



**Mother Dairy**  
**[A unit of GCMMF Limited]**  
**Gandhinagar, Gujarat**

**Annexure 'D'**

**UNIT PROFILE**

Mother Dairy, Gandhinagar (MDG) is a unit of Gujarat Cooperative Milk Marketing Federation (GCMMF) Ltd., which markets its products under the brand-name of AMUL & SAGAR. The earlier milk processing facility in Gujarat was totaling around 37 lac litres per day (LLPD) as against the expected procurement totaling 45 LLPD in 1994-95. Thus it was decided to put up the most modern, PLC based automated dairy processing plant with in-built capability to produce milk products matching to the best quality standards and handle the surplus 10 LLPD of milk.

MDG was commissioned in September 1994 by L & T with assistance of APV, Westfalia & Niro. The dairy processes fresh milk to the tune of 10 LLPD. The dairy initially had Liquid Milk, Pouch Filling, Butter Oil plant & Milk Powder Plant. To keep pace with changing time Pouch filling Expansion Project, Mozzarella Cheese plant, UHT plant & Ice Cream plant were installed subsequently. Recently we have increased our Milk Processing Capacity from 10 LLPD to 25 LLPD. It is estimated that in the year 2010, MDG would receive 35 LLPD of milk. To meet these requirements, we have expanded our milk handling capacity by installing 100 MTPD milk powder plant. The plant is a state-of-art in terms of civil structural engineering and most modern process technology and automation. In the 2<sup>nd</sup> phase of expansion, there would be another 100 MTPD milk powder plant.

As flow of milk became intermittently incessant, it was decided to convert milk into other milk products such as Ghee, Butter oil, Milk powders, Ice Cream, UHT milk, Cheese, UHT Softy Mix, UHT Chocolate milk. The other product portfolios apart from milk and milk products are Pizza and Parathas.

The plant is professionally managed and has adopted world-class quality management systems and similar initiatives like ISO 9001:2000, ISO 22000:2005, HACCP, ISO 14001:2004, Total Productivity Maintenance, Six Sigma, Total Energy Management, etc.

Mother Dairy, Gandhinagar is conscious about Energy Conservation, since its inception. It is the first dairy in India to install VAM (Vapour Absorption Machine) & WHRB (Waste Heat Recovery Boiler), as energy conservation measure; hence this is trend-setter or novel technique implemented by us. Mother Dairy, Gandhinagar is the first dairy plant in India, to initiate the project on CLEAN DEVELOPMENT MECHANISM (CDM), shows its concern for the environment.



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Mother Dairy, Gandhinagar being a unit of GCMMF Ltd., all the financial figures is merged with the balance sheet of later. The sales turnover of GCMMF Ltd. for 2007-08 was Rs 1124 crores.



**ENERGY CONSUMPTION**

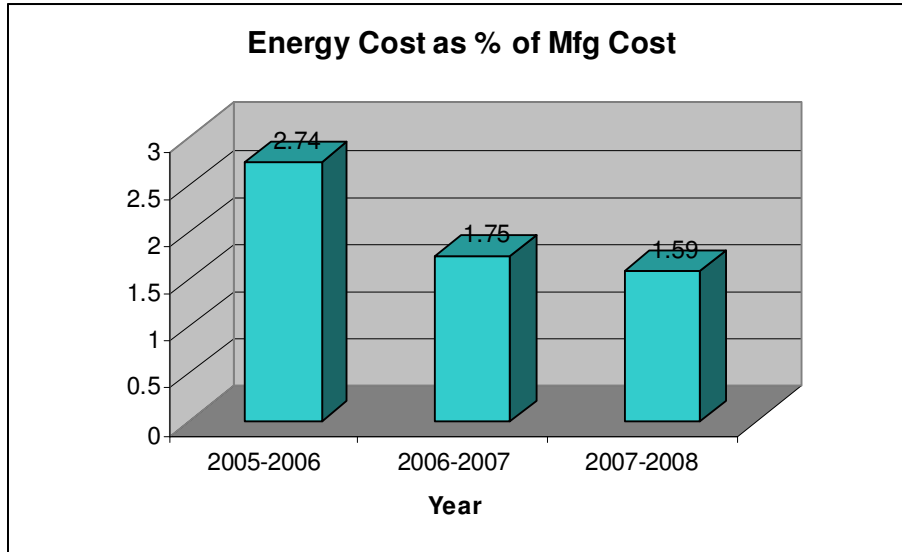
Mother Dairy, Gandhinagar has witnessed a steady decline in specific energy consumption as a result of implementation of various energy conservation measures as ongoing practice. Figure showing the usage of Total Energy in comparison to Total Cost of Manufacturing, clearly reveals continual improvement due to our strong and consistent efforts during the last two years. Also the annual energy savings achieved as a ratio of annual sales turnover is highly remarkable, as shown in the figure.



