PRE-FEASIBILITY REPORT

For

THE PROPOSED 3X600 MW SINGARENI THERMAL POWER PLANT
(Expansion from 2x600 MW to 3x600 MW)

At

Pegadapalli Village, Jaipur Mandal, Adilabad Dist, Telangana State

Submitted to

Ministry of Environment, Forests & Climate Change (MoEF&CC),
Government of India,
Indira Paryavaran Bhawan, Jorbagh,
Jorbagh Road, New Delhi

Project proponent

THE SINGARENI COLLIERIES COMPANY LIMITED
(A Government Company)
P.O. Kothagudem Collieries - 507 101
Khammam District: Telangana State

March 2015

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PRE FEASIBILITY REPORT FOR THE PROPOSED 3X600 MW SINGARENI THERMAL POWER PLANT (EXPANSION FROM 2X600 MW TO 3X600 MW)

1. Executive Summary:

Singareni Collieries Company Limited (SCCL) is proposing to set up a 1x600 MW (additional unit) besides the 2x600 MW units already under construction. The third unit of 1x600 MW will be constructed as an expansion project and will be located adjacent to the under construction units.

The project site is located near Pegadapalli Village, Jaipur Mandal, District Adilabad of Telangana. The site is located at latitude of 18° 48' 42" to 18°50' 26" N and longitude of 79°33' 55"E to 79°35' 14"E. The site is 14 km fro m nearest town Mancherial and 4.6 km from the Rajiv Rahadari and 500 meters from N.H-16.

The proposed project falls under the category A of Project Activity 1(D) under the schedule as per EIA notification issued on 14th September, 2006 and hence the proposed expansion of the project requires Environmental Clearance from MoEF & CC, Govt of India:

The salient features of the proposal are as follows:

S.No	Description	2x600 MW under construction units	1X600 MW Proposed additional Unit
1	Name of the Project	3x600MW Singareni Thermal Power Plant	
2	Location	Pegadapalli Village, Jaipur Mandal, Adilabad District, Telangana State	
3	Name of the Company	The Singareni Collieries Company Limited (SCCL) (A Government Company)	
4	Plant Configuration	2x600 MW	1X600 MW
5	Land requirement	300.972 Ha	105.21 Ha
6	Forestland involved	Nil	Nil
7	R&R Involved	Nil	Nil
8	Land acquisition Status	Land under possession of SCCL	Land Under possession of SCCL
9	Water allocation	From Godavari & Pranahitha River	From Godavari & Pranahitha River
10	Coal Supply	From SCCL Mines namely SRP OC-I, SRP OC-II and RKP OC Phase-I	From SCCL Mines namely SRP OC-I, SRP OC-II, RKP OC Phase-I, KK OCP and future mines like RKP Phase-II & SRP OC-III.
11	Coal Transport	Through Rail	Through Rail
12	Man Power requirement	700	100
13	Capital Cost	Rs 7573.51 Cr	Rs 3570.20 Cr
14	Power Evacuation	Through 440 v system	Through 440 V system
15	**Boiler**	Sub-critical design	Sub-critical design
	Boiler type	Pulverized fuel, coal fired unit to produce sub-critical steam parameters	Pulverized fuel, coal fired unit to produce sub-critical steam parameters
	Capacity	2050 TPH	2050 TPH
	Main Steam Pressure	175 bar	175 bar
	Main Steam Temperature	540˚C	540˚C
	Efficiency	87%	86%
16	**Turbine**		

	Heat Rate	1935kcal / kWh	1935 kcal / kWh
	Exhaust Pressure	0.1047 ata	0.1047 ata
	Exhaust Temperature	40˚C	40˚C
	Station Heat Rate	2348Kcal/kWh	2351 Kcal/kWh
17	**Generator**		
	MW Capacity	600 MW each	600 MW each
	Generator Transformer		
	Type	3x1 phase	3x1 phase
	MVA	260 MVA	260 MVA
	Voltage Ratio	21.5 / 400 kV	21.5 / 400 kV
	Unit Auxiliary Transformer (UAT)	2 nos. (for each unit)	2 nos.
	MVA	31.5 MVA	31.5 MVA
	Voltage Ratio	400 / 21.5 kV	400 / 21.5 kV
	Station Transformer	2 nos.	1 nos.
	MVA	100 MVA each	50 MVA
	Voltage Ratio	400 / 11kV	400 / 11kV
18	**Coal Handling Plant**		
	Track hopper	6000 MT	Existing to be used
	Crusher	4 NOS. (770 TPH)	Existing to be used
	Paddle feeders	4NOS. (1050 TPH)	Existing to be used
	Vibrating screen feeders	4NOS. (770 TPH)	Existing to be used
	Wagon tippler	-	1 no. proposed
	All conveyors	1400 MM wide (1400 TPH)	To be extended
	Stacker reclaimer	2 NOS. (1400 TPH)	1 No. of suitable capacity
	Coal requirement	625 TPH	310 TPH
19	**Fuel Oil Storage Capacity**		
	HSD	2X500 cu. m	Existing to be used
	HFO	2X2000 cu. m	Existing to be used
20	**Ash Handling System**		
	BA HP water pumps	2 nos.(1W+1S)	2 nos.(1W+1S)
	Capacity	465 m3/hr	250 m3/hr
	BA IP water pumps	3 nos.(2W+1S)	2 nos.(1W+1S)
	Capacity	600 m^3/hr	300 m^3/hr
	Fly ash main SILO	4 nos. (2 nos. per unit)	2 nos.
	Capacity	900 MT each (4 nos.)	900 MT each
	HCSD silo	3 nos.	Not recommended
	Capacity	500 MT each	Not applicable
	Ash dyke area	30 Ha	52.61 Ha
21	**Water Pumps Details**		
	Raw water source from River Godavari near Shetpalli Village, Adilabad District		
	Water allocation	1.05 TMC per annum sanctioned by State Government	Same will be used
	No. of VT pumps	2+1 (two working & one standby)	
	Rating	685 Kw	
	Flow	2916 m^3/hr	
	Quantity of water to be pumped	1.01 TMC	
	Raw water source from River Pranahitha near Devulavada Village, Adilabad Dist.		
	Water allocation	2.00 TMC per annum sanctioned by State	Same will be used

		Government	
	No. of VT pumps	3+1 (three working & one standby)	
	Rating	850 kW	
	Flow	2916 m^3/hr	
	Quantity of water to be pumped	2.00 TMC	
	Plant Reservoir Capacity	25 L.Cu.m (0.089 TMC) in the area of 47.92 Ha	Same will be used
22	Date of Commissioning	Expected to commence power generation from Nov/Dec 2015	42 months from zero date

2. INTRODUCTION OF THE PROJECT/BACKGROUND INFORMATION

I. Identification of Project and Project Proponent

The Singareni Collieries Company Limited (SCCL) is a Government Company jointly owned by the Government of Telangana and Government of India on a 51:49 equity basis. The Singareni coal reserves stretch across 350 km of the Pranahita – Godavari valley of Telangana with a proven geological reserves aggregating to 8791 MT. The SCCL has been exploiting coal for more than 125 years and is currently operating 17 opencast and 32 underground mines in 4 districts of Telangana namely Adilabad, Karimnagar, Warangal and Khammam districts with a manpower of around 59,304. SCCL achieved the coal production during 2013-14 is 50.47 MT and the taget for the year 2014-15 is 55.00 MT.

SCCL also operating small captive power plants since 1960 and recently SCCL is foraying into large scale power generation. SCCL is already constructing pithead power station of 2x600 MW units located at Pegadapalli village, Jaipur Mandal in Adilabad district of Telangana which will be commisioned in the year 2015.

The Environmental Clearance was accorded by Ministry of Environment, Forest and Climate Change vide Lr. No. J-13012/88/2008-IA.II(T), dated 27.12.2010 and Consent for Establishment under Air (Prevention & Control of Pollution) Act and Water (Prevention & Control of Pollution) Act by State Pollution Control Board vide Order No. 64/PCB/CFE/RO-NZB/HO/2010-818, dated 16.06.2011 for the 2x600 MW Thermal Power Plant which is under construction. In view of the power crisis in the newly formed state of Telangana, State Government is directed the SCCL to establish one more unit of 1x600 MW in addition to 2x600 MW Thermal Power Plant under construction.

As SCCL is already constructing 2x600 MW units, some of the BOP facilities of these units have spare capacities which can be utilized for the proposed 600 MW unit. The review of existing system reveals their adequacy for the proposed additional unit. The spare capacities of the existing system have been worked out after meeting the requirements for the 2x600 MW Power Plants under construction.

