Owens Corning (India) Limited
Taloja MIDC, Dist Raigad.

OWENS CORNING (INDIA) LTD. is a Joint venture between M/S Owens Corning USA and M/S Mahindra & Mahindra from India. Owens Corning USA, a global leader in Glass Fiber manufacturing and building material providers. The Company started its commercial production in the year 1999. Current manufacturing capacity of this plant is 35,000 tons/year. More than 80% of the product is exported while rest is consumed in domestic market.

Introduction to Owens Corning Composites Systems Business: Owens Corning is dedicated to creating value for customers by delivering cost-effective solutions that replace traditional materials such as wood, steel and aluminum. The Owens Corning products in building material are specially made so as to conserve Energy consumption in offices, hotels and at home.

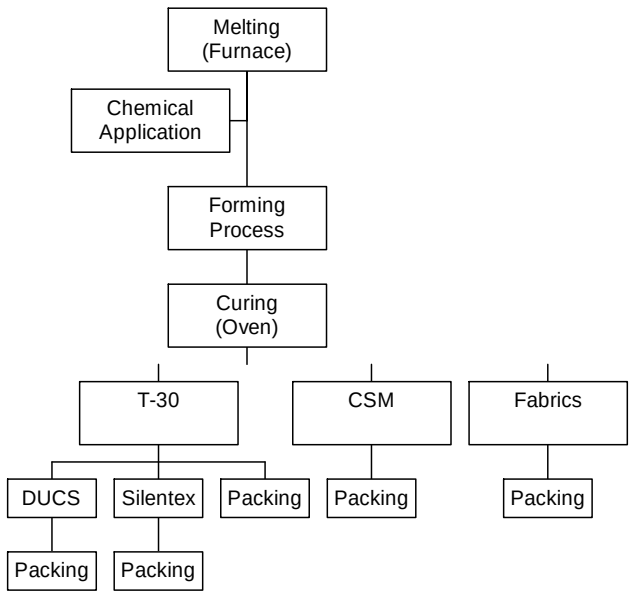
Glass fiber composites have become a material of choice for added performance because of their design flexibility, higher strength, lighter weight, corrosion resistance, electrical properties and cost reduction benefits in terms of longer lift. They are used in more than 40,000 end-use applications. Owens Corning has built a core competency in solving advanced material needs in virtually every major industry.
The plant manufactures state-of-the-art glass fiber reinforcement materials on an international scale. The plant was set up to manufacture Advantex glass, one of Owens Corning's proprietary glass formulations. Advantex glass is a environmental friendly glass as it is a Boron free Glass. This is commitment of Owens Corning to the environment. This glass we use at Taloja in the manufacturing of chopped strand mats (CSM), multi-end Roving and Single end Roving (T-30).

Owens Corning India Ltd is an ISO certified organization with integrated systems having ISO 14001,ISO 9001:2000 and OHSAS 18001. LRQA is the certification agency for Owens Corning India Ltd. The integrated system is termed as Operation Management system.
Participated in State Level competition "Award for excellence in energy conservation and management for the year 2004" and won **FIRST PRIZE FROM MEDA (Maharashtra Energy Development Agency)** in its category.
Owens Corning India ranks among the top 20 Net Foreign Exchange earners in India. OCIL has received the Capexil award for country's Top Exporters for three consecutive years from 1999 to 2003.

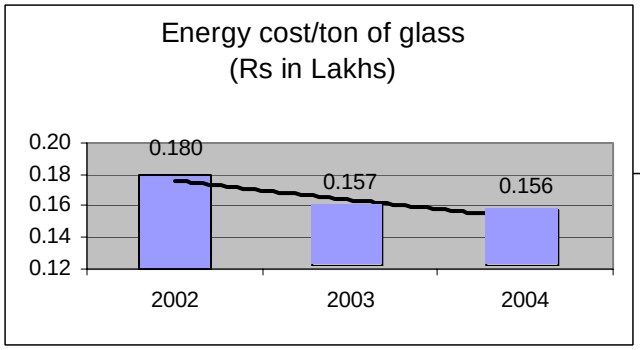
The Taloja plant has been rated as the best plant in Owens Corning world for the year 2002, 2003 and was given "Gold" award for these years.

