GOOD MORNING
WELCOME

KOLLAM DAIRY
ISO 9001-2000 Certified

PRESENTATION ON TOTAL ENERGY MANAGEMENT
ORGANISATION PROFILE

Commissioned on : 26-01-1986
Capacity : 60,000 Litres per day

Expanded on : 16-03-2001
Capacity : 1 Lakh ltrs. per day
ENERGY MONITORING COMMITTEE

1. Sri. Prasanna Kumar, Dairy Manager
2. Sri. C. K. James, Asst. Manager (Maint)
3. Sri. C. Balasubramony, Deputy Engineer
4. Sri. Ajith Kumar, Deputy Engineer
5. Sri. Rajesh, Technical Officer
6. Sri. D. John, Technician
7. Sri. P. Sasi, Technician
8. Sri. Mohanachandran, Plant Operator
# PRESENT HANDLING OF MILK AND MILK PRODUCTS

1. Milk : 5425 KL Per month  
   (175000 Lit/day)
2. Ghee : 32 T per month  
3. Curd : 170 KL per month  
4. Sambharam : 5.2 KL per month
# KOLLAM DAIRY PRODUCTION DETAILS

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MILK (Lit)</th>
<th>GHEE (Kg)</th>
<th>CURD (Lit)</th>
<th>SAMBARAM (Lit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-07</td>
<td>52999674.00</td>
<td>297173</td>
<td>2003796</td>
<td>393036</td>
</tr>
<tr>
<td>2007-08</td>
<td>54211939.00</td>
<td>316654</td>
<td>1655258</td>
<td>267880</td>
</tr>
<tr>
<td>2008-09</td>
<td>55246243.00</td>
<td>329545</td>
<td>1855044</td>
<td>309358</td>
</tr>
</tbody>
</table>
KOLLAM DAIRY

MILK PROCESSED / ELECTRICITY (KWH)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MILK PROCESSED</th>
<th>KWH</th>
<th>MILK/KWH</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-07</td>
<td>52998674.00</td>
<td>1891940</td>
<td>28.01</td>
</tr>
<tr>
<td>2007-08</td>
<td>54211939.00</td>
<td>1869252</td>
<td>29.00</td>
</tr>
<tr>
<td>2008-09</td>
<td>55246243.00</td>
<td>1780716</td>
<td>31.02</td>
</tr>
</tbody>
</table>

KWH/ MILK.Lit
### Kollam Dairy

**Consumption of Water / Litre Milk Processed**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Milk Processed</th>
<th>Water, KL</th>
<th>Milk/Water, Lit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-07</td>
<td>52998674.00</td>
<td>130551</td>
<td>2.46</td>
</tr>
<tr>
<td>2007-08</td>
<td>54211939.00</td>
<td>133110</td>
<td>2.46</td>
</tr>
<tr>
<td>2008-09</td>
<td>55246243.00</td>
<td>114829</td>
<td>2.08</td>
</tr>
</tbody>
</table>
## Kollam Dairy
### Furnace Oil/ Litre Milk Processed

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Milk Processed</th>
<th>F.O. Litre</th>
<th>Milk/F.O. Lit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-07</td>
<td>52998674.00</td>
<td>274000</td>
<td>193</td>
</tr>
<tr>
<td>2007-08</td>
<td>54211939.00</td>
<td>298000</td>
<td>182</td>
</tr>
<tr>
<td>2008-09</td>
<td>55246243.00</td>
<td>266500</td>
<td>207</td>
</tr>
</tbody>
</table>

**F.O/Milk**

![Graph showing F.O/Milk trend from 2006-07 to 2008-09]
## KOLLAM DAIRY

### REPAIR COST / LITRE MILK PROCESSED

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MILK PROCESSED</th>
<th>REPAIR COST</th>
<th>COST/ LTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-07</td>
<td>52998674</td>
<td>3019498</td>
<td>0.06</td>
</tr>
<tr>
<td>2007-08</td>
<td>54211939</td>
<td>2264499</td>
<td>0.04</td>
</tr>
<tr>
<td>2008-09</td>
<td>101291707</td>
<td>2663944</td>
<td>0.03</td>
</tr>
</tbody>
</table>
REPAIR COST / LTR MILK PROCESSED

COST/ LTR

2006-07  2007-08  2008-09

0.07

0.06

0.05

0.04

0.03

0.02

0.01

0

COST/ LTR
ENERGY SAVING MEASURES ADOPTED
REFRIGERATION

1. Restricted the operation of Ammonia compressors during peak hours.
2. Modified the Accumulator and liquid metering devices to get maximum efficiency
3. Specific heat of the suction temperature is regularized
4. Replaced one 60 H P compressor motor with energy efficient motor
5. Timely oil purging and air purging reduced hrs. of operation
6. Provided anti room for dispatch dock and hence prevented the cold store temperature loss.
7. Cold store diffusers are maintained properly and reduced the operation of diffuser units.
PASTURIZATION

1. Pasteurization Temperature has been reduced from 78°C to 76°C
2. Pasteurization temperature variation made steady
3. Periodical Cleaning of Palate Pack increased efficiency
SACHET FILLING

1. All Pneumatic machines have been replaced with Mechanical Machines

2. 90 HP Air compressors replaced with 2 Nos 7.5 HP Air compressors.
ELECTRICITY

1. 300W Mercury lamps have been replaced with 60 W Compact Fluorescent Lamps

2. Copper chokes of tube lights replaced with electronic Chokes

3. 40 W tubes replaced with 36W slim tubes.
BOILER

1. Replaced one Boiler with energy efficient Boiler
2. Re-insulation of Steam lines
3. Effective use of solar water
4. Arrested all leakages in the steam line.
WATER

1. Spring loaded valves installed in the wash basins/Urinals

2. Pressure jets being used for floor cleaning.

3. Installed overflow controller for water tanks.
COMPARISON OF ENERGY SAVINGS DURING THE YEAR 2007-08 & 2008-09

**FURNACE OIL:**

Milk Processed per lit. Furnace Oil has been increased by 27 Lit.
Percentage of savings of Furnace Oil - 13.74%
Cost of furnace Oil Saved - Rs.11.70 Lakhs.

**ELECTRICITY:**

Electricity (KWH) 2.02 units / Lit. Milk processed is saved
Percentage of Electricity Saved - 7%
Cost of Electricity Saved. Rs. Rs.6.23 Lakhs.
PROPOSALS FOR ENERGY SAVINGS

Replacement of 7X7 NH3 compressor with energy efficient compressors on phased manner

De-super heater installation in Refrigeration compressor discharge line.

Replacement of motors with energy efficient motors.

Re use of Steam Condensate

Reuse of Cooling Water
Thank You