Infrastructure facilities such as land, water transport arrangements, railway line, roads etc. are available. The advantages of proposing the additional unit at same location are:

- No new infrastructure facilities are required for expansion unit.
- Total required land is available with SCCL.
- No Re-settlement is involved.
- Availability of adequate raw water will be met from Godavari & Pranahita River.
- Water will be pumped through the existing pipe line and pump house.
- There is no forest land involved for the project.
- Since existing facilities are being used, cost of the power would be less.

Address of the Project Proponent

Director (E&M)
The Singareni Collieries Company Limited
Po:Kothagudem, PIN. Code: 507101
Dist: Khammam, Telangana State
e-mail id**:** denm@scclmines.com
Ph.No. 08744 – 245005; Fax No. 08744 – 241201

Address of the Project In-charge

General Manager, Singareni Thermal Power Plant
Pegadapalli Village, Jaipur Mandal, PIN Code: 504 216
Dist: Adilabad, Telangana State
e-mail ID: gm_stpp@scclmines.com
Ph. No. 08737-200200, Fax No. 08737-200210

II. Brief Description of the Nature of the Project

Singareni Collieries Company Limited (SCCL) is proposing to set up a 600 MW extension unit besides the 2x600 MW units already under construction as per the directions of State Government in view of the acute power shortage in the newly formed state of Telangana. The third unit of 600 MW will be constructed as an extension project and will be located adjacent to the under construction units. SCCL has obtained Environmental Clearance from MoEF&CC, New Delhi for establishing 2x600 MW coal based TPP of the Singareni Collieries Company Limited (SCCL) at Pegadapali Village, Jaipur Mandal, Adilabad District, Telangana State vide MoEF&CC lr. No. J-13012/88/2008-IA.II(T), dated 27.12.2010 and Consent for Establishment under Air (Prevention & Control of Pollution) Act and Water (Prevention & Control of Pollution) Act by State Pollution Control Board vide Order No. 64/PCB/CFE/RO-NZB/HO/2010-818, dated 16.06.2011.

Presently, construction of 2x600 MW TPP is under progress. Boiler, Turbine & Generator, ESP, Roads, Water reservoir works are in advanced stage of construction. Balance of Plant works like chimney, coal handling plant, crusher house, cooling towers, water treatment system, LDO & HFO, track hopper etc works are in progress. Construction of Compound wall, main approach roads, Guest House. Ground leveling works completed. The power generation from the first 600 MW is likely to be commenced from the month of November 2015.

Present Proposal:

Present proposal is expansion of 2x600 MW Coal Based Thermal Power Plant of Singareni Collieries Company Limited under construction at Pegadapalli village, Jaipur Mandal, Adilabad District of Telangana State to 3X600 MW by adding one more unit of 600 MW adjacent to the present units.

III. Need For the Project and its Importance to the Country and or Region

a. All India Power Scenario:

India faces formidable challenges in meeting its energy needs and providing adequate energy of desired quality forms 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 255012 MW on 30.11.2014. The All India power supply position is given in **Table- 1** and actual power supply position for all regions up to November-2014 is given in **Table-2.**

Table-1: All India Actual Power Supply Position **(As on 30-11-2014)**

(Source: CEA)

Period	Peak Demand	Peak Met	Peak Deficit/ Surplus	Peak Deficit/ Surplus	Energy Requirement	Energy Availability	Energy Deficit/ Surplus	Energy Deficit/ Surplus
	(MW)	(MW)	(MW)	(%)	(MU)	(MU)	(MU)	(%)
9th PLAN END	81555	71262	-10293	-12.6	522537	483350	-39187	-7.5
10th PLAN END	31516	26644	-4872	-15.5	202125	179986	-22139	-11
11th PLAN								
2007-08	32462	29495	-2967	-9.1	219797	196147	-23650	-10.8
2008-09	33034	29504	-3530	-10.7	227104	201951	-25153	-11.1
2009-10	37,159	31,439	-5,720	-15.4	254,231	224,661	-29,570	-11.6
2010-11	37,431	34,101	-3,330	-8.9	258,780	237,985	-20,795	-8
2011-12	40,248	37,117	-3,131	-7.8	276,121	258,382	-17,739	-6.4
12th plan								
Nov-14	137,620	132,530	-5,090	-3.7				

Table-2: Actual Power Supply Position for all Regions (As on 30-11-2014)

Period	Peak Demand	Peak Met	Peak Deficit/ Surplus	Peak Deficit/ Surplus	Energy Requirement	Energy Availability	Energy Deficit/ Surplus	Energy Deficit/ Surplus
	(MW)	(MW)	(MW)	(%)	(MU)	(MU)	(MU)	(%)
NORTHERN								
Apr-14.- Nov -14	51,977	47,642	-4,335	-8.3	233,399	217,955	-15,444	-6.6
Nov -14	40,595	39,070	-1,525	-3.8	24,823	23,128	-1,695	-6.8
WESTERN								
Apr-14.- Nov -14	44,166	42,757	-1,409	-3.2	215,229	213,247	-1,982	-0.9
Nov -14	43,293	42,462	-831	-1.9	28,477	28,308	-169	-0.6
SOUTHERN								
Apr-14.- Nov -14	39,094	35,698	-3,396	-8.7	189,530	180,092	-9,438	-5.0
Nov -14	35,096	33,003	-2,093	-6.0	21,603	20,818	-785	-3.6
EASTERN								
Apr-14.- Nov -14	16,909	16,609	-300	-1.8	81,780	80,395	-1,385	-1.7
Nov -14	16,111	15,870	-241	-1.5	9,315	9,150	-165	-1.8
NORTH-EASTERN								
Apr-14.- Nov -14	2,528	2,141	- 387	-15.3	9,626	8,670	-956	-9.9
Nov -14	2,525	2,125	-400	-15.8	1,188	1,073	-115	-9.7
All India								
Apr-14.- Nov -14	148,166	141,160	-7,006	-4.7	729,564	700,359	-29,205	-4.0
Nov -14	137,620	132,530	-5,090	-3.7	85,406	82,477	-2,929	-3.4

(Source: CEA)

The overall energy shortage during April-14-Nov-14 was around 4.0% and peak demand shortage was 3.7%. All India installed capacity as on 30.11.2014 is 255012.78 MW including Thermal, Hydro, Nuclear and Renewable Energy Sources as per the CEA report. The total capacity commissioned during 11th Plan is 54963.9 MW and during 12th Plan is 88537 MW.

b. The Future Power Scenario

A brief account of the future power scenario in the country as perceived and assessed by different agencies reports. The region wise summary of energy requirements and peak demand for 2016-17 and for year 2021-22 are indicated below:

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
6	Andaman & Nicobar	366	505	67	89
7	Lakshadeep	47	60	10	16
8	**All India**	**1348515**	**1872517**	**196398**	**271795**

(Source: IEP - 2006)

c. Power Scenario in Andhra Pradesh (Undivided)

The overall installed capacity in the Andhra Pradesh is given below:

(**as on 31.11.14**)

Owner ship Sector	Mode wise Breakup				Nuclear	Hydro (Renewable)	RES** (MNRE)	Grand Total
	Thermal			Total Thermal				
	Coal	Gas	Diesel					
State	5892.5	0	0	5892.5	0	3734.53	3734.53	9848.06
Private	750.00	3370.4	36.8	4157.20	0	0	0	5466.65
Central	2940.58	0	0	2940.58	275.78	0	0	3216.36
Sub-Total	9583.08	3370.40	36.8	12990.28	275.78	3734.53	3734.53	18531.07

(Source CEA)

Andhra Pradesh is a large progressive state and the availability of power is not adequate to meet the present requirement in the State and to keep up with the requirement of socio economic growth. If the Southern Region is to be free of power shortages, substantial amount of installed capacity will be required over and above the Twelfth Plan targets.

IV. Demand-Supply gap

Power situation in the state of Telangana as on 31.11.2014 based on CEA report is as follows:

Period	Peak Demand	Peak Met	Peak Deficit/ Surplus	Peak Deficit/ Surplus	Energy Requirement	Energy Availability	Energy Deficit/ Surplus	Energy Deficit/ Surplus
	(MW)	(MW)	(MW)	(%)	(MU)	(MU)	(MU)	(%)
Telangana								
Apr-14.-Dec-14	7,884	6,648	-1236	-15.7	30,268	27,869	-2,399	-7.9
Dec-14	6,684	6,445	-239	-3.6	3,983	3,881	-102	-2.6

Source-CEA

As per the above report, the overall peak demand shortage for the period of April-14 to Dec-14 in the newly formed state Telangana is 15.7%. Substantial additional installed capacity over and above the 12th Plan targets is required if the Southern Region is to be free of power shortages. In all the regions, there is considerable uncertainty with regard to the location, capacity and fuel for future generation projects.

