

**Asahi India Glass Limited.  
( Float Glass )  
AIS SBU  
Taloja . Raigad- 410208.**

**Unit Profile:-**

Asahi India Glass Ltd. (AIS) is the one of the largest integrated float glass manufacturer in India with the powerful and well balance port folio of products. AIS has a strong strategic position in the Indian Glass Industry. AIS is a leader in Auto glass and architectural process glass and has a prominent position in float glass. AIS is constantly seeking out profitable growth with thrust on going up the value chain in both its core business – auto glass and architectural glass.



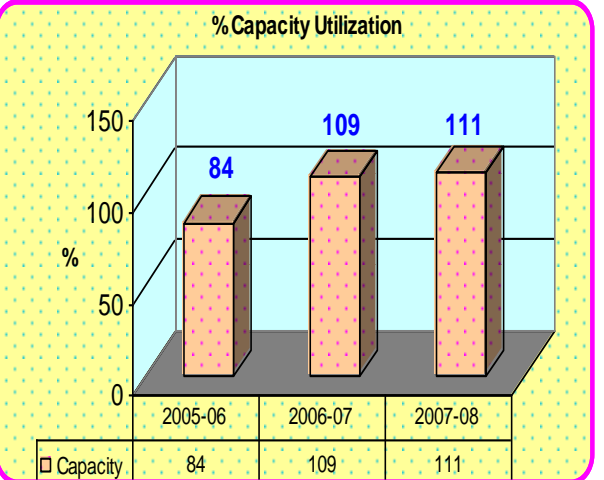
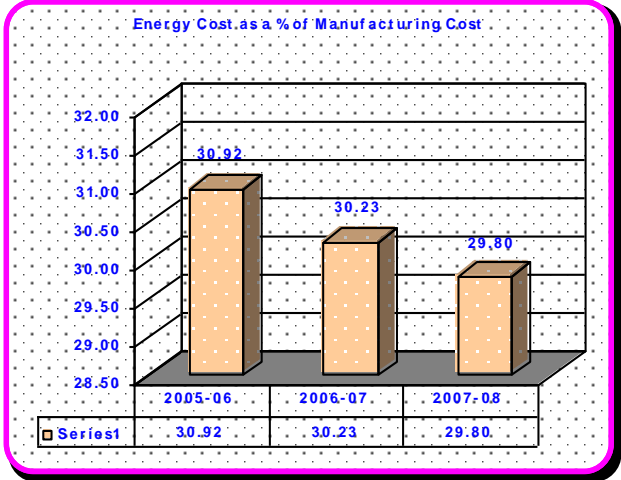
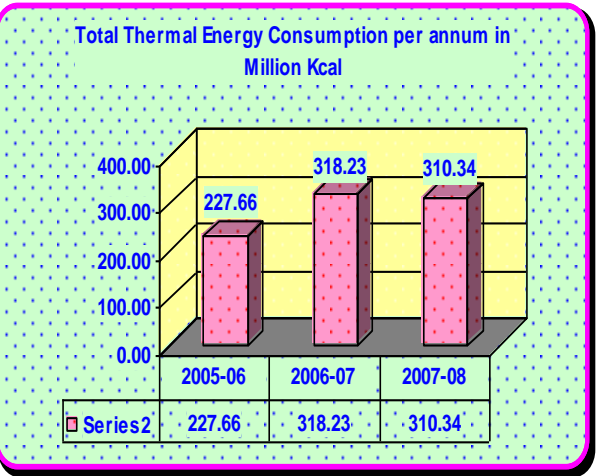
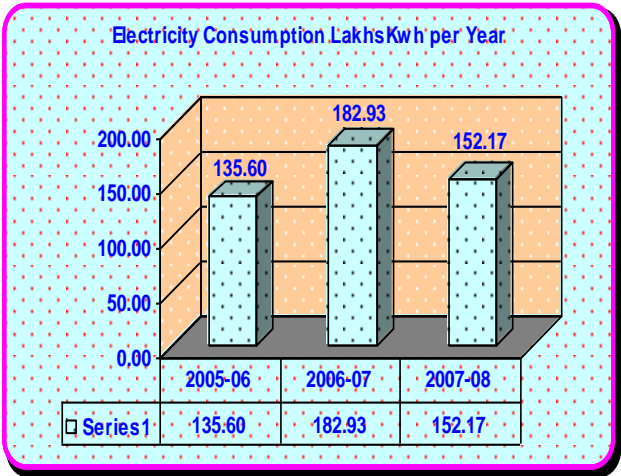
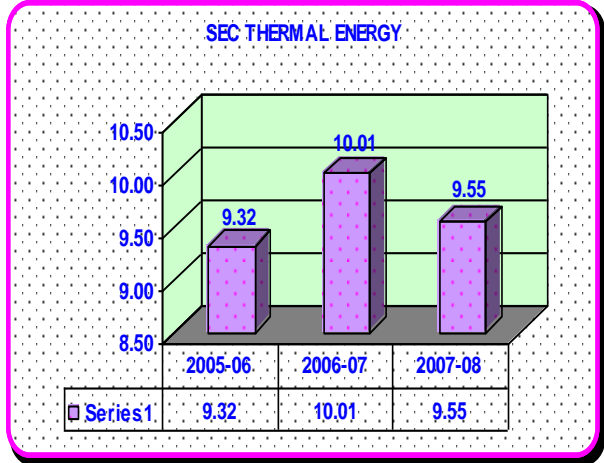
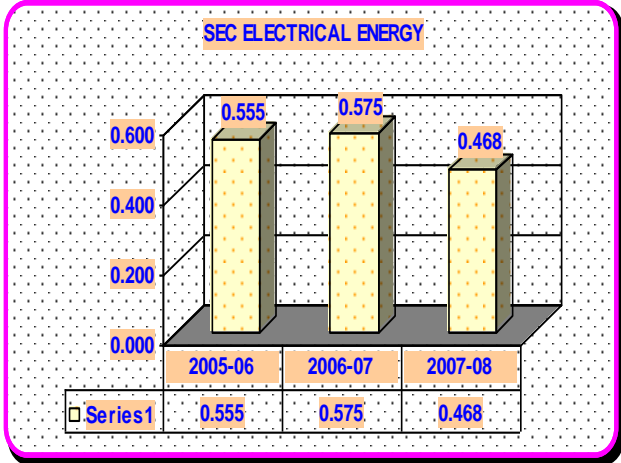
## Energy Consumption:

