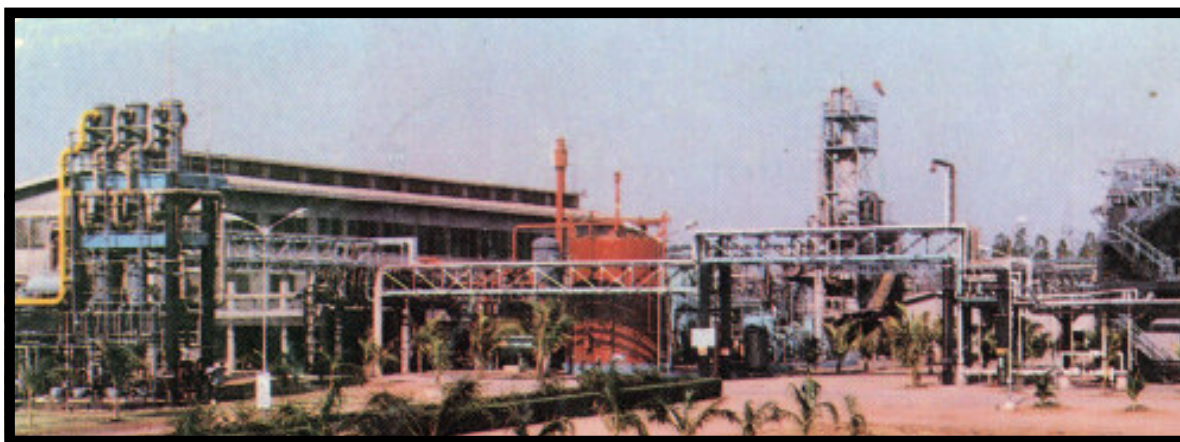




(i) UNIT PROFILE

SRAAC LTD., Company is promoted by TGV Group a modern industrial conglomerate is renowned for setting impeccable quality standards and rendering committed services. The Caustic soda plant having annual installed capacity 92600 M tons along with 4 x 6.2 MW DG sets, 25 MW and 15 MW Co-Generation power plant and 75 TPD of Fatty acid, Castrol plant and Soap unit. SRAAC meets its products all over India and exports many products.

The plant is the first to set up Bi-polar Membrane Cell technology which is most modern technology compare to other technology based chloro-alkali plant in india. SRAAC contributes 3% of total caustic soda products in india. The plant capacity utilisation is 86.6%. The company is certified with ISO - 19001:2000 series for quality, ISO - 14001 for Environmental Management System and ISO 18001 for Occupational Safety and Health Hazard Management System. TPM and TQM are under implementation.