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. Hydropower production is low during the peak demand period and not all the hydro capacity can be

utilized to generate power during peak demand period due to the low or minimal flow and lack of adequate storage capacity. Since hydro production is seasonal and its maximum production does not coincide with the system peak, the system could rely only upon firm hydro capacity. Thus the actual shortfall of capacity may even be more than the figures based on installed capacities.

As seen from the above, the gap between availability of power and the demand is not likely to be met in the foreseeable future either in Southern region or in Telangana. All out efforts are called for to add capacity considering the fuel availability and evacuation system. Accordingly, the proposal of Singareni Collieries Company Limited, for extension of unit of 600 MW will further help in meeting the shortfall in generating capacity in the Telangana State.

V. Imports Vs Indigenous Production

The entire saleable power from the project will be procured by TSTRANSCO independent consumers by utilizing the 400 kV power transmission grids being managed by TSTRANSCO. The saleable power from the additional unit will be of the order of 567 MW after accounting for auxiliary power consumption of 5.5%. Whereas the salable power from the 2x600 MW Power Plant which is under construction will be 1050 MW after supply of 150 MW for the internal consumption of SCCL mining operations. The total salable power from the entire 3X600 MW will be 1617 MW to the TSTRANSCO.

Indigenous production of the power will be much cheaper, reliable and comfort than the import of the power from other countries/other states, as the proposed plant is pit head and coal and water is available. The proponent is operating number of coal mines in the area of power plant there will not be any problem of supply of coal to the power plant.

VI. Employment Generation (Direct & Indirect) due to the Project

During the construction period the requirement of manpower will be about 2000 to 3000 persons which are temporarily. During Operational phase, direct employment for 1000 persons (700 for 2x600 MW and 300 for additional 1X600 MW) will get and about 1000 persons will get indirect employment.

3. PROJECT DESCRIPTION:

I. Type of Project including interlinked and interdependent projects if any:

Expansion of 2x600 MW Coal Based Singareni Thermal Power Plant to 3x600 MW by adding one more unit of 600 MW. No interlinked or inter dependent projects for the proposed power plant.

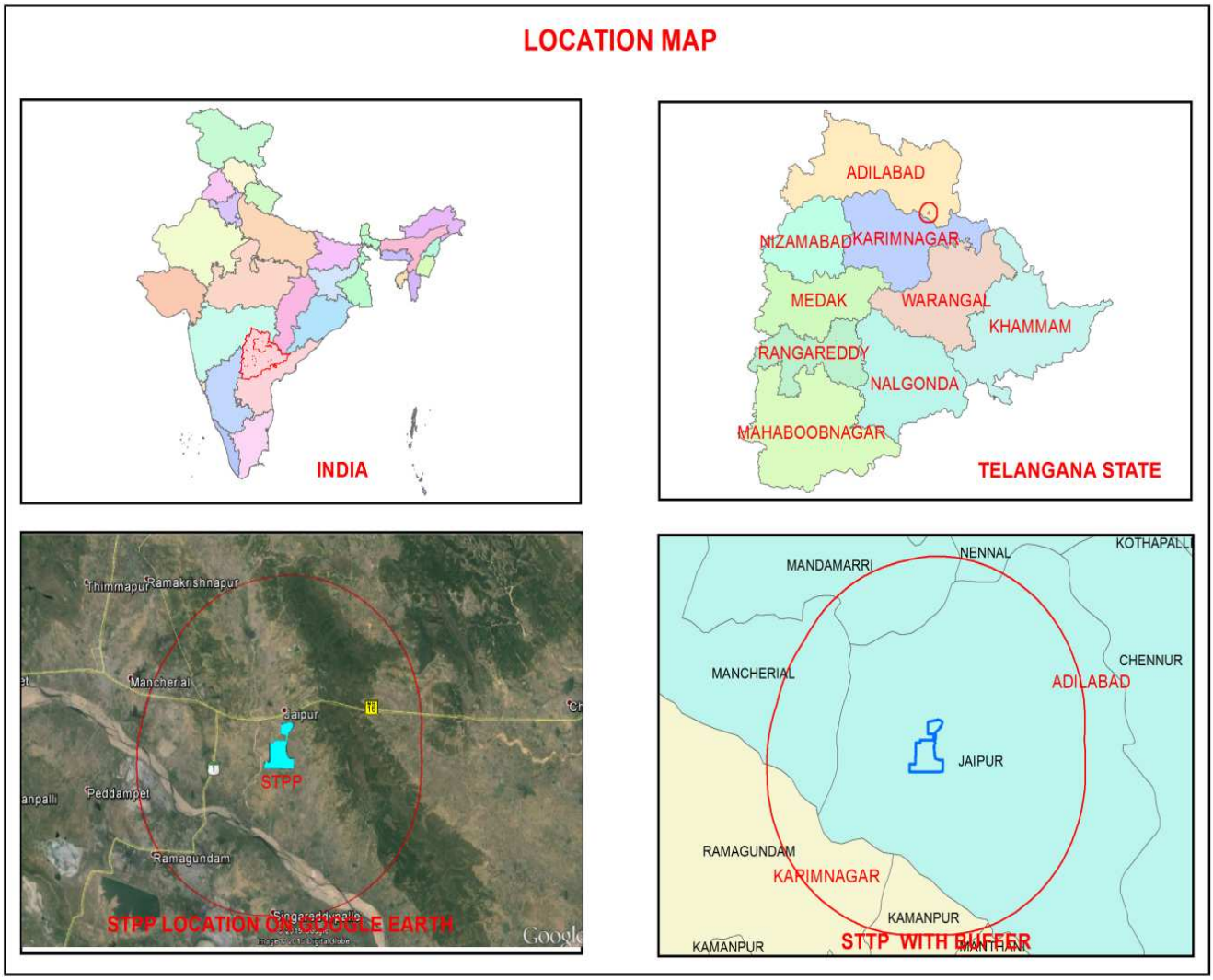
a. **Location:** The present proposal is for setting up of one unit of 600 MW Thermal Power Plant besides the 2x600 MW units already under construction at Pegadapalli Village, Jaipur Mandal of Adilabad District in Telangana State.The plan showing plant location ,mines from which coal is proposed to supply and water source is enclosed as **Annexure-I** The details of the Location are as follows:

Location Details of the Project

Village	:	Pegadapalli
Tehsil	:	Jaipur
District	:	Adilabad
State	:	Telangana
Latitudes	:	N 18°48’ 42” and 18°50’ 26”
Longitudes	:	E 79°33’ 55” and 79°35’ 14”

Survey of India Topo sheet No.	:	56 N/10
Nearest Town	:	Mancherial (14 Km), NW
Nearest City	:	Hyderabad (250 Km), SW
District head quarters	:	Adilabad (175 Km), NW
State capital	:	Hyderabad (250 Km), SW
Nearest Railway Station	:	Mancherial Railway station at 14.6 Km (Nagpur-Kazipet main rail line of South-Central Railway)
Nearest Airport	:	Rajiv Gandhi International Airport, Shamshabad, Hyderabad at a distance of 250 Km.
Nearest Highway	:	Rajiv Rahadari State Highway (4 Km), W