During the period 2006~08 Asahi India Glass Ltd. Talaja SBU has implemented various energy conservation projects through periodic Brain Storming session, TQM methodology Engineering initiatives and through QC circle and KAIZEN activities which has resulted in savings of Rs. 299.61 Lakhs with investment of Rs. 184.44 Lakhs. There were many projects which were identified for implementation but could not be implemented because of the deteriorating condition of our furnace which is 14 years old. But still the plant capacity utilization is much above 100% and in the year 2007~08 we have reached a level of 111% capacity utilization of existing 29.2 Million CSQM. The unit has achieved remarkable savings in Electrical & Thermal energy year after year which can be seen by a continuous reduction in specific energy consumption.

The specific Electrical energy consumption for the year 2007~08 has reduced by 18.9% over the year 2006~07 and the specific Thermal energy consumption has reduced by 4.585% over the year 2006~07 which can be seen from the table given below.

**Note:** In the year 2005~06 Talaja unit has faced heavy floods due to which our production was completely stopped for more than 3 months hence data for 2005~06 has not been taken for comparison purpose.

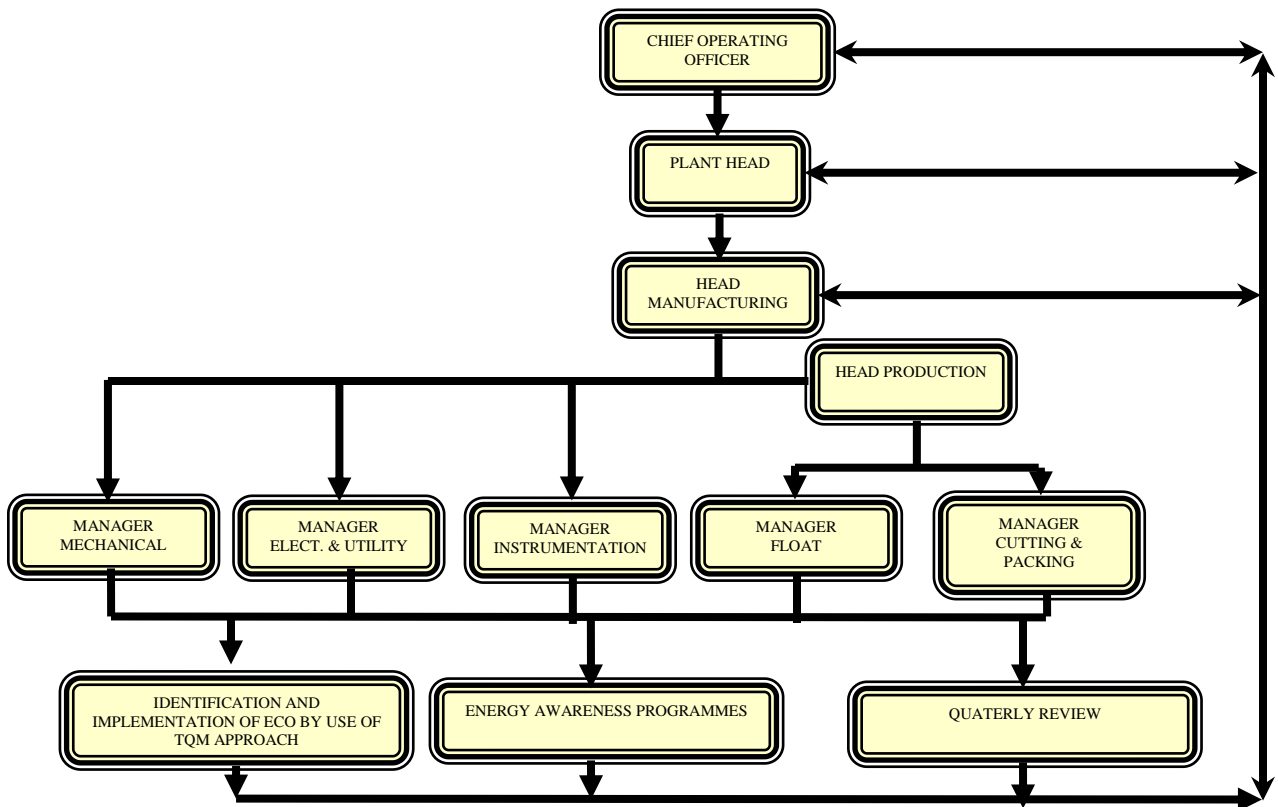
Sr.No.	Description	Unit	2005~06	2006~07	2007~08
1	Annual Production	CSQM	24422779	31789576	32489207
2	Percentage Plant Capacity Utilization	%	83.64	108.87	111.26
3	Total Electrical Energy Consumption	Lakh Kwh	135.60	182.93	152.17
4	Specific Electrical Energy Consumption	Kwh/CSQM	0.56	0.58	0.47
5	% Reduction in SEC Electrical over the year 2006~07.	%	--	--	18.9
6	Total Thermal Energy Consumption	M Kcal	227.66	318.23	310.34
7	Specific Thermal Energy Consumption	KCAL/CSQM	9.32	10.01	9.55
8	% Reduction in SEC Thermal over the year 2006~07.	%	--	--	4.58
9	Total Energy Cost	Rs. Lakhs	24422779.00	31789576.00	32489207.00
10	Total Manufacturing Cost	Rs. Lakhs	17324.7	20553.22	21574.74
11	Energy cost as % of manufacturing cost	%	30.92	30.23	30.30



## Energy Conservation Commitment, Policy and Set up:

Asahi India Glass strongly believes in TQM principles and is committed to conserve Energy in its all forms by minimizing the specific energy consumption by carrying out process improvement and technological intervention. In accordance to the above commitment an energy conservation policy has been formulated and is declared. As per the commitment an energy conservation cell has been established and the mission of the EC Cell is:

- Understanding the Energy Saving Concept in Co-relation with Process
- Bottom-up Planning's.
- Detail Study of Feasibility for The Energy Saving on the Individual machines.
- Mass Participation through Participative Style of approach.
- Creating importance of Energy Saving Awareness through Training and Seminar.
- Motivation for Energy Saving Activities through Recognition & Rewards.
- Motivate the people for towards Energy conservation through QC circle, KAIZEN and Cross Functional Team.
- To review monthly meeting with EC team and guide them to achieve the targets.

