta	683.70	*
Pancheshwar Electrical Appliances, Hyderabad	657.00	*
Polar Fan Industries Ltd., Calcutta	683.70	*
Polar Industries Ltd., Noida	683.70	*
Relex Fans Industries, Calcutta	682.00	*
Royal Electro Tech Ltd., Delhi	683.70	*
Sahyog Electricals Pvt. Ltd., Rajkot	683.70	*
Shri Durga Industries (Regd.), New Delhi	683.70	*
Sujana Industries Ltd., Hyderabad	683.70	*
Super Cassettes Industries Ltd., Noida	683.70	*
Ujala Industries, Delhi	683.70	*
Zen Electrical, Delhi	683.70	*

Ceiling Fans

- *Speed Regulator for Ceiling Fans (Resistance Type)*

Stores	Rates	
Allied Engineering Works, Delhi	36.00	*
Aman Electric Works Pvt. Ltd., Delhi	36.00	*
Bajaj Electricals Ltd., Pune	36.00	*
Bharat Industrial Corp. (Regd.), New Delhi	36.00	*
Breezy Fans & Furniture Co., Akola	36.00	*
Cipla Electrical Industries, New Delhi	36.00	*
Crompton Greaves Ltd., Mumbai	36.00	*
Devi Fans Pvt. Ltd., Hyderabad	35.00	*
Dynasty India Pvt. Ltd., Noida	36.00	*
Fan Makers, Calcutta	36.00	*
Fiorida Electrical Industries, New Delhi	36.00	*
Frac Power Motors, New Delhi	36.00	*
Gautami Electrical Appliances, Hyderabad	36.00	*
Goel Electronics, Delhi	36.00	*
Guru Technologies (India) Pvt. Ltd., Delhi	36.00	*
Himadri Electricals Pvt. Ltd., Calcutta	36.00	*
Jain Industrial Lighting Corp., Delhi	36.00	*
Jay Engineering Works Ltd., New Delhi	36.00	*
Kedia Electricals Ltd., Hyderabad	36.00	*
Khaitan Electricals Ltd., Calcutta	36.00	*
Khaitan Electricals Ltd., Hyderabad	36.00	*
M.P. Electricals, Calcutta	35.00	*
Mamta Products, Delhi	36.00	*
Marsons Fan Industries, Calcutta	36.00	*
Metro Appliances Ltd., New Delhi	36.00	*
Modern Home Comforts Pvt. Ltd., Gwalior	36.00	*
Modern Industrial Enterprises, New Delhi	36.00	*
Modern Lighting Systems, Delhi	36.00	*
Nayyar & Associates Pvt. Ltd., New Delhi	36.00	*
Orient Fan, Calcutta	36.00	*
Pancheshwar Electrical Appliances, Hyderabad	35.00	*
Polar Fan Industries Ltd., Calcutta	36.00	*
Polar Industries Ltd., Noida	36.00	*
Relex Fans Industries, Calcutta	36.00	*
Royal Electro Tech Ltd., Delhi	36.00	*
Sahyog Electricals Pvt. Ltd., Rajkot	35.00	*
Shri Durga Industries (Regd.), New Delhi	36.00	*
Sujana Industries Ltd., Hyderabad	36.00	*
Super Cassettes Industries Ltd., Noida	36.00	*
Ujala Industries, Delhi	36.00	*
Zen Electrical, Delhi	36.00	*

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 332-341

Desert Coolers (Steel Body)

Item No.: 14080701
Specification: IS 3315:1994
Estimated Drawl: Rs. 4.83 crores
Valid up to: January 12, 2001

- *Desert Cooler, (Evaporative Air Cooler), 1800 CuM/hr (RAC)*

Stores	Rates	
Alpine Industries, New Delhi	2210.00	*
Amba Engineering Industries, Jaipur	2210.00	*
Avin Ligpht Industries Pvt. Ltd., Delhi	2210.00	*
B.D. Refrigerations, New Delhi	2210.00	*
Beekay Enterprises, New Delhi	2210.00	*
Crown Steel Fabricators, New Delhi	2210.00	*
Esskay Electricals, New Delhi	2210.00	*
Gupta Industries, Chandigarh	2210.00	*
Gurdav Singh & Sons, New Delhi	2200.00	*
J.K. Electricals (India), New Delhi	2210.00	*
Jejani Associated Industries, Nagpur	2210.00	**
Mansarovar Industrial Corp., New Delhi	2210.00	*
Nida Products, Faridabad	2210.00	*

- *Desert Cooler, (Evaporative Air Cooler), 3000 CuM/hr (RAC)*

Stores	Rates	
Alpine Industries, New Delhi	3040.00	*
Amba Engineering Industries, Jaipur	3040.00	*
Ashoka Casting & Engg. Works, Jaipur	3020.00	*
Avin Ligpht Industries Pvt. Ltd., Delhi	3039.00	*
B.D. Refrigerations, New Delhi	3030.00	*
Beekay Enterprises, New Delhi	3040.00	*
Crown Steel Fabricators, New Delhi	3040.00	*
Esskay Electricals, New Delhi	3020.00	*
Gupta Industries, Chandigarh	3040.00	*
Gurdav Singh & Sons, New Delhi	3020.00	*
Hindustan Combines, Hyderabad	3040.00	*
J.K. Electricals (India), New Delhi	3040.00	*
Jawahar Industries, Kanpur	3040.00	*
Jejani Associated Industries, Nagpur	3040.00	**
Mansarovar Industrial Corp., New Delhi	3040.00	*
Meghdoot Steel Industries, Agra	2990.00	*
Nida Products, Faridabad	3040.00	*
Nikhil International, Jaipur	2935.00	*
S.M. Cooler Industries Pvt. Ltd., Hyderabad	3020.00	*
Sanket Steel Industries, Nagpur	3040.00	*
Shakti Industries, Hyderabad	3020.00	*
Swastik Refrigeration, Nagpur	3035.00	*
Vaidya Industries, Nagpur	3040.00	*
Veekay Associates, Jaipur	3010.00	*

Desert Coolers (Steel Body)

- *Desert Cooler, (Evaporative Air Cooler), 4000 CuM/hr (RAC)*

Stores	Rates	
Alpine Industries, New Delhi	3270.00	*
Amba Engineering Industries, Jaipur	3270.00	*
Anand Metalex, Jodhpur	3275.00	*
Ashoka Casting & Engg. Works, Jaipur	3240.00	*
Avin Ligpht Industries Pvt. Ltd., Delhi	3269.00	*
B.D. Refrigerations, New Delhi	3260.00	*
Beekay Enterprises, New Delhi	3270.00	*
Crown Steel Fabricators, New Delhi	3270.00	*
Esskay Electricals, New Delhi	3240.00	*
Gupta Industries, Chandigarh	3270.00	*
Gurdav Singh & Sons, New Delhi	3250.00	*
Hindustan Combines, Hyderabad	3270.00	*
J.K. Electricals (India), New Delhi	3270.00	*
Jawahar Industries, Kanpur	3270.00	*
Jejani Associated Industries, Nagpur	3270.00	**
Mansarovar Industrial Corp., New Delhi	3270.00	*
Meghdoot Steel Industries, Agra	3220.00	*
Nida Products, Faridabad	3270.00	*
Nikhil International, Jaipur	3165.00	*
S.M. Cooler Industries Pvt. Ltd., Hyderabad	3240.00	*
Sanket Steel Industries, Nagpur	3270.00	*
Shakti Industries, Hyderabad	3240.00	*
Swastik Refrigeration, Nagpur	3270.00	*
Vaidya Industries, Nagpur	3270.00	*
Veekay Associates, Jaipur	3230.00	*

- *Desert Cooler, (Evaporative Air Cooler), 5000 CuM/hr (RAC)*

Stores	Rates	
Alpine Industries, New Delhi	3650.00	*
Amba Engineering Industries, Jaipur	3650.00	*
Ashoka Casting & Engg. Works, Jaipur	3640.00	*
Avin Ligpht Industries Pvt. Ltd., Delhi	3649.00	*
B.D. Refrigerations, New Delhi	3640.00	*
Beekay Enterprises, New Delhi	3650.00	*
Crown Steel Fabricators, New Delhi	3650.00	*
Esskay Electricals, New Delhi	3635.00	*
Gupta Industries, Chandigarh	3650.00	*
Gurdav Singh & Sons, New Delhi	3625.00	*
Hindustan Combines, Hyderabad	3650.00	*

Desert Coolers (Steel Body)

Stores	Rates	
J.K. Electricals (India), New Delhi	3650.00	*
Jawahar Industries, Kanpur	3650.00	*
Jejani Associated Industries, Nagpur	3650.00	**
Mansarovar Industrial Corp., New Delhi	3650.00	*
Meghdoot Steel Industries, Agra	3600.00	*
Nida Products, Faridabad	3650.00	*
Nikhil International, Jaipur	3595.00	*
S.M. Cooler Industries Pvt. Ltd., Hyderabad	3640.00	*
Sanket Steel Industries, Nagpur	3650.00	*
Shakti Industries, Hyderabad	3640.00	*
Swastik Refrigeration, Nagpur	3650.00	*
Vaidya Industries, Nagpur	3650.00	*
Veekay Associates, Jaipur	3630.00	*

