

**TELANGANA POWER GENERATION CORPORATION LIMITED**  
**(A Govt. of Telangana Undertaking)**



**Determination of Capital Cost and Provisional Tariff for  
Unit-1 (800 MW) of Yadadri Thermal Power Station (5X800MW)**

**Volume- 3 of 6**  
**(Project Clearances and Purchase Orders)**

**October, 2025**



**File No.: J-13012/18/2015-IA. I (T)**  
**Government of India**  
**Ministry of Environment, Forest and Climate Change**  
**IA Division**  
**\*\*\***



Dated 07/05/2024



To,

SHRI G SREENIVASA RAO  
TELANGANA STATE POWER GENERATION CORPORATION LIMITED  
Vidhyuth Soudha, Khairtabad, Hyderabad- 82 , Khairtabad, HYDERABAD, TELANGANA, Eenaadu  
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**Subject:** 4000 MW (5 X 800 MW) Yadadri Thermal Power Station in an area of 2800 Acres located at Village Veerla Palem and Virappagudem, Sub-District Dameracherla, District Nalgonda (Telangana) by M/s. Telangana State Power Generation Corporation Limited (TSGENCO) - Amendment in Environmental Clearance in compliance to the NGT Order dated 30.09.2022 in Appeal No 15/2020-regarding

Sir/Madam,

This is in reference to your application submitted to MoEF&CC vide proposal number IA/TG/THE/466880/2024 dated 27/03/2024 for grant of an amendment in prior Environmental Clearance (EC) to the project under the provision of the EIA Notification 2006-and as amended thereof.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC24A0601TG5156723A
(ii) File No.	J-13012/18/2015-IA. I (T)
(iii) Clearance Type	Amendment in EC
(iv) Category	A
(v) Schedule No./ Project Activity	1(d) Thermal Power Plants
(vi) Sector	Thermal Projects
(vii) Name of Project	4000 MW Yadadri Thermal Power Station (5 X 800 MW Supercritical Coal Based Thermal Power Plant) by Telangana State Power Generation Corporation Limited (TSGENCO)
(viii) Location of Project (District, State)	NALGONDA, TELANGANA
(ix) Issuing Authority	MoEF&CC
(x) EC Date	29/06/2017

- (xi) Applicability of General Conditions  
(xiii) Status of implementation of the project

NO  
Under Construction

3. The proposal is for the grant of fresh Environmental Clearance in pursuant to direction of Hon'ble NGT for amendment in Environmental Clearance to 4000 MW (5 X 800 MW) Yadadri Thermal Power Station in an area of 2800 Acres (1133.12 ha) located at Village Veerla Palem and Virappagudem, Sub-District Dameracherla, District Nalgonda (Telangana) by Telangana State Power Generation Corporation Limited (TSGENCO).

4. The project/activity is covered under category A of item 1(d) 'Thermal Power Plants' of EIA Notification 2006 (as amended) as the power generation capacity of the proposed project is beyond the threshold capacity of 500MW i.e. 4000 MW (5 X 800 MW) MW and requires appraisal at Central level by the sectoral EAC in the Ministry.

5. The Project Proponent and the accredited Consultant B.S. Envi-Tech (P) Ltd made a detailed presentation in the 8<sup>th</sup> EAC meeting and apprised following on the salient features of the project:

(i) The MoEF&CC issued EC vide letter no. J-13012/18/2015-IA. I (T) dated 29.06.2017 to the proposed project of 4000 MW Yadadri Thermal Power Station (5 x 800 MW - Supercritical Coal Based Thermal Power Plant) in favour of M/s. TSGENCO.

(ii) Consent for Establishment received on 25.07.2017 from TSPCB. The project construction works were commenced by M/s. BHEL on 17.10.2017. However, the EC was challenged in the Hon'ble National Green Tribunal (Southern Zone), Chennai vide Appeal No. 15/2020. Hon'ble NGT disposed of the appeal with certain observations and directions.

(iii) As per the directions of Hon'ble NGT, TSGENCO has approached MoEFCC to obtain additional Terms of Reference accordingly, the proposal was considered by the Expert Appraisal Committee (Thermal Sector) in its 32nd meeting held during 02.11.2022 and recommended for grant of Terms of References (ToRs) for the Project. The additional ToR has been issued by the Ministry vide letter No. F. No. L-11011/132021-IA-I(T), dated 08.11.2023 with a public hearing.

(iv) The project proponent sought the following amendments:

S. No	Para of ToR / EC issued by MoEF&CC	Details as per the ToR / EC	To be revised/ read as	Justification/reasons
1.	Para 5 of EC, Page 2 of 10	Blend Coal having ratio of 50% indigenous Coal and 50% Imported Coal or 100%Imported coal.	100 % Indigenous coal	Ministry of coal, GoI vide F. No. 23014/1/2018-CLD, dated 15.02.2018 has allocated coal linkage for Yadadri Thermal Power station for G-9 grade coal of 14 MTPA from SCCL mines.
2	Para 6 of EC, Page 2 of 10	Water Requirement 10000 m3 per hr (2.41 Lakhs m3 per day/ 97.8 cusec/3.10 TMC per year considering the COC of 5.0 complying the new norm of 2.50 m3/MWh)	Water Requirement 12000 m3 per hr (2.88 lakhs m3 per day / 118 cusecs/ 3.72 TMC per year considering the new COC of 6.5 complying the new norm of 3.00 m3/MWh due to implementation of FGD)	As per new Environmental norms of MoEFCC notification No. 593(E), dated. 29.06.2018, the specific water consumption for new power plants installing FGD is 3.00 m3/MW/hr. Hence, for 4000 MW YTPS power plant, the total requirement of water consumption is 12000 m3/hr (i.e. 2,88,000 m3 per day). The I & CAD department, Govt. of Telangana has allocated for drawl of 6.60 TMC of water from the river Krishna. Out of which, TSGENCO will be using 3.72 TMC of water for the above power plant.
3	Para 9 of EC, Page 3 of 10	Quantity of Flyash and bottom ash generation is	Quantity of Flyash and bottom ash generation is	Due to change in the source of coal.

		2.2 MTPA and 0.56 MTPA respectively.	3.19 MTPA and 0.80 MTPA respectively.	
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(v) Ministry of Coal, GOI has accorded the coal linkage vide Lr. No. 23014/1/2018-CLD dated 15.02.2018 for supply of G-9 grade coal from SCCL mines for 14.00 MTPA. A coal Supply agreement was entered with M/s SCCL for G-9 grade coal for the project vide supplementary Instrument – II of the fuel supply agreement dated 01.04.2016. The silent features of the project are as under: -

Location of TPP	Veerlapalem Village		
Village:	Dameracherla Mandal		
Taluk:	Nalgonda District		
District:	Telangana State		
State:	a) TPP site;		
Co-ordinates of all four corners:	S.NO.	LATITUDE	LONGITUDE
	A	16°40'30.98"N	79°35'9.67"E
	B	16°41'55.95"N	79°35'37.23"E
	D	16°43'7.98"N	79°33'55.34"E
	E	16°42'15.23"N	79°32'51.75"E
	b) Ash pond site;		
	S.NO.	LATITUDE	LONGITUDE
	1	16°41'22.51"N	79°34'15.73"E
	2	16°41'25.45"N	79°34'55.23"E
	3	16°40'35.70"N	79°34'55.15"E
4	16°40'53.01"N	79°34'6.59"E	
c) Township etc.			
S.NO.	LATITUDE	LONGITUDE	
1	16°42'8.93"N	79°33'10.54"E	
2	16°42'25.03"N	79°33'5.47"E	
3	16°42'15.23"N	79°32'51.75"E	
4	16°42'23.83"N	79°33'30.71"E	
Accredited Consultant and certificate no.	B.S. Envi – Tech Pvt. Ltd #12-13-1270/71/73, Amity Ville, 4thFloor, Beside Spencer Super Market, St. Ann’s Road, Tarnaka, Secunderabad-500017 certificate no: NABET/EIA/2326/RA 0302 (Rev.01) Valid up to May 15, 2026		
Inter- state issue involved	No		
Seismic zone	II (Least Active)		

**(vi) Land Area Breakup:**

<p>Land Requirement:</p> <p>a) TPP Site</p> <p>b) Ash Pond</p> <p>c) Township</p> <p>d) Railway Siding</p> <p>e) Raw Water Reservoir</p> <p>f) Green Belt</p> <p>g) others</p> <p><b>Total</b></p>	<p>The total land requirement of the project is about 2800 acres complying with CEA norm of 0.7 acres/MW. Of the total area, Ac. 2095.28 is Forest Land falling under Veerlapalem Forest Block and Ac. 704.12 consists of Patta Land, Government Land, Udafa patta Land and D-Patta Land under the jurisdiction of Dameracherla Mandal, Nalgonda District, Telangana State.</p>
<b>LAND BREAKUP OF THE POWER PLANT</b>	



			Area (Acres)
Main Plant area			127.00
Coal Storage area			132.50
Railway siding (internal)			39.00
Raw Water Reservoir			80.00
Water treatment plant			36.00
Ash Pond			400.00
Flyash Silos			3.50
Switch Yard			20.50
Cooling Towers and Chlorination & CW Treatment Plant			25.50
Other areas (admin building, roads, vacant spaces in-between etc)			471.00
Colony including greenbelt			80.00
Undisturbed areas	Tungapahad Stream	25.00	33.00
	Village Road	8.00	
Greenbelt	100 m width along project boundary	432.00	1352
	Other areas – near ash pond, coal storage etc	731.00	
	100 m barrier on either side of the Tungapahad Stream	142.00	
	50 m barrier on either side of Village Road	47.00	
<b>Total</b>			<b>2800.00 (1133.12 Ha)</b>

Status of the project: M/s. BHEL, New Delhi commenced the project construction works on 17.10.2017 and as of September, 2022, 61.50 % of the project works were completed.

If under construction phase: please specify the reasons for delay, works completed till date and balance works along with expected date of completion. Construction works are in progress and about 72 % of works are completed, as on date. The delay was due to Covid-19 pandemic and litigation in the Hon'ble NGT (SZ), Chennai.

If under operation phase, date of commissioning (COD) of each unit. Whether the plant was under shutdown since commissioning, details and reasons. Tentative revised project commissioning schedule after receipt of amendment to EC:

Unit	Revised Project Commissioning Schedule
Unit - 1	15.10.2024
Unit - 2	15.10.2024
Unit - 3	31.03.2025
Unit - 4	31.12.2024
Unit - 5	28.02.2025

Break-Up of land-use of TPP site:	: 2800 Acres
a. Total land required for project components	: Ac. 704.12
b. Private land & Government land	: Ac, 2095.28
c. Forest Land	

#### DETAILS OF PROPOSED PROJECT AREA

	Area (acres)	Survey Numbers	Village Jurisdiction	Acquisition Status
Forest	Ac. 2095.28 Gts	Compartment Nos 41,	Veerlapalem Forest	Stage –II Forest Clearance

<b>Land</b>		42,43,44 & 45	Block	obtained vide Lr. No. F. No. 8-07/2015-FC, dated: 7th July 2015.
<b>Non-Forest Land</b>	UdafaKharajKhata	9.103 & 4	Veerappagudem	Total Land Acquired
	D-Form Patta	168.3896	Veerlapalem	
	Govt Assigned Patta Land	136.2071,76,80,90,92-95		
		174.2466-70,72-75,77-79,81-89 & 91		
	UdafaPatta	147.381,211,12,13,17,19,20,21,22,24,27-31,34-41		
	UdafaKharajKhata	66.023,4,5,6,7,9,10,14-16,18,23,25,26,32,33		

**(vii) Presence of Environmentally Sensitive areas in the study area**

<b>Forest Land/ Protected Area/ Environmental Sensitivity Zone</b>	<b>Yes/No</b>	<b>Details of Certificate/letter/Remarks</b>
Reserve Forest/Protected Forest Land	Yes	RF near Timmapuram Village – 2.32 km RF – NNW RF near Rajendranagar Village – 2.23 km – NNE Goli RF – 7.46 km – SW Virlapalem R F – Around & Within the Plant Site Wazirabad RF – 6.37 km – E Rajagutta RF – 0.40 km – E Daida RF – 1.32 km – SE Adividevulapalli RF – 5.15 km – SW Oshipalem RF – 4.29 km – WNW Molakacherla RF – 7.17 km – W Ragadappa RF – 6.40 km – NW Dilawarapur RF – 3.93 km – NNW Gangadevigutta RF – 5.71 km – NE Pasupulabodu R F – 9.03 km – ENE Saidulnam R F – 9.90 km – E
National Park	No	-
Wildlife Sanctuary	No	-
Archaeological sites monuments/historical temples etc	No	-
Names & distance of National parks, Wildlife sanctuaries, Biosphere reserves, Heritage sites Rivers, Tanks, Reserve Forests etc. Located within 10 Km from the plant boundary:	No	-
Availability of Schedule-I species in the study area	Yes	The reported/observed list of faunal species and their conservation status as per Indian Wildlife Protection Amendment Act, 2022 in study area, which are Jackal, Indian Wolf, Chinkara, Striped Hyena, Indian Porcupine, Bonnet Macaque, Honey Badger, Leopard, Tiger, Sambar, Grey Mongoose, Indian Chameleon, Red Sand Boa, Indian Cobra, Indian Rat Snake, Indian Rock Python, Monitor Lizard, Shikra, Changeable Hawk-Eagle and Indian Peafowl.
Additional information (if any)	Nil	-

**(viii) Project description:**

Expansion / Green Field (new): (IPP / Merchant / Captive):	<b>Green Field (New Project) – IPP (Government Project)</b>		
Co-ordinates of all four corners of TPP Site:	<b>S.NO.</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
	A	16°40'30.98"N	79°35'9.67"E
	B	16°41'55.95"N	79°35'37.23"E
	D	16°43'7.98"N	79°33'55.34"
	E	16°42'15.23"N	79°32'51.75"E
The average height of: (a) TPP site, (b) ash pond site etc. above MSL	(a) TPP site – 101 m above MSL (m) (b) ash pond site 80 m above MSL (m)		
Whether the project is in the Critically Polluted Area (CPA) or within 10 km of CPA. If so, the details thereof:	<b>The Project is not fall in the Critically Polluted Area/ within 10 km study area.</b>		
CRZ Clearance	<b>Not Applicable</b>		
Whether the project is in the Critically Polluted Area (CPA) or within 10 km of CPA. If so, the details thereof:	<b>The Project does not fall in the Critically Polluted Area/ within 10 km study area.</b>		
Cost of the Project (As per EC and revised): Cost of the proposed activity in the amendment:	The project cost initially was estimated at Rs. 25099.42 crores. The project cost was revised to <b>Rs. 34542.95 Crores</b> to implement the FGD, SCR, ZLD systems in compliance to MoEFCC emission norms for power plants vide SO 3305 (E), dated 07.12.2015 and due to an increase in the interest during construction (IDC) which is due to delay in commissioning of the project. Total capital cost earmarked towards environmental pollution control measures is Rs 5681.44 Crores and the Recurring cost (operation and maintenance) will be about Rs 430.177 Crores per annum.		
Employment Potential for entire project/plant and employment potential for the proposed amendment (specify number of persons and quantitative information).	Total employment will be 2000 persons as direct & 2000 persons indirect after commissioning.		
Benefits of the project (specify quantitative information)	<p>Bridging of power deficit in the newly formed State of Telangana.</p> <ul style="list-style-type: none"> <li>v About 10000 people including local people are working in the project construction.</li> <li>v Indirect employment arising out of a big infrastructural project like transport requirements, catering, ancillary industries, material handling, trading and other associated services.</li> <li>v Employment in operational phase of power project would be 4000. About 2000 persons under direct Employment and 2000 in indirect employment.</li> <li>v Colony is proposed within the project area in an area of 80 acres. This will be developed with all necessary facilities like community center, club house, guest house, field hostel etc.</li> <li>v Improvement of infrastructure as well as upliftment of social structure in the area through Community development activities such as training of local unemployed youth in various skills, personality development, development of self-help groups for women, providing drinking water facility, strengthening of rural roads, rain water harvesting etc.,</li> <li>v Rehabilitation of the existing Thandas to Kallepalli village with all necessary infrastructural facilities</li> <li>v Project will restore the degraded forest area. Greenbelt in an extent</li> </ul>		

	of 1352 acres will be developed in consultation with Forest Department v Local youth will be encouraged to setup flyash based manufacturing units with necessary support from TSGENCO.
Status of other statutory clearances	MoEF&CC, GoI, New Delhi has accorded final clearance for diversion of 4676 Acres (1892.35 Ha) of forest land in favour of TSGENCO vide Lr.No.F.No.8-07/2015-FC, Dt: 07.07.2015 for establishing the above power plant. CFE for the project was issued by TSPCB vide Order No.10/TSPCB/CFE/RO-NLG/2017, dated 25.07.2017 and the same was extended vide Order No. Order No.10/TSPCB/CFE/RO-NLG/HO/2022, dated 06.01.2023.
R&R details	TSGENCO has filed requisition with the District Collector, Nalgonda on 09.07.2015 for acquisition/alienation of Patta lands, UDAFA Patta, D-Form patta lands, UDAFA/Kharaj Khata lands Govt./Assigned lands to an extent of Ac.879.08 Gts sandwiched within the diverted forest land.  An amount of Rs. 285.81 Crores was deposited with the District Collector, Nalgonda on 04.01.2016 towards land compensation, R&R Package, Settlement of RoFR Pattas, Encroachment in the forest land, other charges. Rehabilitation and Resettlement centre is established in the Govt. land to an extent of Ac. 13.21 Gts in Sy. No. 98 under Kallepally (V), Dameracherla (M), Nalgonda Dist as per the R&R scheme approved by the Commissioner, R&R, Hyderabad to 173 Nos Project Displaced Families (PDF) of Modugulakunta and KapuraThandas. The payment of Rs.5,90,47,000/- towards R&R entitlements was made to above PDFs. TSGENCO has assured to provide employment to 173 Project Displaced Families (PDF) of Modugulakunta and KapuraThandas and 411 Project Affected Families (PAF) of Thimmapur, ThallaVeerappagudem, Veerlapalem, Kothapally, Dubba Thanda and Sath Thanda villages of Dameracherla Mandal. Land compensation was already paid to the above PAFs and PDFs and payment was also made to the encroachers (563 Nos) in an extent of Ac. 702.29 Gts of Forest land including RoFR patta holders.

**(ix) Electricity generation capacity:**

Capacity & Unit Configurations:	Capacity: <b>4000 MW (5 x 800 MW)</b> Steam Generators Capacity: 2585 TPH per Unit (5 Units)
Generation of Electricity Annually	<b>29784 Million kWh /Annum@85% PLF</b>

**(x) Details of fuel and Ash disposal:**

Fuel to be used:	<b>100% indigenous coal</b>
Quantity of Fuel required per Annum:	<b>13.28 MTPA @85% PLF</b>
Coal Linkage / Coal Block:	<b>Quantity and details of Linkage available:</b> Ministry of Coal, GOI has accorded the coal linkage vide Lr. No. 23014/1/2018-CLD dated 15.02.2018 for supply of G-9 grade coal from SCCL mines for 14.00 MTPA. Coal Supply agreement was entered with M/s SCCL for G-9 grade coal for the project vide supplementary Instrument-II of fuel supply agreement dated 01.04.2016. M/s SCCL vide their letter no. HYD/MKT/T/005/383 dated 02.06.2017 has furnished an undertaking that they will supply the coal with not more



	than 30 % ash content.															
Details of mode of transportation of coal from coal source to the plant premises along with distances	Indigenous coal will be transported in railway wagons from SCCL group of Mines using the Indian Railways network. A dedicated Railway Line is being constructed from Vishnupuram Railway station on Bibinagar-Nadikudi Main line of South-Central Railway to YTPS. The length of railway line is about 10.69 Km. The rail distances from SCCL coal mines to power plant are as given below. KCHP (Manuguru area) – 262 km JVR-CHP(Kothagudem) – 262 km Rudrampur CHP (Kothagudem area) – 216 km Yellandu CHP – 179 km Goleti CHP, Bellampally – 388 km RKP CHP (Mandamarri) – 356 km SRP CHP (Srirampur) – 346 km. GDK1 CHP (Ramagundam) – 342 km															
Fly Ash Disposal System Proposed	TSGENCO implementing the following two systems The ratio of water and ash:  a. High concentration slurry (40:60)  b. Lean concentration slurry (66:34)															
a. Ash Pond / Dyke: (Area, Location & Co-ordinates) Average height of area above MSL (m) b. Space left in ash dyke area	Ash Pond TSGENCO has constructed an ash pond in an extent of 400 acres in the project premises with adequate storage capacity in southern direction of main plant site Co-ordinates: <table><thead><tr><th>S.NO.</th><th>LATITUDE</th><th>LONGITUDE</th></tr></thead><tbody><tr><td>1</td><td>16°41'22.51"N</td><td>79°34'15.73"E</td></tr><tr><td>2</td><td>16°41'25.45"N</td><td>79°34'55.23"E</td></tr><tr><td>3</td><td>16°40'35.70"N</td><td>79°34'55.15"E</td></tr><tr><td>4</td><td>16°40'53.01"N</td><td>79°34'6.59"E</td></tr></tbody></table> Ash pond site 80 m above MSL (m) Not Applicable, it is New Project.	S.NO.	LATITUDE	LONGITUDE	1	16°41'22.51"N	79°34'15.73"E	2	16°41'25.45"N	79°34'55.23"E	3	16°40'35.70"N	79°34'55.15"E	4	16°40'53.01"N	79°34'6.59"E
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3	16°40'35.70"N	79°34'55.15"E														
4	16°40'53.01"N	79°34'6.59"E														
Quantity of a. Fly Ash to be generated b. Bottom Ash to be generated:	3.19 MTPA (80% of total Ash) 0.80 MTPA (20 % of total Ash)															
Fly Ash utilisation percentage with details in last 5 years:	Not applicable as it is a green field project under construction. However, TSGENCO has approached 14 cement plants and other industries located within 50 km radius for offtake of fly ash generated from the plant. The willingness letters were received from the cement plants and other companies. TSGENCO can achieve 100% utilization of fly ash within 4 years as per MoEFCC Notification.															
Stack Height (m) & Type of Flue	275m dry stack with Gas to Gas heat exchanger. 1 Single Flue, 2 Bi-Flue Stacks.															

**(xi) Water Requirement:**

Source of Water:	<p>River (Krishna River)  Upstream  HFL of Krishna River is located at 0.67 km distance from the project site in SE direction.</p>
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Quantity of water requirement:	2,88,000 KLD / 288 MLD / 0.288 MCM
Distance of source of water from Plant:	20 Km
Whether barrage/ weir/ intake well/ jack well/ others proposed:	Forebay of River Krishna
Mode of conveyance of water:	Two Pipelines of 1.50 m dia. each.
Status of water linkage:	Govt. of Telangana, I&CAD Department has allocated 208 cusecs of water (6.60 TMC/year) from Krishna River vide G.O. Ms No. 13 dated 30.01.2015. TSGENCO will utilize 3.72 TMC per year for the proposed 4000 MW from this allocation.
(If source is Sea water) Desalination Plant Capacity	<b>Not Applicable</b>
Mode / Management of Brine:	<b>Not Applicable</b>
Cooling system	Natural draft

**(xii) Court case details:**

Any litigation/ Court Case pertaining to the project	The EC was challenged in the Hon'ble National Green Tribunal (Southern Zone), Chennai vide Appeal No. 15/2020. The appeal was disposed of by Hon'ble NGT on 30.09.2022 with certain observations and directions to MoEF&CC, EAC and project proponent.
Is the proposal under any investigation? If so, details thereof.	<b>No</b>
Any violation case pertaining to the project:	<b>No</b>
Additional information (if any)	-

**(xiii)** Effluent from the industrial waste is 37440 M<sup>3</sup>/Day. Out of this, 30840 M<sup>3</sup>/Day will be utilised in AHP and dust suppression system of CHP and the balance effluent will be sent to central Monitoring Basin for reuse. Further, the waste water from the domestic use is about 480 M<sup>3</sup>/Day will be routed through a network of drains/pipes from various buildings of the power plant to the proposed Sewage Treatment Plant (STP) of 1 MLD capacity. The plant will be based on Zero Liquid discharge system.

**(xiv)** Power requirement during construction is 5000 KVA and will be met from Telangana State Power Distribution Corporation limited (TSSPDCL). YTPS Unit envisaged with 08 Nos DG sets of 2000 KVA capacity. DG sets are used as standby during power failure. Stacks (height 30 Metre) is provided as per CPCB norms to the proposed DG sets.

**(xv)** There are no National Parks, Wildlife Sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. River Krishna is flowing at a distance of 0.67 km in the Southern direction. Thungapadu vagu is passing through the plant site. The Principal Chief Conservator of Forests (PCCF) and Chief Wildlife Warden vide letter no. Rc No. PCCF-WL1/WL14/11/2022 (3401/2016/WL-1) dated 05.01.2023 has certified that the shortest distance is 13.10 km from Plant boundary to Amrabad Tiger Reserve (Compartment No. 67 of Rajawaram RF Block of Amrabad Tiger Reserve) and farthest distance is 15.50 km (Compartment No. 63 of Rajawaram RF Block of Amrabad Tiger Reserve).

**(xvi)** The project cost initially was estimated at Rs. 25099.42 crores. The project cost was revised to Rs. 34542.95 Crores to implement the FGD, SCR, ZLD systems in compliance to MoEF&CC emission norms for power plants vide SO 3305 (E), dated 07.12.2015 and also due to an increase in the interest during construction (IDC) which is due to delay in commissioning of the project. Total capital cost earmarked towards environmental pollution control measures is Rs. 5681.44 Crores and the Recurring cost (operation and maintenance) will be about Rs. 430.177 Crores per annum. Total Employment will be 2000 persons as direct & 2000 persons indirect after commissioning. Industry proposes to allocate Rs.100.40 Crores, at 0.40% of the original project cost towards CSR.

**(xvii)** Public Hearing for the proposed project has been conducted by the Telangana State Pollution Control Board on 20.02.2024 at project premises. The main issues raised during the public hearing are related to Employment Opportunities, Land Compensation for the left-over land losers, Community & Infrastructure Development and Environment & Pollution Control Measures.

(xviii) Details of Certified compliance report submitted by RO, MoEF&CC. – TSGENCO has approached RO (Sub Office), MoEFCC, Hyderabad vide letter dated 27.03.2024 for issue of Certified Compliance Report w.r.t EC granted on 29.06.2017.

6. EAC during the meeting held on 05.04.2024 deliberated on the information submitted and as presented by the Project Proponent noted that the Hon'ble NGT vide judgment dated 30.9.2022 in Appeal No 15/2020, suspended the EC granted on 29.06.2017. The Hon'ble NGT also directed MoEF&CC to issue additional ToR with respect to aspects mentioned in para 47 of the aforesaid judgment. The Additional ToR has been issued by the Ministry vide letter No. F. No. L-11011/132021-IA-I(T), dated 08.11.2023 with a public hearing in compliance with the directions of Hon'ble National Green Tribunal (NGT) Southern Zone in an Appeal No. 15 of 2020 between Conservation Action Trust Versus Union of India & Ors.

7. EAC during the meeting deliberated on following: (i) Radioactivity levels of Coal Samples of SCCL mines (Manuguru, JVR OC and Ramagundum) which are found to be well below the exemption level of the Atomic Energy Regulatory Board (AERB) directive; (ii) study area of a 25 km radius was considered for conducting the Cumulative impact assessment study and Baseline Data Generation was carried out in the Winter Season (December 2022, January 2023 and February 2023). The incremental pollution load (maximum 24 hourly average) due to the use of 100% indigenous coal is 8.9 g/m<sup>3</sup>, 11.1 g/m<sup>3</sup> and 16.1 g/m<sup>3</sup> for PM<sub>10</sub>, SO<sub>2</sub> and NO<sub>2</sub> respectively and the overall scenario is well within the NAAQ limits. For the air control, PP has proposed installing a High-Efficiency Electrostatic Precipitator for the reduction of Particulate Matter to less than 30 mg/Nm<sup>3</sup>, a Flue gas desulphurization system (FGD) for the reduction of SO<sub>2</sub> emissions to less than 100 mg/ Nm<sup>3</sup> and Selective Catalytic Reduction (SCR) system for the reduction of NO<sub>2</sub> emissions to less than 100 mg/ Nm; (iii) the total Ash generation @ 85% PLF is 3.98 MTPA (10913 Metric Tonnes per day) out of which fly ash is 3.19 MTPA (8730.23 Metric Tonnes per day) and bottom ash will be 0.80 MTPA (2182.56 Metric Tonnes per day). Due to proximity of Cement plants and willingness letters received from them, it is evident that 100% fly ash utilization will be achieved within 4 years. The transportation of fly ash to cement plants will be done in closed pneumatic bulkers of 40 to 50 tonnes capacity. The PP informed that although the ash pond area of 400 acres is proposed for emergency use only. PP will achieve 100% fly ash and bottom ash utilization. The Committee is of the view that PP shall strictly follow the guidelines issued by CPCB/MoEF&CC for ash utilization/disposal; (iv) the ash pond design was done by M/s. Prof. V.S. Raju consultants, Hyderabad (Formerly: Prof. V.S. Raju, Director, IIT Delhi and Dean IIT Madras). The Ash Pond design report prepared by M/s. Prof. V.S. Raju Consultants, Hyderabad was proof-checked and approved by Industrial Consultancy Services, JNTUH College of Engineering, Hyderabad.

8. About the land availability, EAC observed that out of a total of 2800 acres of land, 2095.28 acres is forest land whereas 4676 Acres of forest land has been allotted to TSGENCO vide Lr.No.F.No.8-07/2015-FC, Dt: 07.07.2015. Further, it was informed by the Project proponent that the balance of 2580.72 acres of the land will be transferred to the state forest division. EAC also deliberated on the green belt plan submitted by the Project Proponent and observed that 3 rows plantation is proposed along the plant boundary covering an area of 432 acres and a width of 100 meters. The total area proposed under the plantation is 1352 acres including [731 acres at Ash Pond & Coal Storage Areas and 142 acres at Tungapadu Vagu (100 m width on either side) and 47 acres in other areas]. PP has proposed that the plant will be based on ZLD and a minimum distance of 500 m buffer between the ash pond and Tungapadu Vagu will be provided to prevent contamination, 100 m barrier on either side of the banks of the Vagu will be left as a barrier which will be developed under greenbelt.

9. The EAC further observed that as per EC water requirement was 10000 m<sup>3</sup> per hr (2.4 Lakhs m<sup>3</sup> per day/ 97.8 cusec/3.10 TMC per year considering the COC of 5.0 complying the new norm of 2.50 m<sup>3</sup>/MWh) which has been proposed to be changed to 12000 m<sup>3</sup> per hr (2.88 lakhs m<sup>3</sup> per day / 118 cusecs/ 3.72 TMC per Year considering the COC of 6.5 complying the new norm of 3.00 m<sup>3</sup>/MWh due to implementation of FGD). The I & CAD department, Govt. of Telangana has allocated for drawl of 6.60 TMC of water from the river Krishna. Out of which, TSGENCO will be using 3.72 TMC of water for the above power plant. It was noted that Tungapadu vagu is a water body that is flowing through the thermal power plant, the committee emphasised that there must be no obstruction to the flow of Tungapadu vagu and minimum flow should be ensured.

10. EAC also took note of the public hearing conducted by the Telangana State Pollution Control Board on 20.02.2024 at project premises under the chairmanship of Collector & District Magistrate, Nalgonda. PP vide letter dated 12.04.2024 submitted that TSGENCO is taking all steps in compliance to the CSR plan wherein it has been stipulated that Rs. 100.40 Crores has been allocated for taking up various developmental activities in the villages surrounding the power plant. The EAC noted that budget of Rs 5681.44 Crores and Rs 430.177 crores/annum is earmarked towards capital cost and

recurring cost respectively for implementing the various pollution control measures as described in the Environmental Management Plan. The breakup of the EMP budget is given in Table:

		Rs. Crores	
		Capital Cost	Recurring cost/Annum
<b>Air Environment</b>	Electrostatic precipitator – ESP	4150.00	332.0
	Flue Gas Desulphurization system-FGD		
	Selective Catalytic Reduction		
	Dust Suppression system - Coal Handling area	1.20	0.10
	Dust Suppression system - Lime Stone Handling Area	1.20	0.10
	RCC chimney with 2 nos steel twin flue and 1no steel single flue (275 m high) – 3 Nos	320.00	16.00
	Bottom Ash and Fly ash collection Storage, dispensing system	400.00	40.00
<b>Water Environment</b>	Waste Water treatment system including RO plant and side stream, ETP	25.00	2.50
	Sewage Treatment Plants (plant and colony)	15.00	1.20
	Piezometers	0.08	0.0024
	Gauging station at Tungapadu vagu	0.05	0.0015
	Rain water Harvesting	0.25	0.020
	Natural draft cooling towers (5 Nos)	535.00	26.75
<b>Land Environment</b>	Ash pond with HDPE lining	174.00	7.20
	Fly ash brick making plant-2nos	0.70	0.035
	Green Belt Development including soil conservation	17.00	1.36
	Restoration of degraded forest areas-outside project areas	8.00	0.64
	Nursery	0.30	0.015
	Plugging and strengthening of banks of Tungapadu vagu within the project area	0.20	0.010
	Renewable Energy	12.76	0.638
	Roof top solar PV system		
	Organic Waste Converter	0.50	0.025
<b>Occupational Health</b>	Personal protection devices	1.20	0.060
<b>Monitoring</b>	CEMS	15.00	1.20
	CAAQS (7 nos)	4.00	0.32
<b>Total</b>		<b>5681.44</b>	<b>430.177</b>

11. The EAC after detailed deliberation on the information submitted and as presented during the meeting **recommended** the amendment in the EC dated 29.06.2017, as per the details given in the table below, to the project 4000 MW (5 X 800 MW) Yadadri Thermal Power Station in an area of 1133 ha located at Village Veerla Palem and Virappagudem, Sub-District Dameracherla, District Nalgonda (Telangana) by M/s. Telangana State Power Generation Corporation Limited (TSGENCO) along with the additional/specific conditions (Annexure 1):

EC Para/ condition no.	Stipulation in EC	Recommendation of EAC
Para 5 of EC, Page 2 of 10	Blend Coal having ratio of 50% indigenous Coal and 50% Imported Coal or 100%Imported coal.	100 % Indigenous coal
Para 6 of EC, Page 2 of 10	Water Requirement 10000 m3 per hr (2.4 Lakhs m3 per day/ 97.8 cusec/3.10 TMC per year considering the COC of 5.0 complying the new norm of 2.50 m3/MWh)	Water Requirement 12000 m3 per hr (2.88 lakhs m3 per day / 118 cusecs/ 3.72 TMC per Year considering the COC of 6.5 complying with the new norm of 3.00 m3/MWh due to



		implementation of FGD)
Para 9 of EC, Page 3 of 10	Quantity of Flyash and bottom ash generation is 2.2 MTPA and 0.56 MTPA respectively.	The quantity of Flyash and bottom ash generation is 3.19 MTPA and 0.80 MTPA respectively.