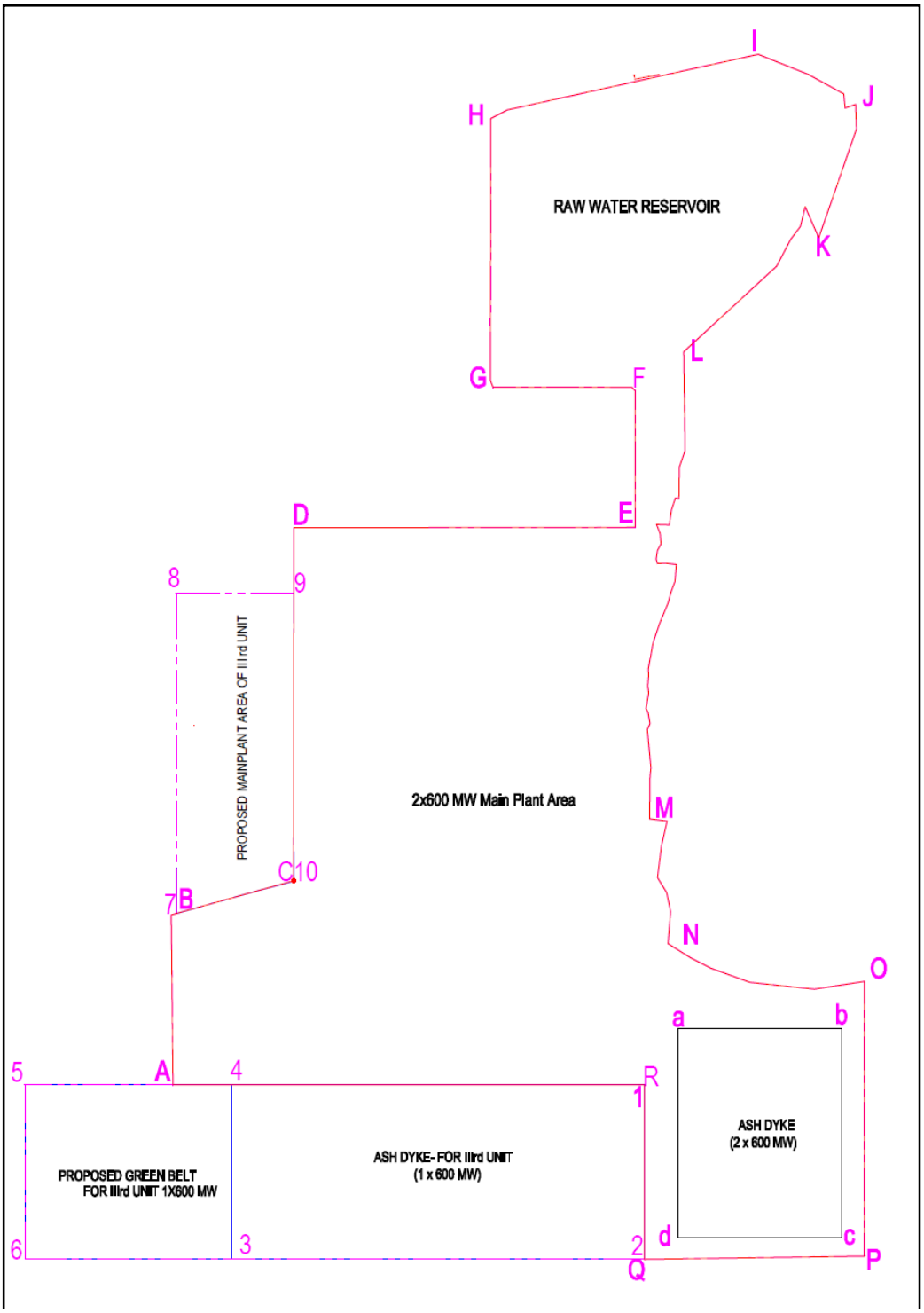
Location Plan of the proposed Power Plant



Co-ordinates of Main Plant and Ash Pond coordinates are as follows:

ID	Latitude	Longitude	ID	Latitude	Longitude
Existing 2x600 MW Plant Coordinates:					
A	18^0 48’57’’	$79^0$34’10’’	J	18^0 50’22’’	$79^0$35’14’’
B	18^0 49’12’’	$79^0$34’09’’	K	18^0 50’10’’	$79^0$35’10’’
C	18^0 49’15’’	$79^0$34’21’’	L	18^0 50’00’’	$79^0$34’58’’
D	18^0 49’45’’	$79^0$34’21’’	M	18^0 49’20’’	$79^0$34’56’’
E	18^0 49’45’’	$79^0$34’53’’	N	18^0 49’09’’	$79^0$34’56’’
F	18^0 49’57’’	$79^0$34’53’’	O	18^0 49’06’’	$79^0$35’14’’
G	18^0 49’57’’	$79^0$34’40’’	P	18^0 48’42’’	$79^0$35’14’’
H	18^0 50’21’’	$79^0$34’39’’	Q	18^0 48’42’’	$79^0$34’54’’
I	18^0 50’26’’	$79^0$35’05’’	R	18^0 48’57’’	$79^0$34’54’’
Existing 2x600 MW Ash Pond Coordinates					
a	18^0 49’03’’	$79^0$34’56’’	c	18^0 48’43’’	$79^0$35’13’’
b	18^0 49’03’’	$79^0$35’13’’	d	18^0 48’43’’	$79^0$34’56’’
Proposed 1x600 MW Plant coordinates:					
1	18^0 48’57’’	$79^0$34’54’’	6	18^0 48’42’’	$79^0$34’55’’
2	18^0 48’52’’	$79^0$34’54’’	7	18^0 49’12’’	$79^0$34’10’’
3	18^0 48’42’’	$79^0$34’15’’	8	18^0 49’40’’	$79^0$34’10’’
4	18^0 48’57’’	$79^0$34’15’’	9	18^0 49’40’’	$79^0$34’21’’
5	18^0 48’57’’	$79^0$34’55’’	10	18^0 49’15’’	$79^0$34’18’’
Proposed 1X600 MW Ash Pond Coordinates:					
1	18^0 48’57’’	$79^0$34’54’’	3	18^0 48’42’’	$79^0$34’15’’
2	18^0 48’52’’	$79^0$34’54’’	4	18^0 48’57’’	$79^0$34’15’’

Plant Boundary along with ID Points:


I
H
J
RAW WATER RESERVOIR
K
L
G
F
D
E
8
9
PROPOSED MAINPLANT AREA OF IIIrd UNIT
2x600 MW Main Plant Area
M
C10
7
B
N
O
a
b
5
A
4
R
1
ASH DYKE
(2 x 600 MW)
PROPOSED GREEN BELT
FOR IIIrd UNIT 1X600 MW
ASH DYKE- FOR IIIrd UNIT
(1 x 600 MW)
6
3
2
d
c
Q
P

b. Land Requirement:

Presently 2x600 MW Thermal Power Plant is under construction in Pegadapalli Village, Jaipur Mandal of Adilabad district of Telangana in an area of 280.40 Ha in addition to the railway line for coal transportation & water supply pipelines in an area of 20.572 Ha. The present proposal is for setting up of one more unit of 1x600 MW Thermal Power Plant besides the 2x600 MW units already under construction. Some of the facilities like Coal Handling arrangements, Ash Handling System, Raw Water Intake System, DM Plant, PT Plant, Raw Water Reservoir, Station Transformers, Switch Yard, etc envisaged for 2x600 MW units can also be used for the proposed unit of 1x600 MW TPP. As such, an additional area required for 1x600 MW is 105.21 Ha. All the land required for plant under construction and proposed unit of 1x600 MW is available and under possession of Singareni Collieries Company Limited. No further land acquisition is envisaged in the present proposal.

c. Water Requirement:

The estimated water requirement for 2x600 MW plant under construction is 88800 KLD (3700 m^3/hr) and for additional unit of 1X600 MW is 43200KLD (1800 m3/hr). Hence, Total Water required for 3x600 MW is 132000 KLD (5500 m3/hr).

The required water will be met from River Godavari & Pranahitha. 1.05 TMC of water per annum through infiltration galleries in River Godavari was allocated by State Government vide Lr. No. 157/T/2008, dated 07.08.2008 and 2.00 TMC of water from Pranahitha River near Devulavada Village, Adilabad District was also allocated by State Government vide G.O.Rt. No. 474, dated 19.07.2010.

d. Fuel requirement:

Coal requirement:

1) For 2x600 MW plant under construction: 4.784 MTPA
2) For additional 1X600 MW : 2.32 MTPA
3) Total coal required for 3x600 MW: 7.104 MTPA

The required coal will be supplied from own mines of Singareni Collieries Company Limited namely SRP OC-I, SRP OC-II, RKP OC Phase-I, KK OCP and future mines like RKP Phase-II & SRP OC-III in Srirampur and Mandamarri areas at a distance of 6 to 15 Kms from the plant site. The existing railway siding at Srirampur CHP is proposed to extend up to Singareni Thermal Power Plant as a part of 2x600 MW units under construction. The coal handling Plant is designed to handle the maximum coal required for the project.

HFO/LDO requirement for startup and flame stabilization: The steam generator is designed primarily for coal firing. A fuel oil system will be used for boiler start up as well as for flame stabilization during low load. Light diesel oil will be used for furnace light up and boiler start up while HFO will be used for flame stabilization. The required HFO/LDO will be met from the nearest oil depots.

1) For 2x600 MW plant under construction: 8935 KL/annum
2) For additional 1X600 MW : 4467 KL/annum
3) Total coal required for 3x600 MW: 13402 KL/annum

e. **Power Evacuation**:

The generation voltage is envisaged as 21.5 kV. Evacuation of power from the proposed 600 MW extension unit will be done at 400 kV level to 400 kV Nirmal substation as planned for 2x600 MW units.

Project Cost & Tariff*:*

The estimated Capital Cost, Capitalised Project Cost (including IDC) has been taken as Rs. 3570.20 Crs and Capital cost of the 2x600 MW plant under construction is Rs. 7573.51 Crs. Total Capital cost of all the units will be Rs.11143.71 Crs.