- *Desert Cooler, (Evaporative Air Cooler), 6000 CuM/hr (RAC)*

Stores	Rates	
Amba Engineering Industries, Jaipur	4095.00	*
Anand Metalex, Jodhpur	4100.00	*
Avin Ligpht Industries Pvt. Ltd., Delhi	4094.00	*
B.D. Refrigerations, New Delhi	4080.00	*
Beekay Enterprises, New Delhi	4075.00	*
Crown Steel Fabricators, New Delhi	4095.00	*
Esskay Electricals, New Delhi	4075.00	*
Gupta Industries, Chandigarh	4095.00	*
Gurdav Singh & Sons, New Delhi	4075.00	*
Hindustan Combines, Hyderabad	4095.00	*
J.K. Electricals (India), New Delhi	4095.00	*
Jawahar Industries, Kanpur	4095.00	*
Jejani Associated Industries, Nagpur	3910.00	**
Mansarovar Industrial Corp., New Delhi	4095.00	*
Meghdoot Steel Industries, Agra	4040.00	*
Nida Products, Faridabad	3974.00	*
S.M. Cooler Industries Pvt. Ltd., Hyderabad	4095.00	*
Sanket Steel Industries, Nagpur	4095.00	*
Shakti Industries, Hyderabad	4095.00	*
Swastik Refrigeration, Nagpur	3900.00	*
Vaidya Industries, Nagpur	4095.00	*

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 342-347

** DGS&D Bulletin, September 2000, p. 30

Plastic Body Cooler (Desert Type)

Item No.: 14080702
Specification: IS 11951:1987
Estimated Drawl: Rs. 0.50 crores
Valid up to: April 6, 2001

- [illegible]

Stores	Rates	
Swastik Refrigerations, Nagpur	4590.00	*
Symphony Comfort Systems Ltd., Ahmedabad	3956.90	*

- [illegible]

Stores	Rates	
Swastik Refrigerations, Nagpur	4960.00	*
Symphony Comfort Systems Ltd., Ahmedabad	4274.86	*

Notes
* DGS&D Directory of Stores on Rate Contracts 2000, p. 365-366

Window Mounted Air Conditioner

*Item No.: **14080205***
*Specification: **IS 1391 (Part I):1992***
*Estimated Drawl: **Rs. 33.50 crores***
*Valid up to: **August 23, 2001***

- *Air Conditioner, (Window Mounted Type), Cap 1.0 Ton, 230 Volts, 50 Hz*

Stores	Rates	
Air Conditioning Corp. Ltd., Calcutta	14000.00	**
Amtrex Hitachi Appliances Ltd., Ahmedabad	14000.00	**
Crown Steel Fabricators, New Delhi	14000.00	***
Frac Power Motors, New Delhi	16650.00	**
Kirloskar Aircon Ltd., Pune	14000.00	**
Kirloskar Airtech Ltd., Pune	14000.00	**
Sidwal Refrigeration Industries Ltd., Faridabad	14000.00	***
Siel Aircon Ltd., New Delhi	14000.00	**
Videocon Appliances Ltd., Aurangabad	14000.00	*

- *Air Conditioner, (Window Mounted Type), Cap 1.5 Ton, 230 Volts, 50 Hz*

Stores	Rates	
Air Conditioning Corp. Ltd., Calcutta	17000.00	**
Amber Enterprises (India) Ltd., Rajpura	17000.00	**
Amtrex Hitachi Appliances Ltd., Ahmedabad	17000.00	**
B.D. Refrigerations, New Delhi	17000.00	**
Blue Star Ltd., Chennai	17000.00	**
Carrier Aircon Ltd., Gurgaon	17000.00	**
Cas Engineers Pvt. Ltd., New Delhi	17000.00	**
Chetan Industries, Bhopal	17000.00	**
Citi Airconditioning Industries, New Delhi	17000.00	**
Crown Steel Fabricators, New Delhi	17000.00	***
Frac Power Motors, New Delhi	21500.00	**
Godrej-GE Appliances, Mumbai	17000.00	**
Gujral Aircon Ltd., Delhi	17000.00	**
Kirloskar Aircon Ltd., Pune	17000.00	**
Kirloskar Airtech Ltd., Pune	17000.00	**
LG Electronics India Pvt. Ltd., Greater Noida	17000.00	**
Mechwlec Steel Products, Vadodara	17000.00	**
Purisons Engineers Pvt. Ltd., New Delhi	17000.00	**
Pury's Refrigerations, Lucknow	17000.00	**
Sidwal Refrigeration Industries Ltd., Faridabad	17000.00	***
Siel Aircon Ltd., New Delhi	17000.00	**
Voltas Ltd., Mumbai	17000.00	**

Window Mounted Air Conditioner

- *Air Conditioner, (Window Mounted Type), Cap 2.0 Ton, 230 Volts, 50 Hz*

Stores	Rates	
Air Conditioning Corp. Ltd., Calcutta	22000.00	**
Amtrex Hitachi Appliances Ltd., Ahmedabad	22000.00	**
Blue Star Ltd., Chennai	22000.00	**
Carrier Aircon Ltd., Gurgaon	22000.00	**
Crown Steel Fabricators, New Delhi	22000.00	***
Godrej-GE Appliances, Mumbai	22000.00	**
Gujral Aircon Ltd., Delhi	22000.00	**
Kirloskar Aircon Ltd., Pune	22000.00	**
Kirloskar Airtech Ltd., Pune	22000.00	**
Purisons Engineers Pvt. Ltd., New Delhi	22000.00	**
Sidwal Refrigeration Industries Ltd., Faridabad	22000.00	***
Siel Aircon Ltd., New Delhi	22000.00	**
Voltas Ltd., Mumbai	22000.00	**
Videocon Appliances Ltd., Aurangabad	22000.00	*

Notes

* DGS&D Bulletin, September 2000, p. 63

** DGS&D Bulletin, October 2000, p. 64-67

*** DGS&D Bulletin, November 2000, p. 35

Split Type Air Conditioner

Item No.: 14080201
Specification: IS 1391 (Part II):1992
Estimated Drawl: Rs. 14.00 crores
Valid up to: November 15, 2000

- *Air Conditioner, (Split Type), Cap 1.0 Ton, 230 Volts, 50 Hz*

Stores	Rates	
Carrier Aircon Ltd., Gurgaon	21746.15	*
Videocon Appliances Ltd., Aurangabad	21746.15	*
Voltas Ltd., Mumbai	21740.00	*

- *Air Conditioner, (Split Type), Cap 1.5 Ton, 230 Volts, 50 Hz*

Stores	Rates	
Air Conditioning Corp. Ltd., Calcutta	23850.00	*
Air Control Systems, Hyderabad	24053.00	*
Amtrex Appliances Ltd., Ahmedabad	24053.00	*
Carrier Aircon Ltd., Gurgaon	24053.00	*
Cas Engineers Pvt. Ltd., New Delhi	24053.00	*
Chetan Industries, Bhopal	23950.00	*
Crown Steel Fabricators, New Delhi	24000.00	*
Fedders Lloyd Corp. Ltd., New Delhi	24000.00	*
Gujral Aircon Ltd., Delhi	24053.00	*
Mechelec Steel Products, Vadodara	24053.00	*
Paul & Co., New Delhi	24053.00	*
Purisons Engineers Pvt. Ltd., New Delhi	24053.00	*
Sidwal Refrigeration Industries Ltd., Faridabad	24053.00	*
Siel Aircon Ltd., New Delhi	23990.00	*
Videocon Appliances Ltd., Aurangabad	24053.00	*
Voltas Ltd., Mumbai	24050.00	*

Split Type Air Conditioner

- *Air Conditioner, (Split Type), Cap 2.0 Ton, 230 Volts, 50 Hz*

Stores	Rates	
Air Conditioning Corp. Ltd., Calcutta	27700.00	*
Air Control Systems, Hyderabad	27900.00	*
Amtrex Appliances Ltd., Ahmedabad	27900.00	*
Carrier Aircon Ltd., Gurgaon	27900.00	*
Cas Engineers Pvt. Ltd., New Delhi	27900.00	*
Crown Steel Fabricators, New Delhi	27900.00	*
Fedders Lloyd Corp. Ltd., New Delhi	27750.00	*
Gujral Aircon Ltd., Delhi	27900.00	*
Mechelec Steel Products, Vadodara	27900.00	*
Paul & Co., New Delhi	27900.00	*
Purisons Engineers Pvt. Ltd., New Delhi	27900.00	*
Sidwal Refrigeration Industries Ltd., Faridabad	27900.00	*
Siel Aircon Ltd., New Delhi	27775.00	*
Videocon Appliances Ltd, Aurangabad	27900.00	*
Voltas Ltd, Mumbai	27900.00	*

