



1.0 INTRODUCTION

1.1 Project Background

The Government of Uttar Pradesh is planning to set up a green field 2x660 MW Coal - based Thermal Power Plant near village Malawan in Etah district, Uttar Pradesh. The plant will be established and operated by Jawaharpur Vidyut Utpadan Nigam Limited (JVUNL), a 100% subsidiary of Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (UPRVUNL).

To obtain environmental clearance of this project an EIA report was earlier prepared based on the ToR issued by the Ministry of Environment, Forests and Climate Change (MOEF&CC) in March 2010. The report was considered and recommended for Environmental Clearance (EC) by the Expert Appraisal Committee (EAC) of the Ministry in July 2012 with the condition that allocation of specific coal block for this project was required to be established.

However, due to subsequent mass cancellation of coal block allocations by the Central Government the condition of MoEF&CC could not be fulfilled at that time. Finally, specific coal block was allocated to the project in 2015, but by then three - year time limit had expired making the previous baseline data invalid. Hence, a fresh ToR was issued by the MoEF & CC. (Annexure - I). The present EIA report has been prepared in accordance with the requirements of this ToR.

1.2 Project and Project Proponent

As mentioned above the 2x660 MW Coal fired power plant is proposed to be set up by JVUNL which is a subsidiary of UPRVUNL under the Government of Uttar Pradesh.

In line with the guidelines issued by CEA, the plant will be based on energy efficient super-critical technology.

The project site is located north of village Malawan, in Etah district, on Delhi - Kanpur National Highway (NH - 91) and is about 18 km. from Etah town, which is about 70 km from Aligarh. Location and Vicinity of the site are shown in **Figure - 1.1 and 1.2**.

1.3 Need and Justification of the Project

Availability of electricity is one of the basic requirements for all development activities in a fast growing and developing country like India. The Electricity Act 2003 has promised to usher in sweeping changes in power sector based on the principle of promoting competition, protecting consumer interests and providing power to all.

1.3.1 All India Power Scenarios

India faces formidable challenges in meeting its energy needs and providing adequate energy of desired quality to various users in a sustainable manner and at reasonable cost. The per capita consumption of electricity in India is way below that in other countries.

The present installed capacity in India is 258701 MW as on 31.01.2015. The all India and region wise actual power supply position is given the **Table - 1.1 and 1.2** respectively.



ISO 9001:2008
Certificate No. 10492
CN: U74899DL1970PTC005474



IAS-ANZ
Registered Company
M43400901D

Page : 1-1
Ravi Shanker (Rajeev)
Executive Engineer
Civil Construction Division-I
2x660MW JTPP
Malawan-Etah





Table - 1.1 : All India Actual Power Supply

S. No.	Period	Peak Demand (MW)	Peak Met (MW)	Peak Deficit/ Surplus (MW)	Peak Deficit/ Surplus (%)	Energy Requirement (MU)	Energy Availability (MU)	Energy Deficit/ Surplus (MU)	Energy Deficit/ Surplus (%)
1	09 th Plan End	81555	71262	-10293	-12.6	522537	483350	-39187	-7.5
2	10 th Plan End	31516	26644	-4872	-15.5	202125	179986	-22139	-11
11 th Plan									
3	2007 - 08	32462	29495	-2967	-9.1	219797	196147	-23650	-10.8
4	2008 - 09	33034	29504	-3530	-10.7	227104	201951	-25153	-11.1
5	2009 - 10	37,159	31,439	-5,720	-15.4	254,231	224,661	-29,570	-11.6
6	2010 - 11	37,431	34,101	-3,330	-8.9	258,780	237,985	-20,795	-8
7	2011-12	40,248	37,117	-3,131	-7.8	276,121	258,382	-17,739	-6.4
12 th Plan									
8	JAN-15	139,445	135,184	-4,261	-3.1	86,256	83,559	-2,697	-3.1

Source: CEA (As on 31-01-15)