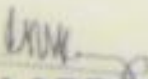




Float Glass

## ENERGY POLICY

TO MINIMIZE THE SPECIFIC ENERGY CONSUMPTION IN THE MANUFACTURER PROCESS THROUGH CONSERVATION OF ENERGY IN ALL FORMS BY CARRYING OUT OPTIMIZATION BOTH OF THE SOURCE OF ENERGY AS WELL AS THE MANUFACTURING PROCESS ITSELF THROUGH NECESSARY TECHNOLOGICAL INTERVENTION. IN THIS ENDEAVOR FULL ATTENTION SHALL BE GIVEN TO MINIMIZING ADVERSE EFFECT IF ANY ON THE ENVIRONMENT.

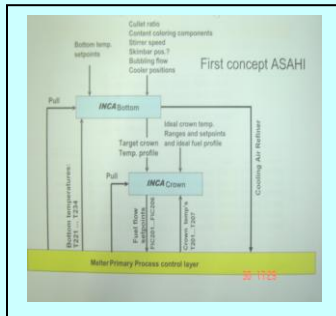
  
S. LABROO  
CEO

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## Energy Conservation Achievement:

Year	Total Electricity Consumption	Total Thermal Energy Consumption	Total Energy Cost	Manufacturing Cost	Energy Cost as a % of Manufacturing Cost	% Plant Utilization	kWh / CSQM	Million Kcal / CSQM
	Lakhs kWh	Million Kcal	Rs. Lakhs	Rs. Lakhs	%	%		
2005-06	135.60	227.66	4725.34	17324.70	27.28	83.64	0.555	9.32
2006-07	182.93	318.23	6212.88	20553.22	30.23	108.87	0.575	10.01
2007-08	152.17	310.34	6429.03	21574.74	29.80	111.26	0.468	9.55

### Installation of intelligence control system for Furnace operation (Trend setter Project)



Furnace temperature are very important for better glass quality. To achieve that auto controller is installed which keeps the temperature within specified range hence saving of fuel and better quality of molten glass.

Benefits :

- 1] Better process parameter control
- 2] Energy consumption reduction.
- 3] Reduction in product defects.

**1st Year Saving period from date of commissioning:**

**Rs. 32.77 Lakhs (From 12 Months)**

**Saving on Year basis :**

**Thermal Energy Saving : 1.69 MKcal/Annum.**

**Saving in Rs. : 32.77 Lakhs/Annum.**

**Investment in Rs. : 135 Lakhs**

**Highlights:** Apart from energy saving this system has reduce our annual defects by 1% which amounts to **Rs. 1.5 Crores/Annum.**

## Installation of Down Stream Pressure Controller



Prior to installation of down stream pressure controller the average compressed air consumption per day for the complete plant was 35669.45 NM<sup>3</sup> and average power consumption was 5150 Kwh/day. After installation the compressed air consumption was rationalized by maintaining the demand pressure down the line. The average compressed air consumption reduced to 26428.81 NM<sup>3</sup>/Day and average power consumption reduces to 2991.24 Kwh/Day.

The normal pressure setting prior to down stream pressure controller installation was 6.2 Kg/CM<sup>2</sup>. Now after installation of down stream controller the pressure setting is adjusted to 5.7 Kg/CM<sup>2</sup>.

**1st Year Saving period from date of commissioning:  
Rs. 30.88 Lakhs (From 12 Months)**

**Saving on Year basis :**

**Electrical Energy Saving : 7.88 Lakhs Kwh/Annum**

**Saving in Rs. : 30.88 Lakhs**

**Investment in Rs. : 4.09 Lakhs**

**Highlights:** Prior to implementation 04 Compressors were running as on date only 01 compressor runs on full load and other loads/Unloads. Reduction maintenance & operation cost.