- *Air Conditioner, (Split Type), Cap 3.0 Ton, 230 Volts, 50 Hz*

Stores	Rates	
Gujral Aircon Ltd., Delhi	39900.00	*
Purisons Engineers Pvt. Ltd., New Delhi	39900.00	*

- *Air Conditioner, (Multisplit Type), Cap 3.0 Ton, 230 Volts, 50 Hz*

Stores	Rates	
Air Control Systems, Hyderabad	35900.00	*

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 368-371

Heat Convectors

*Item No.: **14080905***
*Specification: **IS 4283:1981***
*Estimated Drawl: **Rs. 0.09 crores***
*Valid up to: **March 31, 2001***

- *Heaters Convectors, Hot Air Fan cum Room Heater, 2000 Watts, Single*

Stores	Rates	
Amba Engineering Industries, Jaipur	547.00	*
Ansu Electrotechnics Pvt. Ltd., New Delhi	545.00	*
B.D. Refrigerations, New Delhi	570.00	**
Bee Kay Enterprises, New Delhi	550.00	*
Ditz Electricals (I) Ltd., Delhi	570.00	*
Hanuman Electricals, Agra	570.00	*
Pearl Appliances Pvt. Ltd., Delhi	570.00	*
Thermoking, New Delhi	547.00	***

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 358-359
** DGS&D Bulletin, September 2000, p. 37
*** DGS&D Bulletin, November 2000, p. 32

Exhaust Fans

Item No.: 14040400
Specification: PS 2312:1967
Estimated Drawl: Rs. 4.04 crores
Valid up to: September 5, 2001

- *Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 300 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	953.00	*
Atlas Industries, Delhi	953.00	**
Cipla Electrical Industries, New Delhi	953.25	*
Florida Electrical Industries, New Delhi	953.25	*
Garg Udyog, Delhi	953.25	*
Goel Electronics, Delhi	951.00	*
Gupta Bakelite Factory, Delhi	951.00	*
Integ Electronics, New Delhi	953.25	*
J.K. Electricals (India), New Delhi	953.00	*
Jain Industrial Lighting Corp., Delhi	953.00	*
Konark Engg Works (India), Ghaziabad	953.00	*
Mamta Products, Delhi	953.00	*
Modern Industries Enterprises, New Delhi	953.25	*
Nagpal Electric & Radio Co., New Delhi	953.25	*
Nida Products, Faridabad	953.00	*
Royal Electro Tech Ltd., Delhi	953.00	*
Satya Engineering Works Pvt. Ltd., New Delhi	951.00	*
Surya Kiran Engg. Works, Noida	949.00	*
Zen Electrical, Delhi	951.00	**

- *Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 300 mm, 4 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	968.00	*
Atlas Industries, Delhi	968.00	**
Cipla Electrical Industries, New Delhi	968.62	*
Florida Electrical Industries, New Delhi	968.62	*
Garg Udyog, Delhi	968.62	*
Goel Electronics, Delhi	966.00	*
Gupta Bakelite Factory, Delhi	976.00	*
Integ Electronics, New Delhi	968.62	*
J.K. Electricals (India), New Delhi	966.00	*
Jain Industrial Lighting Corp., Delhi	968.00	*
Konark Engg Works (India), Ghaziabad	968.00	*
Mamta Products, Delhi	968.00	*
Modern Industries Enterprises, New Delhi	968.62	*
Nagpal Electric & Radio Co., New Delhi	968.62	*
Nida Products, Faridabad	968.00	*
Royal Electro Tech Ltd., Delhi	968.00	*
Satya Engineering Works Pvt. Ltd., New Delhi	968.00	*
Surya Kiran Engg. Works, Noida	964.00	*
Zen Electrical, Delhi	967.00	**

Exhaust Fans

- *Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 380 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	1119.00	*
Atlas Industries, Delhi	1119.00	**
Cipla Electrical Industries, New Delhi	1119.30	*
Florida Electrical Industries, New Delhi	1119.30	*
Garg Udyog, Delhi	1119.30	*
Goel Electronics, Delhi	1118.00	*
Gupta Bakelite Factory, Delhi	1118.00	*
Integ Electronics, New Delhi	1119.30	*
J.K. Electricals (India), New Delhi	1119.00	*
Jain Industrial Lighting Corp., Delhi	1119.00	*
Konark Engg Works (India), Ghaziabad	1119.00	*
Mamta Products, Delhi	1119.00	*
Modern Industries Enterprises, New Delhi	1119.30	*
Nagpal Electric & Radio Co., New Delhi	1119.20	*
Nida Products, Faridabad	1119.00	*
Royal Electro Tech Ltd., Delhi	1119.00	*
Satya Engineering Works Pvt. Ltd., New Delhi	1119.00	*
Surya Kiran Engg. Works, Noida	1115.00	*
Zen Electrical, Delhi	1118.00	**

- *Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 380 mm, 4 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	1142.00	*
Atlas Industries, Delhi	1142.00	**
Cipla Electrical Industries, New Delhi	1142.87	*
Florida Electrical Industries, New Delhi	1142.87	*
Garg Udyog, Delhi	1142.87	*
Goel Electronics, Delhi	1140.00	*
Gupta Bakelite Factory, Delhi	1139.00	*
Integ Electronics, New Delhi	1142.87	*
J.K. Electricals (India), New Delhi	1140.00	*
Jain Industrial Lighting Corp., Delhi	1142.00	*
Konark Engg Works (India), Ghaziabad	1142.00	*
Mamta Products, Delhi	1142.00	*
Modern Industries Enterprises, New Delhi	1142.87	*
Nagpal Electric & Radio Co., New Delhi	1142.87	*
Nida Products, Faridabad	1142.00	*
Royal Electro Tech Ltd., Delhi	1142.00	*
Satya Engineering Works Pvt. Ltd., New Delhi	1130.00	*
Surya Kiran Engg. Works, Noida	1138.00	*
Ujala Industries, Delhi	1142.00	*
Zen Electrical, Delhi	1139.00	**

Exhaust Fans

- *Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 450 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	1415.00	*
Atlas Industries, Delhi	1415.00	**
Cipla Electrical Industries, New Delhi	1415.52	*
Florida Electrical Industries, New Delhi	1415.52	*
Garg Udyog, Delhi	1415.52	*
Goel Electronics, Delhi	1415.00	*
Gupta Bakelite Factory, Delhi	1412.00	*
Integ Electronics, New Delhi	1415.52	*
J.K. Electricals (India), New Delhi	1415.00	*
Jain Industrial Lighting Corp., Delhi	1415.00	*
Konark Engg Works (India), Ghaziabad	1415.00	*
Mamta Products, Delhi	1415.00	*
Modern Industries Enterprises, New Delhi	1415.52	*
Nagpal Electric & Radio Co., New Delhi	1415.22	*
Nida Products, Faridabad	1415.00	*
Royal Electro Tech Ltd., Delhi	1415.00	*
Satya Engineering Works Pvt. Ltd., New Delhi	1415.00	*
Surya Kiran Engg. Works, Noida	1411.00	*
Zen Electrical, Delhi	1412.00	**

- *Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 450 mm, 4 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	1599.00	*
Atlas Industries, Delhi	1599.00	**
Cipla Electrical Industries, New Delhi	1599.00	*
Florida Electrical Industries, New Delhi	1599.00	*
Garg Udyog, Delhi	1599.00	*
Goel Electronics, Delhi	1590.00	*
Gupta Bakelite Factory, Delhi	1597.00	*
Integ Electronics, New Delhi	1599.00	*
J.K. Electricals (India), New Delhi	1599.00	*
Jain Industrial Lighting Corp., Delhi	1599.00	*
Konark Engg Works (India), Ghaziabad	1599.00	*
Mamta Products, Delhi	1599.00	*
Modern Industries Enterprises, New Delhi	1599.00	*
Nagpal Electric & Radio Co., New Delhi	1599.00	*
Nida Products, Faridabad	1599.00	*
Royal Electro Tech Ltd., Delhi	1599.00	*
Satya Engineering Works Pvt. Ltd., New Delhi	1599.00	*
Surya Kiran Engg. Works, Noida	1595.00	*
Ujala Industries, Delhi	1599.00	*
Zen Electrical, Delhi	1597.00	**

Exhaust Fans

- *Exhaust Fan, Propeller Type, A.C. Ventilating Fan, 600 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	3600.00	*
Cipla Electrical Industries, New Delhi	3611.07	*
Florida Electrical Industries, New Delhi	3611.07	*
Garg Udyog, Delhi	3611.07	*
Gupta Bakelite Factory, Delhi	3600.00	*
Integ Electronics, New Delhi	3611.07	*
Jain Industrial Lighting Corp., Delhi	3611.00	*
Mamta Products, Delhi	3600.00	*
Modern Industries Enterprises, New Delhi	3611.07	*
Nagpal Electric & Radio Co., New Delhi	3611.07	*
Royal Electro Tech Ltd., Delhi	3610.00	*
Satya Engineering Works Pvt. Ltd., New Delhi	3600.00	*