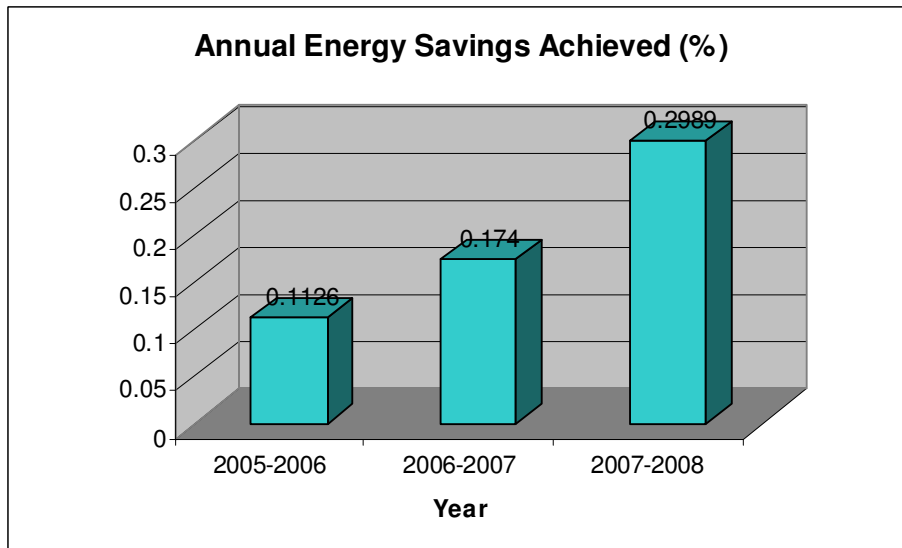
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DESCRIPTION	UNIT	2005-2006	2006-2007	2007-2008
Total Manufacturing Cost	Rs. lakhs	123124.79	88703.72	76103.40
Total Energy Cost	Rs. lakhs	2088.07	1553.02	1957.57
Energy Cost as % of Total Manufacturing Cost	%	2.74	1.75	1.59



DESCRIPTION	UNIT	2005-2006	2006-2007	2007-2008
Actual Energy Savings achieved	Rs. lakhs	93.92	155.88	335.97
Annual Sales Turnover	Rs. lakhs	834	896	1124
Energy Savings achieved	%	0.1062	0.1740	0.2989





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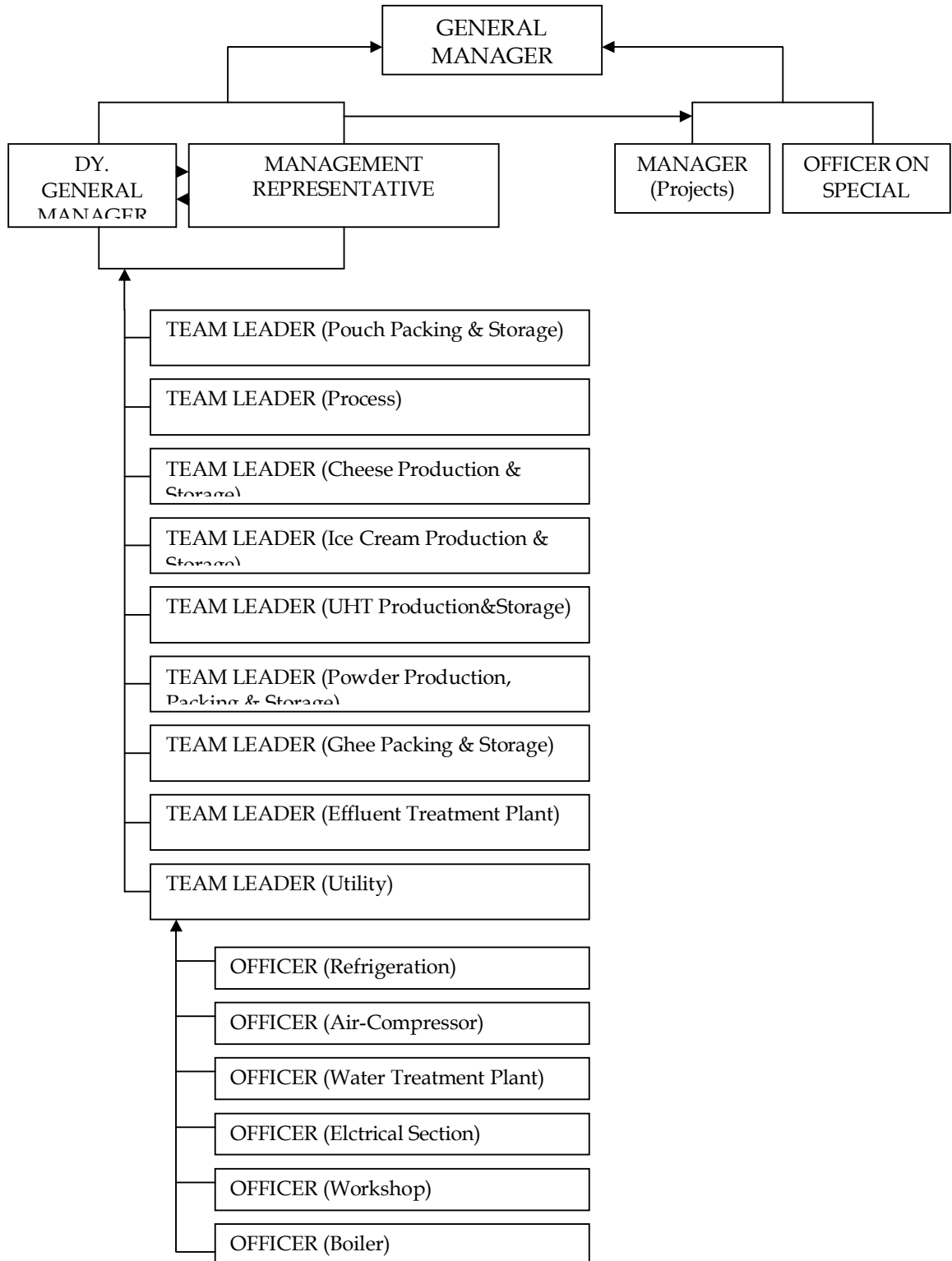
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**ENERGY CONSERVATION COMMITMENT, POLICY AND SET UP**

