

PROJECT PROFILE ON ELECTRIC / SOLAR COOKER

1. PRODUCT : ELECTRIC/ SOLAR COOLER

2. PRODUCTION CAPACITY : QUANTITY : 3600 Nos.
(Per Annum)

VALUE : Rs. 2,80,80,000

3. YEAR OF PREPARATION : 2010-11

4. PREPARED BY : ELECTRIC DIVISION
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1. INTRODUCTION

Electric Solar Cooler as the names suggest is essentially a New concept of a domestic appliance intended for Cooling in the Summer season. It is operated electrically as well as Sun light also. Electric Solar Cooler is an essential appliance to save the electric energy, it is basic need where the electric energy is not available, as in Small Towns and Rural Areas. It is a bi-purpose device, it may run by Solar as well as Electric Energy.

Electric Solar Cooler is operated at 220 volts A. C., single phase and By DC at 24 V which may charge by 25W Solar Panel. It will be available in three different rated speeds such.

2. MARKET POTENTIAL

As it is a new concept in India and it save the electric energy it will be a basic need of this country because there is a major shortage of electric energy. The Models may be possible in the Portable sizes also, So that it may be easy to carry at office, shops, as well as in to another. This by itself is bound to increase demand for electrical saving appliance, in future.

3. BASIS AND PRESUMPTIONS

- i) The basis for calculation of production capacity has been taken on single shift basis on 75% efficiency.
- ii) The maximum capacity utilization on single shift basis for 300 days a year. During first year and second year of operations the capacity utilization is 60% and 80% respectively. The unit is expected to achieve full capacity utilization from the third year onwards.
- iii) The salaries and wages, cost of raw materials, utilities, rents, etc. are based on the prevailing rates in and around Imphal. These cost factors are likely to vary with time and location.
- iv) Interest on term loan and working capital loan has been taken at the rate of 13% on an average. This rate may vary depending upon the policy of the financial institutions/agencies from time to time.
- v) The cost of machinery and equipments refer to a particular make/model and prices are approximate.
- vi) The break-even point percentage indicated is of full capacity utilization.

- vii) The project preparation cost etc. whenever required could be considered under pre-operative expenses.
- viii) The essential production machinery and test production machinery and test equipment required for the project have been indicated. The unit may also utilize common test facilities available at Electronics Test and Development Centres (ETDCs) and Electronic Regional Test Laboratories (ERTLs) and MSME Testing Centers (MSME-TCs).

4. IMPLEMENTATION SCHEDULE

The major activities in the implementation of the project has been listed and the average time for implementation of the project is estimated at 12 months:

S. No.	Activity	Period (In Months)
1.	Preparation of project report	1
2.	Registration and other formalities	1
3.	Sanction of loan by financial Institutions	3
4.	Plant and Machinery:	
	a) Placements of orders	1
	b) Procurement	2
	c) Power connection/Electrification	2
	d) Installation/Erection of machinery/Test Equipment	2
5.	Procurement of raw materials	2
6.	Recruitment of Technical personnel etc.	2
7.	Trial production	11
8.	Commercial production	12

Notes

- 1. Many of the above activities shall be initiated concurrently.
- 2. Procurement of raw materials commences from the 8th month onwards.
- 3. When imported plant and machinery are required, the implementation period of project may vary from 12 months to 15 months.

5. TECHNICAL ASPECTS

I. Process of Manufacture

As per the required specification and design, the plastic graduals in different varieties has to arrange and different sizes dies and moulds for bodies, as portable stable, and there finishing of all the parts. Checking of all the parts and fitting as electrical switches, sides of Cooler body, Solar Panel, battery Leads connection wiring done fitted at proper places and necessary etc. After complete manufacturing of various parts and components the Electric Solar Cooler is assembled, tested and packed...

II. Quality Control and Standards

As per IS

III. Production Capacity (Per Annum)

Quantity	: 3600 Nos. (Per Annum) --ELECTRIC SOLAR COOLER
Value	: Rs. 2,80,80,000 @Rs.7800/

IV. Motive Power : 10 K.W.

V. POLLUTION CONTROL

The Government accords utmost importance to control environmental pollution. The small-scale entrepreneurs should have and environmental friendly attitude and adopt pollution control measures by process modification and technology substitution.