## Replacement of 2 Nos. of lift up pumps by single high efficiency pump



Initially in water pond area we were running 2 Nos. of Lift-up pump of capacity 750 M<sup>3</sup>/Hr. & 150 M<sup>3</sup>/Hr. with 24 Hrs. x 365 Days working Total power consumption for running both the pumps was 160 Kw (124+36 Kw) it was decided to replace this both pumps by Kirloskar make high efficiency pump of capacity 1000 M<sup>3</sup>/Hr. & the power consumption for the pump is 130 Kw.

**Net saving of 30 Kw/Hr.**



**1st Year Saving period from date of commissioning:  
Rs. 10.3 Lakhs (From 12 Months)**

**Saving on Year basis :**

**Electrical Energy Saving : 2.62 Lakhs Kwh/Annum**

**Saving in : Rs. 10.3 Lakhs/Annum**

**Investment in Rs. : 5.7 Lakhs.**

**Highlights:** The high efficiency pump was replaced using the same existing motor and single pump takes care of total lift up water requirement.

## Installation of Maximum Demand controller for optimizing the KVA Demand.

**Previous No demand controller was there**

The past one year Electricity consumption data shows that the average actual Kva demand was 3352 and billed demand Kva was 3452. Hence decided to install a demand controller to control the maximum demand Kva by switching of the non priority loads during peak demand.

After installation of demand controller the average actual demand Kva is maintained at 2773 and the average billed demand Kva is 3171.



**1st Year Saving period from date of commissioning:  
Rs. 9.05 Lakhs (from 12 Months)**

**Saving on Year basis:**

**Electrical Energy Saving : 6036 Kva/Annum.**

**Saving in Rs. : 9.05 Lakhs/Annum.**

**Investment in Rs. : 02 Lakhs**

**Highlights:**

## Stopping the use of 15 Tons Air conditioner in HDD camera room.



Initially in HDD camera room 2 Nos. of 15T Air conditioners were used for maintaining the temperature of HDD camera system 24 Hrs.x 365 Days. Average power consumption per AC was 11.5Kw. The HDD camera system was modified and was provided cooling water jackets for maintaining the temperature and there by the use of both the AC was stopped.

**Net saving of 34.56 Kw/Day.**



**1st Year Saving period from date of commissioning:  
Rs. 7.90 Lakhs (from 12 Months)**

**Saving on Year basis :**

**Electrical Energy Saving : 0.126 Lakhs Kwh/Annum.**

**Saving in Rs. : 7.9 Lakhs/Annum.**

**Investment in Rs. : 1.95 Lakhs.**

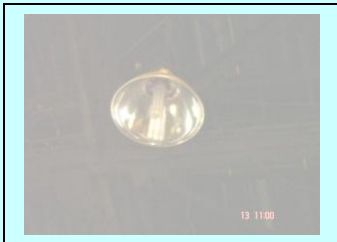
**Highlights:** Apart from Power saving the sensors life has also increased by providing the jacket cooling directly at the point. There are 02 sensors and cost of each sensor is Rs. 06 Lakhs.

## Energy saving in Lighting system



Various energy conservation measures were implemented in the lighting system some of them were replacing 160W lamp by 40W tube lights, replacing 160W HPMV lamp by 26W CFL and replacing 400W overhead lamps by 85W CFL lamps along with well glass fixtures. Total 300 Nos. lamps replaced at various location.

**Net saving of 60 Kwh/Day.**



**1st Year Saving period from date of commissioning:  
Rs. 2.78 Lakhs (from 06 Months)**

**Saving on Year basis**

**Electrical Energy Saving: 1.41 Lakhs Kwh/Annum.**

**Saving in Rs.: 5.56 Lakhs/Annum.**

**Investment in Rs.: 4 Lakhs.**

**Highlights:** Reduce power consumption in the lighting system with No change in illumination level.

## Reduction in Electric heater power consumption in Metal Bath down steam by process modification.



Initially In Metal Bath the exit temperature of the glass ribbon was controlled by Banjo Coolers , but the banjo Coolers were having some of its design limitations, i.e after certain length they cannot be moved out because of its banjo shape and hence they were not effective in controlling the temp , and in such cases in order to control the temp Electric heaters were used . in order to reduce the electricity consumption in the exit area of M-bath , it was decided to modify the design of the coolers from banjo shape to Straight cooler.