SRAAC LTD PLANT OVER VIEW

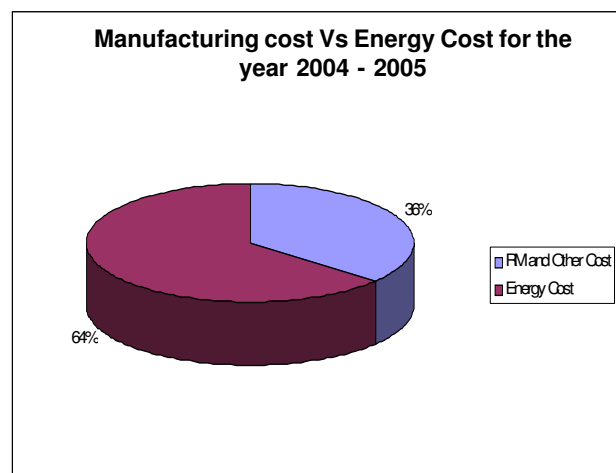
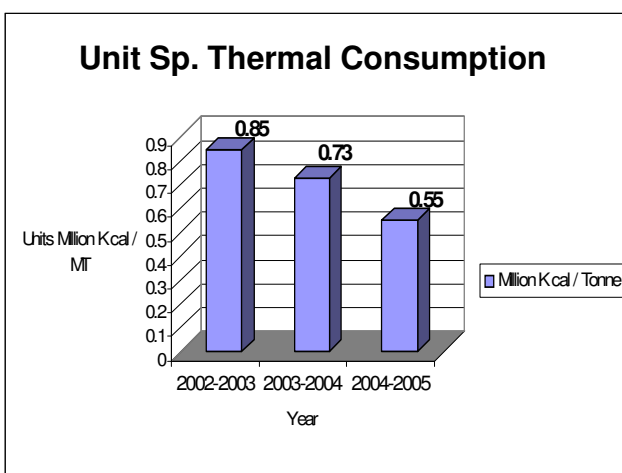
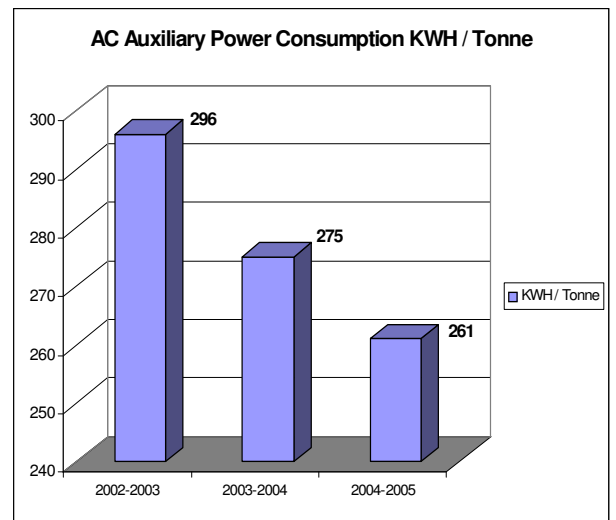
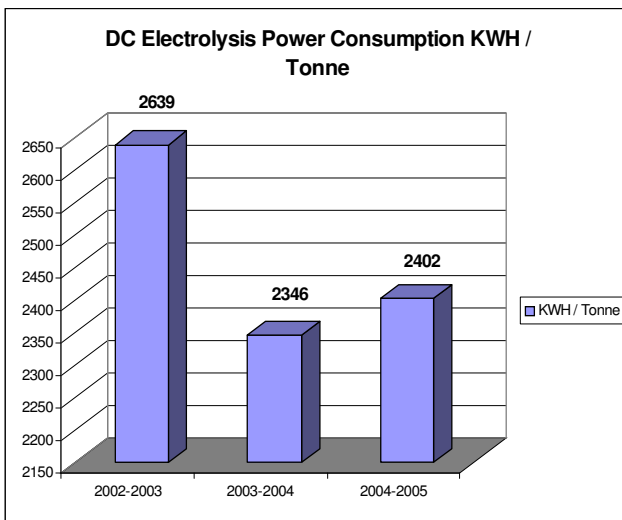
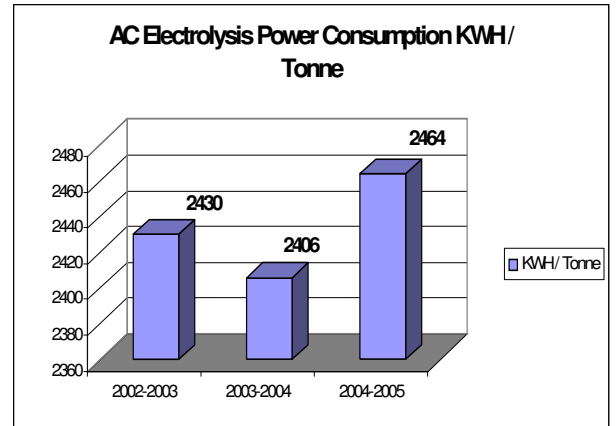
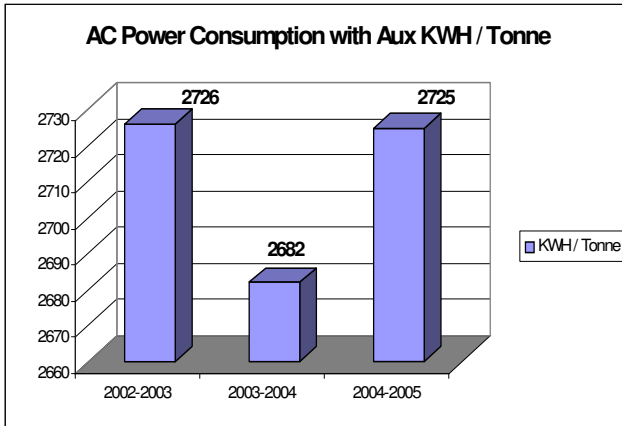
II) ENERGY CONSUMPTION

