

Project Brief

Patalganga Manufacturing Division (PMD) of Reliance industries Limited (RIL) is located at Patalganga MIDC, Village Mohopada, Tehsil Khalapur, District Raigad, Maharashtra. It is a multi-product complex manufacturing a wide range petrochemical products, such as linear alkyl benzene (LAB), Purified Terephthalic Acid (PTA), Polyester Fiber Yarn and Polyester Staple Fiber, Polyester Industrial Yarn, Fully Drawn Yarn. It is envisaged to increase the production of PTA from 25000 MT per month to 27500 MT per month as well as LAB from 8340 MT per month to 11000 MT per month by debottlenecking the processes. The power and steam requirements for the process plants at PMD is met by 48 MW gas based Captive Co-generation Power Plant (CCPP). Due to unavailability of gas and increase in demand of power for facilities at PMD & other Reliance facilities, it is now proposed to expand the 48 MW gas based CCPP to 240 MW by addition of 174 MW (3 x 50 MW + 1 x 24 MW) CCPP based on Coal/Pet coke, and Efficiency Improvement Initiatives for Gas Turbines to increase power output to 33 MW from each Gas Turbines. The raw material for the PTA & LAB plant shall be heavy Naphtha / Reformate sourced either from BPCL/HPCL refineries at Chembur, Mumbai or from Jamnagar Manufacturing Division (JMD) of RIL. The fuel to be used for the proposed CCPP will be Coal / Petcoke which will be made available either through indigenous sources or will be imported.

The proposed debottlenecking at PTA plant is a process envisaged for energy/material recovery, energy conservation, and efficient energy utilization schemes. Similarly, the debottlenecking at LAB plant is for replacing hazardous chemicals, converting low value by-product and efficient energy utilization. Hence both these proposals will not result in any increase in the liquid or gaseous emissions from PMD.

CCPP configuration shall comprise of four units of 250 TPH high pressure CFBC boilers together with 3 units of 50 MW Steam Turbine generators (STG) and one unit of 24 MW STG. The CFBC boilers will have inherent capacity to handle wide range of solid fuel. Existing Gas Turbines are site rated to 24 MW Capacity based on the derating of gas turbines to Local Ambient conditions and aging / fouling of compressors, by replacing some of the parts of the Gas Turbines and changing the control system software it is possible to increase the capacity of the Gas turbines from 24 MW each to 33 MW each. Power generated, from the Co gen-CPP, is evacuated through HT cables on the pipe rack. Also the system will be connected through suitable step up transformer to the existing 100KV system or 220KV system as per the grid requirement.

The existing infrastructure facility at PMD shall be utilized for this proposed debottlenecking as well as expansion of Captive Co-Gen PP. The CCPP expansion project shall be set-up in an area within PMD. The power generating equipment considered for the station comprises of 4 nos. natural circulation CFBC boilers, 3 nos. non-reheat type steam turbine generator and one extraction cum condensing turbine (existing) set using steam parameters within sub-critical range, water cooled condenser, condensate extraction and boiler feed system along with feed heating equipment like HP heater, steam condenser and deaerator. The steam generators would be semi-outdoor, balanced draft, natural circulating type having maximum continuous evaporation at 110 bar, 515°C. The Turbine Generator set would be

designed for 3 x 50 MW and 1 x 24 MW STG maximum continuous rating with water cooled condenser having vacuum of 0.1 bar. The unit would be standard 3000 rpm, condensing, and single cylinder machine with multiple extractions for regenerative heating. The proposed power station will be provided with the state-of-the-art Distributed Digital Control System (DCS), which will integrate various closed loop sub-systems, open loop sub-systems, monitoring and information sub-system covering the entire plant. The system will integrate the various proprietary control packages supplied by the main equipment suppliers for harmonious plant operation. The plant layout for the proposed plant has been developed taking into consideration the optimum use of available land.

The debottlenecking of the above mentioned plant shall not add any additional environmental pollution in the region. The proposed expansion of the CCPP will be equipped with state-of-the-art pollution control devices to bring down the emission of pollutants to a level well within acceptable norms of the country. The proposed CCPP will have the CFBC technology which uses in-situ lime injection for reduction of SO₂ emissions. This CFBC technology will also result in low NO_x emission and the adequate control mechanisms are in place to control the PM emission which will be kept within statutory limits at all time.

The proposed project is expected to be commissioned in 30 months from the date of ordering of major plant and equipment. The total cost envisaged for this proposed project is Rs. 1790 Crs.