Katwa Super Thermal Power Project (2x660 MW)

(Brief Summary of the Project)

1.00.00 BACKGROUND

Katwa STPP was under development by West Bengal Power development Corporation Limited (WBPDCL). WBPDCL have already acquired part of required land and allocation of water from Bhagirathi River for Katwa project. Cabinet of Govt. of West Bengal on 18.04.12 approved the proposal of Transfer of Katwa Super Thermal Power Project at Katwa, Burdwan from WBPDCL to NTPC Ltd.

Ministry of Power, Govt. of India has allocated 50% of power to Home State West Bengal and Power Purchase Agreement (PPA) has been signed between NTPC Ltd. & WBSEDCL for Katwa STPP. As per the PPA, WBSEDCL shall ensure that all clearances, approvals, consents including coal linkages and land etc. available with WBPDCL shall be transferred to NTPC. The project has been transferred to NTPC on 27.02.2014.

The capacity of Katwa STPP has now been revised to 2x660 MW by NTPC.

2.00.00 PROJECT HIGHLIGHTS

2.01.00 Location and Approach

The project site is located about 7 kms West of Katwa town near village Srikhanda in Burdwan district of West Bengal. The Burdwan – Katwa road directly connects the proposed site to district head quarter at Burdwan and Sub-division town of Katwa. The Saptagram-Tribeni-Kalna-Katwa (STKK) Road (SH-6) connects Katwa to South Bengal.

The nearest BG Railway Station Katwa is at about 7 Kms on Katwa-Howrah Section of Eastern Railway and nearest Narrow Gauge (NG) Shrikhanda is at about 1.5 kms on Katwa-Burdwan Narrow Guage line of Eastern Railway which is being converted to BG.

The nearest commercial airport is Kolkata at about 160 Kms and the nearest seaport Haldia is about 250 kms.

2.02.00 Capacity

Capacity : 1320 MW (2x660 MW)

2.03.00 Mode of Operation: Base Load

2.04.00 Land

About 911 acres of land has been envisaged for plant, township, ash dyke, Railway siding, Make up water pump house, canal diversion and corridors etc. for the power project. WBPDCL/GoWB have already

	acquired about 556 acres of land for Katwa project. The balance land is being acquired by NTPC.
2.05.00	**Water**
	Make up water requirement for this project would be about 4100 CuM/hr with HCSD system for ash disposal. The water requirement for the power project will be met by drawing water from the Bhagirathi river with intake well located downstream of the confluence with River Ajoy at a distance of about 10 km from project location. WBPDCL has obtained clearance for consumptive use of 42 Cusecs of water from Bhagirathi River for Katwa project from Ministry of shipping, Road Transport & Highways, Department of Shipping (Port Wing), Govt. of India vide letter dated 23.10.2006 and no objection from Department of Irrigation & Waterways, Govt. of West Bengal vide letter dated 28.05.2007. Further, Kolkata Port Trust have accorded in-Principle water availability confirmation of 8 Cusecs to NTPC from Bhagirathi River vide letter dated 06.01.12 to NTPC. The total water commitment for the project is thus become 50 Cusecs.
2.06.00	**Fuel (Coal)**
2.06.01	**Coal Source & Requirement and Availability** Coal requirement for the project is estimated as 6.46 MTPA, considering Heat Rate of 2317.44 Kcal/kWh, 100 % PLF and average Gross Calorific Value (GCV) of 4150 kcal/kg. Commitment for supply of 7.5 MTPA of coal from the total pool of coal sources of WBPDCL and receivables from CIL (initially) and Deocha-Pachami Captive Coal Block of WBPDCL from April, 2018 is available.
2.06.02	**Coal Transportation** The envisaged mode of coal transportation from the coal mines to the power plant is by Indian Railways System in BOX- N wagons.
3.00.00	**MODE OF OPERATION** : Base Load
4.00.00	**STEAM GENERATOR TECHNOLOGY** The steam generators shall be once through, water tube, direct pulverized coal fired, top supported, balanced draft furnace, single reheat, radiant, dry bottom type, suitable for outdoor installation. The gas path arrangement shall be single pass (Tower type) or two pass type.

