

**GLAXOSMITHKLINE CONSUMER HEALTHCARE LIMITED**  
**Sonepat (Haryana)**

**Unit Profile**

GlaxoSmtihkline Consumer Healthcare Ltd is an Indian group Company/associate of GlaxoSmithkline plc U.K. GlaxoSmtihkline Consumer Healthcare Ltd. is one of the largest players in the health food drinks industry in India. The Sonepat factory is involved in the manufacture of Horlicks, the flagship product of the Company, incorporating the highest and most stringent global manufacturing processes in the industry. The factory has a fully automated design that allows the product to be produced hygienically.

**Energy Conservation Commitment, Policy and Set up**

The key Driver for the site has been the reduction in the Utilities operating cost, without sacrificing any of its Global Quality Guidelines, EHS and Regulatory commitments. The site has a cross-functional Energy management team.

The structure of the Core team is as shown



The Sonepat factory has very Structured Energy management programme which includes exploration of Low cost energy alternatives, Reduction, Reuse and recycle of waste, promoting awareness and use of enabling technology.

The Culture of Energy Conservation has been established in the Site through a visible Energy Policy, Energy Management Team, Data Monitoring & review Systems, Benchmarking & Knowledge Management, Training and Energy Audits.

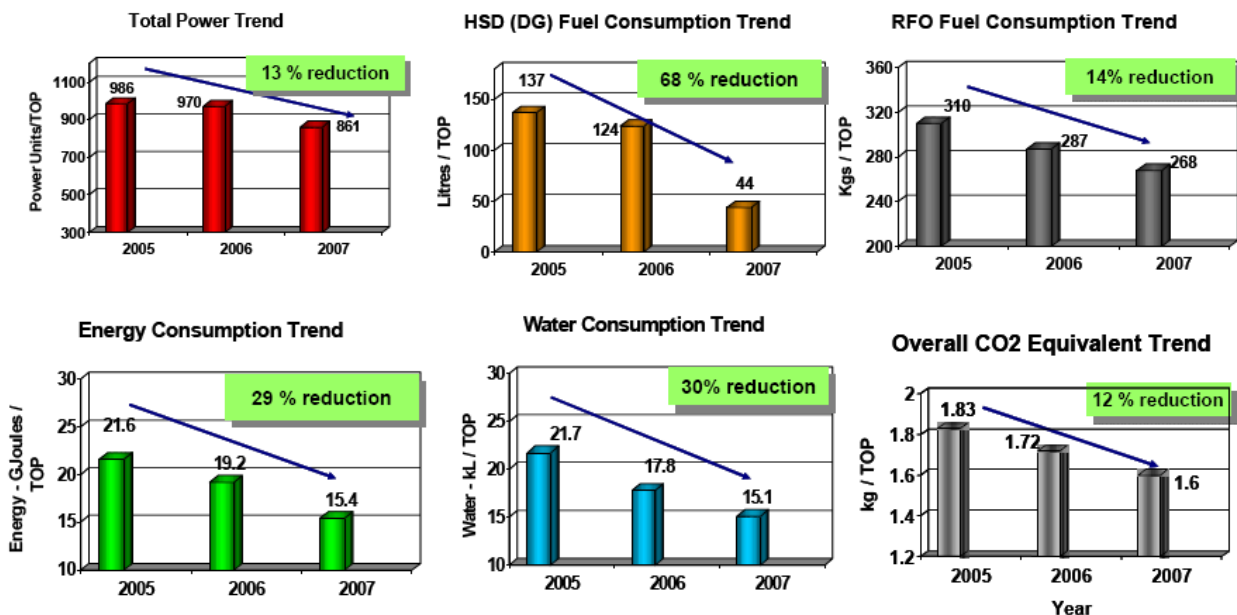
## Energy Consumption

Energy consumption details	Unit	2005	2006	2007
Production	Tons	11076	10017	11019
Total Energy consumption per annum	kWH (Lakhs)	109	97	94.9
Total Thermal energy consumption	Million kCal	36397	28884	28543
Total energy Cost	Rs. Lakhs	1202	1257	1075
<b>Overall Energy Consumption/Ton of Production (TOP)</b>	<b>GigJoules/TOP</b>	<b>21.6</b>	<b>19.2</b>	<b>15.4</b>
<b>Energy Reduction During the entire period (2007 Vs. 2005)</b>				<b>28.7%</b>
<b>Energy Reduction in the last year ( 2007 Vs. 2006)</b>				<b>19.8%</b>

This is a 29 % reduction in Overall Specific Energy Consumption for the period.

The Site has an excellent data management system for all energy consumptions in various streams. There is a robust review mechanism in place. Apart from daily reviews, idea schemes and continuous improvement Projects, Annual Baseline events are launched on Energy Conservation.