Table - 1.2 : Actual Power Supply Position for all Regions

S. No.	Region (Apr-14.- Jan-15)	Peak Demand (MW)	Peak Met (MW)	Peak Deficit/ Surplus (MW)	Peak Deficit/ Surplus (%)	Energy Requirement (MU)	Energy Availability (MU)	Energy Deficit/ Surplus (MU)	Energy Deficit/ Surplus (%)
1	Northern (14-15)	51,977	47,642	-4,335	-8.3	285,786	266,894	-18,892	-6.6
	Jan -2015	42,381	40,774	-1,607	-3.8	25,858	24,100	-1,758	-6.8
2	Western (14-15)	44,166	43,035	-1,131	-2.6	268,593	266,413	-2,180	-0.8
	Jan -2015	42,247	41,553	-694	-1.6	26,216	26,093	-123	-0.5
3	Southern (14-15)	39,094	35,698	-3,396	-8.7	236,427	225,815	-10,612	-4.5
	Jan -2015	36,992	35,446	-1,546	-4.2	23,599	23,058	-541	-2.3
4	Eastern (14-15)	16,909	16,609	-300	-1.8	100,221	98,566	-1,655	-1.7
	Jan -2015	15,370	15,209	-161	-1.0	9,337	9,191	-146	-1.6
5	N.Eastern (14-15)	2,528	2,202	-326	-12.9	12,077	10,903	-1,174	-9.7
	Jan -2015	2,455	2,202	-253	-10.3	1,246	1,117	-129	-10.4
6	All India (14-15)	148,166	141,160	-7,006	-4.7	903,104	868,591	-34,513	-3.8
	Jan -2015	139,445	135,184	-4,261	-3.1	86,256	83,559	-2,697	-3.1

Source: CEA (As on 31-01-15)

The overall energy shortage during April-14-Jan-15 was around 3.8% and peak demand shortage was 4.7%. The region -wise break down of present installed Capacity is given in Table - 1.3

Table - 1.3 : All India Installed Capacity (in MW)

S. No.	Region	Thermal			Total Thermal	Nuclear	Hydro (Renewable)	RES** (MNRE)	Grand Total
		Coal	Gas	Diesel					
1	Northern	39431.00	5331.26	12.99	44775.25	1620	16666.78	5935.77	68997.80
2	Western	60139.51	10915.41	17.48	71972.40	1840	7447.5	11271.07	92530.97



S. No.	Region	Thermal			Total Thermal	Nuclear	Hydro (Renewable)	RES** (MNRE)	Grand Total
		Coal	Gas	Diesel					
3	Southern	27382.50	4962.78	939.32	34134.60	2320	11338.03	13784.67	61637.30
4	Eastern	27427.88	190	17.2	27635.08	0	4113.12	432.86	32181.06
5	N. Eastern	60	1571.80	142.74	1774.54	0	1242.00	256.67	3273.21
6	Islands	0	0	70.02	70.02	0	0	11.0	81.12
7	All India	156190.89	22971.25	1199.75	180361.89	5780	40867.43	31692.14	258701.45

Source: CEA (As on 31-01-15)

(All figures in MW)

Note: RES - **Renewable Energy Sources, MNRE- Ministry of New and Renewable Energy

1.3.2 Capacity commissioned during 11th Plan (2007-12)

The total capacity commissioned during 11th Plan is given in the Table - 1.4 below:

Table - 1.4 : Total Capacity Commissioned during 11th Plan

S. No.	Sector	Hydro	Thermal				Nuclear	Total
			Coal	Gas	Lignite	Total		
1	Central	1550	11550	740	500	12790	880	15220
2	State	2702	11695	1885.4	450	14030.4	0	16732.4
3	Private	1292	18649	2530.5	540	21719.5	0	23012.5
4	Total	5544	41894	5155.9	1490	48539.9	880	54963.9

(All figures in MW)

1.3.3 Twelfth Plan Capacity addition

A sector wise breakup of capacity addition in 12th plan is given in Table - 1.5 below:

Table - 1.5 : Sector-wise Capacity addition during 12th Plan

S. No.	Sector	Hydro	Thermal				Nuclear	Total
			Coal	Gas	Lignite	Total		
1	Central	6004	13800	250	827.6	14878	5300	26182
2	State	1608	12210	0	1712	13922	0	15530
3	Private	3285	43270	270	0	43540	0	46825
4	Total	10897	69280	520	2539.6	72340	5300	88537

(All figures in MW)

1.3.4 The Future Power Scenario

The future power scenario in the country have been assessed by different agencies in their reports. The region wise summaries of energy requirements and peak demand for 2016-17 and for year 2021-22 as estimated by CEA are indicated in the Table - 1.6 below:

Table - 1.6 : Eighteenth Electric Power Survey (EPS) of CEA

S. No.	Region	Energy Requirement (MU)		Peak Demand (MW)	
		2016-17	2021-22	2016-17	2021-22
1	Northern Region	415220	576010	60676	82784
2	Western Region	389807	535851	60259	83268
3	Southern Region	364443	506589	56388	78857
4	Eastern Region	163294	231646	24020	33747
5	North-Eastern Region	15751	22421	2834	3905



S. No.	Region	Energy Requirement (MU)		Peak Demand (MW)	
		2016-17	2021-22	2016-17	2021-22
6	Andaman & Nicobar	366	505	67	89
7	Lakshadweep	47	60	10	16
8	All India	1348515	1872517	196398	271795

Source: CEA (As on 31-01-15)

1.3.5 Installed Generation Capacity in Uttar Pradesh

The State of Uttar Pradesh is part of the Northern Regional Electricity Grid. Northern regional grid comprises SEBs of Delhi, Haryana, Himachal Pradesh, J&K, Punjab, Rajasthan, Uttar Pradesh, Uttaranchal and Chandigarh. The present installed capacity of Uttar Pradesh is given in the Table - 1.7 below.

**Table - 1.7: Uttar Pradesh Installed Capacity
(State Power Utilities and Central Sector Utilities)**

S. No.	Project	Unit	Installed Capacity (MW)	Available Capacity (MW)	C.O.D		
1.	Obra TPP	1	50	50	15.08.1967		
		2	50	50	11.03.1968		
		7	94		14.12.1974		
		8	94		01.01.1976		
		9	200	200	15.03.1980		
		10	200		06.03.1979		
		11	200		14.03.1978		
		12	200	200	29.05.1981		
		13	200	200	19.07.1982		
		Total	1-13	1288	700		
		2.	Anpara TPP	1	210	210	01.01.1987
				2	210	210	01.08.1987
				3	210	210	01.04.1989
4	500			500	01.03.1994		
5	500			500	01.10.1994		
Total	1-5			1630	1630		
3.	Panki TPP	3	105	105	29.01.1977		
		4	105	105	29.05.1977		
		Total	3-4	210	210		
4.	Harduaganj TPP	5	60	60	14.05.1977		
		7	105		August.1978		
		8	250	250	01.02.2012		
		9	250	250	10.10.2013		
		Total	5-9	665	560		
5.	Parichha TPP	1	110		01.10.1985		
		2	110	110	Dec.1985		
		3	210	210	24.11.2006		
		4	210	210	01.12.2007		
		5	250	250	17.07.2012		
		6	250	250	18.04.2013		
		Total	1-6	1140	1030		
Grand Total (S. No. 1 to 5)			4933 (118.392MU)	4130 (99.12MU)			

Source : UPRVUNL



ISO 9001:2008
Certificate No. 10692
CIN: U74899DL1970PTC005474



JAS-ANZ
Registered Company
MA3409091D

Raw Shanker (Rajeev)
Page : 1-4

A Development Services, Industries & Utilities
Raw Shanker (Rajeev)
Executive Engineer
Civil Construction Division-I
2x660MW JTPP
Meerut-Etah



