

ZYDUS PHARMACEUTICAL, AHMEDABAD



The Situation

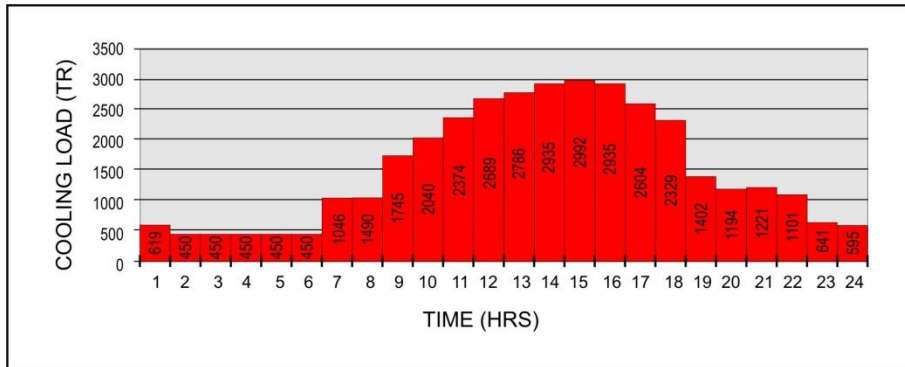
High side system prevailing prior to the Installation THERMAL STORAGE SYSTEM

- 700 TR Capacities each Water Cooled Centrifugal Chillers, 3 Nos.
- 700 TR Capacity Vapour Absorption Chiller, 1 No.

The System was installed with Hot and Cold well with corresponding Primary and Secondary Chilled Water Pumps. On the Condenser Water side sufficient capacity of Cooling Towers was installed.

The Solution

COOLING LOAD PROFILE CONSIDERING FUTURE LOADS



HIGH SIDE ITEMS ADDED ON:

- Brine Screw Chillers with dual set point : 240 TR x 3 Nos. (for operation up to -6°C)
- Thermal Storage System : 6340 TR-HR.
- PHE : 531 TR X 2 Nos.

SAVINGS ENVISAGED AT THE DESIGN STAGE:

For the peak load of about 3000 TR with all the future expansions following savings were estimated in Energy and Maximum Demand recurring costs and Capital Costs at the design stage.

Saving in Electrical Installation Cost for switch over to 33 KV from present 11 KV connection.

Savings in Operating Costs including Energy Cost and Max Demand Charges: Rs. 70 Lakhs/ Year

The Results

SAVINGS BEING ACCRUED PRESENTLY:

Subsequent to the design stage the existing electrical loads increased and 2 Nos. 700 TR Centrifugal Chillers started operating on Diesel Generator Sets continuously during the day time.

After the installation and commissioning of Thermal Energy Storage System one Chiller of 700 TR is being regularly stopped for 6 Hours per day.

- Electrical Energy Consumption of 700 TR Chiller per Hour : 360 KWH
- Electrical Energy Consumption of 700 TR Chiller 6 Hours : 2160 KWH
- Differential Electrical Energy costs with Diesel Generator : Rs. 12 KWH
- Savings in Electrical Energy Costs due to Stoppage of 700 TR Chiller operation on D. G. set : Rs. 25,920 per day (2160 X 12)

- Saving per month considering 25 working days : Rs. 6,48,000 per month (25920 X 25)**
- Estimated yearly savings : Rs. 78 Lacs per year approx.**