- *Exhaust Fan, Louvre Shutters, 300 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	137.00	*
Atlas Industries, Delhi	137.00	**
Cipla Electrical Industries, New Delhi	137.35	*
Florida Electrical Industries, New Delhi	137.35	*
Garg Udyog, Delhi	137.35	*
Goel Electronics, Delhi	136.00	*
Gupta Bakelite Factory, Delhi	136.00	*
Integ Electronics, New Delhi	137.35	*
J.K. Electricals (India), New Delhi	136.00	*
Jain Industrial Lighting Corp., Delhi	137.00	*
Konark Engg Works (India), Ghaziabad	137.00	*
Mamta Products, Delhi	137.00	*
Modern Industries Enterprises, New Delhi	137.35	*
Nagpal Electric & Radio Co., New Delhi	137.25	*
Nida Products, Faridabad	137.00	*
Royal Electro Tech Ltd., Delhi	137.25	*
Satya Engineering Works Pvt. Ltd., New Delhi	136.00	*
Surya Kiran Engg. Works, Noida	135.00	*
Zen Electrical, Delhi	136.00	**

Exhaust Fans

- *Exhaust Fan, Louvre Shutters, 300 mm, 4 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	137.00	*
Atlas Industries, Delhi	137.00	**
Cipla Electrical Industries, New Delhi	137.35	*
Florida Electrical Industries, New Delhi	137.35	*
Garg Udyog, Delhi	137.35	*
Goel Electronics, Delhi	136.00	*
Gupta Bakelite Factory, Delhi	136.00	*
Integ Electronics, New Delhi	137.35	*
J.K. Electricals (India), New Delhi	136.00	*
Jain Industrial Lighting Corp., Delhi	137.00	*
Konark Engg Works (India), Ghaziabad	137.00	*
Mamta Products, Delhi	137.00	*
Modern Industries Enterprises, New Delhi	137.35	*
Nagpal Electric & Radio Co., New Delhi	137.26	*
Nida Products, Faridabad	137.00	*
Royal Electro Tech Ltd., Delhi	137.25	*
Satya Engineering Works Pvt. Ltd., New Delhi	136.00	*
Surya Kiran Engg. Works, Noida	135.00	*
Zen Electrical, Delhi	136.00	**

- *Exhaust Fan, Louvre Shutters, 380 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	146.00	*
Atlas Industries, Delhi	146.00	**
Cipla Electrical Industries, New Delhi	146.57	*
Florida Electrical Industries, New Delhi	146.57	*
Garg Udyog, Delhi	146.57	*
Goel Electronics, Delhi	146.00	*
Gupta Bakelite Factory, Delhi	146.00	*
Integ Electronics, New Delhi	146.57	*
J.K. Electricals (India), New Delhi	146.00	*
Jain Industrial Lighting Corp., Delhi	146.00	*
Konark Engg Works (India), Ghaziabad	146.00	*
Mamta Products, Delhi	146.00	*
Modern Industries Enterprises, New Delhi	146.57	*
Nagpal Electric & Radio Co., New Delhi	146.57	*
Nida Products, Faridabad	146.00	*
Royal Electro Tech Ltd., Delhi	146.50	*
Satya Engineering Works Pvt. Ltd., New Delhi	145.00	*
Surya Kiran Engg. Works, Noida	144.00	*
Zen Electrical, Delhi	146.00	**

Exhaust Fans

- *Exhaust Fan, Louvre Shutters, 380 mm, 4 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	146.00	*
Atlas Industries, Delhi	146.00	**
Cipla Electrical Industries, New Delhi	146.57	*
Florida Electrical Industries, New Delhi	146.57	*
Garg Udyog, Delhi	146.57	*
Goel Electronics, Delhi	146.00	*
Gupta Bakelite Factory, Delhi	146.00	*
Integ Electronics, New Delhi	146.57	*
J.K. Electricals (India), New Delhi	146.00	*
Jain Industrial Lighting Corp., Delhi	146.00	*
Konark Engg Works (India), Ghaziabad	146.00	*
Mamta Products, Delhi	146.00	*
Modern Industries Enterprises, New Delhi	146.57	*
Nagpal Electric & Radio Co., New Delhi	146.57	*
Nida Products, Faridabad	146.00	*
Royal Electro Tech Ltd., Delhi	146.50	*
Satya Engineering Works Pvt. Ltd., New Delhi	145.00	*
Surya Kiran Engg. Works, Noida	144.00	*
Ujala Industries, Delhi	146.00	*
Zen Electrical, Delhi	146.00	**

- *Exhaust Fan, Louvre Shutters, 450 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	167.00	*
Atlas Industries, Delhi	167.00	**
Cipla Electrical Industries, New Delhi	167.07	*
Florida Electrical Industries, New Delhi	167.07	*
Garg Udyog, Delhi	167.07	*
Goel Electronics, Delhi	165.00	*
Gupta Bakelite Factory, Delhi	166.00	*
Integ Electronics, New Delhi	167.07	*
J.K. Electricals (India), New Delhi	165.00	*
Jain Industrial Lighting Corp., Delhi	167.00	*
Konark Engg Works (India), Ghaziabad	167.00	*
Mamta Products, Delhi	167.00	*
Modern Industries Enterprises, New Delhi	167.07	*
Nagpal Electric & Radio Co., New Delhi	167.07	*
Nida Products, Faridabad	167.00	*
Royal Electro Tech Ltd., Delhi	167.00	*
Satya Engineering Works Pvt. Ltd., New Delhi	167.00	*
Surya Kiran Engg. Works, Noida	165.00	*
Zen Electrical, Delhi	166.00	**

Exhaust Fans

- *Exhaust Fan, Louvre Shutters, 450 mm, 4 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	167.00	*
Cipla Electrical Industries, New Delhi	167.07	*
Florida Electrical Industries, New Delhi	167.07	*
Garg Udyog, Delhi	167.07	*
Goel Electronics, Delhi	165.00	*
Gupta Bakelite Factory, Delhi	166.00	*
Integ Electronics, New Delhi	167.07	*
J.K. Electricals (India), New Delhi	165.00	*
Jain Industrial Lighting Corp., Delhi	167.00	*
Konark Engg Works (India), Ghaziabad	167.00	*
Mamta Products, Delhi	167.00	*
Modern Industries Enterprises, New Delhi	167.07	*
Nagpal Electric & Radio Co., New Delhi	167.07	*
Nida Products, Faridabad	167.00	*
Royal Electro Tech Ltd., Delhi	167.00	*
Satya Engineering Works Pvt. Ltd., New Delhi	167.00	*
Surya Kiran Engg. Works, Noida	165.00	*
Ujala Industries, Delhi	167.00	*
Zen Electrical, Delhi	166.00	**

- *Exhaust Fan, Louvre Shutters, 600 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	322.00	*
Atlas Industries, Delhi	167.00	**
Cipla Electrical Industries, New Delhi	322.87	*
Florida Electrical Industries, New Delhi	322.87	*
Garg Udyog, Delhi	322.87	*
Gupta Bakelite Factory, Delhi	322.00	*
Integ Electronics, New Delhi	322.87	*
Jain Industrial Lighting Corp., Delhi	322.00	*
Mamta Products, Delhi	322.00	*
Modern Industries Enterprises, New Delhi	322.87	*
Nagpal Electric & Radio Co., New Delhi	322.87	*
Royal Electro Tech Ltd., Delhi	322.00	*
Satya Engineering Works Pvt. Ltd., New Delhi	322.00	*

Exhaust Fans

- *Exhaust Fan Regulator, (Resistance Type), 300 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	66.00	*
Atlas Industries, Delhi	66.00	**
Cipla Electrical Industries, New Delhi	66.00	*
Florida Electrical Industries, New Delhi	66.00	*
Goel Electronics, Delhi	66.00	*
Gupta Bakelite Factory, Delhi	66.00	*
Integ Electronics, New Delhi	66.00	*
J.K. Electricals (India), New Delhi	65.00	*
Jain Industrial Lighting Corp., Delhi	66.00	*
Mamta Products, Delhi	66.00	*
Modern Industries Enterprises, New Delhi	66.00	*
Nagpal Electric & Radio Co., New Delhi	66.00	*
Nida Products, Faridabad	66.00	*
Royal Electro Tech Ltd., Delhi	66.00	*
Satya Engineering Works Pvt. Ltd., New Delhi	66.00	*
Surya Kiran Engg. Works, Noida	65.00	*
Zen Electrical, Delhi	66.00	**