DESEIN



1.3.6 Likely Capacity additions in the Twelfth Plan and beyond

The likely capacity additions during the Twelfth plan & beyond for the State are given in Table - 1.8 below:

Table - 1.8 : Likely Capacity Addition during 12th Plan and beyond

S. No.	Promoter	Capacity (MW)	Location
1	NTPC Ltd.	500	Unchahar, Rai Bareilly district
2	Jaiprakash Associates Ltd.	1320	Karchana, Allahabad district
3	NTPC Ltd.	1320	Meja, Allahabad district
4	UPPCL	1980	Bara, Allahabad district
5	Unitech Machines Ltd.	250	Auraiya
6	Creative Thermolite Power Pvt. Ltd.	600	Bargarh, Chitrakoot district
7	IL & FS Ltd.	500	Muzaffarnagar district
8	UPRVUNL	1000	Obra, Sonbhadra district
9	Parekh Aluminex Ltd.	250	Barabanki
10	GMR group	1200	Mathrapur
11	Jaiprakash Associates Ltd.	240	Churk, Robertsganj
12	NTPC – SAIL Power company Ltd.	500	Gonda
13	NTPC Ltd.	500	Jagdishpur
14	Kanpur Fertilizers and Cements Ltd.	75	Kanpur
15	UPRVUNL	1980	Ghatampur
16	UPRVUNL	250	Panki
17	UPRVUNL	660	Harduaganj
18	UPRVUNL	1000	Anpara
19	Bajaj Power Generation Pvt. Ltd.	2400	Bargarh, Chitrakoot district
20	Bajaj Power Generation Pvt. Ltd.	1980	Lalitpur
21	Kanti Bijlee Utpadan Nigam Ltd.	290	Muzaffarpur district
22	Torrent Power Ltd.	1320	Sandila, Hardoi district

Source : UPRVUNL

Power Grid transmission Network Map of India and Uttar Pradesh are provided in Figure - 1.3 and 1.4 respectively.

1.3.7 Need for the Power Project

Substantial additional installed capacity over and above the 12th Plan targets is required if the Northern Region is to be freed of power shortages.

A number of hydro plants operate mainly during the monsoon period. The generation from these plants is minimal during the non-monsoon period mainly due to lack of adequate storage facilities or other operational constraints like meeting upstream irrigation requirements and the need to maintain levels at various reservoirs. Thus the actual shortfall of capacity may be even more than the figures based on installed capacities.



ISO 9001:2008
Certificate No. 10192
CIN U74999DL1970PTC005474



JAS-ANZ
84340909D
Registered Company

A Development Service Industries & Utilities

Ravi Shanker (Rajeev)
Executive Engineer
Civil Construction Division-I

UPRVUNL JTPP





It may therefore be concluded that the gap between availability of power and the demand is not likely to be closed in the foreseeable future either in Northern region or in Uttar Pradesh and all out efforts are called for to add capacity taking into consideration the fuel availability and evacuation system.

In this context, the proposal of **Jawaharpur Vidyut Utpadan Nigam Limited**, for setting up of the 2x660 MW Coal based Jawaharpur Thermal Power Station is timely. The power plant will be helpful in meeting a part of the shortfall in generating capacity in the state.

1.4 Project Location

The Jawaharpur TPP is proposed to be located towards North of GT Road (NH-91), flanked by villages Nigoh Hasanpur in the North-west, Babrauti Nasirpur in the North-east, Nagla Harhai in the South-west and Malawan in the South-east.

