## SUMMARY

Raj WestPower Limited (RWPL), a subsidiary of JSW Energy Limited is operating 8 x 135 MW CFBC based power plant at village Bhadresh, Barmer Dist, Rajasthan. EC for the power plant was issued by MOEF vide letter No. J.13011/58/2007-IA-II (T) dated 20th July 2007. RWPL proposes to expand the power plant by adding 1 x 660 MW supercritical unit. No eco-sensitive areas like National Park, Wildlife Sanctuary, Biosphere Reserve, Forests or Rivers are present within 15 km area of the Project Site.

The project site is located in village Bhadresh, District Barmer of Rajasthan and is approachable from Barmer railway station (under North Western Railway) at a distance of 25 km. The site is 15 km from National Highway-15 (Barmer-Jaisalmer). The nearest Airport is Jodhpur at a distance of about 200 km from the site. The proposed area is covered within Latitude 25º 53' 28" to 25º 53' 31" N and Longitude: 71º 19' 13" to 71º 19' 51" E. The elevation of the plant site from the mean sea level (MSL) is about 188m to 193m.

RWPL has acquired 1186 acres land under land acquisition Act to locate the power plant, water reservoir and ash pond. About 220 acres land is available within RWPL premises, which will be used to locate the 1 x 660 MW unit. The boiler and turbine will be located and aligned with the existing boilers and turbines. 33% land of total 1186 acres has been already earmarked for greenbelt development.

Lignite is the main fuel for the power plant. Barmer Lignite Mining Company Limited (BLMCL) supplies lignite from its captive mines of Jalipa and Kapurdi lignite mines to the power plant. The lignite mines are located adjacent to the power plant. The GCV of Lignite varies from 2100 kcal/kg to 3500 kcal/kg with an average of 2900 kcal/kg. The average ash and sulphur content of lignite is 20% and 2.0%. The Annual Lignite requirement for the proposed 660 MW power plant at 85% PLF based on the Gross Plant Heat rate of 2438 kcal/kwh considering the design lignite of GCV 2900 kcal/kg would be 4.25 Million Tons Per Annum. Lignite is crushed in mine site and then transported to power plant by means of belt conveyors. BLMCL had obtained EC for 9 MTPA lignite production, which is adequate for the existing plant. BLMCL will apply to MOEF for EC of expansion of lignite production

from its existing mines.

RWPL was allotted 80 cusecs (8160 $m^3$/hr) water from Indira Gandhi Nahar Pariyojana (IGNP) canal located about 184 km from the power plant site. The water consumption for 8 x 135 MW (1740 MW) plant is 3570 $m^3$/hr (35 cusecs). The water for the proposed 1 x 660 MW unit will be 1562 $m^3$/hour (15 cusecs), which will be sourced from the IGNP (unutilized water allotment).

Evacuation of power from the proposed power plant will be done at 400 kV level through 400 kV transmission lines connected to Jodhpur S/S & Barmer S/S of RRVPNL.

**Salient features of major equipment for 660 MW unit**

| | | |
|---|---|---|
| 1. | Turbine Cycle Heat Rate: | 1850 Kcal/Kwh |
| 2. | Steam Generator Efficiency | 79.3% |
| 3. | Temperature raise across condenser | 10 Deg C |
| 4. | Cycle of Concentration | 10 |
| 5. | GCV of lignite: | 2900 Kcal/Kg (Average) |
| 6. | Lignite storage in Yard: | 15 days |
| 7. | Raw water storage: | 30 days |
| 8. | Lignite Bunkers storage capacity: | 12 hours at BMCR |
| 9. | ESP outlet emission level: | 100 mg/Nm3 at TMCR with one field out of operation and worst lignite firing. |
| 10. | Stack Height | 275 m |

**Ash Generation and Disposal**

Approximately 100 t/hr ash will be generated from the 660 MW unit ( 0.85 Million Tons Per Annum). Fly ash and bottom ash shall be collected in dry form and stored in silos. The unutilized portion of the ash shall be disposed ash using High Concentrated Slurry Disposal system

(HCSD). RWPL proposes to achieve 100% ash utilization by utilizing ash to the surrounding cement plants, RMC plants, construction sector and brick industries. The ash will be also utilized in backfilling of lignite mine voids, located adjacent to the power plant. Necessary study in this regard shall be conducted and approval of DGMS obtained, prior to backfilling.

**Air Pollution Control**

High efficiency Electrostatic Precipitators (ESP) shall be installed to control the emission of ash particles. The precipitators would be designed to limit the particulate emission to less than 100 mg/$Nm^3$ at 100% BMCR. 275 m tall stack shall be provided. To ensure safe and optimum operation of the ESPs, each stream of precipitator would be supervised and monitored by a separate microprocessor based rapper control EP Management System. Online stack emission monitoring device shall be installed. Low NOx burners have been envisaged to reduce the NOx generation and consequent emission. Dust extraction and dust suppression systems have been envisaged in the lignite handling plant and dry ash silos.

**Water Pollution Control**

Wastewater from various systems would be reclaimed, treated and 100% reused as input to the RO plant. Cooling tower blow down from CW system would be utilized for the RO system and for lignite dust suppression. Decanted water from ash pond would be recycled and reused in the ash handling system. The waste water from DM plant regeneration and filter backwash would be first neutralized in the neutralizing pit and then carried to the Central Monitoring Basin (CMB) i.e. Guard Pond for final monitoring and treatment. Wash water from Air Pre-heater would be first collected in a settling basin for the collection of ash particles and then pumped to the Guard Pond. Blow down water from the boiler as well as waste water from various plant drains, after oil separation, would also be collected in the Guard Pond for final monitoring and treatment. The treated effluent from the Guard Pond would be used for gardening, green belt development and plantation work. Sewage from various buildings in the power plant would be conveyed through various drains to septic tanks.

**Noise Pollution Control**

Necessary noise control and abatement measures will be adopted to minimize the noise level from the plant during construction and operation phase to a maximum of 85 dBA as per the requirement of OSHA (Occupational Safety and Health Administration) Standards. The major sources of noise during the construction phase are vehicular traffic, construction equipment like dozers, scrapers, concrete mixers, cranes, generators, pumps, compressors, rock drills, pneumatic tools, saws, vibrators, etc. The operation of these equipments will generate noise ranging between 75-90 dBA.

**Project Cost**

The estimated total project cost of this expansion project is expected to be Rs 4620 Crores including the Interest during construction (IDC) and the Financing Charges. The debt equity ratio 75:25 considered for the project financing.