- *Exhaust Fan Regulator, (Resistance Type), 300 mm, 4 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	66.00	*
Atlas Industries, Delhi	66.00	**
Goel Electronics, Delhi	66.00	*
Integ Electronics, New Delhi	66.00	*
Mamta Products, Delhi	66.00	*
Nagpal Electric & Radio Co., New Delhi	66.00	*
Nida Products, Faridabad	66.00	*
Royal Electro Tech Ltd., Delhi	66.00	*
Satya Engineering Works Pvt. Ltd., New Delhi	66.00	*
Surya Kiran Engg. Works, Noida	65.00	*

Exhaust Fans

- *Exhaust Fan Regulator, (Electronics Type), 300 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	90.00	*
Atlas Industries, Delhi	90.00	**
Goel Electronics, Delhi	90.00	*
Gupta Bakelite Factory, Delhi	90.00	*
Integ Electronics, New Delhi	90.00	*
J.K. Electricals (India), New Delhi	90.00	*
Mamta Products, Delhi	90.00	*
Modern Industries Enterprises, New Delhi	90.00	*
Nida Products, Faridabad	90.00	*
Royal Electro Tech Ltd., Delhi	90.00	*
Zen Electrical, Delhi	90.00	**

- *Exhaust Fan Regulator, (Electronics Type), 300 mm, 4 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	90.00	*
Atlas Industries, Delhi	90.00	**
Goel Electronics, Delhi	90.00	*
Gupta Bakelite Factory, Delhi	90.00	*
Integ Electronics, New Delhi	90.00	*
J.K. Electricals (India), New Delhi	90.00	*
Mamta Products, Delhi	90.00	*
Modern Industries Enterprises, New Delhi	90.00	*
Nida Products, Faridabad	90.00	*
Royal Electro Tech Ltd., Delhi	90.00	*
Zen Electrical, Delhi	90.00	**

- *Exhaust Fan Regulator, (Electronics Type), 380 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	90.00	*
Atlas Industries, Delhi	90.00	**
Goel Electronics, Delhi	90.00	*
Gupta Bakelite Factory, Delhi	90.00	*
Integ Electronics, New Delhi	90.00	*
Mamta Products, Delhi	90.00	*
Modern Industries Enterprises, New Delhi	90.00	*
Nida Products, Faridabad	90.00	*
Royal Electro Tech Ltd., Delhi	90.00	*
Zen Electrical, Delhi	90.00	**

Exhaust Fans

- *Exhaust Fan Regulator, (Electronics Type), 380 mm, 4 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	95.00	*
Atlas Industries, Delhi	95.00	**
Goel Electronics, Delhi	95.00	*
Gupta Bakelite Factory, Delhi	95.00	*
Integ Electronics, New Delhi	95.00	*
J.K. Electricals (India), New Delhi	95.00	*
Mamta Products, Delhi	95.00	*
Modern Industries Enterprises, New Delhi	95.00	*
Nida Products, Faridabad	95.00	*
Royal Electro Tech Ltd., Delhi	95.00	*
Ujala Industries, Delhi	95.00	*
Zen Electrical, Delhi	95.00	**

- *Exhaust Fan Regulator, (Electronics Type), 450 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	95.00	*
Atlas Industries, Delhi	95.00	**
Goel Electronics, Delhi	95.00	*
Gupta Bakelite Factory, Delhi	95.00	*
Integ Electronics, New Delhi	95.00	*
J.K. Electricals (India), New Delhi	95.00	*
Mamta Products, Delhi	95.00	*
Modern Industries Enterprises, New Delhi	95.00	*
Nida Products, Faridabad	95.00	*
Royal Electro Tech Ltd., Delhi	95.00	*
Zen Electrical, Delhi	95.00	**

Exhaust Fans

- *Exhaust Fan Regulator, (Electronics Type), 450 mm, 4 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	147.00	*
Atlas Industries, Delhi	147.00	**
Cipla Electrical Industries, New Delhi	150.00	*
Goel Electronics, Delhi	147.00	*
Gupta Bakelite Factory, Delhi	147.00	*
Integ Electronics, New Delhi	150.00	*
J.K. Electricals (India), New Delhi	150.00	*
Mamta Products, Delhi	150.00	*
Modern Industries Enterprises, New Delhi	150.00	*
Nida Products, Faridabad	150.00	*
Royal Electro Tech Ltd., Delhi	150.00	*
Ujala Industries, Delhi	150.00	*
Zen Electrical, Delhi	147.00	**

- *Exhaust Fan Regulator, (Electronics Type), 600 mm, 6 Pole*

Stores	Rates	
Allied Engineering Works, Delhi	147.00	*
Integ Electronics, New Delhi	150.00	*
Mamta Products, Delhi	150.00	*
Royal Electro Tech Ltd., Delhi	150.00	*

Notes

* DGS&D Bulletin, October 2000, p. 46-62

** DGS&D Bulletin, November 2000, p. 30-32

Geysers

*Item No.: **14080902***
*Specification: **As per Rate Contract***
*Estimated Drawl: **Rs. 2.00 crores***
*Valid up to: **May 31, 2001***

- *Water Heater, Geyser Vertical Type, Copper, 25 Ltrs, 1000 W (A)*
  (WATER HEATER GEYSERS VERTICAL TYPE COPPER 25 L TRS 1000 W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	1757.78	*
Gupta Industries, Chandigarh	1810.00	***
Hindustan Engineering Works, Chandigarh	1740.20	***
Jain Industrial Lighting Corp., Delhi	1757.78	**
Modern Lighting Systems, Delhi	1757.78	**
Pcoco Enterprises, Delhi	1757.78	**

- *Water Heater, Geyser Vertical Type, Copper, 25 Ltrs, 1000 W (B)*
  (WATER HEATER "GEYSERS'VERTICAL TYPE COPPER 25LTRS 1000W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2020.00	*
Ditz Electricals (India) Ltd., Delhi	2020.00	*
Gupta Industries, Chandigarh	2080.00	***
Hindustan Engineering Works, Chandigarh	2000.00	***
Hotstar Electricals Pvt. Ltd., Delhi	2020.00	**
Jain Industrial Lighting Corp., Delhi	2020.00	**
Modern Lighting Systems, Delhi	1942.30	**
Nida Products, Faridabad	2020.00	*
Pcoco Enterprises, Delhi	2029.71	**
Pearl Appliances Pvt. Ltd., Delhi	2020.00	**
Satya Engineering Works Pvt. Ltd., New Delhi	2020.00	*
Seema Industries, Delhi	2020.00	*

- *Water Heater, Geyser Vertical Type, Copper, 25 Ltrs, 1500 W (A)*
  (WATER HEATER GEYSERS VERTICAL TYPE COPPER 25 L TRS 1500 W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	1757.78	*
Gupta Industries, Chandigarh	1810.00	***
Hindustan Engineering Works, Chandigarh	1740.20	***
Jain Industrial Lighting Corp., Delhi	1757.78	**
Modern Lighting Systems, Delhi	1757.78	**
Pcoco Enterprises, Delhi	1757.78	**
Sangam Industries, Chandigarh	1757.78	**

Geysers (Vertical Type)

- *Water Heater, Geyser Vertical Type, Copper, 25 Ltrs, 1500 W (B)*
  (WATER HEATER "GEYSERS'VERTICAL TYPE COPPER 25LTRS 1500W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2029.71	*
Ditz Electricals (India) Ltd., Delhi	2029.71	*
Gupta Industries, Chandigarh	2090.00	***
Hindustan Engineering Works, Chandigarh	2009.71	***
Hotstar Electricals Pvt. Ltd., Delhi	2029.71	**
Jain Industrial Lighting Corp., Delhi	2019.71	**
Kumar Industries (MSD), Delhi	2029.71	***
Mamta Products, Delhi	2029.71	*
Modern Lighting Systems, Delhi	1961.73	**
Nida Products, Faridabad	2029.71	*
Pearl Appliances Pvt. Ltd., Delhi	2029.71	**
Pcoco Enterprises, Delhi	2029.71	**
Sangam Industries, Chandigarh	2029.71	**
Satya Engineering Works Pvt. Ltd., New Delhi	2029.00	*
Seema Industries, Delhi	2029.71	*
Ujala Industries, Delhi	2020.71	*

- *Water Heater. Geyser Vertical Type, Copper, 35 Ltrs, 1500 W (A)*
  (WATER HEATER GEYSERS VERTICAL TYPE COPPER 35 L TRS 1500 W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	1981.15	*
Gupta Industries, Chandigarh	2040.00	***
Hindustan Engineering Works, Chandigarh	1961.34	***
Jain Industrial Lighting Corp., Delhi	1981.15	**
Modern Lighting Systems, Delhi	1981.15	**
Pcoco Enterprises, Delhi	1981.15	**
Sangam Industries, Chandigarh	1981.15	**

Geysers (Vertical Type)