**12.** The MoEF&CC has examined the proposal in accordance with the provisions contained in the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto & compliance to the NGT order dated 30.09.2022 in Appeal No 15/2020 and based on the recommendations of the EAC hereby accords amendment ( as mentioned in para 11 above) in the Environment Clearance dated 29.06.2017 to M/s. Telangana State Power Generation Corporation Limited (TSGENCO) for 4000 MW (5 X 800 MW) Yadadri Thermal Power Station in an area of 2800 Acres located at Village Veerla Palem and Virappagudem, Sub- District Dameracherla, District Nalgonda (Telangana) subject to compliance of the additional specific conditions (Annexure 1), in addition to the all the other conditions mentioned in the EC dated 29.06.2017 shall remain unchanged.

**13.** The proponent shall obtain all necessary clearances/approvals that may be required before the start of the project. The Ministry or any other competent authority may stipulate any further condition for environmental protection. The Ministry or any other competent authority may stipulate any further condition for environmental protection.

**14.** The Environmental Clearance to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.

**15.** The PP is under obligation to implement commitments made in the Environment Management Plan, which forms part of this EC.

**16.** Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

**17. General Instructions:**

(i) The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days indicating that the project has been accorded environment clearance and the details of MoEF&CC website where it is displayed.

(ii) The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn must display the same for 30 days from the date of receipt.

(iii) The project proponent shall have a well laid down environmental policy duly approved by the Board of Directors (in case of Company) or competent authority, duly prescribing standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions.

(iv) Action plan for implementing EMP and environmental conditions along with responsibility matrix of the project proponent (during construction phase) and authorized entity mandated with compliance of conditions (during operational phase) shall be prepared. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Six monthly progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six-Monthly Compliance Report.

(v) Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

(vi) The Regional Office of this MoEF&CC shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

(vii) Validity of EC is as per the provision of EIA Notification, 2006 and its subsequent amendment.

**18.** This issue with an approval of the Competent Authority

**Copy To**

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001.

2. The chairman, CEA, Sewa Bhawan, R K Puram , New Delhi -110066
3. Deputy Director General of Forests (C), Ministry of Environment, Forest and Climate Change, Integrated Regional Office, 3rd Floor, Room No. 309, Aranya Bhawan, Opp. RBI, Safiabab – 500004, Hyderabad, Telangana
4. The Chairman, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi
5. The Chairman, Telangana State Pollution Control Board, A-3, Paryavaran Bhavan, Sanath Nagar Rd, Sanath Nagar Industrial Estate, Sanath Nagar, Hyderabad, Telangana 500018.
6. The Member Secretary, Telangana State Pollution Control Board, A-3, Paryavaran Bhavan, Sanath Nagar Rd, Sanath Nagar Industrial Estate, Sanath Nagar, Hyderabad, Telangana 500018
7. The Chairman, Central Ground Water Authority, Ministry of Water Resources, Jamnagar House, 18/11, Man Singh Road Area, New Delhi, Delhi 110001
8. The District Collector, Nalgonda, Government of (Telangana)
9. PARIVESH Portal

## Annexure 1

### Specific EC Conditions for (Thermal Power Plants)

#### 1. Specific Condition:

S. No	EC Conditions
1.1	<i>PP shall obtain the amendment in CTE/CTO from SPCB as applicable in the instant case for the proposed amendments.</i>
1.2	<i>PP shall initiated a joint exercise with the Forest department officials to demarcate the forest land used for construction of the YTPS plant. Any additional extent of forest land shall be returned to the forest department. PP shall submit the action taken in this regard to concerned Regional Office every six months.</i>
1.3	<i>Three rows of plantations of indigenous species shall be taken up and completed by June 2024 along the compound wall through the Social Forestry Division of the Forest Department. Plantation shall also be done in a width of 100 m on either side of the Tungapadu vagu within the plant premises so as to achieve the targets within the next 2 years. A survival rate of at least 80% shall be maintained by carrying out gap plantation in case of mortality. Native species should be planted. The budget earmarked for the plantation shall be kept in a separate account. PP should annually submit the audited statement of expenditure along with proof of activities viz. photographs (before &amp; after with geolocation date &amp; time), details of expert agency engaged, details of species planted, number of species planted, survival rate, density of plantation etc. to the Regional Office of MoEF&amp;CC and on PARIVESH Portal as the case may be for the activities carried out during previous year.</i>
1.4	<i>The plantations done by the PP need to be adequately densified and audited by a third party preferably a forestry institution of MoEFCC (e.g. ICFRE) to assess their efficacy.</i>
1.5	<i>Extensive green cover within 2 km range of the plant boundary and for the schools within 10 KM radius shall be developed. An action plan in this regard to be prepared in consultation with state forest department/expert institution and submitted before Regional Office of the Ministry within 6 months.</i>



S. No	EC Conditions
1.6	<i>PP shall implement the action plan submitted for addressing the issues raised and Commitment made during PH in a time bound manner. The budget earmarked for the same is Rs 100.40 Cr over and above the CSR activities proposed to be done as per the provisions of the Companies Act, 2013 shall be kept in a seprate account and audited annually. PP shall submit the details of action taken, budget spent along with proof of activities undertaken to the concerned RO, MoEF&amp;CC every year for the activities carried out during the pervious year.</i>
1.7	<i>PP shall expedite the process of provding land compensation, as this was one of the major issue raised during PH and complete the process by March 2025.</i>
1.8	<i>PP shall provide employment to the PDFs and PAFs as committed during the meeting and PH and a training shall be provided to them before they inducted into the Job, the action taken in this regard with details shall be submitted in the six month compliance report.</i>
1.9	<i>Fly ash generation will be increased due to change in source of coal therefore no additional land for ash disposal will be allowed in future, PP shall accommodate ash within the available land area of 400 acres (161.87 Ha) only and 100 % Fly ash utilization shall be carried out with prevailing norms and guidelines. Long term fly ash utilization plan shall be submitted to RO and MoEF&amp;CC.</i>
1.10	<i>Regular monitoring of Fly Ash Pond shall be carried out and inspection should be done to avoid any chance of faiure of bunds or leakage from the Ash Pond. The Pipe line carrying the fly ash shall also be inspected for any lekage at regular intervals. In case of any leage immediate corrective measures needs to be taken and concerned authorities shall be informed. PP shall also keep a record of inspection.</i>
1.11	<i>The transportation of Ash from the Thermal Power Plant to other Industries (Cement/brick) shall be through closed bulkers only.</i>
1.12	<i>PP shall ensure that 4 Numbers of CAAQMS stations shall be erected &amp; commissioned by July 2024. CAAQMS stations will be installed at the locations as fixed by the Environmental Engineer/TS PCB, Regional Office, Nalgonda.</i>
1.13	<i>PP shall take steps to reduce specific water requirement by optimisation/technology up gradation etc. and accordingly water audit needs to be done on annual basis to optimise the water requirement and also for generation alternative source of water.</i>
1.14	<i>Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.</i>
1.15	<i>PP shall provide regular health monitoring services and health services free of cost to people living in 10 km radius.</i>
1.16	<i>PP shall implement the protective measures proposed in EMP in a time-bound manner. The budget earmarked for the same is Rs 5681.44crores (Capital) and Rs 430.177crores(recurring) and should be kept in separate accounts and audited annually. The implantation status along with the amount spent with documentary proof shall be submitted to the concerned Regional Office for the activities carried out during the previous year.</i>
1.17	<i>PP shall establish an Environment Management Cell and ensure to engage sufficient staff having environment related qualification for its smooth its functioning.</i>

S. No	EC Conditions
1.18	<i>Environment Audit of plant shall be done annually and report shall be submitted to Regional office of the Ministry.</i>
1.19	<i>PP shall get the wildlife conservation plan prepared and implemented by the State Forest Department and deposit the amount with the concerned authorities as approved by the CWLW. PP shall take due care for the protection of wildlife during the construction and operation phase and ensure that there should be any no harm to wildlife due to the project activities. PP shall provide training to the workers and create awareness for the protection of wildlife. An action taken report in this shall be submitted to the concerned regional office within 3 months.</i>
1.20	<i>LED display of air quality (Continuous Online monitoring) shall be installed at prominent locations preferably outside the plant's main entrance for public viewing and maintenance of devices shall be done regularly.</i>
1.21	<i>PP shall deploy vacuum based vehicle for everyday cleaning of the road in and around plant site at least for 5 KM.</i>
1.22	<i>Use of Diesel operated transportation vehicles shall be avoided as far as possible and BS-VI complaint vehicle shall be purchased and preference shall be given to EV/CNG/LNG based trucks for transportation raw materials, coal and ash disposal.</i>
1.23	<i>Water Sprinkling on roads shall be done in at regular interval on the roads atleast within 1 km range approaching the plant. A logbook shall be maintained for the activity and be in six monthly compliance report.</i>
1.24	<i>Watershed development plan shall be prepared in consultation with reputed government institute and implemented focusing on micro watershed development within 10 km radius of the project. Action taken report in this regard be submitted before regional office of the Ministry in 6 monthly compliance report.</i>
1.25	<i>A detailed ecological monitoring and survey covering forestry, fisheries, wildlife and its habitat shall be done once in two years to assess the impacts of project on the local environment and ecology. Monitoring report shall be uploaded on the Parivesh Portal and a copy of the same be submitted to the regional office of MoEF&amp;CC.</i>
1.26	<i>PP shall ensure that all types of plastic waste generated from the plant shall be stored separately in isolated area and disposed of strictly adhering to the Plastic Waste Management Rules 2016 (as amended). In pursuant to the Ministry's OM dated 18/07/2022 PP shall also create awareness among the people working in the project area as well as in its surrounding area on the ban on Single Use Plastic(SUP) in order to ensure compliance of Ministry's Notification published by the Ministry on 12/08/2021. A report along with photograph on the measures taken shall also be included in the six monthly compliance report being submitted by PP.</i>
1.27	<i>Epidemiological Study among population within 5 km radius of project cover area shall be carried out on regular interval (Once in two year) through independent agency. Necessary measures shall be taken as per findings of study in consultation with district administration. Action taken report shall be submitted to the Regional Office of the Ministry.</i>
1.28	<i>The establishment of a robust public grievance redressal mechanism to address concerns and complaints from local communities regarding the power plant's operations, environmental impacts,</i>

S. No	EC Conditions
	<i>or social issues shall be developed. A Senior Officer shall review the functioning of the mechanism twice in a month.</i>
1.29	<i>PP shall submit an action plan for using and developing Renewable Energy for its consumption in its utilities/machinery/equipment instead of using electricity from Grid/generated from Thermal Power Plants. PP shall Install additional solar power generation units.</i>
1.30	<i>PP shall ensure submission of the compliance report to the Regional Office in a timely manner and in case of any non-compliance identified so far/in future in the CCR then the same shall be complied with on priority and action taken report in this regard shall be submitted to concerned RO and get it closed.</i>
1.31	<i>PP shall review the outcome of the skill development programs whether it is providing any benefit or not, and whether it helps the community in getting job/livelihood opportunities. PP shall align the activities as per the present-day needs. A report in this regard shall be submitted to the concerned RO.</i>
1.32	<i>Monitoring for heavy metals and fluoride in ground water and surface water shall be undertaken along with the regular monitoring and results/findings submitted along with half yearly monitoring report.</i>
1.33	<i>No water bodies including natural drainage/nalla in the area including Thungapadu vagu shall be disturbed due to activities associated with the setting up/ operation of the power plant. Proper protection measures including green belt development shall be undertaken around such water body.</i>
1.34	<i>Fly ash/bottom ash handling shall be done strictly as per extent rules/regulations of the Ministry/CPCB issued from time to time including Ministry's Notification No. S.O.5481(E) dated 31st December, 2021. No coal shall be transported through road shall be allowed.</i>
1.35	<i>As committed by the PP Zero liquid discharge shall be adopted.</i>



## FOREST CLEARANCE

F. No. 8-07/2015-FC  
Government of India  
Ministry of Environment, Forests & Climate Change  
(FC Section)  
\*\*\*\*



Indira Prasad Bhawan  
Aliganj, Jor Bagh Road  
New Delhi 110003  
Dated: 7<sup>th</sup> July, 2015

To  
The Principal Secretary (Forest)  
Government of Telangana,  
Hyderabad.

Sub: Diversion of 1,892.35 ha (4334.01 ha proposed originally) of forest land in favour of TSGENCO for the establishment of Coal Based Thermal Power Station of capacity 4400 MW at Veerlapalem (V) and 2400 MW at Dilawarpur (V) of Dameracherla (M), in Nalgonda District in the State of Telangana.

16/7/15  
I am directed to refer to the State Government of Telangana's 0063/FOR.I (1)/2014-1 dated 29<sup>th</sup> January, 2015 on the subject mentioned above seeking prior approval of the Central Government under section-2 of the Forest (Conservation) Act, 1980 and letter no. 0063/FOR.I (1)/2014-2 dated 16.04.2015 forwarding additional information as sought by the Ministry vide its letter of even number dated 9.04.2015. After careful consideration of the proposal by the Forest Advisory Committee constituted by the Central Government under section 3 of the said Act, 'in-principle' approval to the proposal was granted vide this Ministry's letter of even number dated 27<sup>th</sup> April 2015 subject to fulfillment of certain conditions prescribed therein. The State Government has furnished compliance report in respect of the conditions stipulated in the in-principle approval and has requested the Central Government to grant final approval.

In this connection, I am directed to say that on the basis of the compliance report furnished by the State Government of Telangana vide their letter no. 63/FOR.I (1)/2015 dated 21.05.2015 and letter no. 63/For.I(1)/2015-4 dated 20.06.2015, final approval of the Central Government is hereby granted for diversion of 1,892.35 ha (4334.01 ha proposed originally) of forest land in favour of TSGENCO for the establishment of Coal Based Thermal Power Station of capacity 4400 MW at Veerlapalem (V) and 2400 MW at Dilawarpur (V) of Dameracherla (M), in Nalgonda District in the State of Telangana subject to fulfillment of the following conditions:

- (i) Legal status of the diverted forest land shall remain unchanged;
- (ii) Compensatory afforestation over the non-forest land, equal in extent to the forest land being diverted, shall be raised and maintained by the State Forest Department from the funds already provided by the User Agency;
- (iii) The non-forest land transferred and mutated in favour of the State Forest Department shall be notified by the State Government as RF under Section-4 or PF under Section-29 of the Indian Forest Act, 1927 or under the relevant section(s) of the local Forest Act, latest within a period of six months from the date of issue of Stage-II approval. The Nodal Officer shall report compliance in this regard along with a copy of the original notification declaring the non-forest land under Section 4 or Section 29 of the Indian Forest Act, 1927, as the case may be, within the stipulated period to the Central Government for information and record;

*[Signature]*  
Director

- (iv) The User Agency shall pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;
- (v) The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;
- (vi) The User Agency shall ensure that ash disposal is carried out as per the detailed plan prepared for the purpose, and in accordance with all environmental safeguards.
- (vii) Following activities shall be undertaken by the user agency under the supervision of the State Forest Department at the project cost:
- a. Mitigative measures to minimize the soil erosion and choking of streams, as per approved plan, shall be implemented.
  - b. Planting of adequate drought hardy plant species and sowing of seeds to arrest soil erosion.
  - c. Construction of check dams, retention/toe walls to arrest sliding down of the excavated material along the contour.
- (viii) Wherever possible and technically feasible, the User Agency shall undertake by involving local community, the afforestation measures in the blanks within the project area being diverted under this approval, in consultation with the State Forest Department at the project cost.
- (ix) The user agency shall take all measures to prevent pollution by effluents, particulate matters etc at the project cost.
- (x) The user agency shall develop a green belt along the power station and also along the water pipe line/channel.
- (xi) The forest clearance to the project is accorded without any guarantee on coal linkages.
- (xii) No residential area shall be built on forest land diverted,
- (xiii) No labour camp shall be established on the forest land,
- (xiv) The User Agency shall provide fuels, preferably alternate fuels, to the labourers and the staff working at the site so as to avoid any damage and pressure on the nearby forest areas;
- (xv) The boundary of the diverted forest land shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, forward and back bearing and distance from pillar to pillar;
- (xvi) The layout plan of the proposal shall not be changed without the prior approval of the Central Government;
- (xvii) The forest area to be diverted may not be used for any other purpose than the power plant proposed;
- (xviii) The forest land shall not be used for any purpose other than that specified in the proposal;
- (xix) The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government;
- (xx) No damage to the flora and fauna of the adjoining area shall be caused;

*Handwritten signature*  
21/1/15



- (xxi) Any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department;
- (xxii) The user agency in consultation with the State Government shall create and maintain alternate habitat/home for the avifauna, whose nesting trees are to be cleared in this project. Bird's nests artificially made out of eco-friendly material shall be used in the area, including forest area and human settlements, adjoining the forest area being diverted for the project;
- (xxiii) The user agency shall submit the annual self compliance report in respect of the above conditions to the State Government and to the concerned Regional Office of the Ministry regularly.
- (xxiv) Any other condition that the concerned Regional Office of this Ministry may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife; and
- (xxv) The User Agency and the State Government shall ensure strict compliance of all conditions for which undertakings have been obtained from the User Agency and compliance to provisions of the all Acts, Rules, Regulations and Guidelines, for the time being in force, as applicable to the project.

(Rajagopal Prashanth)  
Assistant Inspector General of Forests

Copy to:

1. The Principal Chief Conservator of Forests, Government of Telangana, Hyderabad.
2. The Addl. PCCF (Central), Regional Office, Chennai.
3. The Nodal Officer (FCA), O/o the PCCF, Government of Telangana, Hyderabad.
4. User Agency for Information.
5. Monitoring Cell, FC Division, MOEF&CC, New Delhi.
6. Guard File

(Rajagopal Prashanth)  
Assistant Inspector General of Forests





**J-13012/18/2015-IA.I (T)**  
**Government of India**  
**Ministry of Environment, Forest and Climate Change**

Indira Paryavaran Bhawan, Jor Bagh Road,  
Aliganj, New Delhi-110003.

Dated: 29.06.2017

To

The Chief Engineer/Civil/Thermal  
M/s Telangana State Power Generation Corporation (TSGENCO) Ltd.,  
(A Govt. of Telangana State Undertaking)  
Vidyut Soudha, Khairatabad, Hyderabad-500 082,  
Telangana State.

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**Sub: 5x800 MW Super Critical Coal based Yadadri Thermal Power Station at Veerlapalem Village, Dameracherla Mandal, Nalgonda District, Telangana State by M/s Telangana State Power Generation Corporation (TSGENCO) Ltd. - reg. Environmental Clearance.**

Sir,

This has reference to your online application dated 25.6.2016 and the additional documents submitted vide letters dated 21.7.2016, 8.10.2016 and 1.4.2017 w.r.t the aforesaid project.

2. It has been noted that Terms of Reference has been issued for the above mentioned project on 2.11.2015 and 16.2.2016 for preparation of EIA/EMP studies and carrying out Public Consultation. It has been inter-alia noted that the proposal is for setting up of establishing 5x800 MW (4000 MW) Super Critical Thermal Power Project at Veerlapalem Village, Damercherla Mandal, Nalgonda Dist., Telangana State.

3. The proposed project is located near Nalgonda is which is at a 50 km NW. Nearest railway station is Vishnupuram at 4km, Nearest Airport is Hyderabad- 120 km. NH-9 is at 45 km N and SH-2 is at 7 km South. Nagarajana Sagar Tiger Reserve (Amrabad Tiger Reserve) is at 14.03 km SW, Inter-state boundary of Telangana and Andhra Pradesh is at 0.8 km SE. Tungapahad Vagu (Water body) is passing through the proposed project. Krishna and Musi rivers are at 0.5 km SE and 7.4 km E from the proposed project. Veerlapalem Reserved Forest (RF) is within the proposed location. Rajagutta RF-0.3 km E, Daida RF -1.2 km SE, Adividevulapalli RF-4.7 km SW, Oshipalem RF - 4 km NW and Dilawarpur RF-2.9 km N from the proposed project. There are no national parks/wildlife sanctuaries/any other protected areas/ESA/ESZs within 10 km radius of the proposed project. Authenticated map showing the distance between Amrabad Tiger Reserved and the project location which is at 14.03 km has been provided by the PCCF (WL), Telangana Forest Department vide their letter dated 5.5.2016.

4. Total land requirement for the proposed project is 2800 acres which is as per CEA norms of 0.7 acres/MW. Out of total land requirement, 2095.28 acres is the forestland falling under Veerlapalem Forest Block. Remaining 704.12 acres consists of Patta Land, Government Land, Udafa patta land and D-patta land in Veerappagudem and Veerlapalem villages, Damercherla Mandal, Nalgonda Dist., Telangana State which partly under cultivation. The Stage-II Forest Clearance has been accorded for diversion of forest land vide Ministry's letter No.8-07/201-FC dated 7.7.2015. The non-forest land has already been acquired.



5. The proposed project is based on Super-critical boiler technology which uses the pulverised coal of boiler of once-through and does not require a drum to separate steam from water. The proposed project will have five 800 MW super critical units. Steam parameters are: i) Pressure: 247 kg/cm<sup>2</sup> (a), ii) Main steam temperature: 565 °C and iii) Reheat Steam Temperature: 593 °C. The project will use blend coal having ratio of 50% indigenous coal and 50% imported coal or 100% imported coal with LDO as start up fuel and Heavy Fuel Oil (HFO) for flame stabilisation. The coal requirement for blending coal (50% imported coal and 50% domestic coal) 3,9657.6 TPD (12.25 MTPA @ 85% PLF) and the coal requirement for 100% imported coal is 35,587.2 TPD (11.02 MTPA @ 85% PLF). Domestic coal characteristics are i) Fixed Carbon: 33%, ii) Volatile Matter: 27%, Moisture: 10%, Ash content: 30%, Calorific value: 4,530 kcal/kg and sulphur content: 0.42%. Imported coal characteristics are i) Fixed Carbon: 42.94%, ii) Volatile Matter: 28.92%, Moisture: 13.14%, Ash content: 15%, Calorific value: 5,700 kcal/kg and sulphur content: 0.8%. Ash and Sulphur contents in the blended fuel shall be not exceed 22.5% and 0.61%, respectively. Domestic coal will be sourced from mines of Singareni Collieries Company Ltd. using rail network. MoU has been signed between M/s SCCL and M/s TSGENCO to supply 7 MTPA of G9 and above grades of domestic coal/WG-G9 grade coal. Another MoU has been signed between M/s MSTC Limited and M/s TSGENCO to supply imported coal of 7 MTPA which will be sourced from Indonesia/Australia/South Africa, etc. The imported coal shall be supplied from Kakinada/Krishnapatnam port or any other nearest port in India. Necessary permissions have been obtained for utilising port facilities at Kakinada/Krishnapatnam/Vishakhapatnam. The railway line is proposed from Vishnupuram Railway station on Bibinagar-Nadikudi Main line of South Central Railway. The distance between Vishnupuram Railway station to proposed project is about 8 km. The power will be evacuated through 400 kV double circuit Quad Core Moose Conductor to the Choutuppal/Dindi/Maheshwaram/Jangaon interconnecting substations.

6. Water requirement for the proposed project is 10,000 m<sup>3</sup>/hr (2.4 Lakhs m<sup>3</sup> per day/97.8 cusec/3.10 TMC per year) considering the COC of 5.0 and complying with the new norm of 2.5 m<sup>3</sup>/MWh. The water requirement will be met from River Krishna. Govt. of Telangana, Irrigation and CAD Department vide their letter dated 30.1.2015 allocated 208 cusecs of water (6.6 TMC/year) from Krishna River. Intake structure shall be installed including pumping station near Madachelu area at the upstream side of confluence point of Tungapahad Vagu and Krishna River. The distance between intake well to raw water reservoir is approximately 6 km. A pipeline will be laid for transporting the water from Krishna River. Flow at Pondugala in Krishna river is 25.72 million m<sup>3</sup>/month and wadenapalli is 27.8 million m<sup>3</sup>/month. Proposed water requirement is 7.21 million m<sup>3</sup>/month. Water withdrawal percentage is <30% of minimum in lean season flows. Tungapahad Vagu (stream) for length of 3.9 km is passing through the project area which eventually joins Krishna river. The project activities will not interfere with flow of Tungapahad vagu since there is no extraction of water or discharge. No diversion of this stream is proposed. Plant layout is designed to keep a minimum distance of 500 m buffer between ash pond and Tungapadu Vagu to prevent contamination, if any.

7. Baseline data has been collected during December, 2015-February, 2016 by M/s Bhagavathi Ana Labs Pvt. Ltd. Additional baseline data was collected for one month during October, 2016 for one month by M/s B.S. Envi-Tech (P) Ltd. The predominant wind direction is SE during study period. AAQ monitoring has been carried out at 10 locations. Results indicated that the values of different air quality parameters such as PM<sub>10</sub>: 31.9-66.4 µg/m<sup>3</sup>, PM<sub>2.5</sub>: 11.6-31.6 µg/m<sup>3</sup>, SO<sub>2</sub>: 8.3-24.6 µg/m<sup>3</sup>, NO<sub>x</sub>: 10.3-28.1 µg/m<sup>3</sup>, CO: 1-1.8 mg/m<sup>3</sup> and Hg: < 0.1 ng/m<sup>3</sup>. AAQ is within the NAAQ Standards. A total of ten groundwater samples have been analysed in the study area. pH ranges between 6.9-7.38 and Total Hardness varies between 328-591 mg/l and is well within limit of 600 mg/l. Chlorides ranges between 68-362 mg/l.



Fluoride ranges between 1.03-1.32 mg/l which is above the acceptable limits. Ground water samples are in compliance with the Drinking water standard of IS:10500 except for Fluoride content. Surface water samples were analysed from ten locations. The results indicated that the values such as pH: 7.92-8.10; DO: and BOD is not monitored. TDS: 408-702 mg/l, Total Hardness: 177-323 mg/l; Chlorides: 60-118 mg/l, Sulphates: 54-133 mg/l. E-coli: 116-230 Cfu/100 ml. Noise levels are in the range of 41.2-50.3 dBA for daytime and 30.2-47.5 dBA for nighttime. Soil quality in the project area is as pH: 7.79, TOC: 0.59%, Chloride: 60 mg/kg. Soil in the project area consists of Sandy loam (80%), Silt (9%) and Clay 11%. Soil in the study area is as pH: 6.95-8.05, TOC: 0.28-0.92%, Chloride: 35-126 mg/l. Soil in the study area consists of Sandy loam (45-89%), Silt (5-23%) and Clay (6-32%). There are four schedule-I species i.e Indian Peafowl, Indian Python, Monitor Lizard and Indian Softshell Turtle are present in the study area. However these Schedule-I species are not falling in the endangered category.

8. Cumulative air quality impact is predicted for the proposed power plant, proposed power plant, of KGPUL, Proposed cement plant and limestone mine of Myhome cements and existing industries such as India cements ltd, Parasakti cements, Penna cements, Deccan cements, Andhra cements (comprising cement plant, captive power plant and captive limestone mine). The maximum incremental ground level concentration is predicted for PM is in the range of 6.83-13.99  $\mu\text{g}/\text{m}^3$ ,  $\text{SO}_2$ : 18.1-37.76  $\mu\text{g}/\text{m}^3$ ,  $\text{NO}_x$ : 19.76-30.38  $\mu\text{g}/\text{m}^3$ . One single flue and two Bi-flu Stacks with height of 275 m will be erected for dispersion of pollutants as per CPCB guidelines. ESP (99.9% efficiency) for Particulate Matter removal, Flue Gas Desulphurisation System for removal of Sulphur, Selective Catalytic Reduction System for  $\text{NO}_x$  removal shall be installed to meet the emission norms vide Ministry's Notification dated 7.12.2015. Gypsum production is 25-30 TPH per unit (Total units: 5). Dust suppression system (water spraying, bag filters at transfer points, atomized water sprinkling system at crusher) at coal handling points, ETP and STP are the major pollution control measures proposed to be provided in the plant.

9. Quantity of Flyash and bottom ash generation is 2.2 MTPA and 0.56 MTPA, respectively. Dry flyash from the plant will be transported to ash storage silos through pneumatic system. Five flyash silos are proposed for storing dry flyash. All silos will be provided with bag filters for control of dust. Flyash will be provided to the nearby cement plants for utilisation. Unutilised flyash and bottom ash will be conveyed to ash pond with lean slurry system. Ash disposal area of 400 acres with height of 15 m ash dyke is proposed at 2.28 km away from this proposed power plant. Piezometers will be installed around the ashdyke to monitor the groundwater. HDPE liner with 1,000 microns will be laid in the ash dyke to have zero permeability. Colony will be constructed within the project site for the employees of the power plant in 80 acres. The colony includes quarters for 2,000 employees, hostel, guest house, community center, health center, recreational facilities, etc.

10. Hazard identification and Risk assessment has been carried out for the storages of hazardous chemicals such as Hydraulic Oil, LDO, HFO, Hydrogen storage, HCL,  $\text{H}_2\text{SO}_4$  storage, Ammonia and Chlorine tonners, etc. Control and mitigation measures have been proposed.

11. Project will displace about 173 families residing in the proposed project area in two isolated pockets of habitation i.e. Modugulakunta Tanda and Kapura Tanda. R&R has been initiated and Rs. 16.0 crores have been earmarked for land acquisition, providing basic amenities, constructing Govt. Buildings, religious structures and providing grave yard, etc. Project Affected families are 413 as 704.12 acres of Patta land, Govt. land, Udafa patta land and D-patta land has been acquired. PAF will get one time payment for Rs.5 lacs per each family under annuity. Total amount of this payment is Rs. 29.20 crores. In case one time payment is not being taken by any project oustees, employment can be provided to one person in the family not less than





the minimum wages in the total employment of the project. Total financial benefits of PDFs and PAFs proposed by the Project Administrator & Joint Collector, Nalgonda will be paid directly to the concerned bank accounts after approval from the Government.

12. Greenbelt is proposed to be developed in 1,352 acres which will include restoration of forest area of 1,049 acres and development of green belt in non-forest area of 303 acres. The company will take up additional plantation in the Reserved Forests that demarcates the project boundary on the South.

13. Public hearing was conducted by Telangana State Pollution Control Board (TSPCB) on 31.5.2016 at Pylon Area in the premises of proposed site of 5x800 MW Coal based Yadadri Thermal Power Station, Veerlapalem (V), Damarcherla (M), Nalgonda Dist. An action plan has been prepared for addressing the issues raised by the public. Telangana State Pollution Control Board (TSPCB) has uploaded the revised EIA/EMP report on 1.2.2017 on their website for three weeks for obtaining public comments.

14. Estimated project cost is Rs.25,099.42 Crores. An additional budget of Rs.0.9 crore/MW will be incurred to comply with new emission norms of MoEF&CC Notified vide OM dated 7.12.2015. Budget of Rs. 5597 crores (Capital) and Rs. 430 Cores/annum (Recurring) have been earmarked for environmental protection measures. Budget allocated for CSR activities is Rs 100.40 crores which is approximately 0.4% of the total cost of the project. Employment generation during construction period is 150 (direct employment) & 5000 (indirect employment) and operation period is 2,000 (direct employment) & 2,000 (indirect employment).

15. The proposal was appraised by Re-constituted EAC (Thermal) in its 59<sup>th</sup>, 60<sup>th</sup>, 63<sup>rd</sup>, 1<sup>st</sup> and 5<sup>th</sup> meetings held during 14<sup>th</sup>-15<sup>th</sup> July, 2016, 27<sup>th</sup> July, 2016, 29<sup>th</sup>-30<sup>th</sup> August, 2016, 28<sup>th</sup> December, 2016 and 26<sup>th</sup> April, 2017. In acceptance of the recommendations of the Re-constituted EAC (Thermal Power) in its meeting held on 26.4.2017 and in view of the information, clarifications, documents submitted by you, **the Ministry hereby accords the Environmental Clearance** to the above project under the provisions of EIA Notification dated September 14, 2006 and subsequent amendments therein subject to compliance of the following Specific and General conditions.