II. Details of alternate sites considered and the basis of selecting the proposed site, particularly the environmental considerations gone into should be highlighted

No alternate sites were considered as the present proposal is establishment of setting up of one additional unit of 600 MW Thermal Power Plant besides the 2x600 MW units already under construction at Pegadapalli Village, Jaipur Mandal of Adilabad District in Telangana State. Three alternate sites were examined before the establishment of 2x600 MW unit. The location of the project meets guidelines issued by Ministry of Environment and Forests, Government of India.

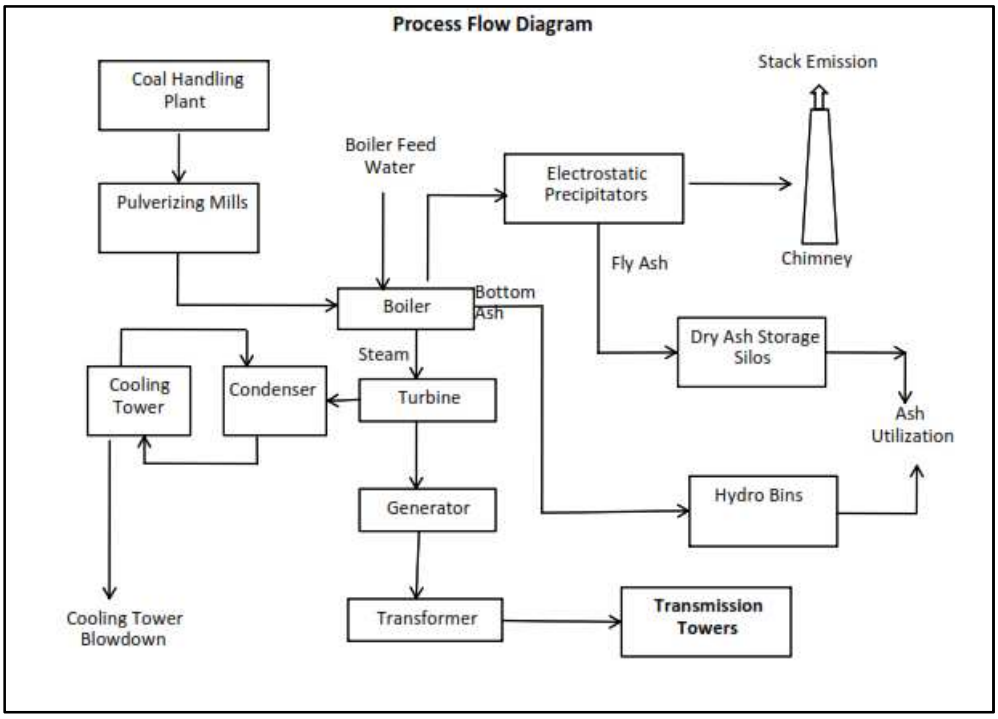
Sitting Guidelines	Conformity
The project shall be at least 500 m away from the HFL of the River	River Godavary is existing 4 KM away from the Project
The project shall be at least 500 m away from the High Way	NH-16 is at 500 m away from the project boundary.
The project shall be at least 500 m away from the Railway	The nearest railway line is Kazipet-Ballarsha section of South Central railway is at 14 Km from the project
Location of TPS should be avoided in the vicinity (10 Km) of places of archaeological, historical, cultural, religious or tourist importance and defence installations	No such areas are exists within 10 Km from the Project.
No forestland should be utilized for setting up of TPS or for ash disposal	No forest land is involved in the project.

III. Size or Magnitude of operation

Size of the Total Plant is 1800 MW with plant configuration of 3x600 MW Coal Based Thermal Power Plant.

IV. Project Description with process details

The proposed 1x600 MW and 2x600 MW Coal Based Thermal Power Plant of SCCL which is under construction is sub-critical pulverised boiler technology. Coal received from the mines (expected to be sourced from SCCL mines) at -200 mm size is crushed in the crusher house to -20mm size, which is subsequently pulverized in the coal mill. The powdered coal is burnt in the furnace to generate steam in the boiler. The steam generated in the boiler is expanded in the HP, IP & LP turbines and power is generated in the generator. The steam after expansion in the turbine is condensed in the condenser and the condensed steam is replaced back to the boiler. The hot gasses from the furnace after losing heat in different areas goes through the Electrostatic Precipitators, where ash is trapped. The clean gas goes through the chimney.



Process Flow Diagram

V. Raw material required along with estimated quantity likely source, marketing area of final products, mode of transport of raw material and finished product.

a. Coal requirement:

- For 2x600 MW plant under construction: 4.784 MTPA
- For additional 1X600 MW : 2.32 MTPA
- Total coal required for 3x600 MW: 7.104 MTPA

The required coal will be supplied from own mines of Singareni Collieries Company Limited namely SRP OC-I, SRP OC-II, RKP OC Phase-I, KK OCP and future mines like RKP Phase-II & SRP OC-III in Srirampur and Mandamarri areas at a distance of 6 to 15 Kms from the plant site. The existing railway siding at Srirampur CHP is proposed to extend up to Singareni Thermal Power Plant as a part of 2x600 MW units under construction. The coal handling Plant is designed to handle the maximum coal required for the project.

b. HFO/LDO requirement for startup and flame stabilization:

The steam generator is designed primarily for coal firing. A fuel oil system will be used for boiler start up as well as for flame stabilization during low load. Light diesel oil will be used for furnace light up and boiler start up while HFO will be used for flame stabilization. The required HFO/LDO will be met from the nearest oil depots.

- For 2x600 MW plant under construction: 8935 KL/annum
- For additional 1X600 MW : 4467 KL/annum
- Total coal required for 3x600 MW: 13402 KL/annum

c. Other Raw material:

Other Raw material like Cement (Estimated requirement: 132000 MT), Structural Steel (Estimated requirement: 21750 MT), Reinforcement Steel (Estimated requirement: 26000

MT), Sand (Estimated requirement: 1.50 L.Cu.m) and Stone/aggregate (Estimated requirement: 2.25 L.Cu.m) will be met from the local suppliers and transported through existing Rail/Road networks.

d. Power evacuation:

Evacuation of power from the proposed plant will be done at 400 kV level; the generation voltage is envisaged as 21.5 kV. For evacuation of power, three nos. single phase 240 MVA, generator transformers for 600 unit will be connected to the 400 kV swithchyard of the 2x600 MW Power Plant under construction.

VI. Resource Optimization Recycling & Reuse envisaged in the project, if any, should be briefly outlined)

Estimated total water requirement for the 3x600 MW is 132000 KLD (5500 m3/hr). It will be met from the Godavari and Pranahita River. Continuous efforts would be made to reduce the water consumption and thereby to reduce the wastewater generation. Flow meters would be installed for all major water inlet and the flow rates would be continuously monitored. Periodic water audits would be conducted to explore the possibilities for minimization of water consumption.

Considering recirculation closed cooling water system with induced draught cooling tower, using river water for turbine condenser cooling, cycle make-up and other consumptive water requirements. The major quantity of this water will be essentially makeup water for the cooling towers, lost on account of evaporation, drift and blowdown.The filtered water shall be used for the cooling tower make-up, service water, potable water, DM plant, fire-fighting system etc.

VII. Availability of water its source, energy/power requirement and source should be given

***a.* Water requirement, source and mode of transport:**

Estimated water requirement for 2x600 MW plant under construction is 88800 KLD (3700 m3/hr) and for additional 1X600 MW is 43200KLD (1800 m3/hr). Hence, Total Water required for 3x600 MW is 132000 KLD (5500 m3/hr).

The required water will be met from River Godavari & Pranahitha. 1.05 TMC of water per annum through infiltration galleries in River Godavari was allocated by State Government vide Lr. No. 157/T/2008, dated 07.08.2008 and 2.00 TMC of water from Pranahitha River near Devulavada Village, Adilabad District was also allocated by State Government vide G.O.Rt. No. 474, dated 19.07.2010. The quantity allocated water will be sufficient for entire 3x600 MW.

The water from the Godavari & Pranahitha Rivers will be transported through pipeline. The details of water pumping are as follows:

A	**Raw water source from River Godavari near Shetpalli Village, Adilabad District**		
1	Water allocation	1.05 TMC per annum sanctioned by State Government	Same will be used
2	No. of VT pumps	2+1 (two working & one standby)	
3	Rating	685 Kw	
4	Flow	2916 m3/hr	
5	Quantity of water to be pumped	1.01 tmc	
B	**Raw water source from River Pranahitha near Devulavada Village, Adilabad Dist**		
1	Water allocation	2.00 TMC per annum sanctioned by State	Same will be used

		Government	
2	No. of VT pumps	3+1 (three working & one standby)	
3	Rating	850 kW	
4	Flow	2916 m3/hr	
5	Quantity of water to be pumped	2.00 TMC	
C	Plant Reservoir capacity	25 L.Cu.m. (0.089 TMC)-47.92 Ha	Same will be used

b. **Energy / Power requirement and source:** Construction power for the proposed expansion of 600 MW shall be availed from the existing source of TSTRANSCO / Nearest 33 KV substation.