- *Water Heater, Geyser Vertical Type, Copper, 35 Ltrs. 1500 W (B)*
  (WATER HEATER "GEYSERS'VERTICAL TYPE COPPER 35LTRS 1500W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2272.50	*
Ditz Electricals (India) Ltd., Delhi	2272.50	*
Gupta Industries, Chandigarh	2340.00	***
Hindustan Engineering Works, Chandigarh	2250.50	***
Hotstar Electricals Pvt. Ltd., Delhi	2272.50	**
Jain Industrial Lighting Corp., Delhi	2272.50	**
Kumar Industries (MSD), Delhi	2272.50	***
Mamta Products, Delhi	2272.50	*
Modern Lighting Systems, Delhi	2165.67	**
Nida Products, Faridabad	2272.50	*
Pcoco Enterprises, Delhi	2272.50	**
Pearl Appliances Pvt. Ltd., Delhi	2272.50	**
Sangam Industries, Chandigarh	2272.50	**
Satya Engineering Works Pvt. Ltd., New Delhi	2272.00	*
Seema Industries, Delhi	2272.50	*
Ujala Industries, Delhi	2272.50	*

- *Water Heater. Geyser Vertical Type, Copper, 50 Ltrs. 2000 W (A)*
  (WATER HEATER GEYSERS VERTICAL TYPE COPPER 50 L TRS 2000 W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2379.32	*
Gupta Industries, Chandigarh	2450.00	***
Hindustan Engineering Works, Chandigarh	2355.53	***
Jain Industrial Lighting Corp., Delhi	2379.32	**
Modern Lighting Systems, Delhi	2379.32	**
Pcoco Enterprises, Delhi	2379.32	**
Sangam Industries, Chandigarh	2379.32	**

Geysers (Vertical Type)

- *Water Heater, Geyser Vertical Type, Copper, 50 Ltrs, 2000 W (B)*
  (WATER HEATER "GEYSERS'VERTICAL TYPE COPPER 50LTRS 2000W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2592.98	*
Ditz Electricals (India) Ltd., Delhi	2592.98	*
Gupta Industries, Chandigarh	2670.00	***
Hindustan Engineering Works, Chandigarh	2567.00	***
Hotstar Electricals Pvt. Ltd., Delhi	2592.98	**
Jain Industrial Lighting Corp., Delhi	2592.98	**
Kumar Industries (MSD), Delhi	2592.98	***
Mamta Products, Delhi	2592.98	*
Modern Lighting Systems, Delhi	2592.98	**
Nida Products, Faridabad	2592.98	*
Pcoco Enterprises, Delhi	2592.98	**
Pearl Appliances Pvt. Ltd., Delhi	2592.98	**
Sangam Industries, Chandigarh	2592.98	**
Satya Engineering Works Pvt. Ltd., New Delhi	2592.00	*
Ujala Industries, Delhi	2592.98	*

- *Water Heater, Geyser Vertical Type, Steel, 25 Ltrs, 1000 W (A)*
  (WATER HEATER GEYSERS VERTICAL TYPE STEEL 25LTRS 1000 W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	1942.30	*
Gupta Industries, Chandigarh	2000.00	***
Hindustan Engineering Works, Chandigarh	1922.87	***
Hotstar Electricals Pvt. Ltd., Delhi	1942.30	**
Jain Industrial Lighting Corp., Delhi	1942.30	**
Modern Lighting Systems, Delhi	1845.19	**
Pcoco Enterprises, Delhi	1942.30	**

- *Water Heater, Geyser Vertical Type, Steel, 25 Ltrs, 1000 W (B)*
  (WATER HEATER "GEYSERS'VERTICAL TYPE STEEL 25LTRS 1000W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2029.71	*
Ditz Electricals (India) Ltd., Delhi	2029.71	*
Gupta Industries, Chandigarh	2090.00	***
Hindustan Engineering Works, Chandigarh	2009.71	***
Hotstar Electricals Pvt. Ltd., Delhi	2029.71	**
Jain Industrial Lighting Corp., Delhi	2029.71	**
Modern Lighting Systems, Delhi	2000.57	**
Nida Products, Faridabad	2029.71	*
Pearl Appliances Pvt. Ltd., Delhi	2029.71	**

Geysers (Vertical Type)

- *Water Heater, Geyser Vertical Type, Steel, 25 Ltrs, 1500 W (A)*
  (WATER HEATER GEYSERS VERTICAL TYPE STEEL 25LTRS 1500 W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	1961.73	*
Gupta Industries, Chandigarh	2020.00	***
Hindustan Engineering Works, Chandigarh	1942.11	***
Hotstar Electricals Pvt. Ltd., Delhi	1961.73	**
Jain Industrial Lighting Corp., Delhi	1961.73	**
Modern Lighting Systems, Delhi	1864.61	**
Pcoco Enterprises, Delhi	1961.73	**
Sangam Industries, Chandigarh	1961.73	**

- *Water Heater, Geyser Vertical Type, Steel, 25 Ltrs, 1500 W (B)*
  (WATER HEATER "GEYSERS'VERTICAL TYPE STEEL 25LTRS 1500W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2029.71	*
Ditz Electricals (India) Ltd., Delhi	2029.71	*
Gupta Industries, Chandigarh	2090.00	***
Hindustan Engineering Works, Chandigarh	2009.71	***
Hotstar Electricals Pvt. Ltd., Delhi	2029.71	**
Jain Industrial Lighting Corp., Delhi	2029.71	**
Mamta Products, Delhi	2029.71	*
Modern Lighting Systems, Delhi	2020.00	**
Nida Products, Faridabad	2029.71	*
Pearl Appliances Pvt. Ltd., Delhi	2029.71	**
Sangam Industries, Chandigarh	2029.71	**
Ujala Industries, Delhi	2029.71	*

- *Water Heater, Geyser Vertical Type, Steel, 35 Ltrs, 1500 W (A)*
  (WATER HEATER GEYSERS VERTICAL TYPE STEEL 35LTRS 1500 W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2165.67	*
Hindustan Engineering Works, Chandigarh	2143.97	***
Hotstar Electricals Pvt. Ltd., Delhi	2165.67	**
Jain Industrial Lighting Corp., Delhi	2165.67	**
Modern Lighting Systems, Delhi	2097.69	**
Pcoco Enterprises, Delhi	2165.67	**
Sangam Industries, Chandigarh	2165.67	**

Geysers (Vertical Type)

- *Water Heater, Geyser Vertical Type, Steel, 35 Ltrs, 1500 W (B)*
  (WATER HEATER "GEYSERS'VERTICAL TYPE STEEL 35LTRS 1500W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2272.50	*
Ditz Electricals (India) Ltd., Delhi	2272.50	*
Gupta Industries, Chandigarh	2340.00	***
Hindustan Engineering Works, Chandigarh	2250.50	***
Hotstar Electricals Pvt. Ltd., Delhi	2272.50	**
Jain Industrial Lighting Corp., Delhi	2272.50	**
Kumar Industries (MSD), Delhi	2272.50	***
Mamta Products, Delhi	2272.50	*
Modern Lighting Systems, Delhi	2194.80	**
Nida Products, Faridabad	2272.50	*
Pearl Appliances Pvt. Ltd., Delhi	2272.50	**
Sangam Industries, Chandigarh	2272.50	**
Ujala Industries, Delhi	2272.50	*

- *Water Heater, Geyser Vertical Type, Steel, 50 Ltrs, 2000 W (A)*
  (WATER HEATER GEYSERS VERTICAL TYPE STEEL 50LTRS 2000 W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2592.98	*
Hotstar Electricals Pvt. Ltd., Delhi	2592.98	**
Jain Industrial Lighting Corp., Delhi	2592.98	**
Modern Lighting Systems, Delhi	2447.30	**
Pcoco Enterprises, Delhi	2592.98	**
Sangam Industries, Chandigarh	2592.98	**

Geysers (Vertical Type)

- *Water Heater, Geyser Vertical Type, Steel, 50 Ltrs, 2000 W (B)*
  (WATER HEATER "GEYSERS'VERTICAL TYPE 50LTRS 2000W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2592.98	*
Ditz Electricals (India) Ltd., Delhi	2592.98	*
Gupta Industries, Chandigarh	2670.00	***
Hindustan Engineering Works, Chandigarh	2567.00	***
Hotstar Electricals Pvt. Ltd., Delhi	2592.98	**
Jain Industrial Lighting Corp., Delhi	2592.98	**
Kumar Industries (MSD), Delhi	2592.98	***
Mamta Products, Delhi	2592.98	*
Modern Lighting Systems, Delhi	2641.53	**
Nida Products, Faridabad	2592.98	*
Pearl Appliances Pvt. Ltd., Delhi	2592.98	**
Sangam Industries, Chandigarh	2592.98	**
Ujala Industries, Delhi	2592.98	*

- *Water Heater, Geyser Vertical Type, Steel, 50 Ltrs, 2000 W (C)*
  (WATER HEATER GEYSERS VERTICAL TYPE STEEL 50LTRS 2000 W.R/P 60N/CM2)