**A. Specific Conditions:**

- (i) M/s SCCL shall supply coal having ash content not more than 30%.
- (ii) The incremental GLC values shall not exceed the standards as prescribed vide O.M. dated 07.12.2015.
- (iii) The coal transportation shall be done through rail only from SCCL Mines.
- (iv) There shall not be any displacement during land acquisition for railway corridor.
- (v) There shall not be abstraction of any groundwater during construction period.
- (vi) The Thermal Power Plant (TPP) will maintain thermal efficiency as per the Technical Standards notified by CEA.
- (vii) As per the Revised Tariff Policy notified by Ministry of Power vide dated 28.01.2016, project proponent shall explore the use of treated sewage water from the Sewage Treatment Plant of Municipality/ local bodies/ similar organization located within 50 km radius of the proposed power project to minimize the water drawl from River Krishna.
- (viii) Compliance of EC conditions, E(P) Act, 1986, Rules and MoEF&CC Notifications issued time to time shall be achieved by a qualified environment officer to be nominated by the Project Head of the Company who shall be responsible for implementation and necessary compliance.
- (ix) Cycle of Concentration (COC) of atleast 6.5 shall be achieved by setting up of RO for treating cooling tower blow-down water.





- (x) MoEF&CC Notification S.O. 3305(E) dated 7.12.2015 shall be implemented with respect to specific water consumption, zero liquid discharge and revised emission standards. The PM, SO<sub>2</sub>, NO<sub>x</sub> and Hg emissions shall not exceed 30 mg/Nm<sup>3</sup>, 100 mg/Nm<sup>3</sup>, 100 mg/Nm<sup>3</sup> and 0.03 mg/Nm<sup>3</sup> respectively. The specific water consumption shall not exceed 2.5 m<sup>3</sup>/MWh and zero wastewater discharge shall be achieved.
- (xi) MoEF&CC Notification G.S.R 02(E) dated 2.1.2014 regarding use of raw or blended or beneficiated or washed coal with ash content not exceeding 34% shall be complied with, as applicable.
- (xii) MoEF&CC Notifications on flyash utilization S.O. 763(E) dated 14.09.1999, S.O. 979(E) dated 27.08.2003, S.O. 2804(E) dated 3.11.2009, S.O. 254(E) dated 25.01.2016 and subsequent amendments shall be complied with.
- (xiii) Separate Environmental Clearance may be obtained for the proposed Township as applicable under EIA Notification 2006.
- (xiv) A minimum e-flow in the lean season is to be ensured at the downstream of water drawl point i.e. near Madachelu of Veeripalem village of the Krishna river for sustaining the ecology of the river stretches. In this regards, a written commitment is to be submitted by pp.
- (xv) Analysis of mercury (Hg) in the coal be re-done once again by using modern technique and submitted.
- (xvi) Transportation of imported/domestic coal will be made from the port/SCCL mines of Kothagudem area through rail route with tarpaulin covered wagons only.
- (xvii) In case any STPs are located within 50 km distance from the proposed Project then the treated water from the STPs shall be used in the plant.
- (xviii) A 100 m width on either side of Vagu flowing through the plant site to be earmarked to raise greenbelt.
- (xix) Plantation should be raised at the rate of 2,500 saplings per hectre. The tree species should be of local variety having hardened and broad leaves types. Plantation be preferred by using 2 years old seedlings than new seedlings for better survival of plantation.
- (xx) Alternate technology may be explored for utilization of fly ash such as road making, etc. by using geo-polymer based technology. Firm MoU may be made with the Cement Manufacturers for utilization of Fly Ash.
- (xxi) Provision of impervious liner/HDPE lining has been made in the ash pond to prevent any leaching. However, groundwater analysis shall be carried out at the upstream / downstream of the fly ash pond by creating a network with the existing wells and installing new piezometers and report be submitted that no leaching is taking place due to fly ash dumping.
- (xxii) Skill mapping of the Project Affected People (PAF) be carried out on a long-term basis for their livelihood generation. A report is to be submitted within 3 months to the Ministry from the date of issuance of environmental clearance.
- (xxiii) Modern methods of agriculture organic farming, compost/vermiculture making and utilization, drip/direct to root irrigation) to be promoted in and around the Project area.
- (xxiv) While implementing CSR, the following shall be adopted:
  - a. Proper skill based training/long term livelihood revenue generation be created for enabling women empowerment.
  - b. Computer facilities may be provided in the school along with a trained computer teacher to inculcate computer skill among the youths.
  - c. Water supply provisions shall be made for all the bio-toilets under Swachh Bharat Abhiyan.
  - d. Preventive health programme may be preferred than the curative health programme such as nutrition development of small children in and around the project.

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- (xxv) Vision document specifying prospective plan for the site shall be formulated and submitted to the Regional Office of the Ministry within **six months**.
- (xxvi) Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half yearly monitoring report.
- (xxvii) A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute and results thereof analyzed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.
- (xxviii) Online continuous monitoring system for stack emission, ambient air and effluent shall be installed.
- (xxix) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 30 mg/Nm<sup>3</sup> or as would be notified by the Ministry, whichever is stringent. Adequate dust extraction system such as cyclones/bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided along with an environment friendly sludge disposal system.
- (xxx) Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.
- (xxxi) Monitoring of surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall also be undertaken and results/findings submitted along with half yearly monitoring report.
- (xxxii) A well designed rain water harvesting system shall be put in place within six months, which shall comprise of rain water collection from the built up and open area in the plant premises and detailed record kept of the quantity of water harvested every year and its use.
- (xxxiii) No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up/operation of the power plant including *Tungapahadu stream*.
- (xxxiv) Additional soil for leveling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.
- (xxxv) Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) shall be monitored in the bottom ash. No ash shall be disposed off in low lying area.
- (xxxvi) No mine void filling will be undertaken as an option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close co-ordination with the State Pollution Control Board.
- (xxxvii) Fugitive emission of fly ash (dry or wet) shall be controlled such that no agricultural or non-agricultural land is affected. Damage to any land shall be mitigated and suitable compensation provided in consultation with the local Panchayat.



- (xxxviii) Green Belt consisting of three tiers of plantations of native species all around plant and at least 50 m width shall be raised. Wherever 50 m width is not feasible a 20 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not be less than 2500 per ha with survival rate not less than 80 %.
- (xxxix) Green belt shall also be developed around the Ash Pond over and above the Green Belt around the plant boundary.
- (xl) The project proponent shall formulate a well laid Corporate Environment Policy and identify and designate responsible officers at all levels of its hierarchy for ensuring adherence to the policy and compliance with the conditions stipulated in this clearance letter and other applicable environmental laws and regulations.
- (xli) CSR schemes identified based on need based assessment shall be implemented in consultation with the village Panchayat and the District Administration starting from the development of project itself. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Company shall provide separate budget for community development activities and income generating programmes.
- (xlii) For proper and periodic monitoring of CSR activities, a CSR committee or a Social Audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.

**B) General Conditions:**

- (i) The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. Arrangements shall be made that effluents and storm water do not get mixed.
- (ii) A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/plantation.
- (iii) Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.
- (iv) Storage facilities for auxiliary liquid fuel such as LDO/ HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.
- (v) First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.
- (vi) Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 85 dB(A) from source. For people working in the high noise area, requisite personal protective equipment like earplugs/ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non noisy/less noisy areas.
- (vii) Regular monitoring of ambient air ground level concentration of SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub> & PM<sub>10</sub> and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional





- Office of this Ministry. The data shall also be put on the website of the company.
- (viii) Utilization of 100% Fly Ash generated shall be made from 4<sup>th</sup> year of operation. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.
  - (ix) Provision shall be made for the housing of construction labour (as applicable) within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
  - (x) The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at the Website of MoEF&CC at <http://envfor.nic.in>.
  - (xi) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.
  - (xii) The proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely: SPM, RSPM (PM<sub>2.5</sub> & PM<sub>10</sub>), SO<sub>2</sub>, NO<sub>x</sub> (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.
  - (xiii) The environment statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.
  - (xiv) **The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to MoEF&CC, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, MoEF&CC.**
  - (xv) The progress of the project shall be submitted to CEA on six monthly basis.
  - (xvi) Regional Office of the MoEF&CC will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and up-date the same from time to time at least six monthly basis. **Criteria pollutants levels including NO<sub>x</sub> (from stack & ambient air) shall be displayed at the main gate of the power plant.**
  - (xvii) Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment



protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.

(xviii) The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.

(xix) Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry / CPCB/ SPCB who would be monitoring the compliance of environmental status.

C) An as built or as completed report on EMP to be submitted stating the scope/extent of work envisaged in the EIA along with estimated cost vis-à-vis the actual completed works and cost incurred. A certificate/completion certificate accordingly, shall have to be submitted before commissioning of the TPP.

16. The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction. The Ministry may also impose additional environmental conditions or modify the existing ones, if necessary.

17. The environmental clearance accorded **shall be valid for a period of 7 years** from the date of issue of this letter to start operations by the power plant.

18. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

19. In case of any deviation or alteration in the project proposed including coal transportation system from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to add additional environmental protection measures required, if any.

20. The above stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and rules there under, Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008 and its amendments, the Public Liability Insurance Act, 1991 and its amendments.

21. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Yours faithfully,



(Dr. S. Kerketta)  
Director

Copy to:

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
2. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
4. The Additional Principal Chief Conservator of Forests (C), Ministry of Environment, Forests and Climate Change, Regional Office (SEZ), 1st and 11nd Floor, Handloom Export Promotion Council, 34, Cathedral Garden Road, Nungambakkam, Chennai- 600034.

5. The Principal Secretary, Department of Environment, Forests, Science and Technology, Govt. of Telangana, Telangana Secretariat, Tank Bund, Basheer Bagh, Near NTR Gardens, Hyderabad, Telangana-500022.
6. The Chairman, Telangana State Pollution Control Board, Paryavaran Bhawan, A-3, Industrial Estate, Sanathnagar, Hyderabad-500018.
7. The District Collector, Nalgonda District, Govt. of Telangana, Nalgonda-508001, Telangana.
8. Guard file/Monitoring file.
9. Website of MoEF&CC.

  
(Dr. S. Kerketta)  
Director



ABSTRACT

**ANNEXURE - 2F**

I & CAD Department - TSGENCO - Establishment of Thermal Power Plants of 5200 MW at Veerlapalem village of Dameracherla Mandal of Nalgonda District, TS - Allocation of 208 Cusecs (i.e 6.60 TMC per year) of water throughout the year from River Krishna - Permission - Accorded - Orders - Issued.

IRRIGATION AND CAD (REFORMS) DEPARTMENT

G.O.Ms.No. 13

Dated: 30-01-2015

Read the following:

1. From the Chairman & Managing Director, TSGENCO, Hyd., Lr.No. CMD/ CE/C/Ther./TS GENCO/F./ D.No. 81/14, dt. 27.12.2014.
2. Govt. Memo.No. 94/Reforms/A2/2015, Dated: 07.01.2015.
3. From ENC (Irrigation) Hyderabad, Lr. No. ENC(I)/DCE-1/ OT2/AEE3 /NSP/TSGENCO/ Damarcherla/2014, Dt: 13-01-2015
4. G.O.Ms.No.124, I&CAD(PW:REFORMS)Department, Dt: 15-11-2010

@@@@@

ORDER:

In the reference 1<sup>st</sup> read above, the Chairman & Managing Director, Telangana State Power Generation Corporation Limited, Hyderabad has requested the Government to arrange to allocate 208 cusecs (i.e. 6.60 TMC per year) of water throughout the year from the nearest and feasible location of river Krishna to meet the requirement of water for the proposed 5200 MW power plant at Veerlapalem village of Dameracherla Mandal of Nalgonda District.

2. In the reference 3<sup>rd</sup> read above the Engineer-in-Chief (Irrigation) Hyderabad has stated that the requirement of 6.6 TMC can be met out of the savings and replacement of surface water by ground water as per requirement of irrigation after completion of modernisation of NSP and he has requested the Government may allocate 6.6 TMC of water per year from Krishna River to TSGENCO for their proposed thermal power projects of 5200 MW at Veerlapalem village of Dameracherla (M) of Nalgonda District subject to normal conditions of G.O.Ms.No.39 and its amendments. He has further stated that the feasible location point for drawl of water may be near Veerlapalem village of Damerachela Mandal or any suitable point that can be decided in consultation with the officials of TGENCO as per their convenience.

3. Government after careful examination of the matter hereby accord permission for drawl of 208 cusecs (i.e. 6.60 TMC per year) of water throughout the year from the nearest and feasible location of river Krishna to meet the requirement of water for the proposed 5200 MW power plant at Veerlapalem village of Dameracherla Mandal of Nalgonda District, Telangana State, subject to payment of water charges and with usual terms and conditions. The feasible location point for drawl of water should be near Veerlapalem village of Damerachela Mandal or any suitable point that can be decided in consultation with the officials of TGENCO as per their convenience.

P.T.D

4. The Engineer-in-Chief (Irrigation), Hyderabad shall take further necessary action accordingly.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF TELANGANA)

Dr. SHAILENDRA KUMAR JOSHI  
PRINCIPAL SECRETARY TO GOVERNMENT

TO  
The Engineer-in-Chief (Irrigation), I & CAD Department, Hyderabad.  
The Chief Engineer, Irrigation Projects, Khammam.  
The CMD, TS GENCO, Hyderabad.  
Copy to :  
The Chief Engineer, Hydrology, Hyderabad.  
The Managing Director, TS Pollution Control Board, Hyderabad.  
The P.S. to Pri.Secy to Government ( I&CAD Department)  
The P.S. to Pri.Secy to Government ( Energy )  
The P.S. to Minister (Irrigation)  
The P.S. to Pri Secy to CM  
St/Sc.

//FORWARDED::BY ORDER//

  
SECTION OFFICER

**GOVERNMENT OF TELANGANA  
DEPARTMENT OF MINES & GEOLOGY, NALGONDA**

**ANNEXURE -2B**

From  
A. Surender, M.Sc., Tech.,  
Asst. Director of Mines &  
Geology, Nalgonda,

To  
The Chief Engineer,  
Civil / Thermal, Telangana State  
Generation Corporation Ltd.,  
Vidyut Soudha, Khairatabad,  
Hyderabad - 500 082

**Lr.No. 3089/Misc/2010, Dt: 13-12-2016**

**Sir,**

**Sub :** Mines and Minerals - O/o. Asst. Director of Mines & Geology, Nalgonda -  
Setting up of 5 x 800 MW coal based super critical Yadadri Thermal  
Power Station at Veerlapalem Village, Dameracherla Mandal, Nalgonda  
District - Information submitted - Regarding.

**Ref :** Lr.No. CF/C/Th/SE/C/TCD-I/EE/C/TCD-I/D. No.271/16, Dt. 08.12.2016  
from the Chief Engineer, Civil / Thermal, Telangana State Generation  
Corporation Ltd., Hyderabad.

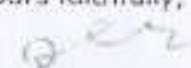
\* \* \*

I invite kind attention to the subject and reference cited wherein the Chief Engineer, Civil / Thermal, Telangana State Generation Corporation Ltd., Hyderabad has requested this office to furnish the information pertains to presence of coal deposits and economically feasible mineable deposits in the proposed site as required by MoEF & CC., GOI for obtaining Environmental Clearance from MoEF & CC., GOI.

In this regard, it is submitted that as per Geological pattern, there is no presence of Coal deposits in the proposed site for setting up of coal based super critical Yadadri Thermal Power Station at Veerlapalem Village, Dameracherla Mandal, Nalgonda District.

This is submitted for favour of information.

Yours faithfully,

  
**Asst. Director of Mines and  
Geology, Nalgonda**

Copy submitted to the Director of Mines and Geology, Hyderabad  
for favour of kind information.

Copy submitted to the Deputy Director of Mines and Geology, Hyderabad  
for favour of kind information.







भारतीय विमानपत्तन प्राधिकरण  
AIRPORTS AUTHORITY OF INDIA

Telangana State Power Generation Corporation Limit  
Chief Engineer (Coal&Commercial),  
Room.No.107, A-Block, Vidyut  
Soudha, Khairatabad, Hyderabad- 500  
082

Date: 26-07-2016

Valid Upto: 25-07-2023

**No Objection Certificate for Height Clearance**

1. This NOC is issued by Airports Authority of India (AAI) in pursuance of responsibility conferred by and as per the provisions of Govt. of India (Ministry of Civil Aviation) order GSR751 (E) dated 30th Sep. 2015 for Safe and Regular Aircraft Operations.

2. This office has no objection to the construction of the proposed structure as per the following details:

NOC ID :	NADI/SOUTH/B/071216/149982	35116/HIAL
Applicant Name :	K.Venkateswarlu	
Site Address :	Survey No.96 of Veerlapalem(V), Dameracherla (M), Nalgonda (Dist.), Telangana State, Veerlapalem Village/ Dameracherla Mandal/ Nalgonda, Hyderabad, Andhra Pradesh	
Site Coordinates :	79 34 33.589-16 42 30.577, 79 34 34.29-16 42 30.58, 79 34 34.293-16 42 31.265, 79 34 34.303-16 42 29.899, 79 34 35.007-16 42 30.587,	
Site Elevation in mtrs AMSL as submitted by Applicant:	82.804 M	
Permissible Top Elevation in mtrs Above Mean Sea Level(AMSL)	357.80M	

3. This NOC is subject to the terms and conditions as given below:

a. The site-elevation and site coordinates provided by the applicant are taken for calculation of the permissible top elevation for the proposed structure. If, however, at any stage it is established that the actual data is different from the one, provided by the applicant, this NOC will become invalid and action under the Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994 may be initiated by the concerned Airport Operator

b. The Structure height shall be calculated by subtracting the Site elevation in AMSL from the Permissible Top Elevation in AMSL i.e Maximum Structure Height = Permissible Top Elevation - Site Elevation.

c. The issue of the 'NOC' is further subject to the provisions of Section 9-A of the Indian Aircraft Act, 1934 and any notifications issued there under from time to time including the Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994.

d. No radio/TV Antenna, lighting arresters, staircase, Muntree, Overhead water tank and attachments of fixtures of any kind shall project above the Permissible Top Elevation of 357.80M, as indicated in para 2.

e. The use of oil fired or electric fired furnace is mandatory, within 8 KM of the Aerodrome Reference Point

Page 1/2

राजीव गांधी भवन  
Rajiv Gandhi Bhawan

सफदरजंग हवाई जड्डा नई दिल्ली-110003  
Safdarjung Airport, New Delhi-110003

दूरभाष : 24632950  
Phone: 24632950

1890

Received of the Treasurer of the  
Board of Directors of the  
City of New York  
the sum of \$100.00  
for the year ending  
December 31, 1890

Witness my hand and the seal of the  
City of New York, this 1st day of  
January, 1891

Mayor of the City of New York

City of New York

City of New York

City of New York

City of New York





भारतीय विमानपत्तन प्राधिकरण  
AIRPORTS AUTHORITY OF INDIA

Telangana State Power Generation Corporation Limit  
Chief Engineer (Cost&Commercial),  
Room.No.107, A-Block, Vidyut  
Soudha, Khairatabad, Hyderabad- 500  
082

Date: 26-07-2016  
Valid Upto: 25-07-2023

**No Objection Certificate for Height Clearance**

1. This NOC is issued by Airports Authority of India (AAI) in pursuance of responsibility conferred by and as per the provisions of Govt. of India (Ministry of Civil Aviation) order GSR751 (E) dated 30th Sep. 2015 for Safe and Regular Aircraft Operations.

2. This office has no objection to the construction of the proposed structure as per the following details:

NOC ID :	NADI/SOUTH/B/071216/149984	36/16/HIAL
Applicant Name :	K.Venkateswarlu	
Site Address :	Survey No.96 of Veerlapalem(V), Dameracherla (M), Nalgonda (Dist.), Telangana State ,Veerlapalem Village/ Dameracherla Mandal/ Nalgonda,Hyderabad,Andhra Pradesh	
Site Coordinates :	79 34 48.145-16 42 30.677, 79 34 48.849-16 42 31.365, 79 34 48.85-16 42 30.67, 79 34 48.859-16 42 29.995, 79 34 49.563-16 42 30.683,	
Site Elevation in mtrs AMSL as submitted by Applicant:	85.314 M	
Permissible Top Elevation in mtrs Above Mean Sea Level(AMSL)	360.31M	

3. This NOC is subject to the terms and conditions as given below:

a. The site-elevation and site coordinates provided by the applicant are taken for calculation of the permissible top elevation for the proposed structure. If, however, at any stage it is established that the actual data is different from the one, provided by the applicant, this NOC will become invalid and action under the Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994 may be initiated by the concerned Airport Operator

b. The Structure height shall be calculated by subtracting the Site elevation in AMSL from the Permissible Top Elevation in AMSL i.e Maximum Structure Height = Permissible Top Elevation - Site Elevation.

c. The issue of the 'NOC' is further subject to the provisions of Section 9-A of the Indian Aircraft Act, 1934 and any notifications issued there under from time to time including the Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994.

d. No radio/TV Antenna, lighting arresters, staircase, Murree, Overhead water tank and attachments of fixtures of any kind shall project above the Permissible Top Elevation of 360.31M, as indicated in para 2.

e. The use of oil fired or electric fired furnace is mandatory, within 8 KM of the Aerodrome Reference Point.

Page 1/2

राजीव गांधी भवन  
Rajiv Gandhi Bhawan

सफ़दरजंग हवाई अड्डा नई दिल्ली-110003  
Safdarjung Airport, New Delhi-110003

दूरभाष : 24632950  
Phone: 24632950







TELANGANA STATE POWER GENERATION CORPORATION LIMITED  
(A Govt. of Telangana State Undertaking)  
Vidyut Soudha, Hyderabad - 500082. www.tsgenco.telangana.gov.in  
Phone: 040 - 23499261,262 Fax: 040-23499263

From:  
The Executive Director  
(Thermal Projects Construction)  
A-Block, TSGENCO, Vidyuth Soudha  
Hyderabad-500 082  
Hyderabad (Dt)  
Telangana.  
Email ID: edtpctgenco@gmail.com

To:  
M/s Bharat Heavy Electricals Limited,  
Power Sector - Marketing,  
Siri Fort,  
BHEL House  
NEW DELHI-110049

GSTNo: 36AAFCT0257Q3ZT  
TIN No:36280126964  
PAN NO:AAFCT0257Q  
CIN No:U40102AP2014SGC094070

Vendor Code :104841

**Contract No.3000000016/ED/TPC/SE-3/EME-9/D65/D.No.56/18,Dt:29.03.2018**

Dear Sirs,

Sub: TSGENCO – Yadadri Thermal Power Station (5X800 MW) –Design, Engineering, Supply of all material, Labour, Execution & Erection of complete Civil, Structural, Architectural works and miscellaneous works for the complete coal fired Supercritical steam power plant for 5 X800 MW Yadadri Thermal Power Station – Detailed Civil Purchase Order - Issued.

Ref:

1. MOU signed b/w CMD BHEL & CMD TSGENCO on 04.10.2014.
2. TSGENCO letter No. CEE/KTPS-VII (1x 800 MW)/BHEL/ D.No. 72/14, dated 07.10.2014
3. Soil Test report for Kothagudem 1x800 MW released by TSGENCO vide email dated 13.10.2014
4. Technical Specification for Kothagudem (1x800 MW) released by TSGENCO vide email dated 13.10.2014
5. MOM for resolutions against various technical deviations of BHEL dated 25.11.2014
6. Discussions between TSGENCO and BHEL on 05.05.2015 for finalizing the basis for submission of BHEL Commercial offer
7. TSGENCO email dated 06.05.2015 forwarding VTPS water analysis for initiating preliminary Engineering activities
8. BHEL email dated 11.05.2015 forwarding technical drawings for the project.
9. BHEL email dated 11.05.2015 forwarding Write-ups for the BoP packages for the project.
10. BHEL Techno-Commercial offer Dated 12.05.2015
11. BHEL email dated 12.05.2015 forwarding deviations to Kothagudem 800 MW project.
12. BHEL email dated 14.05.2015 forwarding CHP Technical offer for the project.



13. BHEL email dated 16.05.2015 forwarding AHP Technical offer for the project.
14. TSGENCO email dated 18.05.2015 forwarding Climatological data for 5x800 MW Yadadri TPS Project
15. TSGENCO email dated 19.05.2015 forwarding Wind Rose diagram for 5x800 MW Yadadri TPS Project
16. Meeting and discussions between BHEL and TSGENCO on 20.05.2015
17. BHEL email dated 22.05.2015 finalizing date for meeting with TSGENCO
18. TSGENCO letter no. CE/TPC/SE-III/DE/CS/EME-6/Yadadri TPS /D.No. 8 /15  
Dated. 22.05.2015
19. Meeting between BHEL and TSGENCO on 23.05.2015
20. TSGENCO letter no. CE/TPC/SE-III/DE/CS/EME-6/Yadadri TPS /D.No. 10 /15 dated  
23.05.2015
21. TSGENCO letter no. SE/TPC/O/o CE/TPC/DE(CS)/Yadadri TPS/D.No. 12 /15 dated  
26.05.2015
22. BHEL email dated 27.05.2015 forwarding comments on TSGENCO Letter
23. BHEL Revised Techno-commercial offer dated 28.05.2015
24. Discussions between BHEL and TSGENCO on 01.06.2015
25. BHEL Revised Techno-commercial offer dated 01.06.2015
26. LOI.No.CEE/TPC/SE-III/Yadadri TPS(5x800MW)/D.No.15/15, Dt.01-06-2015.
27. MoEF & CC GOI, EC No. J-13012/18/2015/IA.I(T),Dated:29.06.2017.
28. CFE Order No. 10/TSPCB/CFE/RO-NLG/HO/2017,Dated:25.07.2017.
29. TSGENCO Lr No. ED/TPC/SE-III/EME-9/YTPS(5X800MW)/F.No.40/D.No.77/17,  
Dt: 01.08.2017.
30. TSGENCO E-mail on Raw water analysis, Dated 26.09.17.
31. MOM dated 04/10/2017 on various technical issues and scope issues discussed on  
15.09.2017, 16.09.2017, 18.09.2017, 21.09.2017, 22.09.2017 and 04.10.2017
32. MOM dated 04.10.17 on deletion of scope of civil works for Non-plant buildings from BHEL  
scope
33. Commercial MOM signed on 09.10.2017 between M/s BHEL and M/s TSGENCO
34. M/s BHEL Revised Techno-Commercial Offer Letter MS-1-14-0007,  
Dt:17.10.2017.
35. Revised LOI.No.ED/TPC/SE-III/EME-9/Yadadri TPS(5x800MW)/D.No.102/17,  
Dt.17-10-2017.

\*\*\*

I, acting for and on behalf of and by the order and direction of Telangana State Power Generation Corporation Limited (hereinafter called 'TSGENCO') accept your Techno-commercial Offer in the reference (34) cited with respect to the above correspondence regarding specification, related discussions, correspondence/ clarifications on

deviations and negotiations for Basic & Detailed Design, Engineering, manufacture, procurement, assembly, pre-assembly, inspection, testing, packing & forwarding, loading, supply, transportation to site and transit insurance, unloading at site, storage, comprehensive insurance, inter-site & intra-site transportation & handling, construction, erection, testing & Commissioning, trial operation of the combined main plant, Balance of Plant equipment including civil works, training of O&M Personnel, supply of start-up & commissioning and mandatory spares including warranty period for 365 days from the respective dates of commissioning i.e, COD of respective unit of all the five coal fired Supercritical thermal units (including boiler, turbine, generator, transformers, Station C&I, Civil works and all the required Balance of Plant packages etc.,) for 5X800 MW Yadadri Thermal Power Station, subject to the terms and conditions set out in this order.

Three Purchase Orders viz., Supply, Erection & Commissioning and Civil Works are issued in regularization of Letter of Intent dated 17.10.2017 cited under reference (35) above.

M/s BHEL is liable to TSGENCO for the whole scope of the work in accordance with the Supply, Erection & Commissioning and Civil purchase orders.

#### **1.0 SCOPE OF CONTRACT:**

The scope of work against this contract covers the design, engineering, supply of all materials and labour for execution & erection of complete civil, structural, architectural, miscellaneous civil works and carrying out all relevant tests as per the latest IS or international standards as applicable required for completion of 5X800 MW Coal Fired Supercritical Thermal Unit at Yadadri Thermal Power Station, Dameracherla, Nalgonda District of Telangana to the terms and conditions set out in this order.

The details of the packages covered under this contract for design, engineering, supply, execution & erection of complete civil, structural, architectural and miscellaneous works required for completion of 5x800 MW super critical thermal power plant related terminal points and exclusions from M/s BHEL scope are indicated in Annexure-II enclosed. The broad scope, terminal points, inclusions, exclusions, owner's obligations and technical particulars shall be in line with the specification to be read along with resolutions of deviations, techno commercial offer of M/s BHEL , negotiations and subsequent correspondence in the reference cited above. However, the scope of the civil works shall also include any work which is not specifically mentioned but required for the successful commissioning of the 5 x 800 MW Unit.





## 2.0 SCHEDULE OF PRICES:

### Civil Works Contract:

SI No	Description	Price (INR Crore)
C.1	Civil Works (Excluding all kinds Taxes and Duties and Royalty for Excavation etc.) & Incl. of BoCW @ 1%	3,155.44
C.2	Estimated GST @ 18% on C.1	567.98
C.3	<b>Sub-Total (Civil Works Contract)</b>	<b>3,723.42</b>
	(Rupees Three Thousand Seven Hundred Twenty Three Crores and Fourty Two Lakhs only)	

### Note:

- Prices indicated above at Para 2.0 are firm till entire completion of the project for 5 units from the Zero date 17-10-2017.
- Prices indicated above are firm till the entire completion of the project i.e., 36 months reckoned from the Zero Date for 2 units with balance 3 units to be commissioned within 48 months from Zero Date.
- The zero date for the contract shall be reckoned with effect from the date of release of Letter of Intent. (i.e.17.10.2017)
- Detailed break up prices for Civil works shall be furnished by M/s BHEL and got approved by TSGENCO immediately for arranging payments on pro-rata basis.

## 3.0 TAXES & DUTIES:

3.1 GST at a rate of 18% has been considered in the above prices. However, GST on various items shall be billed as per the HSN codes and applicable GST rates and same shall be paid by TSGENCO at actuals without restricting to the values of

GST indicated in the price schedule.

3.2 Other than GST if any other government / local body taxes become applicable, such taxes/duties/levies etc shall be paid by TSGENCO extra at actuals

3.3 TDS will be deducted as per the rules made there under.

3.4 Royalty on excavation if leviable for civil works shall be payable extra at actuals by TSGENCO





- 3.5 Any variation by way of increase or reduction in Taxes and Duties or other Statutory levies or new imposts introduced during the contractual delivery period shall be to TSGENCO's account provided that in cases where the delivery schedule is not adhered to by the contractor for reasons attributable to contractor, any Increase in Taxes and duty or other statutory levies or imposts introduced after the agreed delivery dates shall be borne by the contractor and any reduction thereof shall be to the credit of TSGENCO.

#### **4.0 COMPREHENSIVE INSURANCE:**

A comprehensive insurance cover for transit, handling, storage, construction, testing and commissioning including trial operations but excluding ALOP (Advance Loss of Profit) insurance shall be ensured by the Contractor. The insurance of plant and equipment i.e the entire units shall be the responsibility of M/s BHEL till successful completion of trial operation. In case of any damage or loss of the equipment during transit, handling, storage, construction, testing & commissioning and trial operation, the Contractor shall arrange for repair/replacement irrespective of the lodging and settlement of the claims with the underwriters by the Contractor. The insurance shall be arranged in the name of TSGENCO/REC/PFC.

#### **5.0 INSURANCE CLAIM:**

Contractor shall be responsible to ensure that any loss or damage in transit or at destination shall be made good in shortest time possible without reference to any insurance claim and without affecting station schedule. The said insurance shall be taken by the Contractor up to the completion of trial operations of the unit.

#### **6.0 PAYMENT TERMS:**

##### **Civil Works:**

- a) 10% Initial interest free advance to be released as follows:
- 2.5% of Contract Price towards Civil Works as interest free initial advance along with LOI against submission of stage wise advance cum performance bank guarantee for an equal amount.
  - 2.5% of Contract Price towards Civil Works as interest free initial advance within three months of release of LOI against submission of stage wise advance cum performance bank guarantee for an equal amount.
  - 5% of Contract Price towards Civil Works as interest free initial advance within twelve months of release of LOI against submission of stage wise advance cum performance bank guarantee for an equal amount.

The applicable GST on advance payment shall also be reimbursed by TSGENCO on submission of the invoice by BHEL.

- b) 85% of Contract Price along with 100% applicable GST(net of GST already paid with advance) on pro rata basis against Civil & Structural Steel bills.
- c) 3% of unit wise contract price against Synchronization of each unit
- d) 2% of unit wise contract price against Trial Operation of each unit.

Unit wise Contract Price for the purpose of payments indicated at (c) and (d) above will be considered as one fifth of 2.0 (C.1).

The advance cum performance Bank Guarantee will be non reducing and will be valid till completion of warranty of unit. No separate contract performance Bank Guarantee will be submitted.

## **7.0 MODE OF PAYMENT:**

The payment by TSGENCO shall be released within 30 days of receipt of Invoices in quadruplicate provided such invoices are submitted in accordance with the terms and conditions of the contract. TSGENCO has tied up required funds with Power Finance Corporation Ltd., New Delhi (PFC) and Rural Electrification Corporation (REC).

## **8.0 COMPLETION PERIOD:**

The equipment supplied from BHEL works and the erection activities shall be planned to achieve a commissioning schedule (Completion of Trial Operation) of 36 months reckoned from the Zero Date for two units and balance three units within 48 Months from Zero date as detailed below.