Manufacturing Process Flow Chart

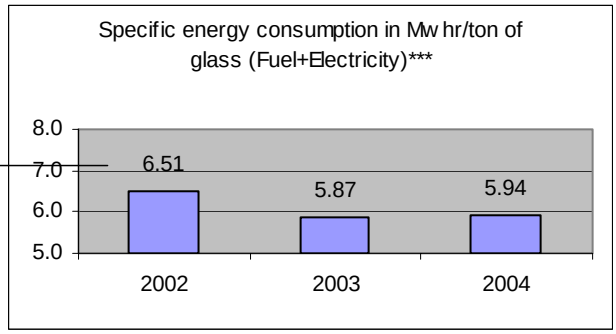
Manufacturing Process Flow Chart



Energy Cost

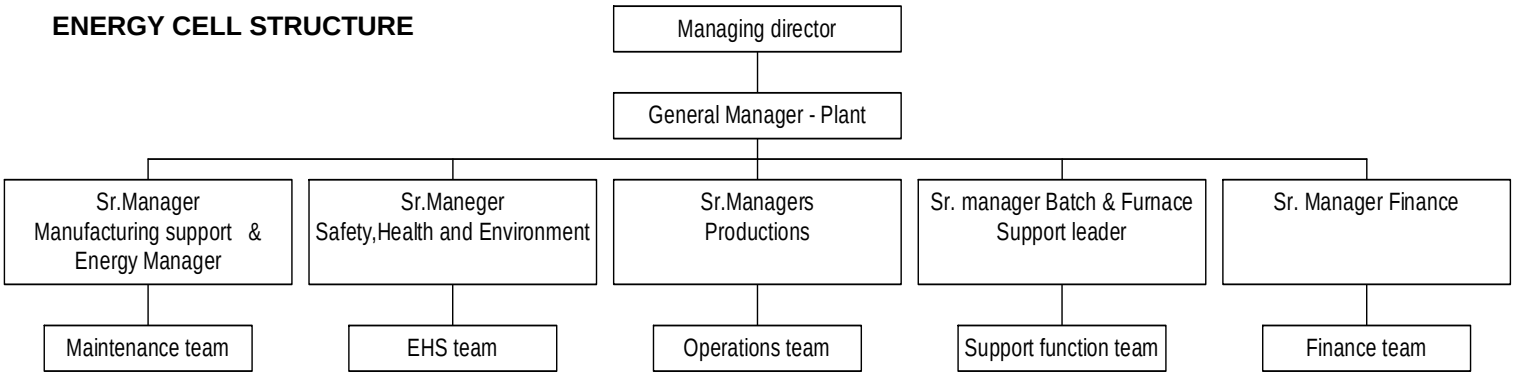


SPECIFIC CONSUMPTION



*** The fuel (LSHS, LDO and Propane) are converted into Mwhr and added with Electricity in Mwhr.

ENERGY CELL STRUCTURE



Energy Conservation Achievements:

In year 2004,Owens Corning India has implemented 6 major energy saving projects. Together this has resulted in a saving of Rupees 8.79 Lakhs for the year, with a minimal investment of Rs 1.31 lakhs.

The details of Energy saving project implemented in 2004 are

1) Installation of Mechanical seal in the chilled water pumps

Taloja have four chilled water pumps, which had Teflon glands. The gland would leak and there was a loss of chemically treated water. The consumption of chemically treated water was 01 m3/day. We had replaced this gland with mechanical seal, which gives energy savings as well as zero leakage. The energy consumed by mechanical Seal is also less compared to pumps with Gland packing (results indicated saving of 0.7 KW per pump)

Annual Energy savings in KW	:	19622.4
Annual savings in Rs	:	68678/-
Chemical savings in Rs	:	231000/-
Water saving in Rs	:	6570/-
Total savings in Rs	:	Rs 306248/-

2) Cake Oven Optimization -Temperature optimization

Taloja Plant run different product lines with different curing time and curing temperature in the cake oven. This means each product has to have one specific oven assigned to it. Due to this we were operating all the curing ovens. Trials proved this can be done and one oven can be used for multiple products. Product # 495 which used to run at 275 Degree @13 hrs and product ME 3003 which used to run at 265 degree @ 15 hrs were brought to match the curing time and temp. of other products running at 265 @ 13 hrs. This made all products running at 265 @ 13 hrs.

Propane saving in MT/annum = 5.76
Propane saving in Rs/annum = 0.98 Lakhs

3) CSM equipment stopped during cleaning

When CSM line is put in local mode (during line cleaning), all conveyors, Forming Fans, Emulsion precipitator fans, emulsion pumps, Cutter feed rollers continued to run. The CSM team carried out a study and attempted to stop these equipment when in local mode. When the line is put in local mode Zone 2,3,4 will stop immediately. Zone 1 continues to run. Before starting the Zone 2 & 3 a purge system will work i.e the blowers will first run for a particular time before the ignition can take place. During purge, Zone 1 will stop and belt burner will stop. Once purge is complete only after giving manual start command the burners will start. The safety of the system is ensured by logic change that no burners will start without completions of purge system.