Stores	Rates	
Gupta Industries, Chandigarh	2670.00	***
Hindustan Engineering Works, Chandigarh	2567.05	***

Geysers (Horizontal Type)

❑ . *Water Heater, Geyser Horizontal Type, Copper, 25 Ltrs, 1000 W, C/T 30 N/cm2*
(WATER HEATER"GEYSERS'HORIZONTALTYPE CAPACITY 25L 1000 W/H C/T30N CM)

Stores	Rates	
Crown Steel Fabricators, New Delhi	1845.19	*
Gupta Industries, Chandigarh	1900.00	***
Hindustan Engineering Works, Chandigarh	1826.73	***
Jain Industrial Lighting Corp., Delhi	1845.19	**
Modern Lighting Systems, Delhi	2020.00	**
Pcoco Enterprises, Delhi	1845.19	**

❑ *Water Heater, Geyser Horizontal Type, Copper, 25 Ltrs, 1000 W, R/P 60 N/cm2*
(WATER HEATER "GEYSERS'HORIZONTALTYPE COPPER 25LTRS 1000W R/P 60N/CM)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2058.84	*
Ditz Electricals (India) Ltd., Delhi	2058.84	*
Gupta Industries, Chandigarh	2120.00	***
Hindustan Engineering Works, Chandigarh	2038.25	***
Jain Industrial Lighting Corp., Delhi	2058.84	**
Modern Lighting Systems, Delhi	2029.71	**
Pcoco Enterprises, Delhi	2058.84	**
Pearl Appliances Pvt. Ltd., Delhi	2058.84	**

❑ *Water Heater, Geyser Horizontal Type, Copper, 25 Ltrs, 1500 W, C/T 30 N/cm2*
(WATER HEATER "GEYSERS'HORIZONTALTYPE COPPER 25LTRS 1500W.C/T 30N/CM)

Stores	Rates	
Crown Steel Fabricators, New Delhi	1864.61	*
Gupta Industries, Chandigarh	1920.00	***
Hindustan Engineering Works, Chandigarh	1845.96	***
Jain Industrial Lighting Corp., Delhi	1864.61	**
Modern Lighting Systems, Delhi	2029.71	**
Pcoco Enterprises, Delhi	1864.61	**
Sangam Industries, Chandigarh	1864.61	**

Geysers (Horizontal Type)

- *Water Heater, Geyser Horizontal Type, Copper, 25 Ltrs, 1500 W, R/P 60 N/cm2*
  (WATER HEATER "GEYSERS'HORIZONTALTYPE COPPER 25LTRS 1500W R/P 60N/CM)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2078.26	*
Ditz Electricals (India) Ltd., Delhi	2078.26	*
Gupta Industries, Chandigarh	2140.00	***
Hindustan Engineering Works, Chandigarh	2058.26	***
Jain Industrial Lighting Corp., Delhi	2078.26	**
Modern Lighting Systems, Delhi	2029.71	**
Pcoco Enterprises, Delhi	2078.26	**
Pearl Appliances Pvt. Ltd., Delhi	2078.26	**
Sangam Industries, Chandigarh	2078.26	**

- *Water Heater, Geyser Horizontal Type, Copper, 35 Ltrs, 1500 W, C/T 30 N/cm2*
  (WATER HEATER "GEYSERS'HORIZONTALTYPE COPPER 35L 1500W 30N/CM2 C/T)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2097.69	*
Gupta Industries, Chandigarh	2160.00	***
Hindustan Engineering Works, Chandigarh	2076.98	***
Jain Industrial Lighting Corp., Delhi	2097.69	**
Modern Lighting Systems, Delhi	2272.50	**
Pcoco Enterprises, Delhi	2097.69	**
Sangam Industries, Chandigarh	2097.69	**

- *Water Heater, Geyser Horizontal Type, Copper, 35 Ltrs, 1500 W, R/P 60 N/cm2*
  (WATER HEATER "GEYSERS'HORIZONTALTYPE COPPER 35LTRS 1500W R/P 60N/CM)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2340.48	*
Gupta Industries, Chandigarh	2410.00	***
Hindustan Engineering Works, Chandigarh	2317.48	***
Jain Industrial Lighting Corp., Delhi	2340.48	**
Modern Lighting Systems, Delhi	2272.50	**
Pcoco Enterprises, Delhi	2340.48	**
Pearl Appliances Pvt. Ltd., Delhi	2340.48	**
Sangam Industries, Chandigarh	2340.48	**

Geysers (Horizontal Type)

- *Water Heater, Geyser Horizontal Type, Copper, 50 Ltrs, 2000 W, R/P 30 N/cm2*
  (WATER HEATER "GEYSERS'HORIZONTALTYPE COPPER 50LTRS 2000W R/P 30N/CM)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2447.30	*
Gupta Industries, Chandigarh	2520.00	***
Hindustan Engineering Works, Chandigarh	2422.82	***
Jain Industrial Lighting Corp., Delhi	2447.30	**
Modern Lighting Systems, Delhi	2592.98	**
Pcoco Enterprises, Delhi	2447.30	**
Sangam Industries, Chandigarh	2447.30	**

- *Water Heater, Geyser Horizontal Type, Copper, 50 Ltrs, 2000 W, R/P 60 N/cm2*
  (WATER HEATER "GEYSERS'HORIZONTALTYPE COPPER 50LTRS 2000W R/P 60N/CM)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2670.67	*
Ditz Electricals (India) Ltd., Delhi	2670.67	*
Gupta Industries, Chandigarh	2750.00	***
Hindustan Engineering Works, Chandigarh	2643.67	***
Jain Industrial Lighting Corp., Delhi	2670.67	**
Modern Lighting Systems, Delhi	2592.98	**
Pcoco Enterprises, Delhi	2670.67	**
Pearl Appliances Pvt. Ltd., Delhi	2670.67	**
Sangam Industries, Chandigarh	2670.67	**

- *Water Heater, Geyser Horizontal Type, Steel, 25 Ltrs, 1000 W, C/T 30 N/cm2*
  (WATER HEATER "GEYSERS'HORIZONTAL TYPE 25LTRS 1000W C/T 30N/CM2)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2000.57	*
Gupta Industries, Chandigarh	2060.00	***
Hindustan Engineering Works, Chandigarh	1980.57	***
Hotstar Electricals Pvt. Ltd., Delhi	2000.57	**
Jain Industrial Lighting Corp., Delhi	2000.57	**
Modern Lighting Systems, Delhi	2058.84	**
Pcoco Enterprises, Delhi	2000.57	**

Geysers (Horizontal Type)

- *Water Heater, Geyser Horizontal Type, Steel, 25 Ltrs, 1000 W, R/P 60 N/cm2*
  (WATER HEATER "GEYSERS'HORIZONTALTYPE STEEL 25LTRS 1000W R/P 60N/CM2)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2243.36	*
Gupta Industries, Chandigarh	2310.00	***
Hindustan Engineering Works, Chandigarh	2220.57	***
Hotstar Electricals Pvt. Ltd., Delhi	2243.36	**
Jain Industrial Lighting Corp., Delhi	2243.36	**
Modern Lighting Systems, Delhi	2243.36	**
Pcoco Enterprises, Delhi	2243.36	**
Pearl Appliances Pvt. Ltd., Delhi	2243.36	**
Sangam Industries, Chandigarh	2262.78	**

- *Water Heater, Geyser Horizontal Type, Steel, 25 Ltrs, 1500 W, 30 N/cm2*
  (WATER HEATER "GEYSERS'HORIZONTAL TYPE 25LTRS 1500W/H 30N/CM2)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2020.00	*
Gupta Industries, Chandigarh	2080.00	***
Hindustan Engineering Works, Chandigarh	2000.00	***
Hotstar Electricals Pvt. Ltd., Delhi	2020.00	**
Jain Industrial Lighting Corp., Delhi	2020.00	**
Modern Lighting Systems, Delhi	2078.26	**
Sangam Industries, Chandigarh	2020.00	**

- *Water Heater, Geyser Horizontal Type, Steel, 25 Ltrs, 1500 W*
  (WATER HEATER GEYSERS'HORIZONTAL TYPE STEEL 25LTRS 1500W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2262.78	*
Gupta Industries, Chandigarh	2330.00	***
Hindustan Engineering Works, Chandigarh	2239.38	***
Hotstar Electricals Pvt. Ltd., Delhi	2262.78	**
Jain Industrial Lighting Corp., Delhi	2262.78	**
Modern Lighting Systems, Delhi	2262.78	**
Pcoco Enterprises, Delhi	2262.78	**
Pearl Appliances Pvt. Ltd., Delhi	2262.78	**
Sangam Industries, Chandigarh	2262.78	**

Geysers (Horizontal Type)