Unit No.	Schedule of completion of Trial Operation
UNIT-1 (First unit of Stage 1)	36 Months from the zero date
UNIT-2 (Second unit of stage 1)	36 Months from the zero date
UNIT-3 (First unit of stage 2)	48 Months from the zero date
UNIT-4 (Second unit of stage 2)	48 Months from the zero date
UNIT-5 (Third unit of stage 2)	48 Months from the zero date

## **9.0 LIQUIDATED DAMAGES:**

### **a) For Delays:**

- b) Any delay in the commissioning of the equipment (Completion of Trial Operation) beyond the contractual commissioning schedule of 36 months reckoned from the Zero Date for two units and balance three units within 48 Months from Zero Date, due to delays solely attributable to the Contractor shall be subject to levy of liquidated damages at the rate of 0.5% of the unit wise contract price per week of delay subject to a maximum ceiling of 5% of the Unit wise Contract price. Unit wise Contract Price for the purpose of liquidated damages for delay will be considered as one fifth of 2.0 (C.1).



**b) For Guaranteed Performance Parameters:**

- i. BHEL Guarantees the following parameters in respect of performance of each of the units, which shall be established by conducting performance, guarantee tests. In case of any shortfall in achieving these guaranteed parameters, liquidated damages as per the rates indicated in the Annexure-I will be levied:
- ii. The maximum ceiling for liquidated damages for performance for each unit shall be 5% of the Unit wise Contract price. Unit wise Contract Price for the purpose of liquidated damages for performance will be considered as one fifth of 2.0 (C.1).

Note:

- (a) The combined total liability of the contractor on account of liquidated damages for delay in commissioning as well as performance is limited to 10% of the contract value. For the purpose of calculation of the Liquidated damages, shall be one fifth of the contract price mentioned at Clause no 2.0 (C.1) shall be considered.
- (b) In addition to and not in derogation any payment obligation pursuant to the above, (and without limitation of any remedies otherwise available to Purchaser in Contract or law), Contractor shall continue to expeditiously perform, repair, replace and modify the Plant and undertake Work until such time the Performance Acceptance occurs.
- (c) In case, the contractor does not fulfil the guaranteed parameters, Purchaser may undertake to rectify the system/equipment and expenditure incurred along with any other incidentals shall be recovered from the contractor from the available bills/retention amounts/BGs (as applicable).
- (d) The liquidated damages under Erection & Commissioning and Supply Purchase Orders of YTPS can also be recovered from this Purchase Order, if it becomes necessary.
- (e) In case, the value of performance guarantee gets reduced at any time on account of claims, if any, due to recovery of liquidated damages for delay in completion or for deficiency in guaranteed parameters, the same shall be enhanced to its original value immediately and retain its validity up to the warranty period of one year and a claim period of 6 months thereafter.

**10.0 ORDER OF PRECEDENCE:**

For the purpose of interpretation of the provisions of this order, especially in the event of any inconsistency, the following order of precedence shall apply:

1. Amendments/addenda, if any, to this order that may be issued after the date of this order on mutually agreed basis.



2. This purchase order.
3. This office LOI.No.ED/TPC/SE-III/EME-9/Yadadri TPS (5X800MW)/  
D.No.102/17,Dt:17.10.2017
4. M/s BHEL Revised Techno-Commercial Offer Letter MS-1-14-0007, Dt:17.10.2017.
5. Commercial M.O.M between TSGENCO and M/s BHEL Dated 09.10.2017
6. Technical M.O.M between TSGENCO and M/s BHEL Dated 04.10.2017
7. KTPS-VII(1x800MW) Specification, Technical Clarifications, Deviations and ,resolutions.

#### **11.0 CONTRACT PERFORMANCE GUARANTEE:**

As per clause no 6.0 A1(a) BHEL shall submit Advance cum Performance bank guarantees of 10%(2.5%+2.5%+5%) mentioned under clause 2.0 (i) towards contract performance. Advance cum Performance BG shall be valid for a period of 12 months from the date of completion period with a claim period of six months there after. Proforma of performance stage wise Bank guarantee is enclosed.

The above bank guarantees shall be submitted towards:

- i) Due performance of the Contract until successful completion of COD & Performance guarantee tests .
- ii) Due performance of Contractor's obligations during warrantee period.

Upon issuance of final completion certificate, the performance guarantee shall be promptly returned to the Contractor, provided that no claim under the Contract is pending.

#### **12.0 WARRANTY:**

Warranty for the plant and equipment shall be 12 months from the date of completion of COD of the respective unit. COD will be considered as completion of Trial Operation of the each unit. The liability of the Contractor under the aforesaid warranty shall be in line with clause no 17 of Annexure-IV.

#### **13.0 CONTRACT NETWORK:**

- 13.1 The Contractor shall submit the L1 & L2 contract Network showing various key phases of the execution of work including procurement of materials required thereof, transportation of equipment, receipt, storage at site, erection, supervision, testing and commissioning, performance testing and TSGENCO's taking over of the work within 7 days of release of advance payment to the Contractor or during first kick-off meeting whichever is earlier. TSGENCO shall review the same and comment within 7 days. After duly incorporating the comments of the TSGENCO, the Contract Network shall be finalized and submitted to TSGENCO.



- 13.2 The Contract Network shall be reviewed and periodic reports shall be submitted by the Contractor to TSGENCO as directed by it. The Contract Network shall be revised by the Contractor as and when appropriate and the revised Contract Network shall be submitted to TSGENCO. Nothing herein contained shall relieve the Contractor of its obligation to complete the work within the dates as envisaged in the Contract.
- 13.3 During the performance of the Contract, such programmes shall be reviewed, updated and submitted to TSGENCO as and when needed by it or periodically as specified by it. If in reasonable opinion of TSGENCO, proper progress is not maintained for reasons solely attributable to the Contractor, suitable changes shall be made in the Contractor's operation to ensure proper progress. Nothing herein shall relieve the Contractor of its obligation to complete the works within the schedule specified in the Contract.

#### **14.0 SAFETY PRECAUTIONS:**

The Contractor shall comply with all applicable safety regulations in his design, access, arrangements and operations on the site. The Contractor shall, from the commencement of work on site until the Risk Transfer Date, provided where not so specified, in accordance with applicable Law:

- i) Fencing, lighting, guarding watching of the site on which works may actually be in progress from time to time.
- ii) Prudent practices shall be employed for packing, safe storage and handling of the equipment, during transit and erection.

In the case of equipment, the Contractor shall assume care, control and custody from the date of delivery of equipment and materials at the site till Risk Transfer Date.

In the case of Works, Contractor shall assume care, control and custody from commencement of works till Risk Transfer Date.

Under this Contract, the 'Risk Transfer Date' shall be the date, which is earlier of:

- i. The date of taking over of the station by TSGENCO.
- ii. With respect to all the works, the date of termination of the Contract.

at which time, the TSGENCO shall assume the care, custody, control and risk of loss of the works or relevant part thereof.



## **15.0 CONSTRUCTION UTILITIES:**

The TSGENCO shall make available on the site for purposes of performance of the works such supplies electricity and water necessary for completion of work as per the specification and agreed deviation. The Contractor shall arrange distribution of these utilities for various locations within the plant at his own cost and their removal at the completion of the work at the direction of TSGENCO shall also be to the account of Contractor.

TSGENCO shall make available dwelling within the colony at site subject to availability. The Contractor undertakes to pay to TSGENCO for unit of dwelling and other upkeep and maintenance services as may be provided by TSGENCO. The Contractor also undertakes to ensure that the occupants of such unit of dwelling shall not cause any disturbance, nuisance to the other occupants of colony.

## **16.0 CONSTRUCTION DOCUMENTS:**

The Contractor shall prepare Construction Documents in sufficient detail to satisfy the requirements of the Contract, applicable Law and authorized approvals, to provide supplies and construction personnel sufficient instruction to execute the works and to describe the operation of the completed works. TSGENCO representative shall inspect the preparation of programme, which shall be agreed to between the TSGENCO and Contractor and when considered the documents are ready for use, be submitted to the TSGENCO's representative for pre-construction review. In this clause, 'Review Period' means the period required by the TSGENCO's Representation, which shall not exceed 7 days, calculated from the date on which the TSGENCO's Representative receives any of the aforesaid documents described in this paragraph and the Contractors notice that it is considered ready, both for a pre-construction review in accordance with this clause, and for use. Any reasonable clarifications required by the TSGENCO's representative shall be notified to the Contractor within 7 days from receipt of the aforesaid documents described in this paragraph, and the un-expired period of 7 days shall resume at the date that the Contractor satisfied the clarifications. If the TSGENCO's representative, within such reviews period, notified the Contractor that any foresaid document described in the paragraph fails (to the extent stated) to comply with the requirements of the Contract, it shall be rectified, resubmitted and reviewed in accordance with this clause, at the Contractor's costs. Any notification by the TSGENCO's representative that such aforesaid document fails to meet the requirements of the Contract must state with



reasonable specificity such as to enable the Contractor to identify and review and comment thereon and the reasons why the TSGENCO's representative considers that the requirements of the Contract have not been met. Approval of documents by TSGENCO'S representatives shall not relieve the Contractor of his obligations under this Contract.

Errors, omissions, ambiguities, inconsistencies, inadequacies and other defects in the aforesaid documents shall be rectified by the Contractor at his cost and without any entitlement to extension or time or any additional cost.

#### **17.0 PROGRAMME/PROGRESS OF CIVIL WORKS**

- 17.1 The Contractor shall furnish a detailed programme chart indicating various key phases of execution of Civil works, names of sub-contractors etc immediately after receipt of this order. The Contractor shall also furnish monthly reports on progress/programme of work thereafter for each of the plant and equipment under the scope of this Contract.
- 17.2 TSGENCO's representative shall have access to the works at any time during working hours for the purpose of inspecting the work or plant/equipment/material during Construction, testing & commissioning.
- 17.3 TSGENCO reserves the right to appoint or nominate or depute any Inspector other than TSGENCO's Engineer for inspection of any work or equipment at any stage of its construction, testing & commissioning.

#### **18.0 QUALITY ASSURANCE:**

The Contactor shall provide a quality assurance system applicable to the entire scope of work including field quality plans. A quality assurance system shall be developed and instituted to demonstrate compliance with the requirements of the Contract. However, compliance with the quality assurance system shall not relieve the Contractor of his duties, obligations or responsibilities under the Contract. Details of all procedures and compliance documents shall be submitted to TSGENCO for perusal/approval/ information. TSGENCO shall be entitled to review any aspect of the system and may require corrective action to be taken by the Contractor to comply with this clause.



### 19.0 BILLING BREAK UP:

The price indicated at Clause No.2.0 above are on lumpsum basis only. The detailed billing schedule for notional billing purpose and payment purpose shall be provided and got approved by TSGENCO before raising invoice for first progressive payment. The detailed Billing break Up will be approved subjected to terms and conditions as the Annexure VI.

### 20.0 DESPATCH INSTRUCTIONS & CORRESPONDENCE:

- i) The Materials and Equipments shall be consigned to  
The Divisional Engineer (Stores),  
Construction Division  
Yadadri Thermal Power Station YTPS(5x800MW),  
Damarcherla(M), Veerlapalem (V) , Nalgonda (DST)  
Telangana.
- ii) The above arrangement is to be followed presently. However, the changes if any during the execution of the contract shall be intimated in due course.
- iii) All correspondence of technical nature shall be addressed to Executive Director/Civil /Thermal /TSGENCO /Vidyut Soudha /Hyderabad.
- iv) All correspondence regarding dispatches, payments and any other field matters shall be addressed to the The Superintending Engineer / E &M /YTPS
- v) Copies of such correspondence shall be marked to this office & to The Executive Director /Civil /Thermal /TSGENCO /Vidyut Soudha /Hyderabad
- vi) Correspondence regarding payments shall be addressed to DYCCA/ YTPS(5x800MW) /TSGENCO /Vidyut Soudha/Hyderabad with a copy to FA & CCA /TSGENCO/Vidyut Soudha/Hyderabad.

### 21.0. INVOICES

- i)The Invoices in quadruplicate shall be sent to

**The Superintending Engineer / E&M  
YTPS (5x800MW)**

Damercharla (M), Veerlapalem (V) , Telangana  
With a copy to the

Chief Engineer / Construction / YTPS

Damercharla (M), Veerlapalem (V) , Telangana.

- ii)The above arrangement is to be followed presently .However, the changes ,if any, during the execution of the contract shall be intimated in due course.





## **22.0 AS BUILT DRAWINGS:**

The Contractor shall prepare, and keep up-to-date on a reasonable frequency, a complete set of marked up 'as-built' records of the execution of the works, showing exact 'as-built' locations, sizes and details of the work as executed, with cross references to relevant specifications and data sheets. These records shall be kept on the site and shall be used exclusively for the purposes of this clause. Copies shall be submitted to the TSGENCO representative prior to the commencement of the Tests on Completion as per distribution schedule at annexure-VIII.

In addition, the Contractor shall prepare and submit to the TSGENCO's representative marked up 'as-built' drawings of the works, showing all works as executed. The drawings shall be prepared as the works proceed, and shall be submitted to the TSGENCO's representative for inspection. The Contractor shall obtain the consent of the TSGENCO's representative as to their size, the referencing system, and other pertinent details in so far as any of the same are not specified in the Contract.

As soon as possible after the Test on Completion, but not later than a period of 3 (three) months from the date of Take Over Certificate, the Contractor shall submit to the TSGENCO's representative copy of documentation on computer compact disc, prints of the relevant 'as-built drawings' and any further construction documents as per the distribution schedule at annexure-VIII

## **23.0 TRIAL OPERATION/ COMMISSIONING/ COD AND HANDING OVER:**

### **A) Trial Operation:**

- i. On completion of erection of any major items along with its auxiliaries, the same shall be thoroughly inspected by the Contractor together with TSGENCO's Engineers for correctness and completeness and acceptability for Pre- Commissioning Tests. Though the TSGENCO's Engineers associate themselves with such inspection, the responsibility for declaration for correctness, completeness and acceptability shall rest with the Contractor and the pre-commissioning tests shall be carried out after such declaration. The pre-commissioning tests to be performed at site as well as necessary documentation and formats for the protocols to be signed during and after the tests shall be prepared by the Contractor taking into account relevant Indian/International/ Manufacturers' standards as applicable and finalized by the TSGENCO sufficiently in advance through mutual discussions. On conclusion of Satisfactory pre-commissioning tests of each individual equipment, the trial operation of each unit (total 5 units) shall start consistent with parameters of the technical specifications.
- ii. The duration of trial operation shall be for 14 days during which period the unit shall run as follows:



- a) Half to full load or any other load cycle mutually agreed to during which period the unit shall also run on economical load (90% of Full/ Available Load) for 48 hours continuously.
- b) During the above trial operation the standby auxiliary equipment shall also run for a minimum period of more than 72 hours during which period the equipment including standby equipment shall run at its rated capacity for a maximum period of 24 hrs subject to (a) above.
- c) Full load continuous operation for seventy two (72) hours.

Any interruption caused by the Contractor up to 24 hours will not affect the period of 14 days trial operation indicated above. In case of such interruption occurring for more than 24 hours, the above period shall be extended correspondingly. The unit is deemed to be commissioned on successful completion of the above trial operation. Upon successful completion of trial operation, a protocol shall be signed by the both parties.

- iii. A document shall be prepared on the results of trial operation. This document besides recording of the details of the various observations during the trial run will also include the date of start and finish of the trial operation and will be signed by the representative of both the parties. The document of the trial operation shall have log sheets and all adjustments, repairs, interruptions etc., shall be recorded therein.
- iv. The readiness of the unit for the trial operation shall be intimated by written notice to TSGENCO. After receipt of such notice and a consent within 15 days from TSGENCO, if the trial operation could not be performed or could not be completed due to any reasons not attributable to the Contractor, the Contractor shall be absolved of the responsibility for the delay and the plant shall be deemed to have been taken over by the TSGENCO at the end of 60 days after the Contractor's notifications of readiness of the same. In case TSGENCO does not reply within 15 days from contractors notification of readiness of Trial Operation, the responsibility of insurance of plant and equipment shall pass on to TSGENCO.
- v. The trial operation shall be carried out in compliance with relevant manufacturers standards and/or relevant Indian / International standards and manufacturers operation directions before starting them.
- vi. Defects which are minor in nature and do not endanger the safe operation of the plant, shall not be considered as reasons for not taking over the plant by the TSGENCO. These defects shall be listed in the above mentioned documents and shall be rectified by the Contractor in accordance with the agreement made in this respect.



## **B) TAKING OVER AND COMMERCIAL OPERATION:**

- i. TSGENCO shall provisionally take over each Unit upon completion of Trial Operation conducted as per clause 23.0 (A) above, acceptable to the TSGENCO. Contractor may apply to TSGENCO for Final Taking Over Certificate by notice enclosing the Protocol, referred to in clause 23.0(A) above, and test results, after successful completion of Performance Guarantee Tests. TSGENCO shall, within fourteen (14) days after the receipt of the Contractor's application:
  - a) Issue the Taking over Certificate to the Contractor, stating the date on which the Performance Guarantee Tests are completed in accordance with the Contract including the date of passing of the Test on Completion. The Advance cum Performance Bank Guarantees shall be returned to the contractor at the end of Warranty Period.

Or
  - b) Reject the application, giving reasons and specifying the work required to be done by Contractor to enable the Taking Over Certificate to be issued. Contractor shall then complete such work before issuing a further notice under this section.
- ii. The unit shall be taken over or deemed to have been taken over by the TSGENCO when the Trial Operation is completed or TSGENCO utilises the facilities for generation of power (incl. Infirm Power) whichever is earlier and the responsibility of Insurance will get transferred to the Owner.
- vii. Commercial operation shall begin from the date of successful completion of the trial operation as in 23.0(A) above or taking over by TSGENCO, whichever is earlier.

## **24.0 CONTRACTORS DEFECTS LIABILITY:**

- 24.1 After the Taking Over Date, in order that the station shall be in the condition required by the Contract till the completion of the Contract period the Contractor during the warranty period, shall execute as soon as is reasonable and practicable all work of amendment, reconstruction, and remedying Contractors Defects or damage (including redesign, repair, replacement and all other works necessary to remedy any defect or damage to the works or failure of any part of the works to comply with Contract) as may be instructed by the TSGENCO or its representative.
- 24.2 All works referred to in 24.1 shall be executed by the contractor at his own cost unless the necessity for such work is attributable to the TSGENCO. If the Contractor fails to remedy any Contractor's defect or damage for which it is responsible under clause 24.1, immediately after receipt of notice from the TSGENCO of occurrence of defect but, in any case, not later than twenty eight (28) days of receipt of such notice, the TSGENCO





or the TSGENCO's representative may further allow a period of twenty eight (28) days, within which the Contractor shall rectify the defect.

- 24.3 If the Contractor fails to remedy the defect or damage as aforesaid by such date, the TSGENCO may, at its sole discretion, carryout the work on its own or by others, the Contractor being responsible for physical loss or damage to the works. The Contractor shall be responsible for the performance of such work and shall be responsible for the reasonable cost to TSGENCO in remedying the defect or damage.

#### **25.0 EXTENDED WARRANTY PERIOD FOR DEFECTS CORRECTION:**

During the warranty period, in the event of failure of any equipment for the reasons attributable to the Contractor, the Warranty Period for such replaced equipment shall be extended by a corresponding period. Any replacement made under this Warranty shall have a warranty for a period of one year from the date of such replacement ('Extended Defects Correction Period'). However, TSGENCO shall issue the Final Completion Certificate after expiry of Warranty Period with qualifying items, if any, under Extended Defects Correction Period.

#### **26.0 FINAL COMPLETION CERTIFICATE:**

The Contract period shall end upon issuance of Final Completion Certificate. The Contractor may give notice to TSGENCO's representative requesting to issue the final completion certificate at any time after taking over certificate is issued and if no notice of Contractor's defect or damage is given or if such notice is given, the Contractor reasonably believes that such defect or damage has been remedied and passed all tests if any and upon expiration of warrantee period. Within 14 days of receipt of the notice, the TSGENCO representative shall Issue Final Completion Certificate stating the date on which Contract period expired (OR) reject the notice giving full and detailed reasons and specifying the work required to be done by the Contractor. The Contractor shall then complete such work before issuing a further notice under this clause

#### **27.0 TERMINATION OF CONTRACT:**

- 27.1 TSGENCO's representative may, if he notices that the execution of Scope of Work is not proceeding in accordance with this Contract, give a notice to the Contractor requiring him to make good such failure and immediately commence and diligently proceed to remedy the same within a specified reasonable time and in accordance with the Contract.



27.2 If the Contractor:

- i) Fails to comply with a notice under Clause 27.1, provided the Contractor has not responded within a reasonable time;
- ii) Abandons or repudiates the Contract;
- iii) Consistently or materially ceases all activities under the Contract for a continuous period of 30 days or more.
- iv) Fails to commence or proceed with the scope of works in accordance with the Contract then TSGENCO may, after having given ninety (90) days notice to the Contractor within which the Contractor has failed to commence and diligently to continue to remedy its default, terminate the Contract with immediate effect and expel the Contractor from the Site having first allowed the Contractor a maximum of fourteen (14) days, or any other period as may be mutually agreed, to remove Contractor's Equipment from the Site. The Contractor shall remove the Contractor's Equipment without damaging the works or prejudicing the safety of the Works in any way.

27.3 The Contractor shall then deliver all Equipment documents, construction documents and other design documents made by or for him, to TSGENCO. The Contractor shall not be relieved from any of his obligations or liabilities under the Contract prior to the date of termination. The rights and authorities conferred on TSGENCO by the Contract shall not be affected.

27.4 TSGENCO and Contractor under mutual agreement basis, as soon as possible after termination under Clause 27.2, determine all sums then due to the Contractor in respect of work properly performed as at the date of termination (the 'Termination Value').

27.5 After termination under Clause 27.2, the TSGENCO shall not be liable to make any further payments to the Contractor until the costs of design, execution, completion and remedying of any defects, liquidated damages for delay in completion (if any), and all other costs incurred by TSGENCO as permitted in accordance with the Contract, have been established (the "Cost of Completion"). If the cost of completion exceeds the total contract value, the Contractor shall pay to TSGENCO such excess cost less termination value determine under Clause 27.4. If this becomes negative, then TSGENCO shall pay to the Contractor the termination value less excess cost so incurred by TSGENCO in completing the station.





## 28.0. CONSULTING ENGINEERS:

M/s TATA Consulting Engineers Limited, Bangalore are the Engineering consultant for the project. The address of the consultant is as follows:

M/s TATA Consulting Engineers Limited  
73/1, Sheriff Centre, St. Marks Road,  
Bangalore – 560001

## 29.0 DISTRIBUTION SCHEDULE FOR DRAWINGS AND DOCUMENTS:

The drawings and documentation for design, engineering and contract execution drawings & documentation are to be distributed as per Annexure VIII

## 30.0 JURISDICTION:

All and any dispute or difference arising out of this Contract shall be decided only by the Courts & Tribunals situated in Hyderabad and Secunderabad cities. No suit or other legal proceeding shall be instituted elsewhere.

## 31. OTHER TERMS & CONDITIONS:

The other general terms and conditions are indicated in the Annexure-IV enclosed.

## 32.0 ACKNOWLEDGEMENT:

This order is sent to you in duplicate. Please acknowledge the receipt of this order with confirmation of having accepted. The duplicate copy may please be returned to us with your signature.

**Encl:** Annexures I to VIII

Yours faithfully,

*[Signature]*  
29/03/18  
**Executive director/TPC**

(For and on behalf of TSGENCO)

We accept the terms and conditions of this order.



Seal of the company

Copy communicated to:

1. Executive Director/Civil/Thermal/TSGENCO/VS/Hyderabad.
2. Chief Engineer/Construction/YTPS
3. Chief Engineer/Gen/TSGENCO/VS/Hyderabad.
4. Chief Engineer/Civil/Hydel & General Services/TSGENCO/VS/Hyderabad.

*[Signature]*  
**M/S BHEL**  
**MANOJ SHAH**  
महप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
बी.एच.ई.एल हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi - 110049

5. Chief Engineer/Coal & Commercial/TSGENCO/VS/Hyderabad.
6. Chief Engineer/Telecom/TPC/TSGENCO/VS/Hyderabad.
7. Chief General Manager/IS/ERP
8. FA & CCA/Accounts/TSGENCO/VS/Hyderabad.
9. FA & CCA/Audit/TSGENCO/VS/Hyderabad.
10. FA & CCA/RES&CFO/TSGENCO/VS/Hyderabad.
11. JS to CMD/TSGENCO/VS/Hyderabad.

Copy to:

1. SE /Tech. to CMD/TSGENCO/VS/Hyderabad.
2. Superintending Engineer/Civil/YTPS
3. All SEs/ O/o ED/TPC/TSGENCO/VS/Hyderabad-500082.
4. DE /Tech. to Director/Projects/TSGENCO/VS/Hyderabad.
5. DE /Tech. to Director/Thermal/ TSGENCO/VS/Hyderabad.
6. DE /Tech. to Director/Hydel/ TSGENCO/VS/Hyderabad.
7. Dy CCA to Director/Finance/TSGENCO/VS/Hyderabad.
8. DE /Tech. to Director/HR/TSGENCO/VS/Hyderabad.
9. SAO/Pay & Accounts/TSGENCO/VS/Hyderabad-500082
10. Pay Officer/TSGENCO/VS/Hyderabad.
11. All EMEs/O/o. ED/TPC/TSGENCO/VS/Hyderabad-500082.
12. Resident Audit Officer, EBRA, Vidyut Soudha, Hyderabad-500082.
13. Dy.CCA/YTPS





## Annexure – I

Contract No.3000000016/ED/TPC/SE-3/EME9/D65/D.No.56/18, Dt:29.03.2018

### Liquidated damages for Guaranteed Performance Parameters

Item No.	Performance Parameters	Unit	Guaranteed Value	Liquidated Damages Amount
1.	Gross Electrical output of each unit	MW	800(at 100% TMCR, 0% Make Up, 33°C CWT)	Rs.1, 00,000/- (Rupees One lakh only) per every KW shortfall.
2.	Gross Station Heat Rate of each unit at 100% STG MCR.	Kcal/Kwh	2019.4 (*)	Rs. 7.5 Crores (Rupees Seven Crores fifty Lakhs Only) for each Kcal/Kwh increase.
3.	Auxiliary Power Consumption	KW	255900 (**) (For all 5 units as per CEA/ERC norms)	Rs.2, 00,000/- (Rupees Two lakhs only) per KW increase.
4.	ESP Particulate Emission at 100% STG MCR with (n-1) fields in service	mg/Nm <sup>3</sup>	30	---
5.	NOx emission Maximum total NOx (thermal as well as fuel) emission at the outlet of SCR for the range of coal specified	mg/Nm <sup>3</sup>	100	---
6.	SOx emission at the FGD outlet for the range of coal specified	mg/Nm <sup>3</sup>	100	---

\* At 100% TMCR, firing with design coal (Blend of 50% imported coal & 50% indigenous coal)@ 27 deg C & 60% Relative humidity.

\*\* For the list of auxiliaries considered for auxiliary power consumption are enclosed at Annexure-III



मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
सि. फोर्ट / BHEL House, Sir Fort

  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Kharatabad, Hyderabad-500 032.

**MAJOR PACKAGES OF CIVIL WORKS UNDER THE SCOPE OF**

Contract No.3000000016/ED/TPC/SE3/EME 9/D65/D.No.56 /18,Dt:29.03.2018

The detailed scope of the contract is in line with Volume II-X of the specification e-PCT/TS/K/02/2014-15 of KTPS-VII (1x800MW) read with subsequent clarifications and resolutions and broadly produced below:

**1.0 BROAD SCOPE:**

The scope of the Contract shall comprise Site preparation, design, Engineering, supply of all materials and labour ,construction and erection activities of both underground and above ground civil and structural work , survey, Geo Technical (Soil) Investigation, Area Grading , Quality control, Excavation ,foundations, buildings, substructures, superstructures and infrastructure required for the effective functioning of various systems of the power plant shall include all working drawing, labour, materials, plants, equipment, transportation and all incidental items, fabrication & erection of structural steel work, roads and drainage, Construction of Chimney , Natural draft cooling tower (NDCT),carpentry, Masonry works , metal doors, windows, ventilators, louvres, curtain wall, structural glazing,. rolling steel shutters, grills, glass and glazing, floor finishes and allied works, painting, white washing and polishing , sheet work in roof and side wall, roof water proofing, insulation, and allied works,drainage & sanitation and General Civil Works necessary for proper completion of the 5x800 MW super critical thermal power plant Yadadri station in strict compliance with the specification and subsequent resolution of deviations.

The work shall be carried out according to the design/drawing to be developed by the Contractor and approved by the Purchaser/Purchaser's Consultant. For all building, structure, foundations, roads, drainage, necessary details and layout shall be prepared by the Contractor keeping in view the functional requirement of the plant and the facilities and providing enough space and access for operation use and maintenance as required.

Civil and structural works includes:

- 1.1) **Power Block area** i.e Power house building including Control room, Crane girder, Turbo Generator foundation ,BFP foundation, and other equipment foundations ,Boiler area foundations including Boiler, ESP, P.A , F.D , ID fan foundations, Auxilliary boiler Foundation, Mill Foundations Duct supporting columns foundations etc Boiler area paving with drainage Mill Building including coal





bunkers Mill reject pyrate, hoppers ESP Control Room Chimney , Miscellaneous Mechanical and electrical equipment foundations, etc as required

**1.2) Transformer yard :** Transformer yard foundations, and substructure including Transformer foundations, Bus duct supporting structures and foundations, deluge valves for transformer fire detection and protection system, Rail track, fire wall, common oil pits, electrical trenches, pull pits and duct banks, drainage, gates, fencing, paving etc. all complete RCC roads within switchyard, fire protection walls and chain link fencing for switchyard. RCC paving shall be provided in Transformer Yard. All other buildings structures and foundations as required.

**1.3) Switchyard :** Switchyard structures, foundations, drains, pits, switchyard roads, RCC cable trench, gate, fencing, paving in yard as required  
Switchyard control room and all other buildings structures and foundations as required

**1.4) Coal Handling system :** Wagon Tippler, Track Hopper, Conveyor galleries with supporting trestles, and foundations, RCC tunnel, Transfer points, Crusher house ,Stacker/Re-claimer, Reclaim Hopper, Crushed Coal stock pile yard Coal storage shed, Control room / MCC room for coal handling plant, Tanks / Reservoirs, Sumps, Pump Houses, Dust suppression System and other utilities and fire fighting system. All other buildings, structures and foundations as required

**1.5) Ash Handling system :** Ash Slurry sump and pump house, Bottom Ash overflow sump, Ash water sump and pump house, Coarse ash tank, Recovery/recycle water pump house. Fly ash equipment tower, Ash blower/compressor building, Vacuum pump House, Ash handling plant switchgear cum control room, Pipe rack for conveying the ash and water pipes ,chemical house and clarifier ,Ash pipe corridor including providing proper drainage arrangements within the plant area, Fly Ash Storage Silo with concrete approach road, HCSD cum Silo utility building ,bottom ash hopper foundation, all other buildings, structures and foundations as required

**1.6) Fuel oil System :** Fuel oil System includes HFO/LDO Day Tank & foundations, pipe supporting pedestals. Pump House, and All other buildings, structures and foundations as required



- 1.7) Raw Water System :** Raw water system is excluded from M/s BHEL scope
- 1.8) Demineralised & Potable water supply system** consists DM Plant Building, ` ,DM neutralizing pit & Pump House,Potable water tank with the necessary pipe lines to all the buildings.,All other buildings, structures , tanks and foundations as required
- 1.9) Condensate Polishing System :** CPU – Regeneration Building, CPU- Neutralizing pit and Pump House, All other buildings, structures , tanks and foundations .
- 1.10) CW system** Natural Draft cooling tower, Cooling water pipes including their supports and foundations,C W pump house as required ,CW Treatment Plant cum Chlorination Building, All other buildings, structures and foundations as required.
- 1.11) Firefighting system,** Fire water tanks
- 1.12) Waste Water Treatment System,** All other buildings, structures and foundations as required
- 1.13) Centralized Sewage Treatment System**
- 1.14) Other Utility services and Non-plant Buildings** as per MOM dated 04/10/2017
- 1.15) Pipe racks, cable trenches, Sanitary System & Fencing ,**as required ,Excavation for foundations and substructures,
- 1.16) FGD:** Structures and foundations and buildings of Absorber, Absorber Tank, Absorber Mist Eliminator, Gas to Gas Heater, Ball Mill System for Limestone, Gypsum Dewatering Section

## **2.0 ENGINEERING SERVICES**

The Contractor shall render engineering services for the plant in scope including complete detailed engineering, design, submission and documentation as specified and as required for a good design and installation ensuring efficiency, operability, availability, maintainability and reliability of the plant. Prior to commencement of the engineering work all aspects of design, viz., criteria for selection and sizing of all equipment and systems, design margins, analysis and design calculations etc. shall be stated by the Contractor in design basis reports. As part of design submissions, the design reports shall be submitted for approval by the Owner



representative. The approved design basis reports shall form the basis for the detailed engineering work.