By Doing this modification the new straight coolers can be completely shifted in and out of the M-Bath for temp control and hence necessity to operate the exit heater is reduced to almost 30%

**Net Savings:- 160 Kwh/Hr.**



**1st Year Saving period from date of commissioning:  
Rs. 54.94 Lakhs (from 12 Months)**

**Saving on Year basis :**

**Electrical Energy Saving : 14.02 Lakhs Kwh/Annum**

**Saving in Rs. : 54.94 Lakhs/Annum**

**Investment in Rs. : 2 Lakhs**

## Electrical Energy Saving by stopping 03 Nos. of Lehr Bottom Cooling Fans



In Metal Bath Area we were using 3 nos. of 22kw blower for cooling the glass ribbon from top side and 3 nos. of 15 kw blowers were used for cooling the glass ribbon from bottom side . the blowers were in operation 24 x 365 days , each top and bottom cooling blowers were having the separate ducting for the same, and it was observed that for top cooling blowers damper was almost 30 % closed, it was decided to modify the ducting to interconnect the top and bottom cooling to a single blower , accordingly after modification , 3nos of 15 kw blowers were completely stopped .

**Net saving of :- 1080 kwh/day.**



**1st Year Saving period from date of commissioning:  
Rs 7.62 Lakhs (from 06 Months)**

**Saving on Year basis**

**Electrical Energy Saving:- 1.94 Lakhs KWH /Annum**

**Saving in Rs.:- 16.95 Lakhs/Annum**

**Investment in Rs.:- 0.5 Lakhs**

**Highlights:** This system helped us in optimizing the loading of the under loaded motors with not much investment .

## Electrical Energy saving by stopping the Blower used for bottom cooling.



Initially Blower of 22 Kw was used for cooling the hot spots below metal bath. This blower was running 24 hrs x 365 days on continuous basis , by little modification in the ducting , the 22KW blower was completely stopped .

**Net Savings :- 480 KWH/ day**



**1st Year Saving period from date of commissioning:  
Rs. 4.52/- (from 08 Months)**

**Saving on Year basis :**

**Electrical Energy Saving : 1.75 Lakhs Kwh/Annum.**

**Saving in Rs. : 6.86 Lakhs/Annum.**

**Investment in Rs. : 0.05 Lakhs.**

**Highlights:** This additional blower was provided to reduce the compressed air consumption. Now even stopping this blower has resulted in optimized use of bottom cooling air without affecting the process parameters.

## Reduction in Running Hours of Guillotine machine



In Cutting and packing area Guillotine machine is used to cullet the defected glass, this machine consumes total 5.6 kw per hour , this machine use to run continuously 24 x 365 days , even when there is defected glass on the conveyor , it was decided to carry out inhouse automation of the same in such a way that it starts only when the defected glass comes on the conveyor .accordingly sensors were installed on the conveyor to sense the glass sheet ,

By doing above modification the machine running time has been reduced by almost 50%.

**Net Saving:-67.2 kwh per day**



**1st Year Saving period from date of commissioning:  
Rs 0.79 Lakhs ( From 10 Months)**

**Saving on Year basis**

**Electrical Energy Saving:-0.245 Lakhs kwh / Annum.**

**Saving in Rs.:- 10.96 Lakhs / Annum.**

**Investment in Rs.:- 0.2 Lakhs.**

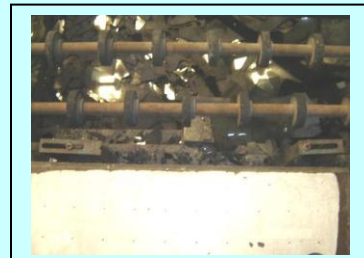
**Highlights:** - Apart from Energy Saving the machine stops when not in use hence less wear and tear and hence reduction in maintenance cost.