- *Water Heater, Geyser Horizontal Type, Steel, 35 Ltrs, 1500 W, 30 N/cm2*
  (WATER HEATER "GEYSERS'HORIZONTAL TYPE 35LTRS 1500W/H 30N/CM2)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2194.80	*
Gupta Industries, Chandigarh	2260.00	***
Hindustan Engineering Works, Chandigarh	2182.00	***
Hotstar Electricals Pvt. Ltd., Delhi	2194.80	**
Jain Industrial Lighting Corp., Delhi	2194.80	**
Modern Lighting Systems, Delhi	2340.48	**
Pcoco Enterprises, Delhi	2194.80	**
Sangam Industries, Chandigarh	2194.80	**

- *Water Heater, Geyser Horizontal Type, Steel, 35 Ltrs, 1500 W*
  (WATER HEATER GEYSERS'HORIZONTAL TYPE STEEL 35LTRS 1500W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2894.03	*
Gupta Industries, Chandigarh	2600.00	***
Hindustan Engineering Works, Chandigarh	2500.00	***
Hotstar Electricals Pvt. Ltd., Delhi	2525.00	**
Jain Industrial Lighting Corp., Delhi	2525.00	**
Modern Lighting Systems, Delhi	2525.00	**
Pcoco Enterprises, Delhi	2525.00	**
Pearl Appliances Pvt. Ltd., Delhi	2525.00	**
Sangam Industries, Chandigarh	2525.00	**

- *Water Heater, Geyser Horizontal Type, Steel, 50 Ltrs, 2000 W, 30 N/cm2*
  (WATER HEATER "GEYSERS'HORIZONTAL TYPE 50LTRS 2000W/H 30N/CM2)

Stores	Rates	
Crown Steel Fabricators, New Delhi	2641.53	*
Gupta Industries, Chandigarh	2720.00	***
Hindustan Engineering Works, Chandigarh	2614.59	***
Hotstar Electricals Pvt. Ltd., Delhi	2641.53	**
Jain Industrial Lighting Corp., Delhi	2641.53	**
Modern Lighting Systems, Delhi	2670.67	**
Pcoco Enterprises, Delhi	2641.53	**
Sangam Industries, Chandigarh	2641.53	**

Geysers (Horizontal Type)

- *Water Heater, Geyser Horizontal Type, Steel, 50 Ltrs, 2000 W*
  (WATER HEATER"GEYSERS'HORIZONTAL TYPE STEEL 50LTRS 2000W)

Stores	Rates	
Crown Steel Fabricators, New Delhi	110.00	*
Gupta Industries, Chandigarh	2980.00	***
Hindustan Engineering Works, Chandigarh	2865.00	***
Hotstar Electricals Pvt. Ltd., Delhi	2894.03	**
Jain Industrial Lighting Corp., Delhi	2894.03	**
Modern Lighting Systems, Delhi	2894.03	**
Pcoco Enterprises, Delhi	2894.03	**
Pearl Appliances Pvt. Ltd., Delhi	2894.03	**
Sangam Industries, Chandigarh	2894.03	**

- *Water Heater, Geyser Stationary Type, Copper, 25 Ltrs, 1500 W*
  (WATER HEATER "GEYSERS"STATIONARY TYPE COPPER 25 LTRS. 1500W)

Stores	Rates	
Safeway Electrical Industries Pvt. Ltd., New Delhi	2029.71	**

Notes

* DGS&D Bulletin, August 2000, p. 18-22

** DGS&D Bulletin, August 2000, p. 48-60

*** DGS&D Bulletin, September 2000, p. 31-37

Water Coolers

Item No.: 14080300
Specification: IS 1475:1978
Estimated Drawl: Rs. 5.85 crores
Valid up to: September 30, 2001

- *Water Coolers, (S.C.W.C.), Pressure Type, 230 V, 50 c/s, P/A.C.S., 40 Ltrs*

Stores	Rates	
Air Conditioning Corp. Ltd., Calcutta	12500.00	*
Sidwal Refrigeration Industries Ltd., Faridabad	12500.00	*

- *Water Coolers, (S.C.W.C.), Pressure Type, 230 V, 50 c/s, P/A.C.S., 150 Ltrs*

Stores	Rates	
Air Conditioning Corp. Ltd., Calcutta	16840.00	*

- *Water Coolers, (S.C.W.C.), Storage Type, 230 V, 50 c/s, P/A.C.S., 40/40 Ltrs*

Stores	Rates	
Mechelec Steel Products, Vadodara	15395.00	*
Purys Refrigerations, Lucknow	15395.00	*
Sidwal Refrigeration Industries Ltd., Faridabad	15395.00	*
Voltas Ltd., Mumbai	15375.00	*

- *Water Coolers, (S.C.W.C.), Storage Type, 230 V, 50 c/s, P/A.C.S.C.S., 80/40 Ltrs*

Stores	Rates	
Crown Steel Fabricators, New Delhi	16835.00	*
Frac Power Motors, New Delhi	16800.00	*
Gujral Aircon Ltd., Delhi	16840.00	*
Mechelec Steel Products, Vadodara	16840.00	*
Purys Refrigerations, Lucknow	16840.00	*
Sidwal Refrigeration Industries Ltd., Faridabad	16840.00	*
Voltas Ltd., Mumbai	16800.00	*

Water Coolers

- *Water Coolers, (S.C.W.C.), Storage Type, 230 V, 50 c/s, P/A.C.S.C.S., 120/60 Ltrs*

Stores	Rates	
Crown Steel Fabricators, New Delhi	21875.00	*
Frac Power Motors, New Delhi	21800.00	*
Mechelec Steel Products, Vadodara	21885.00	*
Purys Refrigerations, Lucknow	21885.00	*
Sidwal Refrigeration Industries Ltd., Faridabad	21885.00	*
Voltas Ltd., Mumbai	21850.00	*

- *Water Coolers, (S.C.W.C.), Storage Type, 230 V, 50 c/s, P/A.C.S.C.S., 150/150 Ltrs*

Stores	Rates	
Crown Steel Fabricators, New Delhi	25875.00	*
Frac Power Motors, New Delhi	25800.00	*
Gujral Aircon Ltd., Delhi	25885.00	*
Mechelec Steel Products, Vadodara	25885.00	*
Purys Refrigerations, Lucknow	25885.00	*
Sidwal Refrigeration Industries Ltd., Faridabad	25885.00	*
Voltas Ltd., Mumbai	25850.00	*

Notes

* DGS&D Bulletin, November 2000, p. 32-34

Submersible Pump

Item No.: 13021300
Specification: IS 8034:1989
Estimated Drawl: Rs. 0.50 crores
Valid up to: August 3, 2000

- *Submersible Pump, 2.2 kW, Bore size 150 mm, Item No. 1.1*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	9660.00	*

- *Submersible Pump, 3.0 kW, Bore size 150 mm, Item No. 1.2*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	9765.00	*

- *Submersible Pump, 3.7 kW, Bore size 150 mm, Item No. 1.3*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	10657.00	*

- *Submersible Pump, 4.5 kW, Bore size 150 mm, Item No. 1.4*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	11550.00	*

- *Submersible Pump, 5.5 kW, Bore size 150 mm, Item No. 1.5*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	13125.00	*

- *Submersible Pump, 7.5 kW, Bore size 150 mm, Item No. 1.6*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	14910.00	*

Submersible Pump

- *Submersible Pump, 9.3 kW, Bore size 150 mm, Item No. 1.7*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	16275.00	*

- *Submersible Pump, 11.0 kW, Bore size 150 mm, Item No. 1.8*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	17850.00	*

- *Submersible Pump, 5.5 kW, Bore size 150 mm, Item No. 2.1*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	13450.00	*

- *Submersible Pump, 7.5 kW, Bore size 150 mm, Item No. 2.2*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	15225.00	*

- *Submersible Pump, 9.3 kW, Bore size 150 mm, Item No. 2.3*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	15750.00	*

- *Submersible Pump, 11.0 kW, Bore size 150 mm, Item No. 2.4*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	18060.00	*

- *Submersible Pump, 15.0 kW, Bore size 150 mm, Item No. 2.5*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	23100.00	*

Submersible Pump

- *Submersible Pump, 7.5 kW, Bore size 200 mm, Item No. 3.1*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	16543.00	*

- *Submersible Pump, 13.0 kW, Bore size 200 mm, Item No. 3.2*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	25985.00	*

- *Submersible Pump, 20.0 kW, Bore size 200 mm, Item No. 3.3*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	30450.00	*

- *Submersible Pump, 15.0 kW, Bore size 200 mm, Item No. 4.1*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	25400.00	*

- *Submersible Pump, 20.0 kW, Bore size 200 mm, Item No. 4.2*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	35962.50	*

- *Submersible Pump, 22.5 kW, Bore size 200 mm, Item No. 4.3*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	32800.00	*

- *Submersible Pump, 22.5 kW, Bore size 200 mm, Item No. 5.1*

Stores	Rates	
Super Sales Corp., Ambala Cantt.	31000.00	*

Notes

* DGS&D Directory of Stores on Rate Contracts 2000, p. 373