- At any stage during the performance of the works, the Owner may require up-gradation / improvements in the Contracted Plant and consequent modification in the equipment / system designs in view of additional information available at a Later date (s) or feedback (s) received during execution / operation of similar units. If so desired by the Owner, the Contractor shall make the necessary design modifications and carry out the up-gradation / improvements in the Plant. Commercial and time implications of such action shall be mutually agreed upon between the Owner and the Contractor.
- During the course of review of detailed engineering, it may be essential in Owner's opinion to obtain data and information on similar equipment and plants engineered by the Contractors. In case Owner so desires the Contractor shall submit such analogous data and information to the Owner.
- The Contractor shall cooperate with the Owner's other Contractors and Owner representative and freely exchange with them such technical information as are necessary to obtain the most efficient and economical design and to avoid unnecessary duplication of efforts. The Owners representative shall be provided with copies of all correspondences addressed by the Contractor to other Contractors and Owners representative in respect of such exchange of technical information.
- The Contractor shall furnish a comprehensive and detailed schedule of drawings and design documents, which shall be submitted by him after the award of Contract indicating submission dates against each document. The list shall be subject to the approval of the Owner / Owner representative.
- The documents shall be divided into two categories:
  - For approval
  - For information / reference only.
- Documents submitted during contract stage, shall be revalidated or revised as required and submitted as certified document for approval / information of the Owner.
  - Civil drawings and all other related documents
  - Equipment data sheets and general arrangement drawings.
  - Materials for Construction
  - Layout drawings, As built drawings

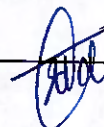
### **3.0 OPERATING MANUALS AND MAINTENANCE INSTRUCTIONS**

- The Contractor shall submit to the Owner / Owner representative, instruction manuals for all equipment covered under the contract at least thirty (30) days before the first shipment of the equipment.
- The operating manuals and maintenance instructions shall be in sufficient detail to enable the Owner to operate, maintain, dismantle, re-assemble, adjust or replace all equipment and components during the lifetime of the plant. The manuals shall be specifically prepared for the contracted plant. Only a collection of manufacturer's standard leaflets shall not be acceptable as the manuals.
- In addition, the Contractor shall provide at least six (6) months before the time of commissioning and before taking over of the plant and equipment, a consolidated manual for the complete plant detailing out instructions for operation and maintenance.
- The operating manuals and maintenance instructions manual shall be submitted in the form of one (1) reproducible original and fifteen (15) copies as well as four (4) copies in compact disks (CDs). The instruction manuals will be reviewed and approved by the owner before issue by the Construction contractor. Such approval will be not be unreasonably withheld.
- If after the commissioning and the initial operation of the plant, the instruction manuals require modifications / additions, the same shall be incorporated by the Contractor and updated final version of the manuals shall be submitted.
- The Contractor shall submit fifteen (15) sets of spare parts catalogues.

### **4.0 PLANT HANDBOOK AND AS-BUILT DOCUMENTATION**

- **PLANT HANDBOOK**

The Contractor shall submit to the Owner, a preliminary plant handbook preferably in A-4 size which shall contain all approved design basis and design calculations, the design and performance data of various plant, equipment and systems covering the complete project including single line flow diagrams, within twelve (12) months from Notice to Proceed. The final plant handbook complete in all respects shall be submitted by the Contractor three (3) months before start-up and





commissioning activities. The plant handbook shall be submitted in form of one (1) reproducible original and ten(10) copies along with one (1) copy in Compact Disks (CDs).

- **"As-built" Documentation**

The Contractor shall provide and keep up to date "As built" drawings of all structures constructed and all equipment and accessories and miscellaneous metal works erected or installed. These drawings shall show all changes and revisions from the original drawings and specifications, including the exact "As-built" locations, sizes and kinds of equipment and accessories, miscellaneous metal works, embedded piping and electrical systems and other concealed items of work. These drawings shall be kept in Contractor's filed office but shall be made available at all times for review of the Owner representative. At the end of every work, all entries, changes or revisions made in the drawings by the Contractor shall be checked and approved by the Owner representative. Reproducible prints with requisite copies of all "As-Built" drawings shall be progressively handed over to the Owner after taking over the Plant by the Owner. In addition, all the as-built drawings / documents shall be submitted to the Owner in CDs.

#### **5.0 SUB-CONTRACTORS**

- The Contractor shall submit to the TSGENCO the details of all major items that he deems necessary to be sub-contracted. The Contractor shall not change major Sub-Contractors without prior approval of the TSGENCO.
- The Contractor's orders to the Sub-Contractors shall quote the TSGENCO's contract reference and station name, and instruct the sub-contractors to quote that number and name and also the order number in all correspondences.
- An unpriced copy of all purchase orders placed on sub-contractors, and of all orders placed by sub-contractors shall be supplied to the TSGENCO.
- The Contractor shall be responsible for maintaining an up-to-date list of all sub-orders and inter works order and shall make this available to the TSGENCO as required.
- M/s BHEL should not resort to the reverse auction process for the services Sub-Contracts. However, on a case to case and with prior approval of TSGENCO, BHEL can take up reverse auction for the services Sub- Contracts.

- The TSGENCO's Contract Reference and Station name, shall be added to all interworks and sub-orders.
- The TSGENCO reserves the right to check that the Contractor is making timely payments to his sub-contractors.
- The Contractor shall ensure that their sub-contractors follow the requirements of this contract and have adequate control over all aspects covered by the specification.

#### **6.0 PROGRESS REPORTS.**

- During the design and manufacturing stages the Contractor shall submit to the Engineer reports and information on the progress and manufacture by himself and by the Sub-Contractors of all Civil Works required for the execution of the works. The reports shall be based on the plant manufacturing programs.
- The detailed procedure and requirements for progress reporting will be agreed with the Owner during the early phase of the works, as part of regular contract / project status reporting.
- The Contractor shall also submit to the Owner monthly progress reports and any other reports as required by Owner / Lenders / Statutory authorities.

#### **7.0 ACCESS FOR PROGRESS MONITORING.**

The Owner or his nominated representative shall be entitled at all reasonable times to visit all premises where design and manufacturing of the plant is being carried out in order to monitor and verify progress.

#### **8.0 ADDITIONAL OBLIGATIONS OF THE CONTRACTOR:**

- Contractor shall employ sufficient Resident Engineers at site to organize, plan and manage the erection of the equipment. The Resident Engineer at site or his representative shall carry out any written orders or instructions relating to the site work which the Engineer or his authorized representative may give to said representative.
- Contractor shall employ sufficient number of unskilled, semi-skilled, skilled and experienced labour, riggers, fitters, millwrights, pipe fitters, boiler makers and other technicians as well as all trade foreman, qualified erection Engineers and



supervisors, stores and security personnel, planning and progress engineers, certified carbon and alloy steel, gas and electric welders, radiographers and x-ray technicians, heat treatment specialists and other required for speedy and timely completion of all work.

- Contractor shall provide his own guards/watchmen round the clock to ensure security and prevent trespassing thereby preventing injury to the public or damage to the property, thefts, sabotage, etc other preventive measures if required shall be arranged by Contractor.
- Contractor shall be responsible for painting of the equipment as covered under this Contract as per the quality and colour code prescribe by the TSGENCO.

#### **9.0 INSPECTION OF SITE WORKS:**

Contractor shall permit the Engineer or the Inspector or his authorized representative to inspect the work, or any part thereof, at all times and placed during the progress of the work. The inspection and supervision is for the purpose of assuring the TSGENCO that the plant and specifications are being properly executed and while the TSGENCO and/or the Engineer and their representatives are instructed to give Contractor all desired assistance in interpreting the plan and specification such assistance shall not relieve Contractor of any responsibility for the work. Any work which proves faulty shall be corrected by Contractor without delay. The fact that the Engineer or their representatives have failed to observe faulty work or work which is not in accordance with plans and specifications, shall not relieve Contractor from correcting such work as directed by the TSGENCO and/or the Engineer without additional compensation for extension of the completion period.

#### **10.0 EXECUTION OF WORK:**

- Contractor in consultation with TSGENCO shall plan the detailed schedule to comply the requirements and shall commence the Civil works well in time and thereafter maintain adequate rate of progress of work so as to achieve the stipulated target dates. The schedule Civil Works shall be in sufficient details are so as to indicate the various construction activities.
- Contractor shall at least once in every calendar month indicate actual progress of work in relation to schedule progress and the programme for the succeeding month.



#### **11.0 CLEAN UP OF WORK SITE:**

- During erection, Contractor shall without any additional payment, at all times, keep the working and storage areas used by him, free from accumulation of waste materials or rubbish. Before leaving the site, he shall remove or dispose off in a satisfactory, manner all temporary structures, his office buildings, storage sheds, etc unless otherwise directed by the Engineer, excess materials, waste and debris and leave the premises in condition satisfactory to the Engineer.
- If Contractor fails to comply with these requirements in spite of written instructions from the Engineer the TSGENCO will proceed to clean these areas and the expenses incurred by the TSGENCO in this regard shall be deducted from payment due to Contractor

#### **12.0 CONSTRUCTION METHOD AND FORCES:**

- i) Contractor shall be responsible for the safety, adequacy and efficiency of its plant, equipment, method of construction and for providing sufficient working forces.
- ii) Before commencing the work or any portion thereof Contractor shall furnish the TSGENCO with full information as to its plans for carrying out the work.
- iii) At the time or any time during the progress of the work the TSGENCO may, by order in writing direct Contractor to change, increase or improve his plant and equipment or his methods or to employ additional men or to work overtime, or at night, if in their judgment, such action is necessary to,
  - Ensure the safety adequacy and efficiency of the plant and equipment or
  - Ensure the completion of the work or any part thereof within the time specified in the Contract.

The Contractor shall comply with the written directions of the TSGENCO as aforesaid within the period specified in the directions and shall make no additional charge to the TSGENCO thereof except where such work is necessitated due to reasons not attributable to Contractor.

- iv) Neither compliance with such directions, nor the failure of the TSGENCO to issue them shall relieve Contractor of his obligation to secure the degree of safety, quality of work and rate of progress required.



- V) Contractor shall be solely responsible for carrying out and completion of the work in all respects and shall not be allowed to plead any acts, orders, directions or instructions of the TSGENCO, for any departure from the terms of the Contract unless such acts, orders, directions or instructions are in written form

### **13.0 SETTING OUT:**

Contractor shall be responsible for the true and proper setting out of the works in relation to original points, lines and levels of reference which shall be given by the Engineer in writing and for the correctness of the positions, levels, dimensions and alignments of all parts of the works. The Engineer shall be responsible for the correctness of the original points, lines and levels of reference given by him.

### **14.0 DEMURRAGE CHARGES:**

The Contractor is responsible for payment of demurrage charges, if any incurred at site due to delay in unloading of equipment and material from railway wagons/carriers attributable to the Contractor

### **15.0 SURPLUS MATERIAL/ SCRAP:**

- Ownership of any Plant and Equipment in excess (i.e. surplus material including scrap & commissioning spares) of the requirements for the Facilities shall lie with BHEL upon Completion Trial Operation or at such earlier time when the TSGENCO and the BHEL agree that the surplus material/scrap in question are no longer required for the completion of facilities. The TSGENCO will issue necessary gate pass for taking back the surplus material/removal of scrap/commissioning spares after such agreement with in one week after receipt of request by M/s BHEL.
- It is clarified by BHEL that surplus material/ commissioning spares and equipment may be stocked at site, in excess to the ordered quantity on BHEL, to take care of any contingency during Erection.

### **16.0 INDEMNITY:**

- i. Subject to sub-clause indicated below, all losses or damage to any section or portion of the work that shall not have been commissioned which shall arise from or be occasioned by any act of the Contractor or his Sub-Contractor, shall be made good by and at the sole cost of the Contractor and to the satisfaction of the TSGENCO.

- ii. Subject to sub-clauses c & d indicated below, the Contractor shall indemnify the TSGENCO in respect of all damages or injuries occurring before all the work have been commissioned to any person or any property (other than property forming part of the works) and against all actions, suits, claims, demand costs, charges and expenses arising in connection therewith which shall be occasioned by the negligence of the Contractor or his sub-contractor or their agents or workmen but not otherwise.
- iii. The Contractor shall not be liable to the TSGENCO for:
- Any loss or profit out of this Contracts or any consequential loss suffered by the TSGENCO.
  - Any claim made against the TSGENCO except as provided in these conditions.
  - Any damage or injury caused by or arising from the acts or commissions of the TSGENCO or of others (not being the Contractor's servants or Sub-Contractor's).
  - Any loss or damage in circumstances over which the Contractor has no control.
- iv. The TSGENCO shall indemnify the Contractor against loss or damage or injury to the works, Contractors equipment or employees of the Contractor his Sub-Contractor at site, arising from acts or omissions of the TSGENCO, his employees as well as his agents, including his other sub-contractors at the site.
- v. If, while the Contactor is at site for the purpose of making good a defect under the Warranty Clause, there shall occur any loss or damage or injury to the workers or to any other person or property, the Contractor's liability in respect of shall be the same as if the said losses, damages or injury had occurred before any part of the works had been commissioned.

#### **17.0 EXCLUSIONS:**

The following are excluded from M/s BHEL scope:

1. Raw water Intake system and Raw water reservoir. BHEL scope starts from Raw water pump house.
2. Dismantling of existing structures.
3. Dismantling of any other underground/Over ground structure including rerouting of Nallahs, roads, etc. Sewage lines, Water streams/canal, Trenches, gas pipe line and drain diversion works within plant.
4. Construction Power and water
5. Plant boundary along with patrol road at project
6. Patrol road and area drainages study
7. Ash dyke and road along ash slurry pipes
8. Marshalling yard and railway siding including its levelling and grading
9. In motion weigh bridge



10. Non plant buildings as listed as follows
  - a) All Roads and drains, bridges and culverts
  - b) Make-Up water reservoir(Raw water reservoir)
  - c) Administrative Building
  - d) Security Building
  - e) Canteen Building
  - f) Stores Building with office building
  - g) Service building
  - h) Chemical Lab building
  - i) Parking sheds
  - j) Rain water harvesting
  - k) Raw coal storage yard
  - l) Dozer shed
  - m) Watch towers
  - n) Simulator buildings
  - o) Main Gate building
  - p) Work shop building
  - q) Hydrogen storage sheds
  - r) Fire station building
  - s) Land scaping
11. No embankment /Protection for natural canal is envisaged in BHEL scope .
12. PIR for switchyard
13. Re-routing of existing 132KV, 220KV and 400KV transmission lines.
14. Any other underground/ over ground structure.
15. Computerized Maintenance & Inventory Management System.
16. Access Control System/ Biometric Access system .
17. Re-routing of raw water pipe line within the project premises.
18. Adjustable orifice.
19. Online carbon in ash analyzer.
20. Acoustic pyrometer.

#### **18.0 OWNER'S OBLIGATIONS AND SITE FACILITIES:**

1. Total land of the power plant shall be handed over free from all encumbrances.
2. Existing contour map of the area.
3. One reference Bench mark within/neat the plant area along with reference grids in two perpendicular directions.



4. Complete civil & architectural works outside the scope of BHEL and providing fronts for erection of the plant under scope.
5. Adequate land for storage facilities for various equipment/materials required for constructing the power station within the boundary wall of the power station.
6. Accommodation for BHEL Officials on hire basis and land for construction of temporary accommodation for the Contractor's personnel subject to availability.
7. Suitable approach road up to the boundary wall of the power station.

Construction power and water will be provided at one point each at plant premises

#### 19.0 MISCELLANEOUS

- o Design Engineering
- o Quality Control, shop testing and inspection.
- o Consents, licenses and approvals from relevant statutory authorities other than those obtained by the OWNER.
- o Packing and forwarding.



मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
बी.एच.ई.एल हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi - 110049



Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.



## DETAILS OF AUXILIARY POWER CONSUMPTION

Contract No.3000000016/ED/TPC/SE3/EME 9/D65/D.No.56/18,Dt:29.03.2018

S.No.	Particulars	Number operating at 100% TGMCR condition	Duty Factor	Total Number provided (Operating + Standby)	Total Power Consumption in KW at 100% TGMCR condition	Remarks
<b>I</b>	<b>SG and its Auxiliaries</b>					
1	Coal mills	6	1.00	6+2	Included	
2	PA fans	2	1.00	2+0	Included	
3	FD fans	2	1.00	2+0	Included	
4	ID fans	2	1.00	2+0	Included	
5	DMCW Pumps (SG)	-	1.00	-	Included	5W+5S for station
6	GR Fans (If applicable)	N/A	-	-		
7	Regenerative air pre-heater	2	1.00	2+0	Included	
8	Fuel oil pumps	1	1.00	1+1	Included	
9	Coal feeders	6	1.00	6+2	Included	
10	Electrostatic precipitator	All fields	1.00	1	Included	
11	Seal air fans	1	1.00	1+1	Included	
12	Lube oil system pumps	As applicable for respective equipment	1.00	-	Included	
13	Electric heat tracing	N.A	-	-		
14	Scanner air fans	1	1.00	1+1	Included	
15	Any other Items					
	a) SCR Equipments	Lot	1.0		Included	
<b>II</b>	<b>STG and its auxiliaries</b>					
1	Control oil pumps	1	1.00	1+1	Included	
2	Oil vapour extractors	1	1.00	1+2	Included	
3	Lube oil purification equipment (centrifuge type)	1	1.00	1+0	Included	
4	Gland steam exhaustor	1	1.00	1	Included	
5	Air side seal oil pump	1	1.00	1+1	Included	
6	Hydrogen side seal oil pump	1	1.00	1+1	Included	
7	Hydrogen gas dryer blower	1	1.00	1+1	Included	
8	Stator water cooling pumps	1	1.00	1+1	Included	
9	Generator vapour extractor	1	1.00	1+1	Included	
10	EH polishing pump	1	1.00	-	-	
11	DMCW pump (TG)	-	1.00	1+1	Included	10W+5S for Stn
12	Generator gland seal flat pump	N.A	-	N.A	-	
13	Condenser vacuum pump	2	1.00	2+2	Included	
14	CEPs	2	1.00	2+1	Included	


15	STD BFP vapour extractor	N.A	-	-	-	
16	Main oil pump (motor driven)	1	1.00	1+1	Included	
17	Drip pump	1	1.00	1+1	Included	
<b>III</b>	<b>Balance of Plant</b>					
1	Raw water pumps		1.00		Included	5W+2S for station
2	Circulating water pumps		1.00		Included	20W+3S for station
3	CW Make up System		1.00		Included	5W+3S
4	Auxiliary cooling water pumps		1.00		Included	10W+3S for station
5	FGD Pumps (Stage-I&II)	2	1.00	2+2	Included	
6	Water treatment plant					
	a) Pre-treatment		0.80	LOT	Included	Common for station
	b) DM plant		0.50	LOT	Included	Common for station
	c)CW-Treatment		1.00	LOT	Included	Common for Stn
	d)Sewage Treatment plant		0.50	LOT	Included	Common for Stn
	e)Effluent Treatment plant		0.50	LOT	Included	Common for Stn
7	Instrumentation and Control system					
	a) DCS		1.00	LOT	Included	Refer Note.1, common for station
	b) Others		1.00	LOT	Included	Common for station
8	Any other Items					
	a) COLTCS		0.33	LOT	Included	Common for station
	b) SCS		0.33	LOT	Included	Common for station
	c)Debris Filter		0.33	LOT	Included	Common for station
9	Coal Handling Plant for the worst path (Max. Power Consumption) (including crusher house, coal path from stock pile to Bunkers with one Stacker cum Reclaimer operating in reclaiming mode but excluding intermittent equipment like electrical hoists, coal sampling unit, flap gate, rack & pinion gates and sump pumps)		0.86	LOT	Included	Common for station




10	Ash Handling System for bottom ash disposal system including clinker grinder up to ash disposal area and fly ash evacuation system up to silos.		1.00	LOT	Included	Common for station
11	Air Conditioning system					
i	Main Control Room		1.0	LOT	Included	Refer Note-2, Common for station
ii	ESP & VFD Control Room		1.0	LOT	Included	
iii	AHP Control Room		1.0	LOT	Included	Common for station
iv	CHP Control Room		1.0	LOT	Included	Common for station
v	Switchyard Control Room		1.0	LOT	Included	Common for station
vi	Service Building		1.0	LOT	Included	Common for station
vii	Aux Control Rooms		0.67	LOT	Included	Common for station
viii	FGD Control room		1.00	LOT	Included	Common for station
12	Compressor Air System					
	a) Plant Air Compressors (Service Air & Instrument Air)	-	0.5	-	Included	Common for station
	b) Plant Instrument air drying plant	-	0.5	-	Included	Common for station
13	Mill Reject System					
	Mill Reject Handling Compressors	-	1.0	-	Included	
14	Electrical System					
i	Losses in transformers GTs, UTs, STs, UATs, SATs etc.,	Transformers shown as per SLD	1.00	LOT	Included	
ii	Aux. Transformers Losses	Transformers shown as per SLD	1.00	LOT	Included	
iii	FGD Transformer Losses	Transformers shown as per SLD	1.00	1+1	Included	
15	HCSD System			LOT	Included	
16	Lime Handling Plant			LOT	Included	
17	FGD Plant			LOT	Included	
18	Lime Stone slurry preparation system			LOT	Included	
19	Gypsum Handling plant			LOT	Included	
20	Gypsum dewatering system			LOT	Included	
21	SUMP and utility system			LOT	Included	
	Total				Refer Sl.No 3 of Annexure I	

**Note:**

1. Aux. Power consumption includes DCS power consumption for SG, TG, DAVR, Station DCS, CHP, AHP, MRHS, FOPH, CW/ACW & Compressor systems only.
2. Aux. Power consumption includes power consumption for AC System of Power House and Service building only.
3. Deviation for change in number of operating compressors from 2 nos. to 1 no. at 100% TGMCR condition has been accepted by TSGENCO.

  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

  
मनोज शाह / MANOJ SHAH  
महानिर्वाहक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd.  
वी.एच.ई.एल हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi -110049



Contract No.3000000016/ED/TPC/SE3/EME 9/D65/D.No.56/18,Dt:29.03.2018

**OTHER TERMS AND CONDITIONS**

**CLAUSE 1: DEFINITION OF TERMS:**

The following words shall have the meaning herein assigned to them unless there is something in the subject or context inconsistent with such construction.

- 1.01 : **'Purchaser' or 'Owner'** shall mean TSGENCO
- 1.02 : **'TSGENCO'** shall mean the Telangana State Power Generation Corporation Limited having its Head office at Vidyut Soudha, Khairatabad, Hyderabad - 500082 (Telangana) and shall include its legal representatives, successors and permitted assignees.
- 1.03 : **'Contractor'** shall mean M/s. Bharat Heavy Electricals Ltd., BHEL House, Siri Fort, New Delhi-110 049 and shall include its legal representatives, successors and assignees.
- 1.04 : **'Sub-Contractor'** means any person (other than the Contractor) named in the Contract to carryout any part of the works or any person to whom any part of the Contract may be sub-let by the Contractor after informing TSGENCO, and will include the legal representatives, successors and assignees of such persons.
- 1.05 : **'Engineer'** shall mean the person nominated by TSGENCO for the time being and include such other officers as may be duly authorized and appointed in writing by TSGENCO to act as Engineer for the purpose of the Contract. In case where no such Engineer has been so nominated or appointed the word 'Engineer' shall mean Executive Director, Thermal Projects Construction, Telangana State Power Generation Corporation Limited, Vidyut Soudha, Khairatabad, Hyderabad-500 082, Telangana.
- 1.06 : **'Consulting Engineer'** shall mean Engineering consultant for the project i.e., M/s TATA Consulting Engineers Limited, Bangalore. The address of the consultant is M/s TATA Consulting Engineers Limited, 73/1, Sheriff Centre, St. Marks Road,Bangalore-560001.
- 1.07 : **'Plant', 'Equipment' or 'Stores'**, shall mean and include plant, equipment, stores and materials to be provided by the Contractor.
- 1.08 : **'Contract'** shall mean and include this Contract and the annexures to this Contract, read with the basic proposals and subsequent correspondence, clarifications, amendments and addenda to be issued from time to time.
- 1.09 : **'Site'** shall mean the site of Yadadri Thermal Power Station located at

- Dameracherla(Mandal),Veerlapalem(Village), Nalgonda District of Telangana.
- 1.10 : **'Inspector'** shall mean the Executive Director, Thermal Projects Construction or Consulting Engineer or any such other person as may be duly authorised and appointed in writing by the Engineer to act as 'the INSPECTOR' for the purpose of the inspection of materials/ Equipment/ Works/ Services etc.
- 1.11 : **'Approved'** shall mean the approval of the Engineer, the Third Party Inspector or the Consulting Engineer as the case may be.
- 1.12 : **'Tests on completion'** means such tests to be made by the Contractor before the works are taken over by the TSGENCO as are provided for in the Contract and such other tests as may be agreed to between TSGENCO and the Contractor and tests required to conform to applicable standards.
- 1.13 : **'Commissioning'** shall mean successful completion of trial operation of unit.
- 1.14 : **'Month'** shall mean calendar month.
- 1.15 : **'Writing'** shall include any manuscript, typewritten or printed statement under or over signature or seal as the case may be.
- 1.16 : **'Persons'** shall include any firms, companies, corporation and body of persons whether incorporated or not.
- 1.17 : Words incorporating the singular only shall include plural and vice-versa where the context requires.
- 1.18 : **'Warranty Period'** shall mean the period during which the Contractor shall remain liable for repairs or replacement of any defective part of the equipment supplied under the Contract as the case may be.
- 1.19 : Terms and conditions not defined herein shall have the meaning as are assigned to them in the Contract Act, 1872 read with amendments and failing that in the General Clauses Act, 1897 read with amendments.

**2.0 : SCOPE OF CONTRACT:**

Shall be as defined in Clause (1) of the Purchase Order. However, the TSGENCO may, if it so desires, vary the scope of the Contract after discussion and mutual agreement with the Contractor.

**3.0 : CONTRACTOR TO INFORM HIMSELF FULLY:**

The Contractor shall be deemed to have fully examined the TSGENCO's requirements as specified in the Contract and also to have satisfied himself as to the nature and character of work and of site conditions and other relevant matters and detailed information he had or otherwise obtained from the TSGENCO, the Engineer, Consulting Engineer or Inspector or other sources shall



not in any way relieve the Contractor from his responsibility under the terms of this Contract.

**4.0 : SCHEUDLE OF MATERIALS:**

The Schedule of materials and prices shall be as per the terms set forth in the Purchase Order.

Any variation by way of either increase or reduction in Taxes and duties other statutory levies or new imposts introduced during the contractual delivery period shall be to TSGENCO's account provided that in cases where the delivery schedule is not adhered to by the Contractor for reasons attributable to Contractor, any increase in Taxes and duties statutory levies or imposts introduced after the agreed delivery dates shall be borne by the Contractor and any reduction thereof shall be to the credit of TSGENCO.

**5.0 : CODES AND STANDARDS:**

Design, Engineering , Manufacture, Testing, Erection, Commissioning & Civil Works of all equipments and material furnished by the Contractor shall meet the requirements of Indian Standards Codes/ International Standards as per the Volume-II to X of specification e-PCT/TS/K/02/2014-15 / read with resolution of deviation and statutory requirements of the Government of India and the Government of Telangana.

**6.0 : CONTRACTOR'S DRAWINGS:**

- 6.1 : The Contractor shall send according to mutually agreed time schedule, drawings sufficiently detailed overall dimensions to enable TSGENCO design foundations, structures and associated equipment.
- 6.2 : Within a reasonable time the Contractor shall send to the Engineer a list of all the drawings with their respective titles and the dates and category like approval, information, typical etc., on which they shall be supplied to the Engineer/Consultant. The list shall be amended or extended by the Contractor in consultation with the Engineer as and when necessary during the progress of the work. All titles, notes and inscriptions on the drawings shall be in English.
- 6.3 : Before proceeding with the manufacture, the Contractor shall send in accordance with the instructions of the Engineer or Inspector for his information, general assembly drawings and such other drawings of the equipment necessary for TSGENCO to design the power station and such additional assembly drawings as are necessary to demonstrate fully that all parts of the equipment to be furnished will conform to the provisions and intent of the Contract.
- 6.4 : The Contractor shall also send to the Engineer/Inspector or Consultant for his approval, the drawings for the layout of the station and auxiliaries and sub-assembly and erection drawings and erection sequence schedules. One copy will be returned to the Contractor marked approved/approved with

corrections except in the case of erection drawings and erection sequence schedules. Upon receipt of the approved/prints, the Contractors shall furnish to TSGENCO prints of each drawing with soft copy on CDs in accordance with the distribution schedule as per Annexure - VIII of this Purchase Order.

- 6.5 : CDs shall be of quality to produce clear and legible prints and any inferior quality may be returned by TSGENCO for replacement with suitable quality. The prints shall be accompanied by a letter of transmittal.
- 6.6 : Any manufacturing work in connection with the equipment prior to the approval of drawings shall be at the Contractor's risk. The Contractor shall make the equipment conform to the provisions and intent of the Contract without additional cost to TSGENCO. Approval of the Contractor's drawings shall not be held to relieve the Contractor of any part of Contractor's obligations to meet all the requirements of Contract or of the responsibility for the correctness of the Contractor's drawings.
- 6.7 : All drawings which Contractor shall send to the Engineer for approval shall be approved, rejected or returned for modifications within 15 working days of receipt of these by the Engineer. If within this period no information is received from TSGENCO, it shall be deemed to have been approved by TSGENCO. However, the Contractor shall give consideration in specific circumstances to reasonable request for extension of the afore-mentioned 7 working days.
- 6.8 : Upon approval by the Engineer, the drawings shall become the Contract drawings and the Contractor shall not depart from them anyway whatsoever, except by the written permission of the Engineer.
- 6.9 : The final Contract drawings will remain the property of the TSGENCO.

**7.0 : STATUTORY OBLIGATIONS:**

If the Contract price for due performance of the Contract shall be directly increased or reduced by reasons of the making, passing or promulgation or any law after the date of this Contract in India or any order, regulation or bylaw having the force of the law, the amount of such direct increase or reduction shall be added to or deducted from the Contract price as the case may be.

**8.0 : MISTAKES IN DRAWINGS:**

The Contractor shall be responsible for and shall pay for any alterations of the work due to any discrepancies, errors or omissions in the drawings or other particulars whether they have been approved by the Inspector or not provided that such discrepancies, errors/omissions be not due to inaccurate information or particulars furnished to the Contractor by the Engineer/Inspector/Consulting Engineer.





**9.0 : MATERIAL AND WORKMANSHIP:**

9.1 : The equipment shall be manufactured, constructed in the best and most efficient workmanship like manner and with the materials of the best of or approved qualities for their respective uses.

9.2 : All the materials used and the manufacture of equipment shall be of the best quality and shall conform to the relevant standards. The design and workmanship shall be of the highest norms with the relevant standards. The design and workmanship shall be of the highest quality so as to ensure satisfactory operation of the equipment. The entire equipment shall be in accordance with best modern practice.

**10.0 : COMPLETENESS OF EQUIPMENT/SYSTEMS:**

10.1 : The equipments/systems shall be complete in every respect with all mountings, fittings, fixtures and needed accessories even though not specifically detailed. The Contractor shall not be eligible for any extra payment in respect of such mountings, fittings, fixtures and needed accessories which are needed for safe and satisfactory operation of the equipment as required by the applicable codes within framework of the Contract.

10.2 : All similar component parts of similar equipment supplied shall be interchangeable with one another.

**11.0 : SUB-LETTING OF CONTRACT:**

The Contractor may with prior consent the Engineer or TSGENCO assign or sublet the Contract or any substantial part thereof other than for raw-materials, for minor details for any part of the plant for which the manufacturers and sub-contractors are named in the Contract provided that any such arrangement shall not relieve the Contractor from any obligation, duty or responsibility under this Contract.

**12.0 : INSPECTION, TESTING AND TEST CERTIFICATES:**

12.1 : The Engineer/Inspector and/or his representative shall have at all reasonable times access to the Contractor's or sub-contractors premises of work, and shall have the power at all reasonable times to inspect the drawings on any portion of the equipment or examine the materials and workmanship of the equipment during its manufacture and if part of the equipment is being manufactured in other premises the Contractor shall endeavour to obtain and arrange all necessary requirements to inspect such equipment.

12.2 : The inspector shall, within 7 working days from the date of inspection as defined in sub-paragraph 12.3 below give notice in writing to the Contractor of any objection to any drawings and all or any equipment and workmanship which in his opinion is not in accordance with the Contract. The Contractor shall give due considerations to such objections and shall either make the modifications that may be necessary to meet the said objections or shall confirm in

writing to the Engineer/Inspector giving reasons wherein that no modifications are necessary to comply with the Contract.

12.3 : The Contractor shall give the Engineer/Inspector 7 working days written notice of any materials being ready for testing. Such tests shall be to the Contractor's account except for the expenses of the Inspector and the Engineer/Inspector unless the inspection of the tests is virtually waived, shall attend such tests within 7 working days of the date on which the equipment is notified as being ready failing which the Contractor may proceed with the tests which shall be deemed to have been made in the Inspector's presence and he shall forthwith forward to the Inspector duly certified copies of the tests.

12.4 : When the factory tests have been completed at the Contractor's or sub-contractor's works, the Engineer/Inspector shall issue a certificate to this effect within 7 working days after completion of tests. If the tests are not witnessed by the Engineer/Inspector, the certificate shall be issued within 7 working days of receipt of the Contractor's test certificate by the Engineer/ Inspector. Failure of the Engineer/Inspector to issue such a certificate shall not prevent the Contractor from continuing the work. The completion of these tests, or the issuing of the certificate shall not bind the TSGENCO to accept the equipment, should it, on further tests after erection be found not to comply with the Contract.

12.5 : In all cases where the Contract provides for tests, whether at the premises of works of the Contractor or of any Sub Contractor, the Contractor except where otherwise specified, shall provide free of charges such labour, materials, electricity, fuel, water, stores, apparatus and instruments as are required and carryout efficiently such tests of the equipment in accordance with the Contract and shall give facilities to the Engineer/Inspector or to his authorized representative to witness such tests of the equipment in accordance with Contract/as per applicable standards.