4. SITE ANALYSIS

I. Infrastructure

The present proposal is expansion of 2x600 MW Thermal Power Plant under construction to 3x600 MW by adding one more unit of 600 MW in view of the availability of the land, coal, water, transportation facilities, etc. The infrastructure facilities envisaged for 2x600 MW TPP like Coal Handling Arrangements, Raw Water Reservoir, Coal transportation facilities (Railway line), Ash Handling system, Administrative buildings, Switchyard, DM Plant, PT Plant, Station Transformers, Switch Yard, etc can be used for proposed 1x600 MW additional unit also. The additional land required for the present proposal is 105.21 Ha is also available adjacent to the plant under construction and also under possession of SCCL. The additional coal required for the project can be met from the SCCL mines under operation and future mines of SCCL in the area. The township is also planned outside the main plant area for operational and maintenance staff and sufficient area is also available for additional accommodation of additional staff envisaged for the proposed 1x600 MW Plant.

II. Connectivity

The proposed project site is situated at a distance of around 500 m from the National Highway, (NH – 6: Which connects Nizamabad town in Telangana and Jagdalpur town in Chhattisgarh). The access roads connecting to the National Highway have already been built for existing units; however, internal roads within the proposed extension unit area would have to be built. The project area is also well connected with rail network. Mancherial Railway station situated at a distance of 14.6 Km (Nagpur-Kazipet main rail line of South-Central Railway). Railway siding is available up to Srirampur CHP belongs to SCCL which is at a distance of 10 Km. It is proposed to extend the Railway line from the Srirampur CHP to the proposed Power Pant via Srirampur Opencast project for coal transportation. The nearest air port is Rajiv Gandhi International Airport, Shamshabad, Hyderabad at a distance of 250 Km.

III. Land Details

The land requirement for the 2x600 MW TPP under construction along with proposed additional unit of 1X600 MW is furnished in the following table. All the land required for the proposal is under the possession of Singareni Collieries Company Limited. No additional land is required to be acquired for the present proposal.

S. No	Particulars	Area in Ha		
		2x600MW	**1X600MW**	**Total 3x600MW**
1	Main Plant & Equipment	110.00	26.30	156..60
2	Coal Handling Plant	20.30		
3	Raw Water Reservoir	47.92	Nil	47.92
4	Ash Dyke	30..00	52.61	82.61
5	Greenbelt	72.18	26.30	98.48
	Land for Main Plant	**280.40**	**105.21**	**385.61**
6	Land required for transportation of coal by rail system	15.245	Nil	15.245
7	Land required for water pipeline	5.237	Nil	
	Total land requirement	**300.972**	**105.21**	**406.182**

Details of Survey No.s of existing 2x600 MW Coal Based Thermal Power Plant is as follows:

Pegadapalli Village, Jaipur Mandal: Sy. Nos: 147(P) 471/2 (P), 472, 473/2, 474, 477 to 480, 481(P), 482(P), 483 to 485, 525 to 533, 534(P) to 539(P), 540(P) to 548, 592 to 605(P), 608(P), 609(P), 610(P), 613(P), 614, 615(P), 616(P), 759(P), 760(P), 761(P), 762(P), 766(P), 767(P), 768 to 953, 955 to 963(P), 964(P), 966(P), 967, 968, Vagu (P).

Gangipalli Village, Jaipur Mandal: Sy.Nos.: 36(P), 37 to 39, 40(P), 44(P), 45(P), 46 to 53, 54(P), 55(P), 56(P), 316, 317, 322, 324, 336, 365, 366, 367, 378, 379.

Elkanti Village, Jaipur Mandal: Sy. Nos: 63(P),64(P), 67(P), 69(P), 70, 71, 72/1, 72/2, 73(P), 74, 75, 76/2, 76/3, 357(P), 358(P), 382(P), 383(P), 385(P), 386(P), 387(P), 388 to 394, 395/1, 395/2(P), 395/3(P), 396/1, 396/2, 397, 398, 399, 400(P), 401(P), 402(P) VAGU(P).

Settipalli Village, Jaipur Mandal: Sy.Nos:148(P), 150(P), 152(P), 153(P), 166(P), 167(P), 168(P), 181 (P), 188(P), 194(P), 195(P), 196(P), 200(P), 201(P), 202(P), 239(P), 245(P), 249(P), 253(P), 255(P), 256(P), 264(P), 265(P), 268(P), 269(P), 436(P), 477(P), 478(P), 479(P), 486(P), 488(P), 489(P), 491 (P), 537(P), 546(P), 549(P), 599(P).

Tekumatla Village, Jaipur Mandal: Sy.Nos: 79(P), 80(P), 102(P), 103(P), 104(P), 110(P), 111(P), 113(P), 115(P), 359(P), 381(P), 720(P), 721(P), 722(P), 724(P), 737(P).

Indaram Village, Jaipur Mandal: Sy.Nos: 26(P), 27(P), 37(P), 38(P), 39(P), 40(P), 46(P), 47(P), 116(P), 126(P), 128(P), 129(P), 134(P), 284/1(P), 284/3(P), 1184(P), 1196(P), Road(P).

Ramaraopet Village, Jaipur Mandal: Sy.Nos: 282(P), 290(P), 295(P), 296(P), 384(P), 385(P), 386(P), 388(P), 395(P), 399(P), 402(P), 404(P).

Note: P=Part

List of Survey No.s of the additional land required for setting 1x600 MW as follows:

Pegadapalli Village, Jaipur Mandal: Sy. Nos: 534(P), 539(P), 615(P), 616(P), 617(P), 618(P), 619(P), 620(P).

Elkanti Village, Jaipur Mandal: Sy.Nos: 59(P), 60(P), 61, 62, 63(P), 64(P), 65, 66, 67(P), 68(P), 338(P), 339, 340, 341(P), 342(P), 345(P), 349(P), 350 to 356, 364(P), 365 to 367, 368(P), 381(P), 382(P), 383(P), 384, 385(P), 386(P), 387(P), 400(P), 401(P), 402(P), 403 to 409, 410(P), 413(P), 414(P), 415 to 417, 418(P), 482(P).

IV. Existing land use pattern, shortest distance from the periphery of the project to periphery of the forests, water bodies

Total land requirement for the 3x600 MW will be 406.182 Ha. An extent of 105.21 Ha of the land mainly open barren land under possession of SCCL is required for additional 1X600 MW in addition to the 2x600 MW plant under construction in an area of 300.972 Ha. No structures or forestland exists in the proposed land area.

Description	**Name and Distance**
Nearest major Villages	Jaipur - 1Km (W), Pegadapalli – 1.0 Km (E), Gangipalli - 1Km (S), Rasulpalli - 2.5 Km (NW).
Nearest Forest	Indaram reserve forest– 1.85 Kms (NW) Kundaram reserve forest – 2.1 Kms (E)
Nearest Wildlife Sanctuary/National Park	No
Nearest River	Godavari river (4 Km)
Nearest Historical Places	No archeologically important places exist within 10 Km of the project

V. Soil Classification

Red loamy soils are the main soils, which are derived from country rocks. The other soils are black cotton soils mainly derived from basalt rock. In sedimentary formations the soils are deep up to 5 m and in other formations up to 1.5 m.