## Graphical representation of Specific Energy Consumption (2005 – 2007)



The Major Energy Conservation projects implemented during 2007- 2008, with a cumulative annualized saving of Rs. 920 Lakhs are as under

### 1. Fluidised Bed Combustion-Coal Fired Boiler (Energy saving device)

The plant met steam requirements through an RFO based Boiler, that was operating at an efficiency of 77%. This boiler has been replaced by an Energy efficient FBC Boiler. Moreover the Boiler has reduced overall Steam consumption by 0.5 Tons/hr due to internal Steam requirement on Oil Fired Boiler.

Apart from this this, there is also large saving due to Fuel Substitution. While the Cost of Steam in the RFO Boiler was Rs. 1800/Ton of Steam (at an average RFO cost of Rs.25/kg for the year), the FBC Boiler generates steam at Rs.0.8 / kg.

<b>Fuel saving (kg p.a.)</b>	<b>: 18, 02,536</b>
• <b>Power saving (kWH p.a.)</b>	<b>: -10, 15,712</b>
• <b>Investment (INR)</b>	<b>: 9, 01, 30,000</b>
• <b>Saving on Operational Efficiency</b>	<b>: 1, 3325,000</b>
• <b>Saving due to Fuel Substitution</b>	<b>: 6, 23, 61,000</b>
• <b>Annual saving (INR) Overall</b>	<b>: 7, 56, 87,000</b>
• <b>Pay back</b>	<b>: &lt; 2 years</b>



## 2. Plant Efficiency Improvement

The plant conducted extensive trials to increase the inputs solids further so as to reduce the energy required for drying, resulting in improving plant throughput from 80 Tons per day to 86.5 Tons per day. The plant had to replace certain motors and pumps based on their revised optimum operating points.

<b>Fuel Saving (Kg p.a.)</b>	<b>: 950,898</b>
• <b>Power saving (kWH p.a.)</b>	<b>: 940,992</b>
• <b>Investment (INR)</b>	<b>: 22,78,000</b>
• <b>Annual saving (INR)</b>	<b>: 95,19,000</b>
• <b>Pay back</b>	<b>: &lt; 1 year</b>

## 3. Reduction in Plant C/O and Set-up times

The plant has improved Cleaning In place cycle time by from 44 hrs to 48 hours, ensuring more effective plant run time and improving throughput.

• <b>Fuel Saving (Kg p.a.)</b>	<b>: 96,000</b>
• <b>Power saving (kWH p.a.)</b>	<b>: 95,000</b>
• <b>Investment (INR)</b>	<b>: -</b>
• <b>Annual saving (INR)</b>	<b>: 10, 69,000</b>
• <b>Pay back</b>	<b>:</b>

## 4. 300 kVA UPS for Critical Loads

With increasing loads, the plant Critical load increased by 220 kW for which DG was required to be operated to ensure uninterrupted power. The Site installed a 300 kVA UPS so as to eliminate DG running, thereby reducing HSD consumption in the plant by 1.5 kL/day (i.e.) an annual reduction of more than 400 kL.