**13.0 : TESTS AT SITE:**

13.1 : In all cases where the Contract provides for tests at the Site, Contractor, except otherwise specified, shall bear all costs such as labour and materials as required to carryout the tests as per relevant standards.

13.2 : All special instruments shall be arranged by the Contractor at the time of the test and taken back by the Contractor after completion of tests with permission of TSGENCO except where specified that same are required for post commissioning O&M purpose.

**14.0 : PACKING:**

14.1 : The Contractor shall include and provide for security protecting and packing equipment so as to avoid damage in transit to site under proper conditions and he shall be responsible for any losses or damages caused or occasioned by any defect in packing. All polished surfaces shall be thoroughly protected from rust during transit. All open ends of tubes nozzles or headers shall be



properly plugged and safe-guard against damages to shop prepared edges, flanged ends shall be adequately blanked.

14.2 : All equipment shall be packed in suitable storage cases wherever essential. Large articles such as plates, which are not packed in cases, shall have all screwed holes plugged suitably and machined surfaces properly protected. The Engineer may also issue specific packing requirement for certain items and the Contractor shall endeavour to comply with the same. Weight and size limitation for transport shall be taken care of by the Contractor and Contractor shall get himself informed about transport logistic arrangements.

14.3 : It may be noted that the marking on all packages dispatched to site shall be in English preferably in black paint. Where ever necessary special marking in English shall be painted on the packages as per standard practice.

**15.0 : REVISIONS AND/OR MODIFICATIONS:**

15.1 : TSGENCO shall have full power, subject to the provision hereinafter contained, from time to time during the execution of the Contract by notice in writing to instruct the Contractor to alter, omit, add to or otherwise revise and modify the work without prejudice to the Contract. The Contractor shall carryout such revisions and modifications and shall be bound by the same conditions as far as applicable as though the revisions and modifications occurred in the specifications, provided, however, that any such revisions and modifications would in the opinion of the Contractor, if carried out, prevent him from fulfilling any of his obligation or guarantee under the Contract, he shall so notify TSGENCO in writing. TSGENCO shall decide forthwith whether or not the revisions and modifications shall be carried out and if TSGENCO confirms the instructions, the Contractor shall be held relieved of such obligations or guarantees so far as only the suggested revisions and obligations can be shown to affect the Contractor's obligations or guarantees.

15.2 : The difference in price, if any, occasioned by the said revisions and modifications shall be added to or deducted from the Contract price as mutually agreed. TSGENCO shall not become liable for the payment of any change in respect of such revisions and modifications unless the instructions for the performance of the same shall have been given in writing by TSGENCO.

**16.0 : REPLACEMENT OF DEFECTIVE MATERIALS/ PLANT:**

If during the progress of work, the Engineer shall decide and notify in writing to the Contractor that any part of the work executed by the Contractor is unsound or imperfect and inferior in quality to that specified, the Contractor on receiving details of such defect or deficiency shall, if he accepts the Engineer's findings, alter, reconstruct or remove such plant or part of plant or provide fresh materials upto the standard of the specification at his own expense, with in such time as may be reasonably necessary for the purpose. In case the Contractor fail to do so, TSGENCO may give the Contractor 7 days notice in writing of

their intention to do so, proceed to alter, reconstruct or remove such plant or part or provide all such materials at the Contractor's cost provided that nothing, in this clause shall be deemed to deprive TSGENCO or affect any rights of the Contractor which he may otherwise have in respect of such defects or deficiencies and provided that such replacements shall be carried out by TSGENCO within a reasonable time and at a reasonable price and when reasonably possible to the same specifications and under competitive conditions.

**17.0 : WARRANTY:**

- 17.1 : The Contractor warrants that the plant will be new and in accordance with the specifications and that the equipment will be free from defects in design and workmanship.
- 17.2 : For a period of 12 calendar months commencing immediately from the date on which the plant is commissioned, called 'Warranty Period' the Contractor shall be liable to repair or replace any defective parts that may develop in the plant under conditions provided by the Contract and under proper use and arising solely from faulty design, materials or workmanship free of all costs to TSGENCO provided that notice of any such defects or failure to conform to the specifications and satisfactory proof thereof is given reasonably and promptly by TSGENCO to the Contractor. The warranty period of unit with its auxiliaries shall be reckoned from the respective dates of commissioning. In the event of the commissioning being delayed for reasons not wholly attributable to the Contractor, the Contractor's obligations under this clause shall cease on the expiry of 18 months from the date on which the commissioning would have been completed but for such delay.
- 17.3 : The Contractor's liability under this clause shall be limited, at Contractor's option to repair or replace with all transport charges from site to Contractor's works and back shall be to the contractor's account.
- 17.4 : The acceptance of the plant by the Engineer shall in no way relieve the Contractor of his obligation under this clause.
- 17.5 : In the case of defective parts not repairable at site, but essential in the meantime for the commercial operation of the plant, the Contractor and TSGENCO shall mutually agree to a programme of replacement or renewal which will minimize to the maximum extent interruption in the operation of the plant.
- 17.6 : If it becomes necessary to replace or renew any defective part under this article, the provisions of this article shall apply to replaced part until the expiry of 6 months from the date of such replacements/renewal or until the end of the warranty period specified in sub-clause whichever may be later.
- 17.7 : The provisions contained in this clause will not be applicable.
- i) If TSGENCO has not operated the equipment according to generally approved industry practices and in accordance with the



conditions of operation specified and in accordance with operation manuals if any.

- ii) If TSGENCO has not notified the Contractor in writing within reasonable time any defect occurred.
- iii) In cases of normal wear and tear.

**18.0 : FAILURE TO PERFORM:**

If the Contractor shall neglect to manufacture or supply plant, material and equipment or to perform the work with due diligence and expedition or shall refuse or neglect to comply with any orders given to him in writing by the Inspector or Engineer which are specifically made binding on the Contractor by the terms of the Contract or shall contravene the provisions of the Contract or if the completed work or any portion thereof, before it is taken over be defective or fails to fulfill the requirements of this Contract subject to the provisions of the warranty in Clause (17), TSGENCO may give notice to the Contractor in writing calling upon him to make good the failure, neglect or contravention complained of and should the Contractor fail to comply with such notice within a reasonable time after the date of service thereof or otherwise within such time as may be reasonable and necessary for making it good then and in such case TSGENCO and the Contractor shall endeavour to reach a mutually satisfactory agreement. Failing such agreement TSGENCO shall have the right to terminate the Contract in whole or in part and claim damages.

**19.0 : CO-ORDINATION:**

- 19.1 : The Contractor agrees to co-operate with the TSGENCO's Consulting Engineers and the other Contractors for associated equipment and freely exchange with them such technical information as is necessary to obtain the most efficient and economical design and to avoid un-necessary duplication of equipment. No remuneration shall be claimed from the TSGENCO for such technical cooperation.
- 19.2 : TSGENCO reserves the right to perform or have performed in and about the works during the time when the Contractor is performing his hereunder such other work as TSGENCO desires and the Contractors shall make all reasonable effort to perform his work hereunder in such manner as will enable such other work to be performed without hindrances. TSGENCO or its Engineer shall co-ordinate such activities of the various Contractors to ensure that the work to be performed by the Contractor is not affected or interrupted or put to delay or additional expenses.

**20.0 : PATENT RIGHTS:**

The Contractor shall at his cost defend any claim which result in a suit or proceeding against the TSGENCO that the equipment or any part thereof constituted an infringement of any patent of the country of foreign or India, if notified reasonably and promptly in writing and given authority,

information and assistance for the defence and the Contractor shall pay all damages and costs if any awarded against TSGENCO in such suit or proceedings for patent infringement. In case the equipment in such suit or proceedings is held to constitute infringement and the use of the equipment or part is prohibited for TSGENCO the right to continue using the equipment or replace the same with a non-infringing or remove the equipment and Contractor shall refund the price plus the transportation and installation costs thereof.

**21.0 : FORCE MAJEURE:**

21.1 : Force majeure shall mean any event beyond the reasonable control of the parties to the contract which is unavoidable, notwithstanding the reasonable care taken by the party affected.

The activities, but not limited to the following, shall constitute Force majeure:

- i) Natural phenomena, including but not limited to weather conditions, floods, droughts, earthquakes and epidemics.
- ii) Acts of any government authority domestic or foreign, including but not limited to war, declared or undeclared, priorities, quarantine, embargoes, licensing control or production or distribution restrictions.
- iii) Accidents and disruptions including but not limited to fires, explosions, breakdowns of essential machinery or equipment and power shortage.
- iv) Strikes, slow-downs, lock-outs, sabotage.
- v) Defects in heavy forgings and castings.
- vi) Failure or delay in Contractor's source of supply due to force majeure causes enumerated at (i) to (v).

21.2 : The Contractor shall not be liable for delays in performing his obligations resulting directly or indirectly from any force majeure clause as referred to and/or defined in paragraph above. Dates of completion shall, subject to as hereinafter provided be extended by a reasonable time even though such cause may occur after the Contractor's performance of his obligations has been delayed for other causes solely not attributable to the Contractor. If any such delay lasts for more than six months, the parties hereto shall immediately consult one another for purpose of agreeing upon a reasonable basis on which the Contractor shall resume supply and if the parties do not agree upon a solution of the problem involved including adjustment of the price, such price adjustment being both upwards and downwards then either party may cancel the contracts, and if the rights of the parties on such cancellations are not amicably settled, any dispute in regard thereto may be settled by arbitration. All the provisions of this clause shall apply whether the disruptions caused is total or partial in its effect upon the ability of the Contractor to perform.

**22.0 : COMPLIANCE WITH LAWS AND REGULATIONS:**

The Contractor shall comply with all laws, statutes, by-laws ordinances and regulations of statutory and government authorities which are applicable to this Contract, guarantee full compliance with the said laws and regulations by any sub-contractor and agree to indemnify the TSGENCO against any



cost, loss, liability or obligation which may arise as a consequence of the failure of the Contractor or any sub-contractor or their agents or workmen to comply fully with the said laws and regulations, or which may arise as a consequence of any injury, illness or death of any employee of the Contractor or sub-contractor engaged on the work.

**23.0 : TITLE:**

Title to all of the materials, equipment and apparatus covered by this Contract shall pass on to the TSGENCO on dispatch from the Contractor's works/sub-Contractor's works/port of entry. However, TSGENCO shall have the right to have the possession or use of any completed or partially completed work-such possession or use shall not be deemed to be acceptance of any work not in accordance with the Contract.

**24.0 : PROGRESS REPORTS:**

The Contractor shall furnish to TSGENCO progress reports of the Civil Works at the end of every month indicating adherence to major mile stone activities/dates and slippages/holdups, if any, with remedial actions taken etc. The form and content shall be mutually agreed.

**25.0 : ENGINEER'S DECISION:**

In respect of all matters which are left to the decision of the Engineer including the granting or with-holding of the certificates, the Engineer shall and if required to do so by or the Contractor, give in writing the decision thereon and his reasons for such decision. If the decision is not accepted by the Contractor the matter shall be mutually discussed and settled.

**26.0 : REJECTION OF DEFECTIVE PLANT:**

If the completed plant or any portion thereof before it is taken over, be found to be defective or fails to fulfil the requirements of the Contract the Engineer shall forthwith give the Contractor notice setting forthwith particulars of defects or failure and the Contractor, if he accepts the defects in working, shall forthwith make good the defects or correct the same to make sure compliance with the requirements of the Contract. If the Contractor fails to do so within a reasonable time, TSGENCO may reject or replace at the cost of the Contractor the whole or any portion of the plant as the case may be which is defective or fails to fulfill the requirements of the Contracts. Such replacements shall be carried out by TSGENCO within a reasonable time and at a reasonable price and where reasonably possible to the same specification and under competitive conditions. In case of such replacement by TSGENCO the Contractor shall be liable to pay TSGENCO the extra cost, if any, of such replacement delivered and/or erected as provided for in the original Contract such cost being the ascertained difference between the price paid by TSGENCO under the provisions above mentioned, for such replacement and the Contract price for the plant so replaced and also to reimburse the price paid by the TSGENCO to the Contractor in

respect of such defective plant. If TSGENCO does not so replace the rejected plant within a reasonable time, the Contractor shall be liable only to repay all money paid by TSGENCO to him in respect of such plant.

In the event of such rejections, TSGENCO shall be entitled to the use of the plant in a reasonable and a proper manner for a time reasonably sufficient to enable him to obtain other replacement plant. The rejected plant shall be the property of the Contractor.

**27.0 : DEDUCTIONS FROM CONTRACT PRICE:**

All costs, damages, expenses which the TSGENCO may have paid for which under the Contract, the Contractor shall be demanded by the TSGENCO through separate bills/invoices. If the money due or becoming due by the Contractor to TSGENCO is not paid within a reasonable time, TSGENCO may recover such amounts due to the Contractor under this Contract or any other contract in vogue.

**28.0 : PERFORMANCE GUARANTEE TESTS:**

28.1 : Final tests as mutually agreed to check the performance guarantees shall be carried out by the Contractor preferably, immediately after taking over.

28.2 : The above tests should be carried out in the presence of the Engineer or his authorized representatives to his entire satisfaction.

28.3 : In case of unsatisfactory result of guarantee tests representatives of both the parties to the Contractor will agree upon appropriate repairs or adjustments necessary for the achievement of the guaranteed values. The performance guarantee tests shall be repeated on the same conditions after carrying out the repairs or adjustment as stated in previous sub paragraph.

28.4 : The tests conducted shall conform to relevant ISS or ISO or equivalent international standards.

28.5 : In addition, the performance capabilities of individual auxiliaries shall also be ascertained.

**29.0 : PERFORMANCE:**

The performance figures in respect of guaranteed parameters thereof would be as offered by the Contractor and as indicated in the clause 9(b) of this purchase order.

**30.0 : INSTRUCTION MANUALS:**

30.1 : The Contractor shall furnish hard copies and soft copies of instruction manuals for installation, adjustments, O&M of all equipments covered under this Contract as per distribution schedule at annexure-VIII. The manuals all be



specific to the equipment furnished. Instructions of assembly and installation shall show identified part numbers of the dismantled equipment.

30.2 : The Contractor shall make available all the O&M manuals at least six months before commissioning of the unit to TSGENCO to enable its engineers to study the operation and maintenance instructions.

30.3 : Separate instruction manuals shall be furnished for each equipment covered under this Contract.

30.4 : All the above documentation/drawings/manuals shall also be made available in computer based software in the form of CDs compatible for LAN operation requisite number of user licenses.

**31.0 : TAKING OVER CERTIFICATE:**

31.1 : After the unit has been successfully commissioned, the unit along with the auxiliary equipment shall be taken over by TSGENCO and, taking over certificate shall be issued. Such taking over certificate shall not be unduly delayed and shall be issued within 15 days of successful commissioning of the unit.

31.2 : Small defects which do not endanger the safe operation of the equipment shall not be considered as reasons for not taking over the Unit. The defects will be listed out and will be gradually set right within a reasonable time stipulated by TSGENCO.

31.3 : If, by reasons or any default on the part of the Contractor, taking over certificate has not been issued in respect of any portion of the works within one month after the time for completion or extended time as the case may be, TSGENCO shall be at liberty to use the works or any portion thereof in respect of which a taking over certificate has not been issued, provided that the works or the portion so used and that aforesaid shall be reasonably capable of being used and that the Contractor shall be afforded the earliest possible opportunity of taking such steps as may be necessary to permit the issue of the taking over certificates.

**32.0: NOTICES:**

32.1 : Notices and other communications between TSGENCO and the Contractor shall be deemed validly given if transmitted in writing, fax message, e-mail/ internet messages addressed respectively as follows (Presently applicable list. Modifications if any shall be informed as and when required during contract execution stage):

1. TSGENCO : The Chairman & Managing Director,  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.



2. Engineer : The Executive Director,  
Thermal Projects Construction,  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.
3. : The Chief Engineer (Construction),  
YTPS/TSGENCO,  
Dameracherla(Mandal),  
Veerlapalem(Village),,  
Nalgonda District.
4. : The Executive Director (Civil/Thermal),  
TSGENCO, Vidyut Soudha,  
Hyderabad-500 082.
5. : The Superintending Engineer,  
TPC- III, TSGENCO,  
Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.
6. Consultant : M/s TATA Consulting Engineers Ltd,  
73/1, Sheriff Centre , St. Marks Road, Bangalore-  
560001
7. Contractor : M/s. Bharat Heavy Electricals Ltd.,  
Power Sector - Marketing,  
BHEL House, Siri Fort,  
New Delhi – 110 049.

32.2 : Necessary copies of communications, drawings, documents and test reports, operation instructions O&M manuals, as built documents etc., shall be sent as per the distribution schedule Annexure VIII.

32.3 : English language shall be used in all written communications between TSGENCO and the Contractor in connection with the Contract.

**33.0 : SUSPENSION OF WORK**

The purchaser reserves the right to suspend and reinstate execution of the whole or any part of the contract without invalidating the provisions of the contract. Orders for suspension or reinstatement of the works shall be issued by the Engineer to the Contractor in writing. The time for completion of the works shall be extended for a period equal to the duration of the suspension.

If, by virtue of a suspension order given by the Purchaser, other than by reason of the Contractor's default, the Contractor's performance of any part of its obligations is suspended for an aggregate period of more than



ninety (90) days, then at any time thereafter and provided that at that time such performance is still suspended, the Contractor may give a notice to the Purchaser requiring that the Owner shall, within twenty-eight (28) days of receipt of the notice, order the resumption of such performance.

If the Owner fails to do so within such period, the Contractor may, by a further notice to the Owner, elect to treat the suspension, where it affects a part only of the plant and equipment, as a deletion of such part or, where it affects the whole of the plant and equipment, as termination of the Contract.

33.1 :

If

(a) the Owner has failed to pay the Contractor any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause, or commits a substantial breach of the Contract, the Contractor may give a notice to the Owner that requires payment of such sum, requires approval of such invoice or supporting documents, or specifies the breach and requires the Owner to remedy the same, as the case may be. If the Owner fails to pay such sum, fails to approve such invoice or supporting documents or give its reasons for withholding such approval, or fails to remedy the breach or take steps to remedy the breach within fourteen (14) days after receipt of the Contractor's notice or

(b) the Contractor is unable to carry out any of its obligations under the Contract for any reason attributable to the Owner, including but not limited to the Owner's failure to provide possession of or access to the Site, or failure to obtain any governmental permit necessary for the execution and/or completion of the Facilities;

then the Contractor may by fourteen (14) days' notice to the Owner suspend performance of all or any of its obligations under the Contract, or reduce the rate of progress.

33.2 :

If the Contractor's performance of its obligations is suspended or the rate of progress is reduced pursuant to this Clause 36, then the Time for Completion shall be extended in accordance, and any additional costs or expenses incurred by the Contractor as a result of such suspension or reduction shall be paid by the Owner to the Contractor in addition to the Contract Price, except in the case of suspension order or reduction in the rate of progress by reason of the Contractor's default or breach of the Contract.

34.0 :

#### **LIMITATION OF LIABILITY**

34.1 :

The final payment by the Purchaser in pursuance of the contract shall mean, the release of the Contractor from all his liabilities under the contract except his obligations under the warranty period. All other payments made under the contract shall be treated as on-account payments.

34.2 :

The Contractor shall not be liable to the Owner, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of profit, cost of



capital, cost of replacement power or increased cost of operation, provided that this exclusion shall not apply to any obligation of the contractor to pay liquidated damages to the owner, and

34.3 : The aggregate liability of the contractor to the owner under the contract shall not exceed 10% of the Total contract price ( 2.0 (C1) , provided that this limitation shall not apply to any obligation of the contractor to repair or replace defective equipment or to indemnify the owner with respect to patent infringement.

**35.0 QUALITY OF WORKMANSHIP:**

The plant shall be erected and commissioned in the best and most substantial and most workman like manner.


**36.0. WORK TO THE SATISFACTION OF ENGINEER:**

The work and manner of its performance shall be done to the satisfaction of Engineer. The Engineer shall be judge of the work in respect of both quality and quantity.

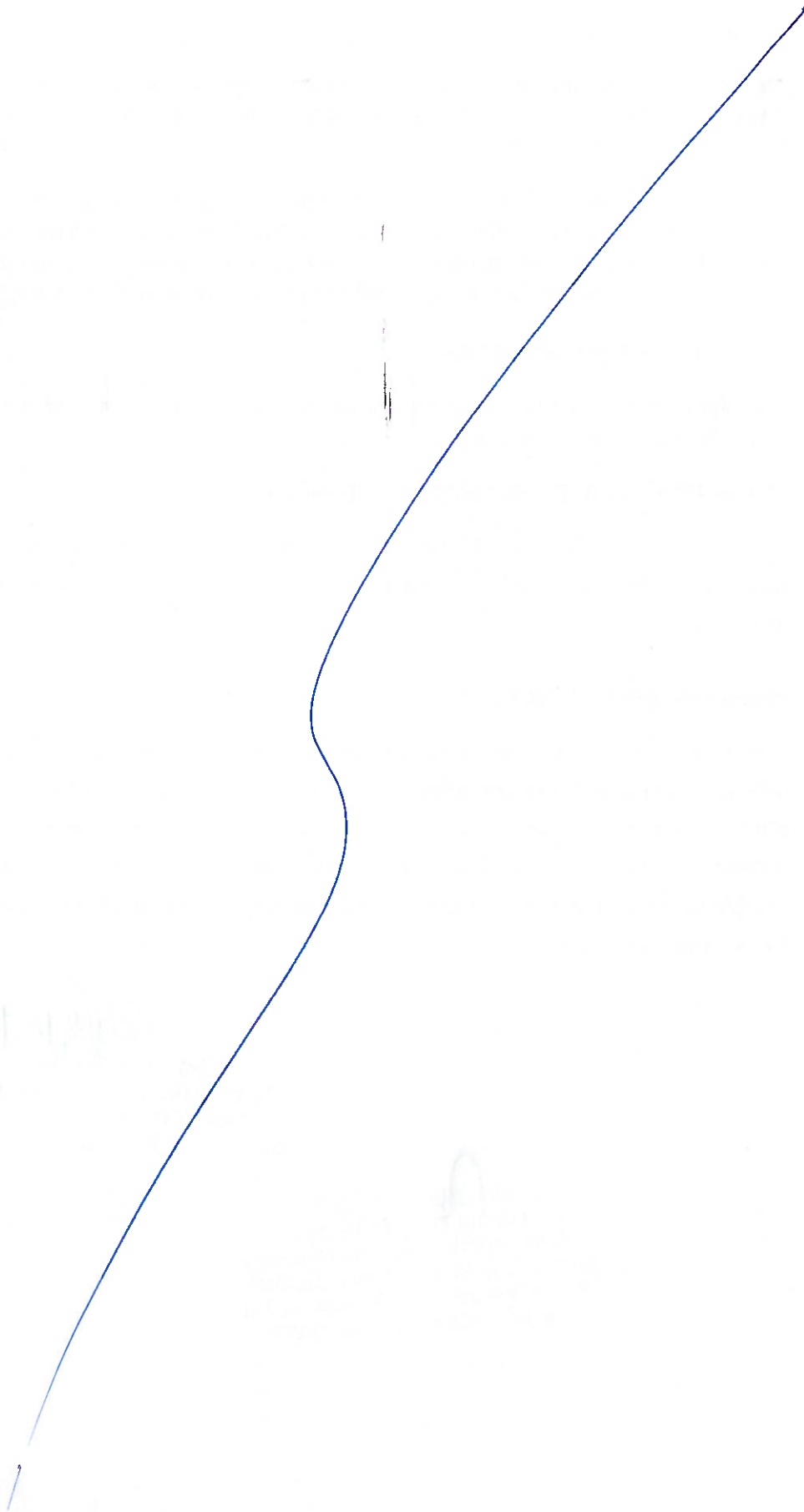
**37.0 COMPLETION OF WORK:**

The equipment & plant shall be erected in every respect with all mountings, fittings, fixtures and needed accessories even though not specifically detailed in the specifications. Contractor shall not be eligible for any extra payment in respect of erection or such mounting, fittings, fixtures and accessories which are needed for safe operation of the equipment as required by applicable codes within frame work of the Contract.

  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

  
मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
बी.एच.ई.एल हाउस , सीरी फोर्ट / BHEL House , Siri Fort,  
नई दिल्ली - 110049 / New Delhi -110049





5X800 MW YADADRI THERMAL POWER STATION- SERVICES CONTRACT

**ADVANCE CUM PERFORMANCE BANK GUARANTEE FOR .... UNITS**

Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha  
Hyderabad - 500082

Guarantee No:

Date:

In consideration of the **Telangana State Power Generation Corporation Limited (TSGENCO)**, a Company incorporated under the provisions of the Indian Companies Act, 2013 and having its registered Office at Vidyut Soudha, Hyderabad (hereinafter called 'the Corporation') having at our request agreed to accept this Bank Guarantee No. .... in lieu of Cash Deposit required from **M/s. Bharat Heavy Electricals Limited (BHEL)**, a Company incorporated under the provisions of the Indian Companies Act, 1956 and having its registered Office at *BHEL House, Siri Fort, New Delhi - 110049* (hereinafter called "the Contractor"). For the due fulfilment by the Contractors of the terms and conditions of the Revised Letter of Intent No. ED/TPC/SE-III/EME-9/Yadadri TPS (5X800MW)/D.No.102/17,dated 17.10.2017, made by the Corporation for Civil works of Steam Generator Package, Turbine & Generator Package and Balance of plant equipment for for *5x800 MW Yadadri Thermal Power Station* (hereinafter called "said Agreement") during the period, if any, to indemnify and keep indemnified the Corporation to the extent of **Rs.....** Representing .....% of the value of the said Agreement for ... Units of 800MW against all the losses, claims, damages and costs suffered by TSGENCO caused to or suffered by the Corporation by reason of any breach by the said Contractor; of any terms and conditions of the said agreement.

Further the Corporation has agreed to pay .....% of the contract price equivalent to **Rs.....for .... Units of 800MW** to the Contractor as interest free advance against this Advance Cum Performance Bank Guarantee to be furnished by the Contractor as per the said Contract.





We, Bank ----- (hereinafter referred to as the "Bank") further agree that the guarantee herein contained shall come into force upon its issuance and remain in full force and effect up to and inclusive of .....; or the expiry of the extended period if any, and that it shall continue to be enforceable till all the dues of the Corporation, under or by virtue of the said agreement, have been fully paid and its claims satisfied or discharged, or till the Executive Director/TPC, certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said Contractor; and accordingly discharges the guarantee subject to however, that the Corporation shall have no right under this bond, unless the period is extended as aforesaid, after the expiry of .....

We the guarantor Bank undertake to pay the amount guaranteed hereunder, or such part thereof as required 'immediately' of the same being demanded by the Corporation without referring to the Contractor, and without questioning the right of the Corporation to make such demand or the propriety or legality of the demand.

This Bank Guarantee is subject to the Uniform Rules for Demand Guarantees 2010 Revision ICC Publication No.758 (URDG).

We, Bank------(hereinafter referred to as the "Bank") lastly agree that this Bank Guarantee is

- i. Unconditional and absolute, and
- ii. Without any delay or demur if claim arises.

We, Bank ------(hereinafter referred to as the "Bank") lastly undertakes not to revoke this guarantee during its currency except with the prior consent of the Corporation in writing.

Dated the        day of        ,... Year.

For ..... Bank

Witness:

Signature :-----

1.

Designation:-----

Address: -----

2.

Seal: -----



मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager

  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

पॉवर सेक्टर मार्केटिंग / Power Sector Marketing  
TELANGANA STATE POWER GENERATION CORPORATION LIMITED


भारत भारती लिमिटेड / Bharat Heavy Electricals Ltd.  
डीएचईएल हाउस, ४८ बॉर्डर / BHEL House, SBI Fort,  
नई दिल्ली - ११००१९ / New Delhi - 110049


**Annexure- VI**

Contract No.3000000016/ED/TPC/SE3/EME 9/D65/D.No.56/18,Dt:29.03.2018

Detailed BBU terms and conditions for Civil Works.

- i. The billing prices indicated in the approved BBUs are only indicative for progressive billing purpose and same shall be arranged with all requisite services, construction, materials etc,
- ii. The billing break-up should have Stage wise(Stage-I & Stage-II) and common to Stage -I&II Break-up
- iii. Payments shall be regulated as per the payment terms of purchase order clause No.7 and as per the approved rates in the billing breakup prices.
- iv. The notional breakup prices should not be construed for any other purpose, except for raising invoices and for arranging progressive payments.
- v. M/s BHEL shall supply,construct ,commissioning of all the civil works in complete shape though they were not covered in the breakup of prices.
- vi. In case of any dispute / discrepancy, the final payment shall be made only after dispute is settled.
- vii. It is requested to intimate the details of equipment /material to be dispatched in each quarter and funds requirement, in advance ,keeping in view the L2 - Net work for supplies & Erection sequence, for planning of funds with M/s REC and timely release of Payments by TSGENCO

  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

  
मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग/Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड/ Bharat Heavy Electricals Ltd  
बी.एच.ई.एल हाउस ,सिरी फोर्ट / BHEL House , Siri Fort,  
नई दिल्ली - 110049 / New Delhi -110049



## Annexure-VII

**This document should be executed by M/s BHEL on Rs 100/- non judicial Stamp paper  
ANNEXURE-VIII**

Contract No.3000000016/ED/TPC/SE3/EME 9/D65/D.No.56 /18,Dt:29.03.2018

To

The Executive Director,  
Thermal Projects Construction,  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

Sub:- Yadadri TPS (5X800MW) -Single EPC Contract - Interlinking document - Reg.

Ref:- 1. MOU signed b/w CMD BHEL & CMD TSGENCO on 04-10-2014.

1. Revised LOI.No.ED/TPC/SE-III/EME-9/Yadadri TPS(5x800MW)/D.No.102/17,  
Dt.17-10-2017.

3. Supply Contract No. 3000000014, dated . .2017
4. Erection & Commissioning Contract No. 3000000015, dated . .2017
5. Civil Contract No.3000000016, dated . .2017

\* \* \*

Telangana State Power Generation Corporation Limited (TSGENCO) entered Memorandum of Understanding (MOU) with M/s Bharat Heavy Electricals Limited (M/s BHEL) for setting up of 6000MW Thermal power plants in the State of Telangana.

As part MOU, TSGENCO proposed to set up 5X800MW Supercritical Thermal Unit at Yadadri Thermal Power Station, Dameracherla(Mandal), Nalgonda District. M/s BHEL submitted their Revised techno-commercial offer vide 17.10.2017. After various discussions and negotiations M/s BHEL submitted acceptance for Rs. 20,379/- Crores. Accordingly, TSGENCO vide ref(2) above issued Letter Of Intent for Design, Engineering, Manufacture, Supply, transportation to site, insurance, erection, testing & commissioning of main plant & balance of plant equipment including civil works and mandatory spares of 5X800 MW Coal Fired Supercritical Thermal Unit to M/s BHEL.

TSGENCO has placed three separate Contracts as follows:

1. Supply Contract
2. Erection & Commissioning Contract
3. Civil Contract

M/s BHEL here by declares that M/s BHEL is liable to TSGENCO for the whole scope of the work in accordance with the Contracts under references cited above, as if the said three Contracts were One Composite Contract, not withstanding the split of the Contract into three separate Contracts.

M/s BHEL assures TSGENCO that any default on the part of M/s BHEL under any one of the three Contracts shall be treated as a default under all the Contracts and accordingly the rights of TSGENCO to repudiate the Contract, reject the goods, claim Liquidated Damages, Penalties etc., shall be available with respect to all the three Contracts, as per respective Clauses in the Contracts placed, even though the default may have occurred under one Contract only.

Thanking You,  
Yours faithfully,

M/s Bharat Heavy Electricals Limited



मनोज शाह / MANOJ SHAH

महानिर्देशक / General Manager

प्राप्त, सेक्टर मार्केटिंग / Power Sector Marketing

भारत भारी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd

वी.एच.ई.एल. हाउस, सीरी फोर्ट / BHEL House, Siri Fort,

नई दिल्ली - 110049 / New Delhi -110049

  
29/03/18  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

TELANGANA STATE POWER GENERATION CORPORATION LIMITED

ANNEXURE - VIII

Contract No.3000000016/ED/TPC/SE3/EME 9/D65/D.No.56 /18,Dt:29.03.2018

DISTRIBUTION SCHEDULE

S.No	Description	TSGENCO					Consultant					Equipm ent Vendor	Remarks	
		CMD Hyd	Director (Projects)	ED/ Civil Hyd.	ED (TPC) Hyd	CE/ TPC	CE/ YTPS	SE (Civil) YTPS	SE (E&M) YTPS	EE YTPS	Head Office			HYD
A.	Vendor Drawings													
1.	Preliminary	-	1	1	2	1	1	1	2	-	10	1	-	S
2.	Return preliminary with comments	-	1	1	2	1	1	1	1	-	S+2	-	-	1
3.	Final and any revision thereof	1	1	1	3	1	1	1	3	-	2	1	1	S
B.	Progress Report Monthly													
1.	Monthly progress report	1	1	1	2	1	1	1	1	1	1	1	1	S
C.	Instruction Manuals/ Data Books/As built drawings													
1.	Equipment manufacturer	-	-	-	2	1	1	-	1	4	2	1	1	S
D.	Correspondence													
	Technical	1	1	-	1	1	1	-	1	1	1	1	1	S
	2. General & Commercial	1	1	-	1	1	1	-	-	-	-	-	-	S
		S	:	Source										
		T	:	Transparency and soft copy on CD										


*Open*

*29/03/18*

Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

मनोज शाह / MANOJ SHAH  
महानिदेशक / General Manager - 59  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd.  
बीएचईएल हाउस, सीरी कोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi -110049



	<p align="center"><b>TELANGANA STATE POWER GENERATION CORPORATION LIMITED</b></p> <p align="center">TSGENCO CORPORATE OFFICE VIDYUTH SOUDHA, HYDERABAD</p>
<p>From: The Executive Director(TPC) Thermal Projects Construction, TSGENCO, Vidyut Soudha, Khairatabad, Hyderabad-500 082 Email ID:edtpctgenco@gmail.com</p> <p>GST No:36AAFCT0257Q3ZT TIN No :36280126964 PAN NO:AAFCT0257Q CIN No :U40102AP2014SGC094070</p>	<p>To: M/s Bharat Heavy Electricals Limited, Power Sector - Marketing, Siri Fort, BHEL House NEW DELHI-110049</p> <p>Vendor Code :104841</p>

Contract No.3000000015/ED/TPC/SE-3/EME-9/D65/D.No.55/18,Dt:29.03.2018

Dear Sir,

Sub: TSGENCO - Yadadri Thermal Power Station (5X800 MW)-Transportation of equipment to site, transit insurance, unloading at site, storage, comprehensive construction insurance, inter site transportation & handling, construction, erection, testing & commissioning of the main plant, balance of plant equipment, of the complete coal fired supercritical steam power plant (including boiler, turbine, generator, transformers, station C&I, and all the required balance of Plant etc.,) for 5 X800 MW Yadadri Thermal Power Station - Detailed Erection & Commissioning Purchase Order - Issued.

