to produce more steam and hence more electricity. Such a scheme called the maximum Electricity configuration, shall have to employ straight condensing or extraction cum condensing Turbines for power generation, providing for the expansion and condensation of the surplus steam used in the cycle.

5.1.2 High pressure and high temperature cycles are crucial for increasing the operating efficiency and the power output from the Cogeneration Plants. **The choice of the level of the pressure and temperature for the cycle depends on the level of confidence in the plant operators, quality of the feed water and the water treatment systems available and the cost of the high pressure/temperature boiler and Turbogenerator systems and the financial benefits realizable from the Cogeneration plant by way of the sale of the exportable power.**

5.1.3 Thermodynamically, energy recovery from the Rankine Cycle is more dependent on the steam inlet temperature than the pressure and the higher the inlet steam temperature, higher the cycle efficiency. However, the practically attainable limits of temperatures are influenced by the metallurgy of the boiler tubing, piping and the turbine components and the complexity of the Creep fatigue interaction for the materials at higher temperatures.

5.1.4 Temperatures upto 400 Deg.C require the use of ordinary carbon steel and beyond 400 Deg.C, low grade alloy steels are employed. Above 500 Deg.C, the requirements become stringent and expensive and above 550 Deg.C, the requirements are very stringent and prohibitively expensive.

It is extremely important that the selection of the temperature is done keeping in mind the nature of the industry. Considerations such as cost, maintainability, provision of adequate safety margins, the experience of the industry so far and the level of the operating personnel available in the industry, force us to a selection of around 480 Deg.C as the practical limit for the Indian Sugar Factory steam temperatures.

It is also important to keep in mind that the superheater steam temperature response is a little erratic, even with a good steam temperature control system, mainly because of the nature of the fuel and the difficulty to ensure a correctly metered quantity of fuel flow to the boiler. Considering all the above, a temperature limit of 480 Deg.C was chosen for the Cogeneration plants that had been commissioned in the mid and late nineties. This was