	The steam Generator and its auxiliaries shall be designed for firing Indian coal identified for this project and shall also have the capability of firing imported coal blended upto 30% with the Indian coal. Boiler design shall be suitable for variable pressure operation from 30% to 100% BMCR with and without 5% throttle margin.
5.00.00	**POWER EVACUATION SYSTEM**
	Considering the plant capacity as 1320 MW the step up/ power evacuation voltage is presently considered as 400 kV for the purpose of FR. Presently LILO of 01 No. 400kV Double circuit interstate transmission line has been envisaged for power evacuation from the project. Further considering that West Bengal is one of the major beneficiary of the project, provision of 01 No. 400kV D/C line to WBSEB S/S has been kept. Accordingly, provision of 06 No. of line bays has been kept in generation switchyard. Based on Connectivity & LTA applications indicating beneficiaries, the ATS would be finalized by Central Transmission Utility (PGCIL) /CEA in the regional Standing Committee Meeting/LTA & Connectivity meeting. The above schemes as considered presently shall be reviewed based on the finalized ATS of the project. The provision now being kept is thus tentative.
6.00.00	**ENVIRONMENTAL ASPECTS AND R&R**
	Katwa STPP is a green field project. There is no ecologically sensitive area such as biosphere reserve, national park and wildlife sanctuary within a radius of 10 km from the project site. Further, there is no archaeological / cultural / historical important monument or place within a radius of 10 km. There is no major settlement within 25 km of the project site. Environmental clearance for a coal based thermal power project of 2x600 MW at the same site was accorded by MOEF vide letter dated 01.05.2008. However, as the project could not be commissioned within the validity period of five years from the date of accord of clearance and the project has been transferred to NTPC, application for fresh TOR is being submitted.
7.00.00	**COMMISSIONING SCHEDULE**
	The Commercial Operation Date (COD) of First Unit is envisaged in 52 months from the date of investment approval and subsequent unit at an interval of 6 months thereafter.
8.00.00	**BENEFICIARY STATES**
	The project is being implemented as Regional project for the benefits of States/UTs of Eastern Region. Ministry of Power, Govt. of India vide dated

17.01.2011 allocated 50% power to West Bengal.

9.00.00 PROJECT FINANCING

Debt-Equity ratio of 70:30 has been considered for the project. The equity will be financed from internal resources of NTPC, whereas loan portion is proposed to be financed from ECB (30%) and domestic borrowings/ bonds (40%).

10.00.00 PROJECT COST AND COST OF ENERGY

11.01.00 Project Cost

The Project Cost based on I Qtr., 2014 price level considering mega project and debt-equity ratio of 70:30 is as given below:

Description		Rs. in Crore
Project Cost excluding Interest During construction (IDC) & Financing Charges (FC)	:	7465.97
IDC & FC	:	1306.26
Project Cost incl. IDC & FC	:	8766.23
Cost/MW (excl. WCM)	:	6.64
Working Capital Margin (WCM)	:	180.15
Project Cost including IDC, FC & WCM	:	8946.38
Cost/MW (Incl. IDC, FC & WCM)	:	6.78

11.02.00 Cost of Energy (COE)

The Costs of Energy (COE) for the project, worked out based on 16 % return on equity capital, 11.86 % weighted rate of interest on loan, depreciation of 5.28 % per annum, 12.25 % interest on Working Capital, Station Heat Rate as 2317.44 Kcal/Kg., annual operation of 7446 hours and landed coal price of Rs.1650.00 per MT works out as follows:

1st full year operation	**:**	**323**	**Paise/kWh**
- Fixed Charges	:	225	Paise/kWh
- Variable Charges	:	98	Paise/kWh
Levelised	**:**	**291**	**Paise/kWh**