Ref:-

1. MOU signed b/w CMD BHEL & CMD TSGENCO on 04.10.2014.
2. TSGENCO letter No. CEE/KTPS-VII (1x 800 MW)/BHEL/ D.No. 72/14, dated 07.10.2014
3. Soil Test report for Kothagudem 1x800 MW released by TSGENCO vide email dated 13.10.2014
4. Technical Specification for Kothagudem (1x800 MW) released by TSGENCO vide email dated 13.10.2014
5. MOM for resolutions against various technical deviations of BHEL dated 25.11.2014
6. Discussions between TSGENCO and BHEL on 05.05.2015 for finalizing the basis for submission of BHEL Commercial offer
7. TSGENCO email dated 06.05.2015 forwarding VTPS water analysis for initiating preliminary Engineering activities
8. BHEL email dated 11.05.2015 forwarding technical drawings for the project.
9. BHEL email dated 11.05.2015 forwarding Write-ups for the BoP packages for the project.
10. BHEL Techno-Commercial offer Dated 12.05.2015
11. BHEL email dated 12.05.2015 forwarding deviations to Kothagudem 800 MW project.

12. BHEL email dated 14.05.2015 forwarding CHP Technical offer for the project.
13. BHEL email dated 16.05.2015 forwarding AHP Technical offer for the project.
14. TSGENCO email dated 18.05.2015 forwarding Climatological data for 5x800 MW Yadadri TPS Project
15. TSGENCO email dated 19.05.2015 forwarding Wind Rose diagram for 5x800 MW Yadadri TPS Project
16. Meeting and discussions between BHEL and TSGENCO on 20.05.2015
17. BHEL email dated 22.05.2015 finalizing date for meeting with TSGENCO
18. TSGENCO letter no. CE/TPC/SE-III/DE/CS/EME-6/Yadadri TPS /D.No. 8 /15 dated 22.05.2015
19. Meeting between BHEL and TSGENCO on 23.05.2015
20. TSGENCO letter no. CE/TPC/SE-III/DE/CS/EME-6/Yadadri TPS /D.No. 10 /15 dated 23.05.2015
21. TSGENCO letter no. SE/TPC/O/o CE/TPC/DE(CS)/Yadadri TPS/D.No. 12 /15 dated 26.05.2015
22. BHEL email dated 27.05.2015 forwarding comments on TSGENCO Letter
23. BHEL Revised Techno-commercial offer dated 28.05.2015
24. Discussions between BHEL and TSGENCO on 01.06.2015
25. BHEL Revised Techno-commercial offer dated 01.06.2015
26. LOI.No.CEE/TPC/SE-III/Yadadri TPS(5x800MW)/D.No.15/15, Dt.01-06-2015.
27. MoEF & CC GOI, EC No. J-13012/18/2015/IA.I(T),Dated:29.06.2017.
28. CFE Order No. 10/TSPCB/CFE/RO-NLG/HO/2017,Dated:25.07.2017.
29. TSGENCO Lr No. ED/TPC/SE-III/EME9/YTPS(5X800MW)/F.No.40/D.No.77/17, Dt: 01.08.2017.
30. TSGENCO E-mail on Raw water analysis, Dated 26.09.17.
31. MOM dated 04/10/2017 on various technical issues and scope issues discussed on 15.09.2017, 16.09.2017, 18.09.2017, 21.09.2017, 22.09.2017 and 04.10.2017
32. MOM dated 04.10.17 on deletion of scope of civil works for Non-plant buildings from BHEL scope
33. Commercial MOM signed on 09.10.2017 between M/s BHEL and M/s TSGENCO
34. M/s BHEL Revised Techno-Commercial Offer Letter MS-1-14-0007, Dt:17.10.2017.
35. Revised LOI.No.ED/TPC/SE-III/EME-9/Yadadri TPS(5x800MW)/D.No.102/17, Dt.17-10-2017.

\*\* \*\* \*

I, acting for and on behalf of and by the order and direction of Telangana State Power Generation Corporation Limited (hereinafter called 'TSGENCO') accept your Revised Techno-commercial offer in the reference (34) cited with respect to the above correspondence regarding specification, related discussions, correspondence/clarifications on deviations and negotiations for basic & detailed design, engineering, manufacture, procurement, assembly, pre-assembly, inspection, testing, packing & Telangana State Power Generation Corporation Ltd





forwarding, loading, supply, transportation to site and transit insurance, unloading at site, storage, comprehensive insurance, inter-site & intra-site transportation & handling, construction, erection, testing & commissioning, trial operation of the combined main plant, balance of plant equipment including civil works, training of O&M Personnel, supply of start-up & commissioning and mandatory spares including warranty period for 365 days from the respective dates of commissioning i.e, COD of respective of all the five coal fired Supercritical thermal units (including boiler, turbine, generator, transformers, Station C&I, Civil works and all the required Balance of Plant packages etc.,) for 5X800 MW Yadadri Thermal Power Station, subject to the terms and conditions set out in this order.

Three purchase orders viz., supply, erection & commissioning and civil works are issued in regularization of Revised Letter of Intent dated 17.10.2017 cited under reference (35) above.

M/s BHEL is liable to TSGENCO for the whole scope of the work in accordance with the supply, erection & commissioning and civil purchase orders.

### **1.0 SCOPE OF CONTRACT:**

The scope of work against this contract covers the transportation of equipment to site, transit insurance, unloading at site, storage, comprehensive construction insurance, inter site transportation, intra site transportation & handling, construction, erection, testing & commissioning of the main plant, balance of plant equipment, for the complete coal fired supercritical steam power plant (including boiler, turbine, generator, FGD, DE-NOx, transformers, Station C&I, and all the required balance of Plant etc.,) for 5 X800 MW Yadadri Thermal Power Station at Dameracherla, Nalgonda District of Telangana State, to the terms and conditions set out in this order.

The broad scope, inclusions, exclusions, owner's obligations and technical particulars shall be in line with the specification to be read along with resolutions of deviations and Revised techno commercial offer furnished by M/s BHEL, negotiations and subsequent correspondence in the reference cited above. However, the scope of the Erection & Commissioning works shall also include any work which is not specifically mentioned but required for the successful commissioning of the 5 x 800 MW Unit.

### **2.0 SCHEDULE OF PRICES:**

Services Contract:

<b>Sl No</b>	<b>Description</b>	<b>Price (INR Crore)</b>
B.1	Unloading at site, handling, erection, inter site, intra-site Transportation & Handling, Testing & Commissioning, completion of trial operation and handing over including insurance (covering transit & erection, testing & commissioning) excluding all kinds of taxes/ duties	1,648.19

B.2	Estimated GST@ 18% on B.1	296.67
B.3	Local Freight of Main Equipment Excluding all other taxes and duties	237.29
B.4	Estimated GST @ 18 % on B.3	42.71
B.5	Local Freight of Mandatory Spares Excluding all other taxes and duties	6.30
B.6	Estimated GST @ 18 % on B.5	1.13
<b>B.7</b>	<b>Sub-Total (Services Contract)</b>	<b>2,232.29</b>

Note:

- Prices indicated above at Para 2.0 are firm till the entire completion of the project from the Zero date. The zero date for the contract shall be reckoned with effect from the date of release of Revised Letter of Intent i.e 17-10-2017
- Prices indicated above are firm till the entire completion of the project i.e., 36 months reckoned from the Zero Date for 2 units with balance 3 units to be commissioned within 48 months from Zero Date.
- Detailed break up prices for Erection and commissioning, freight, insurance etc., shall be furnished by M/s BHEL and got approved by TSGENCO immediately for arranging payments on pro-rata basis.

### 3.0 TAXES & DUTIES:

- 3.1 GST at a rate of 18% has been considered in the above prices. However, GST on various items shall be billed as per the HSN codes and applicable GST rates and same shall be paid by TSGENCO at actuals without restricting to the values of GST indicated in the price schedule.
- 3.2 Other than GST if any other government / local body taxes become applicable, such taxes/duties/levies etc shall be paid by TSGENCO extra at actuals.
- 3.3 TDS will be deducted as per the rules made there under.
- 3.4 Any variation by way of increase or reduction in Taxes and Duties or other Statutory levies or new imposts introduced during the contractual delivery period shall be to TSGENCO's account provided that in cases where the delivery schedule is not adhered to by the contractor for reasons attributable to contractor, any increase in Taxes and duty or other statutory levies or imposts introduced after the agreed delivery dates shall be borne by the contractor and any reduction thereof shall be to the credit of TSGENCO.
- 3.5 BOCW, If deducted the same shall be reimbursed to M/s BHEL at actuals

### 4.0 COMPREHENSIVE INSURANCE:

A comprehensive insurance cover for transit, handling, storage, erection, testing and commissioning including trial operations but excluding ALOP (Advance Loss of Profit) insurance shall be ensured by the Contractor. The insurance of plant and equipment i.e



the entire unit shall be the responsibility of M/s BHEL till successful completion of trial operation. In case of any damage or loss of the equipment during transit, handling, storage, erection, testing & commissioning and trial operation the contractor shall arrange for repair/replacement irrespective of the lodging and settlement of the claims with the underwriters by the contractor. The insurance shall be arranged in the name of TSGENCO/REC/PFC.

#### **5.0 INSURANCE CLAIM:**

Contractor shall be responsible to ensure that any loss or damage in transit or at destination shall be made good in shortest time possible without reference to any insurance claim and without affecting station schedule. The said insurance shall be taken by the Contractor up to the successful completion of trial operations of the units.

#### **6.0 PAYMENT TERMS:**

##### **i) ERECTION & COMMISSIONING:**

a) 10% Initial interest free advance to be released as follows:

- 2.5% of Contract Price towards Erection & Commissioning as interest free initial advance along with LOI against submission of stage wise advance cum performance bank guarantee for an equal amount.
- 2.5% of Contract Price towards Erection & Commissioning as interest free initial advance within three months of release of LOI against submission of stage wise advance cum performance bank guarantee for an equal amount.
- 5% of Contract Price towards Erection & Commissioning as interest free initial advance within twelve months of release of LOI against submission of stage wise advance cum performance bank guarantee for an equal amount.

The applicable GST on advance payment shall also be reimbursed by TSGENCO on submission of the invoice by BHEL.

- b) 85% of Contract Price along with 100% applicable GST (net of GST already paid with advance) against progressive erection on pro - rata basis.
- c) 3% of unit wise contract price against Synchronization of each unit
- d) 2% of unit wise contract price against Trial Operation of each unit.

Unit wise Contract Price for the purpose of payments indicated at (c) and (d) above will be considered as one fifth of 2.0 (B.1).

The advance cum performance Bank Guarantee will be non-reducing and will be valid till completion of warranty of unit. No separate contract performance Bank Guarantee will be submitted.

- ii) **Freight:** 100% of contract price along with corresponding taxes & duties against receipt of material at site on pro-rata basis



## **7.0 MODE OF PAYMENT:**

The payment by TSGENCO shall be released within 30 days of receipt of Invoices in quadruplicate provided such invoices are submitted in accordance with the terms and conditions of the contract. TSGENCO has tied up required funds with Power Finance Corporation Ltd., New Delhi (PFC) and Rural Electrification Corporation (REC).

## **8.0 COMPLETION PERIOD:**

The dispatches from BHEL works and the erection activities will be planned to achieve a commissioning schedule (Completion of Trial Operation) of 36 months reckoned from the Zero Date for two units and balance three units within 48 Months from Zero date as detailed below.

Unit No.	Schedule of completion of Trial Operation
UNIT-1 (First unit of Stage 1)	36 Months from the zero date
UNIT-2 (Second unit of stage 1)	36 Months from the zero date
UNIT-3 (First unit of stage 2)	48 Months from the zero date
UNIT-4 (Second unit of stage 2)	48 Months from the zero date
UNIT-5 (Third unit of stage 2)	48 Months from the zero date

## **9.0 LIQUIDATED DAMAGES:**

### **a) For Delays:**

Any delay in the commissioning of the equipment (Completion of Trial Operation) beyond the contractual commissioning schedule of 36 months reckoned from the Zero Date for two units and balance three units within 48 Months from Zero Date, due to delays solely attributable to the Contractor shall be subject to levy of liquidated damages at the rate of 0.5% of the unit wise contract price per week of delay subject to a maximum ceiling of 5% of the Unit wise Contract price. Unit wise Contract Price for the purpose of liquidated damages for delay will be considered as one fifth of 2.0 (B.1).

### **b) For Guaranteed Performance Parameters:**

- i) BHEL Guarantees the following parameters in respect of performance of each of the 5 units, which shall be established by conducting performance, guarantee tests. In case of any shortfall in achieving these guaranteed parameters, liquidated damages as per the rates indicated in the Annexure-I will be levied:
- ii) The maximum ceiling for liquidated damages for performance for each unit shall be 5% of the Unit wise Contract price. Unit wise Contract Price for the purpose of liquidated damages for performance will be considered as one fifth of 2.0(B1).



**Note:**

- (a) The combined total liability of the contractor on account of liquidated damages for delay in commissioning as well as performance is limited to 10% of unit wise contract price. Unit wise contract price for the purpose of calculation of the Liquidated damages shall be one fifth of , the contract price mentioned at Clause no 2.0 (B.1) .
- (b) In addition to and not in derogation any payment obligation pursuant to the above, (and without limitation of any remedies otherwise available to Purchaser in Contract or law), Contractor shall continue to expeditiously perform, repair, replace and modify the Plant and undertake Work until such time the Performance Acceptance occurs.
- (c) In case, the contractor does not fulfil the guaranteed parameters, Purchaser may undertake to rectify the system/equipment and expenditure incurred along with any other incidentals shall be recovered from the contractor from the available bills/retention amounts/BGs (as applicable).
- (d) The liquidated damages under Supply and Civil Purchase orders of YTPS can also be recovered from this Purchase Order, if it becomes necessary.
- e) In case, the value of performance guarantee gets reduced at any time on account of claims, if any, due to recovery of liquidated damages for delay in completion or for deficiency in guaranteed parameters, the same shall be enhanced to its original value immediately and retain its validity up to the warranty period of one year and a claim period of 6 months thereafter.

**10. ORDER OF PRECEDENCE:**

For the purpose of interpretation of the provisions of this order, especially in the event of any inconsistency, the following order of precedence shall apply:

1. Amendments/addenda, if any, to this order that may be issued after the date of this order on mutually agreed basis.
2. This purchase order.
3. This office Letter of Intent No. LOI.No.ED/TPC/SE-III/Yadadri TPS(5x800MW)/D.No.102/17, Dt.17-10-2017.
4. M/s BHEL Revised Techno-Commercial Offer Letter MS-1-14-0007, Dt: 17.10.2017.
5. Commercial M.O.M between TSGENCO and M/s BHEL Dated 09.10.2017
6. Technical M.O.M between TSGENCO and M/s BHEL Dated 04.10.2017
7. KTPS-VII(1x800MW) Specification, Technical Clarifications, Deviations and ,resolutions.

### **11.0. CONTRACT PERFORMANCE GUARANTEE:**

As per clause no 6.0 A1(a) of E&C works price BHEL shall submit Advance cum Performance bank guarantee of 10%(2.5%+2.5%+5%) mentioned under clause 2.0 (i) towards contract performance. Advance cum Performance BG shall be valid for a period of 12 months from the date of completion period with a claim period of six months thereafter. Proforma of stage wise performance Bank guarantee is enclosed.

The above bank guarantee shall be submitted towards:

- i) Due performance of the Contract until successful completion of COD & Performance guarantee tests.
- ii) Due performance of Contractor's obligations during warrantee period.

Upon issuance of final completion certificate, the Advance cum performance bank guarantee shall be promptly returned to the Contractor, provided that no claim under the Contract is pending.

### **12.0 WARRANTY:**

Warranty for the plant and equipment shall be 12 months from the date of completion of COD of the respective unit. COD will be considered as completion of Trial Operation of the each unit .The liability of the Contractor under the aforesaid warranty shall be in line with clause no 16 of Annexure-IV.

### **13.0 CONTRACT NETWORK:**

13.1 The Contractor shall submit the L1 & L2 contract Network showing various key phases of the execution of work including procurement of materials required thereof, transportation of equipment, receipt, storage at site, erection, supervision, testing and commissioning, performance testing and TSGENCO's taking over of the work within 7 days of release of advance payment to the Contractor or during first kick-off meeting whichever is earlier. TSGENCO shall review the same and comment within 7 days. After duly incorporating the comments of the TSGENCO, the Contract Network shall be finalized and submitted to TSGENCO.

13.2 The Contract Network shall be reviewed and periodic reports shall be submitted by the Contractor to TSGENCO as directed by it. The Contract Network shall be revised by the Contractor as and when appropriate and the revised Contract Network shall be submitted to TSGENCO. Nothing herein contained shall relieve the Contractor of its obligation to complete the work within the dates as envisaged in the Contract.





- 13.3 During the performance of the Contract, such programmes shall be reviewed, updated and submitted to TSGENCO as and when needed by it or periodically as specified by it. If in reasonable opinion of TSGENCO, proper progress is not maintained for reasons solely attributable to the Contractor, suitable changes shall be made in the Contractor's operation to ensure proper progress. Nothing herein shall relieve the Contractor of its obligation to complete the works within the schedule specified in the Contract.

#### **14.0 SAFETY PRECAUTIONS:**

The Contractor shall comply with all applicable safety regulations in his design, access, arrangements and operations on the site. The Contractor shall, from the commencement of work on site until the Risk Transfer Date, provided where not so specified, in accordance with applicable Law:

- i) Fencing, lighting, guarding watching of the site on which works may actually be in progress from time to time.
- ii) Prudent practices shall be employed for packing, safe storage and handling of the equipment, during transit and erection.

In the case of equipment, the Contractor shall assume care, control and custody from the date of delivery of equipment and materials at the site till Risk Transfer Date.

In the case of Works, Contractor shall assume care, control and custody from commencement of works till Risk Transfer Date.

Under this Contract, the 'Risk Transfer Date' shall be the date, which is earlier of:

- i) The date of taking over of the station by TSGENCO.
- ii) With respect to all the works, the date of termination of the Contract. at which time, the TSGENCO shall assume the care, custody, control and risk of loss of the works or relevant part thereof.

#### **15.0 CONSTRUCTION UTILITIES:**

The TSGENCO shall make available on the site for purposes of performance of the works such supplies electricity and water necessary for completion of work as per the specification and agreed deviation. The Contractor shall arrange distribution of these utilities for various locations within the plant at his own cost and their removal at the completion of the work at the direction of TSGENCO shall also be to the account of Contractor.

TSGENCO is not committed to provide any accommodation to BHEL staff. In case the same is provided, the contractor undertakes to pay to TSGENCO for unit of dwelling and other upkeep and maintenance services as may be provided by TSGENCO. The Contractor also undertakes to ensure that the occupants of such unit of dwelling shall not cause any disturbance, nuisance to the other occupants of colony.

#### **16.0 CONSTRUCTION DOCUMENTS:**

The Contractor shall prepare Construction Documents in sufficient detail to satisfy the requirements of the Contract, applicable Law and authorized approvals, to provide supplies and construction personnel sufficient instruction to execute the works and to describe the operation of the completed works. TSGENCO representative shall inspect the preparation of programme, which shall be agreed to between the TSGENCO and Contractor and when considered the documents are ready for use, be submitted to the TSGENCO's representative for pre-construction review. In this clause, 'Review Period' means the period required by the TSGENCO's Representation, which shall not exceed 07 days, calculated from the date on which the TSGENCO's Representative receives any of the aforesaid documents described in this paragraph and the Contractors notice that it is considered ready, both for a pre-construction review in accordance with this clause, and for use. Any reasonable clarifications required by the TSGENCO's representative shall be notified to the Contractor within 07 days from receipt of the aforesaid documents described in this paragraph, and the un-expired period of 07 days shall resume at the date that the Contractor satisfied the clarifications. If the TSGENCO's representative, within such reviews period, notified the Contractor that any foresaid document described in the paragraph fails (to the extent stated) to comply with the requirements of the Contract, it shall be rectified, resubmitted and reviewed in accordance with this clause, at the Contractor's costs. Any notification by the TSGENCO's representative that such aforesaid document fails to meet the requirements of the Contract must state with reasonable specificity such as to enable the Contractor to identify and review and comment thereon and the reasons why the TSGENCO's representative considers that the requirements of the Contract have not been met. Approval of documents by TSGENCO'S representatives shall not relieve the Contractor of his obligations under this Contract.

Errors, omissions, ambiguities, inconsistencies, inadequacies and other defects in the aforesaid documents shall be rectified by the Contractor at his cost and without any entitlement to extension or time or any additional cost.





## **17.0 PROGRAMME/PROGRESS OF ERECTION & COMMISSIONING:**

- 17.1 The Contractor shall furnish a detailed programme chart indicating various key phases of execution of work such as erection, testing and commissioning, names of sub-contractors etc immediately after receipt of this order. The Contractor shall also furnish monthly reports on progress/programme of work thereafter for each of the plant and equipment under the scope of this Contract.
- 17.2 TSGENCO's representative shall have access to the works at any time during working hours for the purpose of inspecting the work or plant/equipment/material during erection, testing & commissioning.
- 17.3 TSGENCO reserves the right to appoint or nominate or depute any Inspector other than TSGENCO's Engineer for inspection of any work or equipment at any stage of its erection, testing & commissioning.

## **18.0 QUALITY ASSURANCE:**

The Contractor shall provide a quality assurance system applicable to the entire scope of work including field quality plans. A quality assurance system shall be developed and instituted to demonstrate compliance with the requirements of the Contract. However, compliance with the quality assurance system shall not relieve the Contractor of his duties, obligations or responsibilities under the Contract. Details of all procedures and compliance documents shall be submitted to TSGENCO for perusal/approval/ information. TSGENCO shall be entitled to review any aspect of the system and may require corrective action to be taken by the Contractor to comply with this clause.

## **19.0 BILLING BREAK UP:**

The prices indicated at Clause No.2.0 above are on lump sum basis only. The detailed billing schedule for notional billing purpose and payment purpose shall be provided and got approved by TSGENCO before raising invoice for first progressive payment.

The detailed Billing break Up will be approved subjected to the terms and conditions as per the Annexure VI

## **20.0. DESPATCH INSTRUCTIONS:**

The Materials and Equipments shall be consigned to  
The Divisional Engineer (Stores),  
Construction Division  
YTPS (5x800MW), Damercharla(M), Veerlapalem(V),  
Telangana.



## **21.0 INVOICES:**

All the invoices in quadruplicate shall be sent to

**The Superintending Engineer / E & M**

**YTPS (5 x800 MW)**

Damercharla(M), Veerlapalem (V), Telangana

With a copy to the

Chief Engineer / Construction / YTPS

Damercharla(M), Veerlapalem(V), Telangana.

The above arrangement is to be followed presently .However, the changes, if any, during the execution of the contract shall be intimated in due course.

## **22.0 AS BUILT DRAWINGS:**

The Contractor shall prepare, and keep up-to-date on a reasonable frequency, a complete set of marked up 'as-built' records of the execution of the works, showing exact 'as-built' locations, sizes and details of the work as executed, with cross references to relevant specifications and data sheets. These records shall be kept on the site and shall be used exclusively for the purposes of this clause. Copies shall be submitted to the TSGENCO representative prior to the commencement of the Tests on Completion as per distribution schedule at Annexure-VIII.

In addition, the Contractor shall prepare and submit to the TSGENCO's representative marked up 'as-built' drawings of the works, showing all works as executed. The drawings shall be prepared as the works proceed, and shall be submitted to the TSGENCO's representative for inspection. The Contractor shall obtain the consent of the TSGENCO's representative as to their size, the referencing system, and other pertinent details in so far as any of the same are not specified in the Contract.

As soon as possible after the Test on Completion, but not later than a period of 3 (three) months from the date of Take Over Certificate, the Contractor shall submit to the TSGENCO's representative copy of documentation on computer compact disc, prints of the relevant 'as-built drawings' and any further construction documents as per the distribution schedule at Annexure-VIII.

## **23.0 TRIAL OPERATION/ COMMISSIONING/ COD AND HANDING OVER:**

### **A) Trial Operation**

- i. On completion of erection of any major items along with its auxiliaries, the same shall be thoroughly inspected by the Contractor together with TSGENCO's Engineers for correctness and completeness and acceptability for Pre- Commissioning Tests. Though the TSGENCO's Engineers associate themselves with such inspection, the responsibility for declaration for correctness, completeness and acceptability shall rest with the Contractor and the pre-commissioning tests shall be carried out after such declaration.



The pre-commissioning tests to be performed at site as well as necessary documentation and formats for the protocols to be signed during and after the tests shall be prepared by the Contractor taking into account relevant Indian/International/ Manufacturers' standards as applicable and finalized by the TSGENCO sufficiently in advance through mutual discussions. On conclusion of Satisfactory pre-commissioning tests of each individual equipment, the trial operation of each unit (total 5 units) shall start consistent with parameters of the technical specifications.

- ii. The duration of trial operation shall be for 14 days during which period the unit shall run as follows:
  - a) Half to full load or any other load cycle mutually agreed to during which period the unit shall also run on economical load (90% of Full/ Available Load) for 48 hours continuously.
  - b) During the above trial operation the standby auxiliary equipment shall also run for a minimum period of more than 72 hours during which period the equipment including standby equipment shall run at its rated capacity for a maximum period of 24 hrs subject to (a) above.
  - c) Full load continuous operation for seventy two (72) hours.

Any interruption caused by the Contractor up to 24 hours will not affect the period of 14 days trial operation indicated above. In case of such interruption occurring for more than 24 hours, the above period shall be extended correspondingly. The unit is deemed to be commissioned on successful completion of the above trial operation. Upon successful completion of trial operation, a protocol shall be signed by the both parties.

- iii. A document shall be prepared on the results of trial operation. This document besides recording of the details of the various observations during the trial run will also include the date of start and finish of the trial operation and will be signed by the representative of both the parties. The document of the trial operation shall have log sheets and all adjustments, repairs, interruptions etc., shall be recorded therein.
- iv. The readiness of the unit for the trial operation shall be intimated by written notice to TSGENCO. After receipt of such notice and a consent within 15 days from TSGENCO, if the trial operation could not be performed or could not be completed due to any reasons not attributable to the Contractor, the Contractor shall be absolved of the responsibility for the delay and the plant shall be deemed to have been taken over by the TSGENCO at the end of 60 days after the Contractor's notifications of readiness of the same. In case TSGENCO does not reply within 15 days from contractors notification of readiness of Trial Operation, the responsibility of insurance of plant and equipment shall pass on to TSGENCO.
- v. The trial operation shall be carried out in compliance with relevant manufacturers standards and/or relevant Indian / International standards and manufacturers operation directions before starting them.
- vi. Defects which are minor in nature and do not endanger the safe operation of the plant, shall not be considered as reasons for not taking

over the plant by the TSGENCO. These defects shall be listed in the above mentioned documents and shall be rectified by the Contractor in accordance with the agreement made in this respect.

#### **B) TAKING OVER AND COMMERCIAL OPERATION:**

TSGENCO shall provisionally take over each Unit upon completion of Trial Operation conducted as per clause 23.0 (A) above, acceptable to the TSGENCO. Contractor may apply to TSGENCO for Final Taking Over Certificate by notice enclosing the Protocol, referred to in clause 23.0(A) above, and test results, after successful completion of Performance Guarantee Tests. TSGENCO shall, within fourteen (14) days after the receipt of the Contractor's application:

- a) Issue the Taking over Certificate to the Contractor, stating the date on which the Performance Guarantee Tests are completed in accordance with the Contract including the date of passing of the Test on Completion. The Advance cum Performance Bank Guarantees shall be returned to the contractor at the end of Warranty Period.

Or

- b) Reject the application, giving reasons and specifying the work required to be done by Contractor to enable the Taking Over Certificate to be issued. Contractor shall then complete such work before issuing a further notice under this section.
- ii. The unit shall be taken over or deemed to have been taken over by the TSGENCO when the Trial Operation is completed or TSGENCO utilises the facilities for generation of power (incl. Infirm Power) whichever is earlier and the responsibility of Insurance will get transferred to the Owner.
- iii. Commercial operation shall begin from the date of successful completion of the trial operation as in 23.0(A) above or taking over by TSGENCO, whichever is earlier.

#### **24.0 CONTRACTORS DEFECTS LIABILITY:**

24.1 After the Taking Over Date, in order that the station shall be in the condition required by the Contract till the completion of the Contract period the Contractor during the warranty period, shall execute as soon as is reasonable and practicable all work of amendment, reconstruction, and remedying Contractors Defects or damage (including redesign, repair, replacement and all other works necessary to remedy any defect or damage to the works or failure of any part of the works to comply with Contract) as may be instructed by the TSGENCO or its representative.

24.2 All works referred to in 24.1 shall be executed by the contractor at his own cost unless the necessity for such work is attributable to the TSGENCO.



24.3 If the Contractor fails to remedy any Contractor's defect or damage for which it is responsible under clause 24.1, immediately after receipt of notice from the TSGENCO of occurrence of defect but, in any case, not later than twenty eight (28) days of receipt of such notice, the TSGENCO or the TSGENCO's representative may further allow a period of twenty eight (28) days, within which the Contractor shall rectify the defect. If the Contractor fails to remedy the defect or damage as aforesaid by such date, the TSGENCO may, at its sole discretion, carryout the work on its own or by others, the Contractor being responsible for physical loss or damage to the works. The Contractor shall be responsible for the performance of such work and shall be responsible for the reasonable cost to TSGENCO in remedying the defect or damage.

#### **25.0 EXTENDED WARRANTY PERIOD FOR DEFECTS CORRECTION:**

During the warranty period, in the event of failure of any equipment for the reasons attributable to the Contractor, the Warranty Period for such replaced equipment shall be extended by a corresponding period. Any replacement made under this Warranty shall have a warranty for a period of one year from the date of such replacement ('Extended Defects Correction Period'). However, TSGENCO shall issue the Final Completion Certificate after expiry of Warranty Period with qualifying items, if any, under Extended Defects Correction Period.

#### **26.0 FINAL COMPLETION CERTIFICATE:**

The Contract period shall end upon issuance of Final Completion Certificate. The Contractor may give notice to TSGENCO's representative requesting to issue the final completion certificate at any time after taking over certificate is issued and if no notice of Contractor's defect or damage is given or if such notice is given, the Contractor reasonably believes that such defect or damage has been remedied and passed all tests if any and upon expiration of warrantee period. Within 14 days of receipt of the notice, the TSGENCO representative shall issue Final Completion Certificate stating the date on which Contract period expired (OR) reject the notice giving full and detailed reasons and specifying the work required to be done by the Contractor. The Contractor shall then complete such work before issuing a further notice under this clause.

#### **27.0 TERMINATION OF CONTRACT:**

27.1 TSGENCO's representative may, if he notices that the execution of Scope of Work is not proceeding in accordance with this Contract, give a notice to the Contractor requiring him to make good such failure and immediately commence and diligently proceed to remedy the same within a specified reasonable time and in accordance with the Contract.



27.2 If the Contractor:

- i) Fails to comply with a notice under Clause 27.1, provided the Contractor has not responded within a reasonable time;
- ii) Abandons or repudiates the Contract.
- iii) Consistently or materially ceases all activities under the Contract for a continuous period of 30 days or more.
- iv) Fails to commence or proceed the scope of works in accordance with the Contract.

then TSGENCO may, after having given ninety (90) days notice to the Contractor within which the Contractor has failed to commence and diligently to continue to remedy its default, terminate the Contract with immediate effect and expel the Contractor from the Site having first allowed the Contractor a maximum of fourteen (14) days, or any other period as may be mutually agreed, to remove Contractors Equipment from the Site. The Contractor shall remove the Contractor's Equipment without damaging the works or prejudicing the safety of the Works in any way.

27.3 The Contractor shall then deliver all Equipment documents, construction documents and other design documents made by or for him, to TSGENCO. The Contractor shall not be relieved from any of his obligations or liabilities under the Contract prior to the date of termination. The rights and authorities conferred on TSGENCO by the Contract shall not be affected.

27.4 TSGENCO and Contractor under mutual agreement basis, as soon as possible after termination under Clause 27.2, determine all sums then due to the Contractor in respect of work properly performed as at the date of termination (the 'Termination Value').