SPECIFIC POWER CONSUMPTION DETAILS	UNITS	2002-03	2003-04	2004-05
Annual Production	MT	65842	77274	80209
Total Energy Consumption per Annum	KWH(lakhs)	1815.87	2111.78	2214.18
Total Thermal Energy Consumption	Million K cal	55901.82	56842.29	44474.066
Total Annual sales turnover Cost	Rs. Lakhs	5578.7	6769.2	17688
Total Energy Cost	Rs. Lakhs	5631.45	6699.62	7070.58
Energy Cost as % of Production Cost	%	55.4	55.4	64
DC Electrolysis Power Consumption	KWH/MT	2639	2346	2402
AC Rectification Power Consumption	KWH/MT	2340	2406	2464
AC Power Consumption with Aux.	KWH/MT	2726	2682	2725
Auxiliary Power Consumption	KWH/MT	296	275	261
Steam Consumption	Mkcal/MT	0.85	0.73	0.55





Graphical representation of Specific Energy Consumption :



**(iii) Energy Conservation Commitment, Policy and Set up :**

The Chlor-Alkali Industry is a power intensive industry and requires huge quantity of power for the Electrolysis Process. The cost of energy contributes about 55% of the cost of Caustic Soda production. Hence, in our Organisation, the conservation of energy has started since its inception. Lot of care was taken in selection of equipment, technology, and plant layout for achieving lower power consumption. We have selected the latest technology i.e. Bi-polar Membrane Cell Technology, which is the most modern, first time in India, 15% energy saving and pollution free compared to other conventional methods i.e. Mercury and Graphite Technology based Caustic Soda Industries. We are mentioning below some of the measures taken while designing & selecting the equipment for the project.

- 1) Careful planning and layout of Electrical Distribution system.
- 2) Selection of adequate sizes of Conductors & Cables.
- 3) Avoiding use of higher capacity transformers than required.
- 4) Selection of On Load Tap Changer Power Transformers for maintaining proper voltage levels.
- 5) Limiting the length of low tension distribution feeders.
- 6) Power design & monitoring of Illumination systems.
- 7) Selection of high efficiency high power factor Induction Motors.
- 8) Use of Conveyors instead of Blowers for conveying materials
- 9) To recover heat from fluegases.
- 10) Providing of Thermal insulation to all steam and chilled water.
- 11) Use of 90 deg. Long radius bends in suction and delivery lines.
- 12) Maximising the capacity utilization.
- 13) Create awareness among all employees for innovative ideas towards conservation energy.

Installation of steam vapour absorption chillers and Hot water fired vapour absorption machines in DG cooling system, coupled with waste heat recovery boilers, with considerable capital cost, waste heat from salt furnace for pre heating boiler feed water, solely to conserve energy, shows the efforts of the Management in this direction.