## Reduction in running time of floating table blowers



In Cutting and packing section floating table is used to carry out the off cutting operation, this floating table is provided with 04 nos. of 2.2 Kw Blowers which blows the air into the table. This table is used to recover the good glass from the defected glass, initially this blowers were running 24 x 365 , automation was done by providing sensors and timer to shut off the blowers when there is not any glass on the table. This modification has reduced the operation time by 40%

**Net savings :- 126 Kwh / day.**



**1st Year Saving period from date of commissioning:  
Rs 0.89 lakhs (from 06 Months)**

**Saving on Year basis**

**Electrical Energy Saving:- 0.459 Lakhs Kwh / Annum.**

**Saving in Rs.:- 1.80 Lakhs / Annum.**

**Investment in Rs.:- 0.3 Lakhs.**

**Highlights:** - Apart from Energy Saving the machine stops when not in use hence less wear and tear and hence reduction in maintenance cost.

**Summary of Energy Conservations measures implemented during 2005~08.**

<b>Description</b>	<b>2005~06</b>	<b>2006~07</b>	<b>2007~08</b>
Yearwise saving achieved (Rs. Lakhs/Year)	57.95	51.98	118.25
Cumulative saving achieved (Rs. Lakhs/Year)	---	109.93	228.17
No. of EC measures implemented	16	6	16
Investment made (Rs. Lakhs/Year)	129.43	50.90	15.53

**Energy Conservations of plans and Target.**

<b>Energy Conservation Measures (Planned)</b>	<b>Anticipated Savings</b>			<b>Approx. investment (Rs.lakhs)</b>	<b>Project Commencement &amp; Completion year</b>
	<b>Energy Value</b>		<b>Rs. Lakhs</b>		
	<b>Lakhs kWh</b>	<b>Million kcal</b>			
Use of furnace waste heat for power generation	2851.2	0	125.00	175	2009
Use of waste heat of Lehr fan exhaust for secondary air Pre-heating.	0.00	6.52	125.00	40.00	2009
Use of high emmissivity coating for furnace.	0	1.54	29.70	5.80	2010
Use of variable speed drive for secondary air fan.	2.07		9.00	9.00	2009
Variable speed drive for bottom cooling fan.	2.10	0	9.00	9.00	2009
Savings Through Star connection of under loaded Motors	0.77	0	3.30	0.00	2008
VFD drives for booster pump.	0.26	0	1.14	2.40	2009
Replacement of old raw water pump by high energy efficiency pump.	0.34	0	1.47	1.00	2009
Replacement of Rewound Motors by High Efficiency Motors	0.25	0	1.08	1.25	2009
Modification of Return water cooling water line from Furnace directly to Cooling Tower and stopping the Return hot water pump	3.47	0	14.92	2.50	2010
<b>Total</b>	<b>2860</b>	<b>8</b>	<b>320</b>	<b>246</b>	

By adopting above Energy conservation measures Asahi India Glass Ltd. will be able to reduce its Electrical energy consumption by almost 2.5% in the year 2008~09 and by 5.5% in the year 2009~10 against the base year consumption of 2007~08. The Thermal energy consumption target for the Year 2008~09 and 2009~10 is kept same as that of base year 2007~08 because as the furnace gets old its heat hold-up capacity increases by approx. 1% every year. That means we are planning to reduce our Thermal energy consumption for the year 2008~09 by 1% and for the year 2009~10 by 2% by maintaining the current level of consumption of base year 2007~08.

Year	Electrical*	Thermal*	Reduction over the year 2007-08	
			Electrical %	Thermal %
2007-08 (Base year)	0.4684	9.5522	-	-
2008 - 09	0.4563	9.5522	2.5848	0
2009 - 2010	0.4424	9.5522	5.5368	0

### Environment & Safety :

Asahi India Glass Ltd., Talaja SBU is a ISO 14001-2000 certified company and hence to comply with the above standard we are committed for preserving precious energy resources our social responsibility and protecting environment by waste minimization and maximum resource recycling. The environment policy is been frame and is available to all. To bring about awareness among employees Asahi India Glass Ltd., Talaja SBU has taken various initiatives including internal Safety audits, Third party audits, Risk assessment analysis on site emergency response plan has of studies monitoring and measures of emissions health check-up for all employees including contract employees.