VI. Climatic Data from Secondary Sources

Meteorological data for the site is shown below:

IMD Station: Ramgundam Lat.180 46’ Long. 790 26’ Mean Sea Level. 156 m

Month	**Temperature º C**				**Humidity %**		**Rainfall**		**Mean Wind speed KMPH**	**Pre-dominant wind direction**	
	Mean Min	**Mean Max**	**Highest**	**Lowest**	**8.30 Hrs**	**17.30 Hrs**	**Monthly mm**	**No of rainy days**		**1st**	**2nd**
Jan	30.7	15.6	33.4	10.5	74	45	11.5	0.7	2.6	S	NE
Feb	33.5	18.5	36.5	13.3	65	38	9.7	0.7	3.3	S	SE
Mar	37.5	21.8	40.7	16.5	57	30	9.2	0.7	3.5	S	SE
Apr	40.5	25.7	43.7	21.2	55	29	13.7	1.1	4.6	S	SW
May	42.1	28.3	45.3	23.4	49	29	34.7	2.4	4.5	S	SW
Jun	37.4	26.8	43.8	22.6	65	49	180.1	8.7	4.9	W	NW
Jul	32.6	24.8	36.6	22.2	79	68	328.2	14.5	3.6	W	NW
Aug	31.4	24.5	34.8	22.6	82	72	285.8	13.1	2.9	W	NW
Sep	33.1	24.3	35.7	22.1	80	69	166.9	8.2	2.0	W	NW
Oct	33.3	22.1	35.8	17.7	76	61	102.5	4.7	1.6	NE	NW
Nov	31.5	18.0	34.1	13.4	71	54	24.0	1.7	1.5	NE	E
Dec	30.0	14.4	32.4	10.4	72	49	6.5	0.6	1.7	NE	E

Source: GOI, Ministry of Earth Sciences, IMD, Climatological Tables - 1971-2000

VII. Social Infrastructure available

Employment is expected during construction period as well as operation phase, in trade, garbage lifting, sanitation, afforestation works and other ancillary services. Employment in these sectors will be primarily temporary or contractual and involvement of unskilled labour will be more. A major part of this labour force will be mainly from local villagers who are expected to engage themselves both in agriculture and project activities. This will enhance their income and lead to overall economic growth of the area.

The following changes in socio-economic status are expected to take place with this project.

The project is going to have positive impact on consumption behavior by way of raising average consumption and income through multiplier effect.

1. The project is going to bring about changes in the pattern of demand from food to non-food items and sufficient income is generated.
2. The treated water supply from this proposed plant to nearby tanks can be used for agricultural purpose by the villagers which results in the economical growth of them.
3. Better indirect employment opportunities due to proposed project.
4. Due to the corporate social responsibility activities of M/s SCCL, the socio economic condition of the people will be improved.
5. People perceive that the project will help in the development of social infrastructures/such as.
    - Education facilities
    - Banking facilities
    - Post offices and Communication facilities
    - Medical facilities
    - Recreation facilities
    - Business establishments
    - Plantation and parks
    - Community facilities

Industrial development and consequent economic development should lead to improvement of environment through better living and greater social awareness. On the other hand, the proposed project is likely to have several benefits like improvement in indirect employment generation and economic growth of the area, by way of improved infrastructure facilities and better socio-economic conditions.

5. Planning Brief

5.1 Planning Concept

As SCCL is already constructing 2x600 MW units, some of the BOP facilities of these units have spare capacities which can be utilized for the proposed additional 600 MW unit. The review of existing system reveals their adequacy for the Stage-2. The spare capacities of the existing system have been worked out after meeting the requirements of the 2x600 MW stage-1 Power Plant. Infrastructure facilities such as land, water transport arrangements, railway line, roads etc. are available.

- No new infrastructure facilities are required for expansion unit.
- Total required land is under possession of SCCL, No R&R is involved.
- Availability of adequate raw water will be met from Godavari & Pranahita River.
- Water will be pumped through the existing pipe line and pump house.

- There is no forest land involved for the project.
- Since existing facilities are being used, cost of the power would be less.

5.2 Population Projection

Around 300 people would be required to operate and maintain the 600 MW in addition to 700 People required for 2x600 MW power plant under construction. During the construction stage about 2000 to 3000 people required for various works of construction. It is expected that a fair percentage of skilled and unskilled personnel would be available from the nearby areas for operation and maintenance. In addition to the operational, maintenance and construction personnel, there will be indirect employment creation in the area through service sectors, material supply, establishment of ancillary units, transport, etc.

5.3 Land use planning (Breakup along with green belt etc.)

Land use planning of proposed expansion of 2x600 MW to 3x600 MW is as follows:

S.No	Particulars	Area in Ha		
		2x600MW	**1X600MW**	**Total 3x600MW**
1	Main Plant & Equipment	110.00	26.30	156..60
2	Coal Handling Plant	20.30		
3	Raw Water Reservoir	47.92	Nil	47.92
4	Ash Dyke	30..00	52.61	82.61
5	Greenbelt	72.18	26.30	98.48
	Land for Main Plant	**280.40**	**105.21**	**385.61**
6	Land required for transportation of coal by rail system	15.245	Nil	15.245
7	Land required for water pipeline	5.237	Nil	
	Total land requirement	**300.972**	**105.21**	**406.182**

5.4 Assessment of Infrastructure Demand (Physical & Social)

Power is an essential requirement for all facets of our life and has been recognized as a basic human need. It is the critical infrastructure on which the socio-economic development of the country depends. India faces formidable challenges in meeting its energy needs and providing adequate energy of desired quality forms to various users in a sustainable manner and at reasonable cost. To meet the surplus power in newly formed Telangana state the Singareni Collieries Company Limited (SCCL) is a Government Coal Mining company jointly owned by the Government of Telangana and Government proposed the one unit of 600MW at Jaipur Mandal, Adilabad District. The gap between availability of power and the demand is not likely to be met in the foreseeable future either in southern region or in state of Telangana. Accordingly, the proposal of Singareni Collieries Company Limited, for expansion of unit of 600 MW will further help in meeting the shortfall in generating capacity in the Telangana State.

5.5 Amenities/ Facilities

The main approach roads to the plant has already been constructed for the under construction units. The approach roads for the proposed expansion unit have to be constructed and the drainage system for the proposed unit shall be constructed separately. The route of the existing Nallah has to be diverted which is currently passing though the BTG area of the proposed unit. A township to accommodate the plant personnel of the existing as well as proposed unit shall be provided in the space available with the SCCL in the premises. The township shall be located in such an area so that it

would be away from the polluted areas like CHP and Ash dyke area. A green belt all around the township area shall also be provided.

6. Proposed Infrastructure

The proposed infrastructure are main plant building, boiler, transformer bay, switchyard, chimney, coal handling system, water system, Induced draught cooling towers, administrative building, miscellaneous building like control room, diesel generator building, fuel oil pump house, water treatment plant etc.,

6.1. Industrial Area (Processing Area)

The plant layout of the proposed thermal power plant is enclosed as **Annexure-II**

6.2 Residential Area

A township to accommodate the plant personnel of the existing as well as proposed unit shall be provided in the space available with the SCCL in the premises outside the main plant area. The township shall be located in such an area so that would be away from the polluted areas like CHP and ash dyke area.

6.3 Green Belt

Landscaping shall be done for the entire plant and township area. A green belt of shall be provided as stipulated by the MoEF & CC. Green belt envisaged for 2x600 MW is 72.18Ha and proposed additional unit area is 26.30 Ha. Total green belt out of the total main plant area will be 33%.The green belt will be developed with native species with 3-tier concept.

6.4 Social Infrastructure

The access roads connecting to the National Highway have already been built for existing units; however, internal roads within the proposed expansion unit area would have to be built.

For existing 2x600MW
During construction phase of the project, the project proponent earmarked approximately Rs.22.10 Cr as one time capital cost for CSR activities. Further during the operation phase of the project, Rs 4.40 Cr per annum will be earmarked as recurring expenditure for CSR activities. So far Rs 4.45 Cr was spent towards CSR activities.

For proposed additional 1x600MW
During construction phase of the project, the project proponent earmarked approximately Rs.15 Cr as one time capital cost for CSR activities. Further during the operation phase of the project, CSR cost will be as per the relevant directives in this regard.

6.5 Connectivity
The proposed project site is situated at a distance of around 500 meters from the National Highway, NH–16, which connects Nizamabad town in Telangana and Jagdalpur town in Chhattisgarh. It passes through the states of Telangana, Maharashtra and Chhattisgarh.

6.6 Drinking Water Management
Drinking water required during the construction will be met from the ground water and during the operational phase from the water supply arrangements made from the River Godavari and/or River Pranahitha.

6.7 Sewerage System
The Effluent Treatment System and Sewage Treatment Plants are proposed to treat all liquid effluent generated so as to meet the standards as per the MOEF/APPCB

standards. The Effluent treatment plant comprises of CMB, Clarifier, oil separator and settling ponds, R.O plant, solar evaporation pond etc. Domestic effluents from plant will be treated in the STP. The treated water will be utilized for cooling water make up, bottom ash sluicing, green belt development, dust suppression, dust extraction, floor washing etc.

6.8 Industrial Waste Management

The sludge from the raw water pre-treatment plant shall be treated in a sludge handling plant to convert the sludge into solid form and disposed off for land fill. There shall be a common monitoring basin (CMB) to which waste water from treatment plant and cooling tower blow down shall be led. Effluents from boiler blow down and plant area drains (after separation of oil) shall flow, also to CMB where they shall be treated to comply with pH levels to meet pollution control norms.

The treated effluents shall be used for green belt development and plantation works. As such, any appreciable impact on the quality of surface water and ground water is not anticipated during the operation phase of the plant.