Table - 1.9: Profile of Project Site

Features		
Villages	Ayar, Babrauti Nasirpur, Birshingpur, Malawan, Nigoh Hasanpur	
Tehsil	Etah	
District	Etah	
State	Uttar Pradesh	
Nature of the Area	More Than 50% of the area are Un-cultivated Land	
Project Coordinates		
Project Site Extant Co-ordinates	Latitude	Longitude
	27° 29' 20" to 27° 30' 45" North	78° 49' 00" to 78° 50' 36" East
Other Important Features		
Average Altitude	160-163 m above MSL	
Seismicity	Seismic Zone- III	
Nearby Locations		
Nearest Railway Station	Etah- 18 km	
Nearest Air Port	Agra Airport- 90 km	
Nearest Natural Water body	Kali Nadi- 7.0 km	
Nearest Highway	National Highway 91- >500m	
Nearest Town	Etah- 18 km.	
Ecologically sensitive zones like Wildlife Sanctuaries, National Parks / biosphere, Elephant / Tiger Reserve and Migratory Routes	Notified Ecologically Sensitive Area does not exist within 15 km radius	
Socio-economic factors	No Homestead Displacement	

The site is more than 500 meter away from the nearest Highway, Railway line and HFL of the nearest river.



1.5 The Study

1.5.1 Purpose of the study

As per the Environmental Impact Assessment Notification dated 14th September 2006, coal-based thermal power plants above 500 MW require Environmental Clearance (EC) from MoEF as category 'A' project before the commencement of construction activity.

In line with the EIA notification 2006, Terms of Reference (ToR) for the proposed plant was issued by Ministry of Environment, Forests and Climate Change, Govt. of India vide letter no. J-13012/17/2015-IA.II (T) dated 9th December, 2015 (**Annexure - I**).

The EIA report will help to integrate environmental mitigation plans into project planning and decision making by studying probable changes in the environment, socio-economic and biological characteristics, which will result from the proposed project, so as to achieve sustainable development.

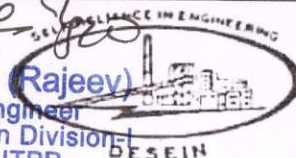
1.5.2 Scope of the Study

The scope of the study is as per the ToR issued by the Ministry.

Field studies were conducted during post monsoon season September to December, 2015 to determine the existing conditions of various environmental attributes as outlined in **Table - 1.10**.

Table - 1.10 : Environmental Attributes and Frequency of Monitoring

S.No.	Attributes	Parameters	Frequency
1	Soil Characteristics	Physio- Chemical	Once during study period at 8 (eight) locations
2	Land use	Land use classification for different categories	Based on Survey of India Toposheet and satellite imagery
3	Meteorology	Wind speed and direction, Temperature (dry & wet), Relative humidity, Rainfall, Solar radiation and Cloud Cover	Continuous monitoring near project site for three months with hourly recording. Data from secondary sources like IMD station at Mainpuri
4	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , O ₃ , CO and Hg	24 hourly samples twice a week for three months at 10 (ten) locations.
5	Noise levels	Noise levels in dB(A) during day and night	Noise quality monitored once during study period at 10 (ten) locations
6	Drainage Pattern & Hydrology	Drainage area and pattern, nature of streams	Based on secondary data and report prepared by NIH, Roorkee
7	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected on monthly basis during study period at 6 (six) locations for ground water and 4 (four) for surface water



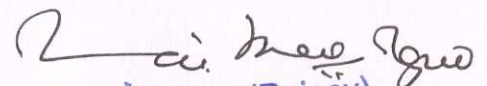


Jawaharpur Vidyut Utpadan Nigam Limited
(A 100% subsidiary of UPRVUNL - U.P. Govt. undertaking)
2 x 660 MW Jawaharpur Thermal Power Project

EIA REPORT

1. Introduction

S.No.	Attributes	Parameters	Frequency
8	Ecology	Existing flora and fauna within 10-Km radius circle	Ecological studies were conducted in the area on the basis of reconnaissance. Secondary data was collected from the Forest Department.
9	Socio-Economic aspects	Demographic Statics, Occupational Pattern, Infrastructure Status	Based on limited survey and secondary data as well as study conducted by IIT, Kanpur
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires, explosions & release of toxic substances	Risk assessment / Disaster Management using distance management and safety criteria.


Ravi Shanker (Rajeev)
Executive Engineer
Civil Construction Division-I
2x660MW JTTP
Malawan-Etah