### Safety :

Asahi India Glass Ltd., has been promoting safety standards across its alls SBU's through well designed and customized safety programs. This programs are implemented on regularizes on continuous basis under the guidance and supervision of plant Safety Manager to achieve our objective of minimization of OHS Hazard at the first place and to bring best operational practices and to sustained '0' accident, OHS policy is declared and its available to all. Some of the initiatives taken on this front are installation of Gas leakage detector sprinkler system and comprehensive fire hydrant system with the back of diesel operated fire hydrant pump etc. are provided in the company. Various program conducted for all employees including Contractor employees are daily morning safety pledge, First Aid and Fire Fighting trainings, Safety suggestion program, safety motivation prize program, safety slogan, Poster, suggestion and safety quiz competition are arrange during safety week every year.

### Environment:

In line with EMS policy commitment Asahi India Glass Ltd., Talaja SBU regularly conducts environmental audits through external certifying agencies and various environment management initiatives such as environmental dust emission monitoring, noise level monitoring etc. Various projects initiates includes:

1. Conversion of arid land into lush green belts.
2. Rain Water Harvesting.
3. Sewage Water Treatment and use of treated water for the gardening.
4. Recycling of waste paper.
5. Reduction in consumption of wood as packing material for glass etc.



Float Glass

## **ENVIRONMENTAL POLICY**

**Asahi India Glass Ltd. (AIGL) - Float Glass Division, Taloja commits itself to conducting its operations with utmost regard to environment in order to ensure that AIGL is a safe and healthy work place. It is the policy of AIGL Management to follow and implement proper procedures and practices related to relevant standards including International Environmental Management System standard - ISO 14001.**

**Management of AIGL is committed to supporting and making available all necessary resources for ensuring adherence and compliance to various applicable statutes, legal and other requirements. The Management is also committed to creating a work environment conducive to active participation of its employees in preventing pollution and to continually improve the environmental performance of the organization. The Management shall extend all required organizational support and provide facilities for imparting relevant information, training and motivation in order to encourage involvement of its employees at all levels, onsite contractors, customers and suppliers for implementation of this policy.**

**AIGL shall focus its efforts on recycling, resource conservation and management of wastes, hazardous chemicals, fugitive emission and emergencies to continually improve the quality, efficiency and environmental performance of the processes in the organization.**

**P. L. SAFAYA  
DIRECTOR & C.O.O.**

Date: 15-01-2004



Float Glass



## **OCCUPATIONAL HEALTH & SAFETY POLICY**

Asahi India Glass Limited (AIGL) is committed that its operations are conducted with utmost regard to Safety and Health of Personnel, Plant and Machinery and the Environment. It is the policy of the Management of AIGL to follow and sustain high standards and specified procedures related to Safety, Occupational Health and related Environmental Parameters.

Management of AIGL is committed to support and make available the resources necessary for ensuring adherence / compliance to various standards and relevant statutes. The Management of AIGL also strives to achieve a working environment conducive to active participation of its employees in maintaining safe and pollution-free conditions in its manufacturing operations and to extend required organizational support and provide facilities for imparting relevant information, instruction, training, motivation and for encouraging involvement of its Managers and employees in the implementation of this Safety and Occupational Health policy.

I would request everyone, the senior-most employee to the newest employee to make sincere efforts to implement this policy effectively and make our workplace safe, healthy and accident-free.

**P. L. SAFAYA**

OCCUPIER & C.O.O.

Date : 15-01-2004



राष्ट्रीय ऊर्जा संवर्धन पुरस्कार  
NATIONAL ENERGY CONSERVATION AWARD

यह प्रशंसा प्रमाण पत्र

This commendation Certificate is Awarded to

मेसर्स फ्लोट ग्लास इंडिया लिमिटेड,  
तलोजा, रायगढ़ को  
M/s. FLOATGLASS INDIA LIMITED,  
TALOJA, RAIGARH

ऊर्जा संवर्धन हेतु प्रयासों की

in appreciation of their efforts in Energy Conservation in the


ग्लास क्षेत्र में प्राप्त की गई  
GLASS Sector

उपलब्धि के बारे में वर्ष 2001 के लिए

for the year 2001

प्रदान किया जाता है।

विद्युत मंत्रालय  
नई दिल्ली, 14 दिसम्बर, 2001  
Ministry of Power  
New Delhi, 14 December, 2001

  
सचिव, भारत सरकार  
Secretary to the Government of India

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