Circulation fans 20KW(running), Precipitator exhaust fan 17kw (running)
Supply pump 2kw (running), Cutter feed roll -4 kw
Total Energy = 20*3+17+2+4 =83kw

Energy saved per day : 83KW (Down time per day for cleaning is 1hour)
Annual energy saving in KW : 30295
Annual energy saving in Rs : 0.97 Lakhs

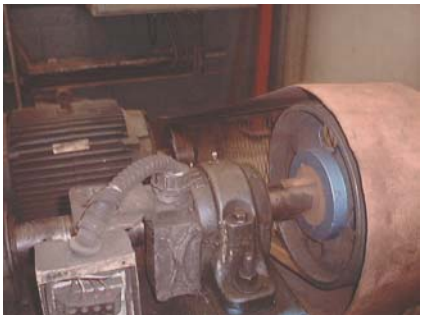
4) Conservation of Natural resources – Water consumption.

Utility team found a way of reducing the water consumption during the monsoon. During heavy rain fall it was observed that lot of water is going down to the rainwater drain, which was all good water. The water from the roof drain was collected in a vessel after filtration and was diverted to cooling tower for make up. A picture of it is attached. We collected 6052cum of water by using this system.
The cost per cum is Rs 18./-
Energy required for pumping this water = 0.13kw/cum (Here we have saved 0.13Kw/cum x 6052 cum = 665Kw)
Total saving in Rs : 1.19 Lakhs

5) Roving Fan V belt converted to Energy saving flat belt

Roving Fab, south side fuzz collector fan was operating on a drive and the North side was also operating at a speed higher than required. Both side the speed were reduced by increasing the pulley diameter and also by incorporating Flat Belts ("HABASIT FLAT BELT").
Power saving = 35.9-29 =6.9KW

Annual Energy saving in Rs : 1.75 Lakhs



2005 Projects

1) Utility AHU V belt converted into Poly V belt

The original AHU was running with V belt which was subsequently replaced by Flat belt for energy saving. But we have now replaced the flat belt in to POLY V belt as it has got a property of better life, lesser tension at the same time lesser energy than flat belt.

Annual Energy saving in KW = 17520
Annual Energy saving in Rs = 0.5 Lakhs

2) Installation of Lighting Transformer to the lighting circuit

The High Voltage above the normal (230 V rated) resulting more power consumption and also lead to reduced the life of lighting spares & increase in maintenance charges. Hence we had carried out the detail study on this aspect and decided to install separate transformer for lighting to control the voltage level constant (210V) in the lighting circuit. We have now installed the lighting transformer.

Annual Energy saving in KW = 40150
Annual Energy saving in Rs = 1.48 Lakhs

3) Power Quality Improvement by reducing harmonic effects

Load factor incentive, Bulk discount & Power factor incentive.

Power Factor incentive - As per the MSEB, the Power Factor incentive was for industries operating at a PF above 0.95 and for industries having better PF. The policy was for every rise in PF by 0.01 there will be a 1% discount offered in energy bill. This would be up to a PF of 0.98. Owens Corning India was at 0.97 to 0.98 PF and hence was claiming a discount of 2 to 3%. When the policy indicated that for industries having power factor above 0.98 then for every rise of PF by 0.01, there would be a further discount by 2% in energy bill. Owens Corning India quickly decided to take this incentive to fullest, which works out to 7% overall discount in energy bill. Study reviled there were harmonics in the system, which were not allowing our PF to go above 0.98. While this harmonics were below the requirements and guidelines set by MSEB, it was a major hurdle for Owens Corning India to avail the benefit of discount by 7%. After a detailed study, which took about six months, we identified, designed along with a consultant/Vendor the Harmonics Filters. Cost of project worked out to about Rs. 90,00,000.00 with a payback of 14 to 16 months. Quickly the funds were made available and the project was executed bringing the PF to unity and claiming the benefit of 7% discount.

4) ONLINE Energy Monitoring System.

Reduced Energy consumption by 2% by providing on line Energy monitoring system in which we monitor electrical demands on a continual basis. This helps us in controlling the Maximum Demand very close to Contract Demand and thus we are able to achieve the highest load factor. This system also helps us to monitor the consumption pattern of different production areas on a continual basis and we could set the energy consumption targets for each department.

Total investment in Rs : 5 Lakhs

Total savings in Rs : 15 Lakhs/annum

Energy Conservation plans and Targets:

Energy Conservation Measures (Planned)	Anticipated savings Rs. Lakhs	Approx. Investment (Rs.lakhs)	Project Commencement & Completion year
Fuel substitution (LSHS, Propane to Natural Gas)	400	200	2006 & 2007
Oxy- firing instead of Air in Furnace	200	100	2006 & 2007
Conversion of Ordinary V belt into Energy Efficient Poly V belt for all Air Handling Units	20	2.5	2006 & 2007
Reduction of Energy consumption of standby air compressor by Installing small compressors in the new production areas	27	5.0	2006 & 2007