• <b>Fuel (HSD) saving (L p.a.)</b>	<b>: 286,000</b>
• <b>Investment (INR)</b>	<b>: 35,00,000</b>
• <b>Annual saving (INR)</b>	<b>: 46,29,000</b>
• <b>Pay back</b>	<b>: &lt; 1 year</b>



## 5. Refrigeration & AHU Optimization

Rationalisation of refrigeration and Dehumidification requirements and optimising AHU airflows resulted in an overall reduction in Refrigeration load by 5,37,000 TR.

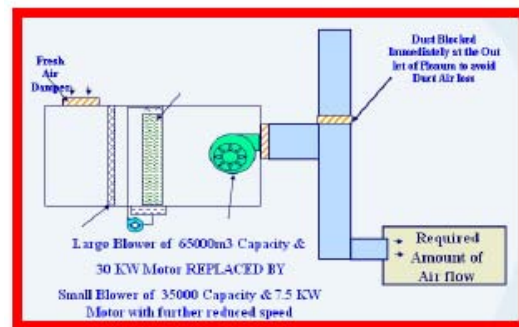
- Power saving (kWH p.a.) : 4,56,684
- Investment (INR) : 1,00,000
- Annual saving (INR) : 25,11,762
- Pay back : < 1 month



## 6. FDV Optimization

FDV systems were studied in detail for Air flow requirements Vs. actual generation and were optimized by realigning the blowers and motors by lower capacity so that excess air flow is eliminated and only Optimum Air flow is maintained. In a major reduction, One FDV System of 65000 cu. mtr capacity (30 kW) was replaced by a 35000 cu.mtr capacity (7.5 kW).

- Power saving (kWH p.a.) : 1,35,360
- Investment (INR) : 20,000
- Annual saving (INR) : 8,35,000
- Pay back : < 1 month



## 7. VFD For Boiler FD Fan

The FD Fan was operating on Star Delta Starter. Optimization of Air flow and Combustion Control was achieved by providing an Oxygen analyzer for trimming resulting in efficiency improvement.

- Fuel saving (kg p.a.) : 1,78,144
- Investment (INR) : 7,00,000
- Annual saving (INR) : 9,26,348
- Pay back : < 1 year



## 8. Lighting

Conventional Fluorescent Lamps in the plant were replaced by T5 type Lamps. While the conventional lamps consumed about 49W per fitting, the T5 Lamps consume 28 W. This year 54 Lamps have been replaced. As a policy, Site has decided to replace all conventional lamps by T-5 lamps in a phased manner during replacements. Further, Occupancy Sensors have been installed in low occupancy areas



- **Energy Saving (kWH p.a.)** : 41,000
- **Investment (INR)** : 75,000
- **Annual saving (INR)** : 225,000
- **Pay back** : 3 months

In addition to these, various other initiatives have been identified, whose implementation is currently under progress. Some of the major Energy Conservation initiatives include Turbine and Heat Recovery systems. These initiatives will help in reducing the site's Energy consumption by 25% by 2010 as against 2006 targets.

## *Environment Health and Safety*

The GSK EHS Vision is to achieve sustainable competitive business advantage through leadership and excellence in Environment, Health and Safety. The site has been accredited with the ISO 9001, ISO 14001 & HACCP and OHSAS 18001 certification. "Zero Lost Time on Illness and Injury" is a norm at the site, which demonstrates the passion people have on Safety. In the last Global EHS Audit based on GSK EHS standards, the site obtained the highest score among GSK Consumer Healthcare Sites, worldwide. Extensive training is held at site on various EHS themes including Water and Energy Conservation. Health surveillance is conducted regularly for all employees and contractors at site. The Site has also won the "Safety and welfare awards for 2007" given by the Haryana State Government in 4 categories including First Aid facility, Factory Environment, Sports facility and Canteen.