India having acceded to the montreal Protocol in September, 1992, the production and use of Ozone Depleting Substances (ODS) like Chlorofluoro Carbon (CFCs), Carbon Tetrachloride, Halons and Methyl Chloroform etc. need to be phased out immediately with altenative chemicals/solvents. A notification fro detailed rules to regulage ODS phase out under the Environment Protection Act,1986 have been put in place with effect from 19th July 2000.

- i) In Electronic industry fumes and gases are released during hand soldering/wave soldering/Dip soldering, which are harmful to people as well as environment and the end products. Alternate technologies may be

used to phase out the existing pollution technologies. Numerous new fluxes have been developed containing 2-10% solids as opposed to the traditional 15-35% solids.

- ii) Electronic industry uses CFCs, carbon Tetrachloride and Methyl Chloroform for cleaning of printed circuit boards after assembly to remove flux residues left after soldering, and various kinds of foams for packaging.

Many alternative solvents could replace CFC-113 and Methyl Chloroform in electronics cleaning. Other Chlorinated solvents such as trichloroethylene, perchloroethylene and methylene chloride have been used as effective cleaners in electronics industry for many years. Other organic solvents such as ketones and Alcohols are effective in removing both solder fluxes and many polar contaminants.

VI. ENERGY CONSERVATION

With the growing energy needs and shortage coupled with rising energy cost, a greater thrust in energy efficiency in industrial sector has been given by the Govt. of India since 1980s. The energy Conservation Act 2001 has been enacted on 18th August'2001 which provides for efficient use of energy, its conservation & Capacity building of Bureau of Energy Efficiency created under the Act.

The following steps may help for conservation of electrical Energy:

- i) Adoption of energy conserving technologies, production aids and testing facilities.
- ii) Efficient management of process/manufacturing machineries and systems, QC and testing equipments for yielding maximum Energy Conservation.
- iii) Optimum use of electrical energy for heating during soldering process can be obtained by using efficient temperature controlled soldering and desoldering stations.
- iv) Periodical maintenance of motor compressors etc.
- v) Use of power factor correction capacitors. Proper selection and layout of lighting system; timely switching on-off of the lights; use of compact fluorescent lamps whenever possible etc.

6. FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building

Built up area	250 Sq.Mtrs
Office, Stores	50 Sq.Mtrs
Assembly and testing	200 Sq.Mtrs
Rent payable/annum	Rs.1,20,000/-

(ii) Machinery and equipment

S. No.	Description	Qty.	Amounts (Rs.)
1.	Bench vice	2no.	8,000
2.	Cooling ducts	3no.	24,000
3.	Drilling Machine ½” cap.	1 no.	12,000
4.	H. V. tester	1 no.	8,500
5.	Ammeter and Voltmeter	2 nos.	2,000
6.	Megger	1 no.	3,500
7.	Solar battery Connectors	2 no.	2,500
8.	Multimeter (Digital)	1 no.	2,500
9.	Watt meter	1 no.	2,000
10.	Variable transformer (8 amp)	1 no.	3,000
		Total	57,000
	Other fixed assets		
	Electrification charges @ 10% of the cost of machinery and equipment		5,700
	Office equipments, furniture and working table etc.		60,000
	Dies three types ,.		2,50,000
	Finishing tools,and cutting tools etc		2,000
	Pre-operative expenses		5,000
		Total	3,22,700
		Total fixed Capital	3,79,700
		Say	3,80,000

B. WORKING CAPITAL (PER MONTHS)

(i) Staff & Labour

S. No.	Designation	Nos.	Rate (Rs.)	Amounts (Rs.)
1.	Factory Manager cum engineer	1 no.	15,000	15,000
2.	Skilled Worker	2 nos.	10,000	10,000
3.	Semi- Skilled Worker	4 nos.	3,500	14,000
4.	Clerk cum-typist	1 no.	7,000	7,000
5.	Accountant	1 no.	8,000	8,000
6.	Peon cum Watchman	1 no.	4,000	4,000
		Total		58,000
	Prerequisites @ 15 %			
		Total		8,700
		Say		9,000

(ii) Raw Materials requirement per month

S. No.	Particulars	Qty.	Rate (Rs.)	Amounts (Rs.)
1.	Plastic graduals	1800 Kg	100	1,80,000
2.	Packing Tape	100 Nos	12	12,00
3.	Speed Switches, Pump Switches etc	300 Nos	60	18,000
4.	Fan Motor	300 Nos	300	90,000
5.	Pump Motor	300 Nos	800	2,40,000
6.	Screw nuts, washers steel spring rod etc.	250 kg	40	10,000
7.	Wiring sets	300 Sets	20	6,000
8.	Cable 3-Core complete with 3 mtrs	300 Sets	30	9,000
9.	Packages	300 Box	80	24,000
10.	Solar Panels 25 Watts	300 Nos.	3000	9,00,000
11.	Battery 36 AH(as Use in Car)	300 Nos	1500	4,50,000
12.	Misc.			15,000