6.9 Solid Waste Management

During the process of power generation, about 3316.02 TPD of Fly ash and 1421.15 TPD will be generated in 2x600 MW Plant. In addition to these, 1854 TPD of fly ash and 463 TPD of bottom ash will be generated in the present proposal of 1X600 MW TPP. Fly ash and bottom ash would be collected in dry form and stored in the silos and hydro bins respectively. Fly ash will be utilized for manufacturing cement and bricks. There is a demand for fly ash from cement and brick industries. The entire fly ash generated from the proposed power plant will be utilized for manufacturing cement, bricks and other end users. In case of exigency, the fly ash will be stored in ash pond area provided in the plant premises. Bottom ash will be used for stowing or void filling in the SCCL mines in the area.

6.10 Power Requirement & Supply

The Electricity required during construction will be met from existing source / nearest 33 KV sub-station.

7. Rehabilitation and Resettlement Plan

No R & R involved in the project and total land is under possession of SCCL .

8. Project Schedule & Cost Estimates

8.1 Likely date of start of construction and likely date of completion

The 2x600 MW Thermal Power Plant under construction is likely to be completed in November 2015.

Likely date of start from the date of EC obtained. The total time period is estimated to be 42 months for the proposed 1x600 MW unit (Stage-2) from “zero date” up to date of commercial operation. Zero date is the date of letter of award for the project. IDC will be provided up to the date of commercial operation.

8.2 Estimated Project cost along with analysis in terms of economic viability of the project

The estimated Capital Cost of proposed additional unit of 1x600MW, Capitalized Project Cost (including IDC) has been taken as Rs. 3570.20 crores and Capital cost of the 2x600 MW plant under construction is Rs. 7573.51 crores.Total Capital cost of all the units will be Rs.11143.71 crores.

The project cost and analysis of 2x600MW and proposed additional unit of 1x600MW are given in Table below.

Cost of Generation

S.No	Particulars	Existing 2x600MW	Proposed 1x600MW
1	Plant Capacity	2x600MW	1x600MW
2	Auxiliary Energy Consumption	6.5%	5.5%
3	Station Heat rate (kcal /kg)	2425	2351
4	Depreciation	5.28% for first 12 years and 2.05% for balance period of 13 years	5.28% for first 12 years and 1.78% for balance period of 13 years
5	O&M	2.07% escalated @5.72% per annum	3.08% escalated @6.29% per annum
6	Loan Repayment Period	12 years	12 years
7	Interest on Loan	12%	12%
8	Loan repayment	48 equal quarterly installments with 6 months maratorium	48 equal quarterly installments with 6 months maratorium
9	GCV of coal (Design)	4529 kcal/kg	4529 kcal/kg
10	Present day coal price	Rs.2266/-tonne on delivered basis with 6.62% annual escalation	Rs.2650/- tonne on delivered basis with 6.29% annual escalation
11	GCV of support Fuel	10000 kcal/kg	10000 kcal/kg
12	Support fuel present day	Rs.45000/-tonne for HFO/LDO	Rs.60762/- tonne for HFO/LDO
13	PLF	85%	85%
14	Return of Capital employed (RoCE)	15.5%	15.5%
15	Completion Schedule (months)	39 (unit-I) , 43 (unit-II)	42
16	Economic life of plant	25	25

9. Analysis of proposal (Final Recommendations)

9.1 Project cost estimates and financial analysis

For existing 2x600MW

An estimate of the total cost of the project has been made. The estimate has been made under three heads, namely BTG Package, BOP package & SCCL Scope.

The following figures have been considered in the preparation of the cost estimates for BOP package and SCCL scope:

i. The cost of land for the main plant, colony, ash disposal area, in-plant water reservoir, coal conveyor & water pipeline corridors has been considered as Rs 60.00 Crores.
ii. Freight @ 4% for inland transportation & storage, insurance @ 1% i.e. 5% on equipment cost & spares have been taken.
iii. Cost of Mandatory spares has been taken in the equipment cost of respective sub-packages.
iv. Erection, testing and commissioning has been taken @ 10% of equipment cost.
v. The cost of mechanical, electrical and C&I equipment are considered on the basis of indigenous supplies.
vi. Completion Schedule of Both Units - 43 Months

For additional 1x600MW

The objective of this section is to estimate and analyze the project cost, cost of generation and levelised tariff for the proposed project in order to assess overall financial viability of the project.

Basis of cost estimates

The project cost estimate for the proposed power plant has been worked out on the following basis;

i. Unit size considered is 600 MW for financial analysis. Commissioning of the project is considered as 42 months from zero date.
ii. The cost of Main equipment package including BTG with auxiliaries has been worked out based on the benchmark cost of the similar projects
iii. The cost of Balance of Plant (BoP) and other equipment has been estimated based on preliminary design and on the benchmark cost of the similar projects.
iv. The project is financed through domestic funding. Taxes and duties on supply of equipment, civil works, contract and erection and commissioning have been worked out as per the prevalent rates. The economic plant life has been taken as 25 years for depreciation calculation as per CERC norms.

As per the above report, the overall peak demand shortage for the period of April-14 to Dec-14 in the newly formed state Telangana is 15.7%.Substantial additional installed capacity over and above the 12th Plan targets is required if the Southern Region is to be free of power shortages. In all the regions, there is considerable uncertainty with regard to the location, capacity and fuel for future generation projects.

Conclusion

As seen from the above, the gap between availability of power and the demand is not likely to be met in the foreseeable future either in Southern region or in Telangana. All out efforts are called for to add capacity considering the fuel availability and evacuation system.

Accordingly, the proposal of Singareni Collieries Company Limited, for extension of unit of 600 MW will further help in meeting the shortfall in generating capacity in the Telangana State.

9.2 Financial and social benefits (With special emphasis on the benefit to the local people including tribal population, if any, in the area)

Financial

For existing 2x600MW

During construction phase of the project, the project proponent earmarked approximately Rs.22.10 crores as one time capital cost for CSR activities. Further during the operation phase of the project, Rs 4.40 crores per annum will be earmarked as recurring expenditure for CSR activities. So far Rs 4.45 crores was spent towards CSR activities.

SCCL has provided training to 136 persons of un employed youth of in around surrounding villages of 2x600MW power plant in different courses like Electrician, plumbing, sanitation and welding courses from at NAC & Khadi Graamodyog Mahavidyalaya, Hyderabad.

For proposed additional 1x600MW

During construction phase of the project, the project proponent shall incur approximately Rs. 15 crores on CSR activities. Further during the operation phase of the project, the CSR will be as per the relevant directives in this regard.

Social benefits

The project will improve the socio-economic status of the society in the region by generating direct and indirect employment opportunitiesThe project will contribute additional revenue to the State & Central exchequers in the form of taxes and cess etc.

The anticipated impacts of the project are explained below:

Human settlement is expected to increase after this project gets operational. In the long term, the project will have impact on the population growth due to migration of people from outside area. Indirect employment opportunities will also add to this. The literacy level of the project area is likely to increase as there will be influx of many educated people taking up jobs in the project, which is likely to result in establishment of better educational facilities.

The project related construction activities will benefit the local populace in a number of ways such as supply of construction labourers – skilled, semi-skilled and un-skilled, tertiary sector employment and provision of goods and services for daily needs including transport. The proposed project will provide employment to the skilled as well as un-skilled persons. The local population will be given preference depending upon their suitability to the job requirement.

Besides direct employment, indirect employment opportunities will also open up. The project will have positive impact in the region. Quality of life of the people will improve, which in-turn will improve the socio-economic conditions of the area.

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Annexure-1
THE SINGARENI COLLIERIES COMPANY LIMITED
LOCATION PLAN
PROPOSED 3X600 MW THERMAL POWER PLANT
PEGADAPALLI (V), JAIPUR (M), ADILABAD (DIST)
TELANGANA STATE
N
Water source from Pennatida
GODAVARI RIVER
Water Pipeline
Proposed 3x600 MW TPP
FOREST LAND
Water source from Godavari
Kalyani Khani OCP
RAM OC Phase-I
SRP OC II
SRP OC I
SRP OCP II
MANDAMARI R.S
RAVINDRAKHANI R.S
MANCHERIAL R.S
RAMAGUNDAM RS
INDIA
TELANGANA
PROPOSED PROJECT
ADILABAD
KARIMNAGAR
WARANGAL
KHAMMAM
NIZAMABAD
MEDAK
HYDERABAD
NALGONDA
RANGAREDDY
MAHABUBNAGAR


Annexure-II
LEGEND
LAND REQUIREMENT
RAW WATER RESERVOIR
500 METERS
VAGU