Mother Dairy, Gandhinagar has visualized importance of energy conservation and had made sincere efforts in achieving the same. As a result of such efforts, Mother Dairy has become the recipient of prestigious Silver ENFUSE Award 2003 (Energy & Fuel Users Association, Chennai). Mother Dairy is committed to make continual improvements in energy conservation. For this Total Energy Management (TEM) team is established at Mother Dairy. The team is led by General Manager and it is delineated below. The team works in close co-ordination to achieve our Energy Policy objectives. The energy conservation initiatives are reviewed periodically and new projects are identified.



ENERGY CONSERVATION CELL (TEM Team) AT MDG





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## **MOTHER DAIRY, GANDHINAGAR**

### **ENERGY POLICY**

We, at Mother Dairy, Gandhinagar, are committed to optimally utilize various forms of Energy in a cost-effective manner to affect Conservation of Energy.

To accomplish this, we will:

- Monitor closely the consumption of Energy through an effective Total Energy Management System.
- Benchmark continuously our performance against the best in the world.
- Adopt Latest and Eco-friendly Technologies to minimize the waste and protect environment without compromising on product quality.
- Make Energy Conservation a mass movement with the involvement of all Employees by creating awareness and training them.
- Promote Reuse and Recycle of possible energy resources.
- Carry out regular Internal and External audits to identify areas for improvement.
- Enrich our experience on energy conservation by exchange of ideas with other industries/agencies.

General Manager,  
Mother Dairy Gandhinagar



## ENERGY CONSERVATION ACHIEVEMENTS

During the period 2005-2006 to 2007-2008, the unit implemented, 48 energy saving ideas generated. Annual savings of Rs. 616.74 lakhs was achieved as against the investment of Rs. 438.85 lakhs.

Major projects implemented for Energy Conservation during the period 2007-2008

### 1. Installation of Vapour Absorption Machine (VAM) and Waste Heat Recovery Boiler (Trend-setter Project)



02 Nos. of Vapour Absorption M/C are installed those are utilized to produce the Chilling Effect from the Hot Water of all 04 Gas Engines. Due to this we are getting @250TR/hr again the consumption of 240KW. This concept of using VAM for chilling of hot water (a major requirement in dairy) is first done by MDG



02 Nos. of Waste Heat Recovery Boilers are installed those are utilized to produce Steam from Exhaust Gas from all Engines. We are getting 1.5TPH steam from each WHRB.

**Investment:** Rs. 345.46 lakh


**Saving:** Rs. 300.04 lakh




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**2. Installed new burner for air heater in old powder plant**

	<p>Replaced burner of air heater of powder plant to achieve best O<sub>2</sub> level of 2.8%-3.0% to save gas consumption around 10%.</p> <p><b>Investment:</b> Rs. 11 lakh</p> <p><b>Gas Saving:</b> 1.1 lakh SCM</p> <p><b>Saving:</b> Rs. 14.02 lakh</p>
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**3. Replaced conventional Chock with electronics ballast in Tube light fittings**

	<p>Replaced Conventional Chock in tube light fittings by new Electronics ballast. By this we save 13-watt/single fitting.</p> <p><b>Investment:</b> Rs. 1.77 lakh</p> <p><b>Electricity Saving:</b> 0.24 lakh KWH</p> <p><b>Saving:</b> Rs. 1.08 lakh</p>
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**4. Optimized Voltage in Lighting Transformer (Stabilizer)**