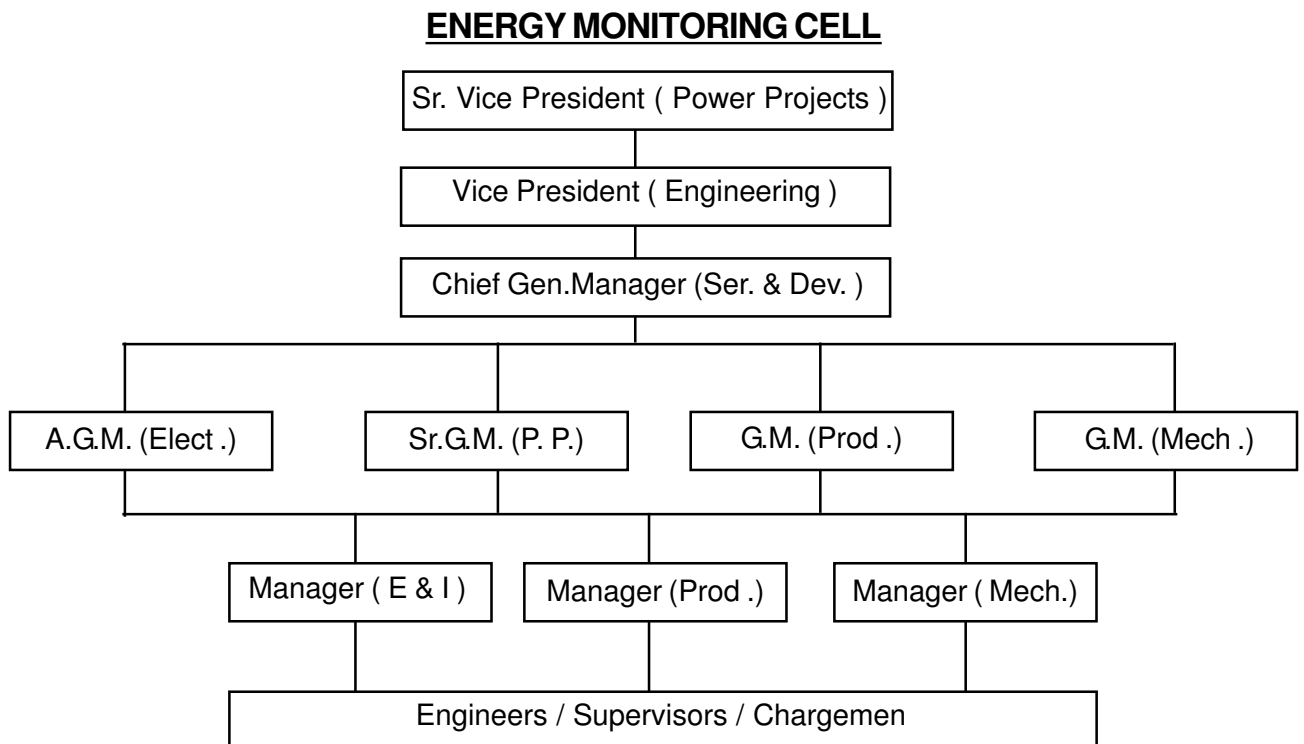
Further to the above, after commissioning the Plant, an Energy Conservation Committee has been formed for watching constantly the energy consumption's and establishing reliable energy reporting system. The function of the Energy Conservation Committee is not only to watch energy consumption levels but also to find out and invite suggestions for further measures in energy consumption levels but also to find out and invite suggestions for further measures in energy conservation and implementation of the same within a short period , as ones "ENERGY LOST IS LOST FOR EVER". In order to bring awareness among all the working persons in the plant, the Management has introduced



MONTHLY AWARDS SCHEME for the best three suggestions on energy conservation's. The committee also organizes IN HOUSE TRAINING CLASSES for the employees on energy conservation and importance on energy conservation. For understanding the importance of energy conservation at lower levels of working personnel, Posters & Slogan Boards exhibited in English language & in local language in all places of the plant.

Further the Committee will take daily rounds of entire plant to observe and control the steam leakages / water leakages in the pipeline, proper functioning of steam traps, thermostats, storage & handling of fuel oil, recovery of condensate, level switches, unnecessary running of equipment, etc.

Last, but not least, to mention the company has installed 5 MW Wind Power Farm at Ramagiri for generation of power by harnessing Wind Energy, which is Eco-friendly and Pollution free operation.



Energy Conservation Achievements :

SRAACL has implemented energy saving proposals through engineering initiatives, workmens suggestions schemes, auditors suggestions during the period of 2004 - 2005. Total saving Rs. 35.59 lakhs. with an investment of Rs. 22.0 lakhs.


MAJOR PROJECTS IMPLEMENTED DURING THE YEAR 2004 - 2005 ARE LISTED BELOW :

1. Vapor Absorber Unit restarted at Chlorine plant to generate chilled water required for liquification unit. Internal steam using for the VAM unit about 1 T/hr operational pressure 6 kg/cm². Exhaust pressure 1 kg/cm² same is condensated and sent back boiler feed water make up system. This way 1 nos of chilled water compressor (150 HP motor) unit has been stopped.