			TOTAL 19,43,200
			Say 19,43,000

(iii) Utilities (Per Month)

Power			6,000
Water			1,000
		Total	7,000
		Say	7,000

(iv) Other Contingent expenses per month

S. No.	Description	Amounts (Rs.)
1.	Rent	12,000
2.	Postage, stationery and	3,000
3.	Telephone/Telex/Fax Charges	3,000
4.	Repairs and Maintenance	2,000
5.	Transport and conveyance charges	3,500
6.	Advt. and publicity	10,000
7.	Insurance and taxes	800
8.	Miscellaneous expenditure	5,000
	Total	39,300/
	Say	39,000/

Total recurring expenditure per month
(i+ii+iii+iv)

=Rs.20,56,500/
Say Rs.20,57,000/

C. TOTAL CAPITAL INVESTMENT

Fixed Capital	Rs.3,80,000
Working Capital on 3 months basis	Rs.61,71,000
Total	Rs.65,51,000

D. FINANCIAL ANALYSIS

(I) Cost of production per annum

Total recurring expenditure	Rs.2,46,84,000
Depreciation on machinery and equipment @ 10 %	Rs. 5,700
Depreciation on tools, jigs and fixtures @ 25%	Rs. 95,000
Depreciation on office equipment, furniture @ 20%	Rs. 20,000
Interest on total capital investment @ 14%	Rs. 9,17,100
Insurance	Rs. 10,000
Total	Rs. 2,57,22,000
or say	Rs. 2,57,32,000

(II) Turn over per annum

Item	Qty. (Nos.)	Rate/Unit (Rs.)	Total Sales (Rs.)
ELECTRIC/SOLAR COOLER	3600	@Rs.7800	Rs.2,80,80,000

(III) Profit per annum (Before taxes)

Turn over per annum-cost of production per annum= Rs.2,80,80,000-
Rs.2,58,00,000
=Rs.22,80,000

Profit ratio= $\frac{(\text{Profit/Annum}) \times 100}{(\text{Sales/annum})}$ = $\frac{22,80,000 \times 100}{2,80,80,000}$
= 8.2%

Rate of return = $\frac{(\text{Profit/Annum}) \times 100}{(\text{Total/Capital Investment})}$ = $\frac{22,80,000 \times 100}{65,51,000}$
= 35%

E. BREAK EVEN POINT

Fixed cost per annum

Rent	Rs. 1,20,000
Depreciation on machinery and equipment @ 10 %	Rs. 6,000
Depreciation on tools, jigs and fixtures @ 25%	Rs. 95,000
Depreciation on office equipment, furniture @ 20%	Rs. 20,000
Interest on total capital investment @ 14%	Rs. 9,17,100
Insurance	Rs. 10,000
40% salaries & wages	Rs. 2,78,400
40% other contingent & utilities (excluding rent & insurance)	Rs. 1,87,200
Total fixed cost	Rs. 16,33,600
or say	Rs. 16,34,000

Break-even point

$$\frac{\text{Fixed cost} \times 100}{\text{Fixed cost} + \text{Profit}} = \frac{16,34,000 \times 100}{16,34,000 + 22,80,000} = 41.74 \%$$

$$\text{Say} = 42 \%$$

Additional Information

- The project profile may be modified/tailored to suit the individual entrepreneurship qualities/capacity, production programme and also to suit the locational characteristics, wherever applicable.
- The electrical/Solar Technology is undergoing rapid strides of change and there is need for regular monitoring of the national and international technology scenario. The unit may, therefore, keep abreast with the new technologies in order to keep them in pace with the developments for global competition.
- Quality today is not only confined to the product or service alone. It also extends to the process and environment in which they are generated. The ISO 9000 defines standards for Quality Management Systems and ISO

14001 defines standards for Environmental Management System for acceptability at international level. The unit therefore adopt these standards for global competition.

- d. The margin money recommended is 25% of the working capital requirement at an average. However, the percentage of margin money may vary as per bank's discretion