

TOTAL ENERGY MANAGEMENT

TRICHUR DAIRY

Energy Policy & Goal

- **Energy Policy** :- Effective use of energy sources by adopting new energy efficient methods including eco-friendly technologies with an aim to continuously improve productivity and quality.
- **Goal** :- Produce safe and quality milk & milk products to supply at competitive price for consumer satisfaction aimed at farmers prosperity.

COMPANY PROFILE

- Milma, Thrissur Dairy, commissioned under Operation Flood-II Programme started functioning during 1987. The area of operation of Thrissur Dairy is the entire Thrissur District,. In addition to milk, the products manufactured and sold from this Dairy includes Ghee, Curd, Sambharam etc. Two shifts are operated in a day.
- Thrissur Dairy, got ISO:9001-2000 certification during 2004. We are under the process of acquiring of ISO:22000 certification also. The Effluent Treatment System at our Plant is working very efficiently and in recognition to that, **Kerala State Pollution Control Board** selected Thrissur Dairy best among the **medium industries seven times. Treated effluent is totally utilized for gardening and cultivation in our campus.**
- **Major** energy consumed are Electricity and Furnace Oil. Energy conservation activities were undertaken in a serious way from 2003 onwards and achieved considerable savings. The committee comprising of Officers, Technicians and staff of all Sections were formed to closely monitor the energy conservation activities undertaken from time to time.
- **Trichur Dairy won this year District Energy Conservation Award in the category of Medium Scale Industries from Energy Conservation Society .**

ENERGY CONSERVATION COMMITTEE

- 1 **Tome Thomas, B.Tech A.M. (P&M)(Energy Manager)**
- 2 **Sherly K. George, BSc. Engg.Dairy Manager**
- 3 **M. Nandakumar Asst. Manager (QC)**
- 4 **K.K. Sreekantha Technical Officer**
- 5 **T.D. Francis Sr. Technician(Gen)**
- 6 **V.S. Premadasan Sr. Technician (Ele.)**
- 7 **T. Narayanan Technician(Ref.)**
- 8 **K.N. Vijayan Technician(Packing)**
- 9 **S. Jayakumar Technician(Boiler)**

rior



ENERGY CONSERVATION ACTIVITIES, SAVINGS AND INVESTMENTS

Efficient generation and distribution of Steam

1. Periodic cleaning of heat transfer surfaces to reduce scaling.
2. Reduced boiler blow downs.
3. Burners are cleaned very frequently.
4. Tube cleaning of the boiler is done on regular basis i.e. once in three months.
5. Chimney and duct cleaning is also done at a frequency of once in six months
6. Replaced the leaky steam valves ,hence controlled losses of steam in the hot water batteries.
7. Recovered condensate heats from steam traps and moisture separator traps and steam main drain traps and used it for heating feed water

8. Condensate from the steam traps near the crate washer is utilized for preheating the hot water section.
9. Replaced the thermo dynamic steam traps with good quality steam traps (spirax make)
10. Proper insulation was given to the steam lines where ever the insulation was weakened /damaged.
11. Replaced the steam valve glands where ever required. .
12. Steam leaks are attended on top most priority.

Efficient use of electrical energy.

1. Automatic power factor panel has been installed and maintaining 0.99 pf., Hence we are getting incentive in the electricity bill.
2. Re scheduled the shift timings so as to finish the processing before 6 PM
3. Replaced conventional florescent tube light with energy efficient 36W FTL
4. Replaced incandescent lamps and few FTL with CFL lamps
5. Replaced mercury vapor lamps with energy efficient fluorescent lamps.
6. Switching off various loads in peak hours (ETP and REFRIGERATION)
7. Idle running of machineries were avoided.
8. An additional single switch was provided to switch off all the lights and fans in the administrative block, so that unwanted usage of fans and lights after office hours can be avoided.

9. Provided an automatic on/off system for RMRD can in take conveyor.
10. Operation of two chilled water pumps at a time was restricted to one.
11. Replaced higher rating motors with adequate rating as per the energy audit report.
12. Replaced motors which were rewound more than eight times.
1. Mechanical packing machine was installed instead of Pneumatic sachet machine which require no air supply. So the power consumption is reduced

REFRIGERATION

- Control ice formation in IBT
- Periodic purging of oil
- Refrigerant level in the receiver is maintained
- Periodic cleaning of IBT
- Air curtains are provided for cold store
- Replaced the IBT covers with new
- Refrigeration operating hours restricted and limited according to required ice formation
- PHE type condenser is installed.

PRODUCTION

- Heating temperature of pasteurizer is reduced to 72- 74 C from 76 C
- Pasteurizer and PHE of CIP system gaskets were replaced to get full throughput.
- The system of every day curd manufacturing has been changed to alternative days.
- Water using for production is UV treated

The above activities reduces steam & electric consumption.

Savings made during the period 2007-08, 08-09 and 09-10.

Our specific fuel consumption before implementing the Total Energy Management Programme (TEM) were -

- 113 liters of milk processed/1 litre of Furnace Oil which was increased to 135 during the year 2007-08, 140 during the year 08-09 and 142 liters during the year 09-10 by which we have an yearly savings of Rs.656160, Rs.546940 and Rs.866970 during the years 2007- 08, 08-09 and 09-10 respectively.
- 22 liters of milk processed/kwh which was increased to 23.5 during the year 2007-08, 24 during the year 08-09 and 24.2 during the year 09-10 by which we have an yearly savings of Rs.233529, Rs.200290 and Rs.180386 during the years 2007-08, 08-09 and 09-10 respectively.

Savings

- | | 2007-08 | 2008-2009 | 2009-2010 |
|-------------------|-------------------------------|-----------------|-------------|
| • Electricity | Rs.233529, | Rs.200290 | Rs.180386 |
| • | (23.5lit/kwh) | (24lit/kwh) | (24.2/kwh) |
| • Furnace oil | Rs.656160, | Rs.546940 | Rs.866970 |
| • | 135lit/lit F.O) | (140lit/lit FO) | (142/litFO) |
| • | | | |
| • Water | We are using our own source | | |
| • Base value Ele- | (22lit/kwh)-2006-07 | | |
| • | F.O (113 lit/lit FO) -2006-07 | | |