Total Investment	- 0.5 lakh
	for recondition the unt
The unit capacity	- 250 TR
Power saving	- 1500kwh/Day
Total saving of Amount / year	- 9.50 lakhs



2. H.T. Capacitor Bank installed on H.T. distribution system to improve the power factor and reduce system losses.

Total Investment	- 20.0 lakhs
Total Saving Amt/Year	- 4.5 lakhs
Pay back money	- 5 years



3. Automatic Loading and Unloading of Cl₂ Compressor (Lquifier Unit) system arranged for reducing power consumption.

Total Investment	- 0.5 lakhs
Power Saving	- 150 khw/day
Total Saving Amt/Year	- 1.27 lakhs





4. Existing Cl₂ Compressor handling more capacity has increased by trimming internal parts of unit, and reduced the power consumption.

Total Investment	-	1.0	lakhs
Power Saving	-	2000	kwh/day
Total Saving Amt/Year	-	20.0	lakhs



Other Projects implemented during 2004 - 2005 :

- 1) Solar lights are provided at critical areas.
- 2) Use of low wattage tubes in offices.
- 3) Providing temperature controllers for cooling tower fan motors.
- 4) Electronic timers arranged for agitators.
- 5) Stoppage the idle running motors.
- 6) Thermal insulation provided where ever damaged.
- 7) Condensate water recovered from hot condensate blow down points and deliver to cooling towers.
- 8) We have implemented the TPM System for good and clean environment. Kaizens system has been implemented for improvement.
- 9) Vertical glandless pumps are installed to avoid gland leakages.
- 10) Uses of high efficiency motors



Energy Conservation Plans and Targets :

Energy Conservation Measures (Planned)	Anticipated Savings In Energy (Rs.lakhs)	Approx. Investment (Rs. lakhs)	Project commencement & completion year
1) Installing of 25MW Thermal Power Plant using Rice Husk / Julia Flora / Municipal solid waste and Industrial solid waste to meet with the captive consumption requirements.	2052	900 (By using second hand Turbine Boiler)	Dec - 2005
2)Proposed to replacement 187 Nos electrolyzer electrodes with newly activated one to reduce cell voltage drop.	To be estimated	16 crores	Nov - 2005
3)Steps to be taken to install Chlorine compressor plant area 11KV/440V –1600KVA Dist. Transformer to reduce the length of LT conductors and Line losses.	To be estimated	10.0 lakhs	Oct -2005
4)Steps to be taken to install Fatty Acid Divisionplant area 11KV/440V –1600KVA Dist. Transformer to reduce the length of LT conductors and Line losses.	To be estimated	10.0 lakhs	Oct - 2005
5)Installation of 4000KVAR Capacitor banks on Generator bus to improve the Power factor to reduce the losses and minimize the harmonics.	To be estimated	20.0 lakhs	Dec – 2005
6) 11KV Distribution panels of 28 nos are praposed to install generation bus and load distribution to meet a growing production.	for stable operation	138 lakhs	June - 2006
7) In order to improve better control on electrolyzers DC load current, NGEF rectifier is being modified with thyristor control unit.	2.5 lakhs	100 lakhs	Nov - 2005
8) Expantion of 75 TPD of caustic soda for improve the production.	To be estimated	----	Jan - 2006
9) K ₂ CO ₃ Project	-----	100 lakhs	Oct - 2006



ENVIRONMENT

To maintain consistency in its activities and to improve further management is committed to :

- Prevent pollution by conserving natural resources, recycling, recovery and reuse of effluents.
- Ensure compliance to legal and other requirements related to the activity by providing resources and creating awareness among employees.
- Review and set objectives with target for related significant aspects and interested parties guidelines to ensure continual improvement.

SAFETY :

- Using and maintaining equipments, systems facilities and work atmosphere which are safe and do not pose any health risk to employees and interested parties.
- Training the employees to equip them with necessary expertise to meet safety and health standards at their work places.

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