27.5 After termination under Clause 27.2, the TSGENCO shall not be liable to make any further payments to the Contractor until the costs of design, execution, completion and remedying of any defects, liquidated damages for delay in completion (if any), and all other costs incurred by TSGENCO as permitted in accordance with the Contract, have been established (the "Cost of Completion"). If the cost of completion exceeds the total contract value, the Contractor shall pay to TSGENCO such excess cost less termination value determines under Clause 27.4. If this becomes negative, then TSGENCO shall pay to the Contractor the termination value less excess cost so incurred by TSGENCO in completing the station.





## 28.0 CONSULTING ENGINEERS:

M/s TATA Consulting Engineers Limited, Bangalore are the Engineering consultant for the project. The address of the consultant is as follows:

M/s TATA Consulting Engineers Limited  
73/1, Sheriff Centre, St. Marks Road,  
Bangalore - 560001

## 29.0 DISTRIBUTION SCHEDULE FOR DRAWINGS AND DOCUMENTS:

The drawings and documentation for design, engineering and contract execution drawings & documentation are to be distributed as per Annexure- VIII.

## 30.0 JURISDICTION:

All and any dispute or difference arising out of this Contract shall be decided only by the Courts & Tribunals situated in Hyderabad and Secunderabad cities. No suit or other legal proceeding shall be instituted elsewhere.

## 31.0 OTHER TERMS & CONDITIONS:


The other general terms and conditions are indicated in the Annexure-IV enclosed.

## 32.0 ACKNOWLEDGEMENT:

This order is sent to you in duplicate. Please acknowledge the receipt of this order with confirmation of having accepted. The duplicate copy may please be returned to us with your signature.

Encl: Annexures I to VIII

Yours faithfully,

  
Executive Director / TPC  
(For and on behalf of TSGENCO)

We accept the terms and conditions of this order



Copy communicated to:

1. Executive Director/Civil/Thermal/TSGENCO/VS/Hyderabad.
2. Chief Engineer/Construction/YTPS
3. Chief Engineer/Gen/TSGENCO/VS/Hyderabad.
4. Chief Engineer/Civil/Hydel & General Services/TSGENCO/VS/Hyderabad.
5. Chief Engineer/Coal & Commercial/TSGENCO/VS/Hyderabad.
6. Chief Engineer/Telecom/TPC/TSGENCO/VS/Hyderabad.
7. Chief General Manager/IS/ERP

Telangana State Power Generation Corporation Ltd

  
M/s BHEL  
मनोज शाह / MANOJ SHAH  
महानिर्देशक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd.  
वी.एच.ई.एल हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi - 110049

8. FA & CCA/Accounts/TSGENCO/VS/Hyderabad.
9. FA & CCA/Audit/TSGENCO/VS/Hyderabad.
10. FA & CCA/RES&CFO/TSGENCO/VS/Hyderabad.
11. JS to CMD/TSGENCO/VS/Hyderabad.

Copy to:

1. SE /Tech. to CMD/TSGENCO/VS/Hyderabad.
2. Superintending Engineer/Civil/YTPS
3. All SEs/ O/o ED/TPC/TSGENCO/VS/Hyderabad-500082.
4. DE /Tech. to Director/Projects/TSGENCO/VS/Hyderabad.
5. DE /Tech. to Director/Thermal/ TSGENCO/VS/Hyderabad.
6. DE /Tech. to Director/Hydel/ TSGENCO/VS/Hyderabad.
7. Dy CCA to Director/Finance/TSGENCO/VS/Hyderabad.
8. DE /Tech. to Director/HR/TSGENCO/VS/Hyderabad.
9. SAO/Pay & Accounts/TSGENCO/VS/Hyderabad-500082
10. Pay Officer/TSGENCO/VS/Hyderabad.
11. All EMEs/O/o. ED/TPC/TSGENCO/VS/Hyderabad-500082.
12. Resident Audit Officer, EBRA, Vidyut Soudha, Hyderabad-500082.
13. Dy.CCA/YTPS



### Annexure – I

Contract No.3000000015/ED/TPC/SE-III/EME 9/D 65/D.No.55/18, Dt:29.03.2018


#### **Liquidated damages for Guaranteed Performance Parameters**

Item No.	Performance Parameters	Unit	Guaranteed Value	Liquidated Damages Amount
1.	Gross Electrical output of each unit	MW	800(at 100% TMCR, 0% Make Up, 33°C CWT)	Rs.1,00,000/- (Rupees One lakh only) per every KW shortfall.
2.	Gross Station Heat Rate of each unit at 100% STG MCR.	Kcal/Kwh	2019.4 (*)	Rs.7.5 Crores (Rupees Seven Crores fifty Lakhs Only) for each Kcal/Kwh increase.
3.	Auxiliary Power Consumption	KW	255900 (**) (For all 5 units as per CEA/ERC norms)	Rs.2,00,000/- (Rupees Two lakhs only) per KW increase.
4.	ESP Particulate Emission at 100% STG MCR with (n-1) fields in service	mg/Nm <sup>3</sup>	30	---
5.	NOx emission Maximum total NOx (thermal as well as fuel) emission at the outlet of SCR for the range of coal specified	mg/Nm <sup>3</sup>	100	---
6.	SOx emission at the FGD outlet for the range of coal specified	mg/Nm <sup>3</sup>	100	---

#### **Note:**

\* At 100% TMCR, firing with design coal (Blend of 50% imported coal & 50% indigenous coal)@ 27 deg C & 60% Relative humidity.

\*\* For the list of auxiliaries considered for auxiliary power consumption are enclosed at Annexure-III

  
मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
वी.एच.ई.एल हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi -110049

  
Executive Director  
Thermal Projects Construction  
TSC/ENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

**Scope Of Work**

**MAJOR PACKAGES TO BE ERECTED AND COMMISSIONED UNDER THE SCOPE OF**

Contract No.30000000015/ED/TPC/SE-3/EME-9/D65/D.No.55/18, Dt:29.03.2018

**I.0 BROAD SCOPE:**

The scope of the Contract shall comprise Transportation of equipment to site, transit insurance, unloading at site, storage, comprehensive construction insurance, inter site transportation & handling, construction, erection, testing & commissioning of the main plant, Balance of Plant equipment, of the complete coal fired Supercritical steam power plant (including boiler, turbine, generator, transformers, Station C&I, and all the required balance of Plant etc.) for putting into commercial operation of the complete coal fired Supercritical steam power plant for 5X800 MW Yadadri Thermal Power Station, including but not limited to the following. The systems and equipment shall conform to the technical requirements specified in the Specification and subsequent clarification and deviations.

The Contractor shall requisite supply everything including start-up auxiliary steam and necessary to complete the power station properly and in accordance with good engineering notwithstanding the fact that every item may not be specifically mentioned or the item mentioned may be inadequate for its intended purpose. Details and items which are not specifically mentioned herein shall also be adequately and properly supplied by the Contractor at no extra cost if such details and/or items are necessary to complete the intent of this specification or otherwise to complete the entire power station.

Contractor's attention is drawn into the following important design requirements.

**Auxiliary Equipment Performance with Fluctuation in Power Supply Condition.**

All auxiliary equipment and drive motors shall be capable of delivering satisfactorily their rated outputs continuously for a voltage variation and frequency as indicated in Specification.

**Design Requirements**

For the entire power plant only those designs and systems shall be used which have been proven in continuous operation for long periods. Innovations and prototypes are not acceptable.

The Plant shall be new and have a working life of 25-30 years. The equipment/components of the plant shall be designed for reliable and trouble free operation over the entire life of the plant. The anticipated mode of operation of the plant is likely to be 8000 hrs annually at base load with 206



starts (average). Minimum no of start ups in a year would (1) Cold start ups = 6, (2) Warm Start ups = 40 and (3) Hot start ups = 160.

All component parts including spares and spare assemblies shall be completely interchangeable. All Erection & Commissioning works of equipment/systems shall be designed to meet the requirements specified in respective sections.

**The Erection & Commissioning Scope covers the following Major Packages:**

The detailed scope of the contract is as per the Volumes II to X of the specification e-PCT/TS/K/02/2014-15 of KTPS-VII (1x800MW) read with subsequent clarifications and resolutions and broadly produced below:

**1.1 Steam Generator (SG) Island**

- Complete super-critical once through, forced flow with dry bottom, balanced draft, outdoor type pulverized coal fired with oil as start-up and stabilising fuel steam generating unit, complete with all major auxiliary plant and equipment as required.
- Furnace / evaporator complete with water walls tubes, Ducts, headers, steam generating tubes, risers, furnace bottom hoppers etc for once through boiler.
- Economiser, Super heater, Re-heater, Start Up Vents, Separator other Pressure Parts, Safety valves, EMRV, Soot Blowing System etc including circulation pumps (for low load and start up).
- Integral pipe work, valves and specialties along with supporting system, Wind Box.
- Draft plant including Tri-sector type air pre-heaters, ducting and accessories.
- Coal preparation and firing system including start-up/ stabilisation system with fuel oil.
- Integral instrumentation, safety interlocks and controls for steam generator.
- Stairs, Galleries, platforms and structural steelwork as required.
- Electrostatic precipitators.
- Chemical Dosing system.
- Thermal Insulation
- All control, protection and monitoring devices, refractories as required
- Start Up Boiler
- Equipment to meet the safety requirements, All other accessories and auxiliaries as required.

**1.2 Steam Turbine (STG) Island**

- Multi-cylinder (minimum three cylinders) double casing (HP & IP and IP) tandem compound, single/double reheat, regenerative, condensing type turbine-generator sets complete with all related auxiliaries matching super critical boiler parameters.
- Steam turbine along with auxiliary systems e.g. gland sealing, turbine lube oil and control oil system for lubrication protection-governing, water spray, steam washing systems etc. as applicable.
- Stop and control valves on Main Steam (MS) and Hot Reheat (HR) inlet with strainers, quick closing non-return valves on extraction lines and Cold Reheat (CR) outlet, H.P.& L.P. Bypass valves etc. together with hydraulic actuation system, reheater isolating device, blanking pieces etc. as necessary for protection during steam blowing.
- All integral piping for turbine steam, drain and vent systems including flash boxes, oil, air and water systems.
- Condensate Polishing System.



- Generator coupled to steam turbines and complete with auxiliary systems e.g. excitation, seal oil, hydrogen cooling, stator cooling, carbon-di-oxide purging systems etc. as necessary.
- Integral instrumentation, safety interlocks and controls for the turbo-generator.
- Thermal insulation

### 1.3 DE-Nox System:

- In Furnace Techniques: Low Nox burners, Air Staging( Horizontal-Concentric Fire System, Vertical-Over Fire Air,
- Post Combustion Techniques: SCR Reactor, Catalyst, Ammonia tank, Vaporizers, Dilution Fan, SCR Injection and Mixing system, Soot blowing system

### 1.4 FLUE GAS DESULFURIZATION (FGD)::

- Absorber, Absorber Tank, Absorber Mist Eliminator, Gas to Gas Heater, Ball Mill System for Limestone, Gypsum Dewatering Section

### 1.5 OIL SYSTEM: HFO, LDO

- 1.6 Low pressure and high pressure feed heaters and de-aerator complete with integral instrumentation and valves, supports, platforms, rails, handling devices as required.

- 1.7 Turbine oil purification system and central turbine oil storage and transfer system

- 1.8 Power Cycle piping consisting of main steam, hot reheat, cold reheat extractions, auxiliary steam, air evacuation, cascade drains, condensate, feed water, cycle make-up, drains to waste and atmospheric vents etc. Blanking devices for emergency stop and reheat stop valves and other items as required for steam blowing operation along with steam blowing piping and quick opening valve as required.

- 1.9 Large diameter piping for condenser and auxiliaries Cooling Water Systems.

- 1.10 Low pressure piping for various water (cooling, service, drinking, plant make-up etc.), air (instrument, plant service etc.), steam (other than that covered in item 1.8 above) and other services.

- 1.11 Steel storage tanks/vessels such as, condensate storage tank, RCC based service water tank , potable water tank, waste drain and other tanks as required.

- 1.12 Thermal insulation and Noise Insulation including cladding material as required for conservation of heat and for personnel protection, as required

- 1.13 Water cooled, horizontal surface condensers complete with integral accessories, CW line tied type expansion joints, butterfly valves, water box handling devices, air evacuation, on load tube cleaning system etc. All power cycle pumps and drives as required including Boiler feed pumps, Condensate Extraction Pumps, Heater Drain Pumps if necessary, the pumps are to be complete with accessories for sealing and lubrication, flexible/hydraulic couplings, gear box, integral instrumentation, handling devices, etc. and Auxiliary steam turbine and ancillaries



for Boiler feed pump device as required

1.14 Complete Control & instrumentation (C&I) systems as required, including but not limited to the following:

- Valmet DNA based Distributed Digital Control & Management Information System (DDCMIS) for control, monitoring, data acquisition, alarm and sequence of events recording for the unit.
  - All boiler integral instrumentation including secondary air damper control system, Burner Management System (BMS), Soot blower control system, etc.
  - All turbine integral instrumentation like turbine supervisory instruments, condition monitoring system, Automatic Turbine Run Up System (ATRS), Turbine Stress Evaluator (TSE), Electro-hydraulic Governor Control (EHG), Automatic Turbine Testing System, Turbine Protection System HP-LP bypass system etc
- a) GPS Master clock system
  - b) Large video screens
  - c) Performance calculation
  - d) Plant Performance Analysis, Diagnostic and Optimization (PADO) system
  - e) DCS based controls for the packages Viz. Coal mill reject system except air compressors (microprocessor based)
  - f) Complete SG & auxiliaries' integral control & instrumentation including BMS, MFT.
  - g) Complete TG & auxiliaries' integral control & instrumentation including EHG and TG protection.
  - h) CCTV with wi-fi facility: The project progress is being monitored at Head quarter level regularly duly providing CCTVs during construction phase. As wired CCTV failures are common during construction activities, it is now proposed to have wireless CCTV with wi-fi facility.
  - i) Plant wide data network
  - j) On line rotating machine condition monitoring system
  - k) Optical fibre/UTP interface between DCS and PLC /microprocessor based control in BOP area.
  - l) Control panel, Desk, Junction box, Racks, cabinets.
  - m) All final control elements like control valves, de-super heaters and actuators.
  - n) Steam and Water Analysis System
  - o) Flue Gas Emission Monitoring Instruments/Stack emission monitoring
  - p) Control valves and dampers with actuators and accessories
  - q) Flow elements with root valves and accessories
  - r) Field instruments including transmitters, switches, temperature elements and gauges
  - s) Instrumentation signal & control cable, extension & compensating cable, special cable and optical fibre cables
  - t) Erection hardware for instrument process hook.
  - u) Erection hardware for the pneumatic hook up.
  - v) Cable erection accessories
  - w) Cubicles, enclosure, local panels pneumatic and process hook up hardware, cables and other erection materials and accessories.
  - x) Sequence of event recording and alarm annunciation system integral to DCS.
  - y) 3.3 KV and 415 V auxiliary power system and equipment / plant status monitoring in DCS.

- z) Un-interrupted power supply system along with batteries
- aa) Operation & control of circuit breakers requiring synchronising from ECP.
- bb) Hot well sample extraction system for cat-ion conductivity measurement
- cc) 1 No Operator Training Simulator
- dd) Acoustic steam leak detection system with 30 channels
- ee) Furnace flame viewing system with 2 nos. of cameras

#### 1.15 Complete cooling water system as required

- Cooling Tower
- Condenser Circulating Water (CW) system along with pumps, drives and accessories.
- Auxiliary Cooling Water (ACW) system along with pumps, drives and accessories.
- Closed circuit DM cooling water system along with pumps, drives and accessories.
- Heat exchangers for closed circuit DM cooling water systems.
- Cycle make-up pumps and Condensate Transfer Pumps and condensate storage tank.

#### 1.16 Complete Instrument Air and Service Air Systems.

1.17 Ventilation and Air-conditioning system including all equipment, piping, false ceiling, insulation, ducting etc. as required for all buildings and facilities except non-plant buildings as per MOM dated 04/10/2017.

1.18 Fire Protection System along with all pumps, drives and accessories for all plant, equipment and facilities for complete main and balance of plant.

1.19 Sump Pumps complete with drives and accessories for drainage of pits from all buildings/facilities as required.

1.20 Miscellaneous Cranes complete with drives, electrical and all other accessories as required.

1.21 Miscellaneous hoists & Lifting devices complete with drives and accessories for all buildings and facilities for handling of equipment above 500Kg as required.

1.22 Elevators complete with drives, electricals, control and instrumentation and all other accessories

1.23 Plant Water System including Raw Water System, Clarified Water System, Potable Water System, Service Water System consisting of all equipment, facilities and auxiliaries as required and water system has to be designed for stage wise.

1.24 Sewage Treatment Plant (STP)

1.25 Effluent Treatment Plant (ETP)

1.26 Coal Handling Plant:

- Conveyors with capacity 2500TPH for Stage -I& II,
- Conveyor Galleries
- Crushed coal stock piles



- 3D coal stock pile measurement for accurate coal stock measurement.
- RCC Pavement for Crushed coal storage yard
- Stackers, Reclaimers, Wagon Tippers, Track Hoppers

1.27 Ash Handling plant: Ash handling system will be stage wise based with Economiser hoppers, Air preheater hopper, Ash slurry sum, Ash slurry lines, HCSD system, SILOs, Ash water recovery

1.28 Limestone handling plant and Gypsum handling plant

1.29 Mill Reject System

1.30 Hydrogen, Carbon-dioxide and Nitrogen gas cylinders (adequate number for refilling), storage, handling and distribution system for preservation purpose, for Generator.

1.31 Diesel Electric Locomotives: 6 nos. 1400 HP Locomotives

1.32 Electrical system

Complete Electrical equipment and accessories, including but not limited to the following:

- Generator with Brushless Excitation system and Auxiliary system
- Generator Bus duct & MV Bus duct
- Generator Circuit Breaker
- Transformers and 5 Nos 20 KL transformer oil tanks
- Switchgears
- DC System
- Motors
- Electrical Actuators
- Variable Frequency Drives
- Cabling
- Cables
- Grounding & Lightning Protection
- Station Lighting
- DG Set
- EHV Switchyard for Stage-I& II
- Energy Management System
- 2 Nos. 125 MVar bus reactors for the 400 KV Switchyard
- 0.2s Class metering CTs and CVTs for Generator Transformers and Station Transformers also for tariff metering.

1.33 Miscellaneous equipment

- Start up and commissioning spares as required
- Special tools and tackles, as required, for the entire plant.
- Chemicals, reagents and other consumables except resin required for pre-commissioning, commissioning, performance testing till one year operation of plant.
- AAQMS station
- Electrical Lab, C&I Lab and Chemical Lab Equipments as required.
- MIS system: To have wide connectivity including Head Quarters MIS system has to be designed as unit wise.
- Public Address system has been increased for having operational convenience.

- IP based EPBAX System-1000 lines
- IP based CCTV System
- Walkie talkie system with 150 walky talkies
- Fire Tenders
- Chemical Lab Equipment
- Coal sampling Units
- Rooftop solar PV panels
- PIMS including 3D Modelling
- Weigh Bridges
- Hydrogen generation plant
- Work shop equipment

#### **1.34 All Structural Steel Works**

Boiler structural steel works, all necessary stairs, gallery with roof and side covers wherever required.

Pent house on furnace roof with rain protection.

#### **2.0 ENGINEERING SERVICES**

The Contractor shall render engineering services for the plant in scope including complete detailed engineering, design, submission and documentation as specified and as required for a good design and installation ensuring efficiency, operability, availability, maintainability and reliability of the plant. Prior to commencement of the engineering work all aspects of design, viz., criteria for selection and sizing of all equipment and systems, design margins, analysis and design calculations etc. shall be stated by the Contractor in design basis reports. As part of design submissions, the design reports shall be submitted for approval by the Owner representative. The approved design basis reports shall form the basis for the detailed engineering work.

At any stage during the performance of the works, the Owner may require up-gradation / improvements in the Contracted Plant and consequent modification in the equipment / system designs in view of additional information available at a

Later date (s) or feedback (s) received during execution / operation of similar units. If so desired by the Owner, the Contractor shall make the necessary design modifications and carry out the up-gradation / improvements in the Plant. Commercial and time implications of such action shall be mutually agreed upon between the Owner and the Contractor.

During the course of review of detailed engineering, it may be essential in Owner's opinion to obtain data and information on similar equipment and plants engineered by the Contractors. In case Owner so desires the Contractor shall submit such analogous data and information to the Owner.

The Contractor shall cooperate with the Owner's other Contractors and Owner representative and freely exchange with them such technical information as are necessary to obtain the most efficient and economical design and to avoid unnecessary duplication of efforts. The Owners representative shall be provided with copies of all correspondences addressed by the Contractor to other Contractors and Owners representative in respect of such exchange of technical information.



The Contractor shall furnish a comprehensive and detailed schedule of drawings and design documents, which shall be submitted by him after the award of Contract indicating submission dates against each document. The list shall be subject to the approval of the Owner / Owner representative.

The documents shall be divided into two categories:

- For approval
- For information / reference only.

Documents submitted during contract stage, shall be revalidated or revised as required and submitted as certified document for approval / information of the Owner.

- System scheme drawings, pipeline and instrumentation diagrams
- Design basis reports
- Specification for major bought-out items
- Equipment data sheets and general arrangement drawings.
- Drive motor list for all system covered under the scope of this contract.
- Materials for Construction
- Layout drawings
- Operation logic diagrams
- Typical control circuits
- Protection schemes

### **3.0 OPERATING MANUALS AND MAINTENANCE INSTRUCTIONS**

The Contractor shall submit to the Owner / Owner representative, instruction manuals for all equipment covered under the contract at least thirty (30) days before the first shipment of the equipment.

The operating manuals and maintenance instructions shall be in sufficient detail to enable the Owner to operate, maintain, dismantle, re-assemble, adjust or replace all equipment and components during the lifetime of the plant. The manuals shall be specifically prepared for the contracted plant. Only a collection of manufacturer's standard leaflets shall not be acceptable as the manuals.

In addition, the Contractor shall provide at least six (6) months before the time of commissioning and before taking over of the plant and equipment, a consolidated manual for the complete plant detailing out instructions for operation and maintenance.

The operating manuals and maintenance instructions manual shall be submitted in the form of one (1) reproducible original and fifteen (15) copies as well as four (4) copies in compact disks (CDs). The instruction manuals will be reviewed and approved by the owner before issue by the Construction contractor. Such approval will be not be unreasonably withheld.

If after the commissioning and the initial operation of the plant, the instruction manuals require modifications / additions, the same shall be incorporated by the Contractor and updated final version of the manuals shall be submitted.

The Contractor shall submit fifteen (15) sets of spare parts catalogues.



#### **4.0 PLANT HANDBOOK**

The Contractor shall submit to the Owner, a preliminary plant handbook preferably in A-4 size which shall contain all approved design basis and design calculations, the design and performance data of various plant, equipment and systems covering the complete project including single line flow diagrams, within twelve (12) months from Notice to Proceed. The final plant handbook complete in all respects shall be submitted by the Contractor three (3) months before start-up and commissioning activities. The plant handbook shall be submitted in form of one (1) reproducible original and ten(10) copies along with one (1) copy in Compact Disks (CDs).

##### **➤ "As-built" Documentation**

The Contractor shall provide and keep up to date "As built" drawings of all structures constructed and all equipment and accessories and miscellaneous metal works erected or installed. These drawings shall show all changes and revisions from the original drawings and specifications, including the exact "As-built" locations, sizes and kinds of equipment and accessories, miscellaneous metal works, embedded piping and electrical systems and other concealed items of work. These drawings shall be kept in Contractor's filed office but shall be made available at all times for review of the Owner representative. At the end of every work, all entries, changes or revisions made in the drawings by the Contractor shall be checked and approved by the Owner representative. Reproducible prints with requisite copies of all "As-Built" drawings shall be progressively handed over to the Owner after taking over the Plant by the Owner. In addition, all the as-built drawings / documents shall be submitted to the Owner in CDs.

#### **5.0 SUB-CONTRACTORS**

The Contractor shall submit to the TSGENCO the details of all major items that he deems necessary to be sub-contracted. The Contractor shall not change major Sub-Contractors without prior approval of the TSGENCO

The Contractor's orders to the Sub-Contractors shall quote the TSGENCO's contract reference and station name, and instruct the sub-contractors to quote that number and name and also the order number in all correspondences.

A unpriced copy of all purchase orders placed on sub-contractors, and of all orders placed by sub-contractors shall be supplied to the TSGENCO.

The Contractor shall be responsible for maintaining an up-to-date list of all sub-orders and inter works order and shall make this available to the Owner as required.

The TSGENCO's Contract Reference and Station name, shall be added to all interworks and sub-orders.

The TSGENCO reserves the right to check that the Contractor is making timely payments to his sub-contractors.

M/s BHEL should not resort to the reverse auction process for the services Sub-Contracts. However, on a case to case and with prior approval of TSGENCO, BHEL can take up reverse auction for the services Sub- Contracts.





The Contractor shall ensure that their sub-contractors follow the requirements of this contract and have adequate control over all aspects covered by the specification.

#### **6.0 PROGRESS REPORTS.**

During the design and manufacturing stages the Contractor shall submit to the Engineer reports and information on the progress and manufacture by himself and by the Sub-Contractors of all plant and materials required for the execution of the works. The reports shall be based on the plant manufacturing programs.

The detailed procedure and requirements for progress reporting will be agreed with the Owner during the early phase of the works, as part of regular contract / project status reporting.

The Contractor shall also submit to the Owner monthly progress reports and any other reports as required by Owner / Lenders / Statutory authorities.

#### **7.0 ACCESS FOR PROGRESS MONITORING**

The TSGENCO or his nominated representative shall be entitled at all reasonable times to visit all premises where design and manufacturing of the plant is being carried out in order to monitor and verify progress.

#### **8.0 ADDITIONAL OBLIGATIONS OF THE CONTRACTOR:**

- Contractor shall employ sufficient Resident Engineers at site to organize, plan and manage the erection of the equipment. The Resident Engineer at site or his representative shall carry out any written orders or instructions relating to the site work which the Engineer or his authorized representative may give to said representative.
- Contractor shall employ sufficient number of unskilled, semi-skilled, skilled and experienced labour, riggers, fitters, millwrights, pipe fitters, boiler makers and other technicians as well as all trade foreman, qualified erection Engineers and supervisors, stores and security personnel, planning and progress engineers, certified carbon and alloy steel, gas and electric welders, radiographers and x-ray technicians, heat treatment specialists and other required for speedy and timely completion of all work.
- Contractor shall provide his own guards/watchmen round the clock to ensure security and prevent trespassing thereby preventing injury to the public or damage to the property, thefts, sabotage, etc other preventive measures if required shall be arranged by Contactor.
- Contractor shall be responsible for painting of the equipment as covered under this Contract as per the quality and colour code prescribe by the TSGENCO.



## **9.0 INSPECTION OF SITE WORKS:**

Contractor shall permit the Engineer or the Inspector or his authorized representative to inspect the work, or any part thereof, at all times and placed during the progress of the work. The inspection and supervision is for the purpose of assuring the TSGENCO that the plant and specifications are being properly executed and while the TSGENCO and/or the Engineer and their representatives are instructed to give Contractor all desired assistance in interpreting the plan and specification such assistance shall not relieve Contractor of any responsibility for the work. Any work which proves faulty shall be corrected by Contractor without delay. The fact that the Engineer or their representatives have failed to observe faulty work or work which is not in accordance with plans and specifications, shall not relieve Contractor from correcting such work as directed by the TSGENCO and/or the Engineer without additional compensation for extension of the completion period.

## **10.0 EXECUTION OF WORK:**

- Contractor in consultation with TSGENCO shall plan the detailed erection schedule to comply the requirements and shall commence the erection work well in time and thereafter maintain adequate rate of progress of work so as to achieve the stipulated target dates. The erection schedule shall be in sufficient details are so as to indicate the various construction activities.
- Contractor shall at least once in every calendar month indicate actual progress of work in relation to schedule progress and the programme for the succeeding month.

## **11.0 CLEAN UP OF WORK SITE:**

- During erection, Contractor shall without any additional payment, at all times, keep the working and storage areas used by him, free from accumulation of waste materials or rubbish. Before leaving the site, he shall remove or dispose off in a satisfactory, manner all temporary structures, his office buildings, storage sheds, etc unless otherwise directed by the Engineer, excess materials, waste and debris and leave the premises in condition satisfactory to the Engineer.
- If Contractor fails to comply with these requirements in spite of written instructions from the Engineer the TSGENCO will proceed to clean these areas and the expenses incurred by the TSGENCO in this regard shall be deducted from payment due to Contractor



## **12.0 CONSTRUCTION METHOD AND FORCES:**

- Contractor shall be responsible for the safety, adequacy and efficiency of its plant, equipment, method of construction and for providing sufficient working forces.
- Before commencing the work or any portion thereof Contractor shall furnish the TSGENCO with full information as to its plans for carrying out the work.
- At the time or any time during the progress of the work the TSGENCO may, by order in writing direct Contractor to change, increase or improve his plant and equipment or his methods or to employ additional men or to work overtime, or at night, if in their judgment, such action is necessary to,
- Ensure the safety adequacy and efficiency of the plant and equipment or
- Ensure the completion of the work or any part thereof within the time specified in the Contract.
- The Contractor shall comply with the written directions of the TSGENCO as aforesaid within the period specified in the directions and shall make no additional charge to the TSGENCO thereof except where such work is necessitated due to reasons not attributable to Contractor.
- Neither compliance with such directions, nor the failure of the TSGENCO to issue them shall relieve Contractor of his obligation to secure the degree of safety, quality of work and rate of progress required.
- Contractor shall be solely responsible for carrying out and completion of the work in all respects and shall not be allowed to plead any acts, orders, directions or instructions of the TSGENCO, for any departure from the terms of the Contract unless such acts, orders, directions or instructions are in written form.

## **13.0 SETTING OUT:**

Contractor shall be responsible for the true and proper setting out of the works in relation to original points, lines and levels of reference which shall be given by the Engineer in writing and for the correctness of the positions, levels, dimensions and alignments of all parts of the works. The Engineer shall be responsible for the correctness of the original points, lines and levels of reference given by him.



#### **14.0 DEMURRAGE CHARGES:**

The Contractor is responsible for payment of demurrage charges, if any incurred at site due to delay in unloading of equipment and material from railway wagons/carriers attributable to the Contractor.

#### **15.0 SURPLUS MATERIAL/ SCRAP:**

Ownership of any Plant and Equipment in excess (i.e. surplus material including scrap & commissioning spares) of the requirements for the Facilities shall lie with BHEL upon Completion Trial Operation or at such earlier time when the TSGENCO and the BHEL agree that the surplus material/scrap in question are no longer required for the completion of facilities. The TSGENCO will issue necessary gate pass for taking back the surplus material/removal of scrap/commissioning spares after such agreement with in one week after receipt of request by M/s BHEL.

It is clarified by BHEL that surplus material/ commissioning spares and equipment may be stocked at site, in excess to the ordered quantity on BHEL, to take care of any contingency during Erection.

#### **16.0 INDEMNITY:**

Subject to sub-clause indicated below, all losses or damage to any section or portion of the work that shall not have been commissioned which shall arise from or be occasioned by any act of the Contractor or his Sub-Contractor, shall be made good by and at the sole cost of the Contractor and to the satisfaction of the TSGENCO.

Subject to sub-clauses indicated below, the Contractor shall indemnify the TSGENCO in respect of all damages or injuries occurring before all the work have been commissioned to any person or any property (other than property forming part of the works) and against all actions, suits, claims, demand costs, charges and expenses arising in connection therewith which shall be occasioned by the negligence of the Contractor or his sub-contractor or their agents or workmen but not otherwise.

The Contractor shall not be liable to the TSGENCO for:

Any loss or profit out of this Contracts or any consequential loss suffered by the TSGENCO.

Any claim made against the TSGENCO except as provided in these conditions.

Any damage or injury caused by or arising from the acts or commissions of the TSGENCO or of others (not being the Contractor's servants or Sub-Contractor's).

Any loss or damage in circumstances over which the Contractor has no control.





The TSGENCO shall indemnify the Contractor against loss or damage or injury to the works, Contractors equipment or employees of the Contractor his Sub-Contractor at site, arising from acts or omissions of the TSGENCO, his employees as well as his agents, including his other sub-contractors at the site.

If, while the Contractor is at site for the purpose of making good a defect under the Warranty Clause, there shall occur any loss or damage or injury to the workers or to any other person or property, the Contractor's liability in respect of shall be the same as if the said losses, damages or injury had occurred before any part of the works had been commissioned.

#### **17.0 EXCLUSIONS:**

The following are excluded from M/s BHEL scope:

1. Raw water Intake system and Raw water reservoir . BHEL scope starts from raw water pump house.
2. Dismantling of existing structures.
3. Dismantling of any other underground/Over ground structure including rerouting of Nallahs, roads , sewage lines, water streams/canal, trenches, gas pipeline and drain diversion works within plant..etc
4. Construction Power and water
5. Plant boundary along with patrol road at project
6. Patrol road and area drainages study
7. Ash dyke and road along ash slurry pipes
8. Marshalling yard and railway siding including its levelling and grading
9. In motion weigh bridge
10. Non plant buildings as listed as follows
  - a) All roads, drains, bridges and culverts
  - b) Make-Up water reservoir(Raw water reservoir)
  - c) Administrative Building
  - d) Security Building
  - e) Canteen Building
  - f) Stores Building with office building
  - g) Service building
  - h) Chemical Lab building
  - i) Parking sheds
  - j) Rain water harvesting system
  - k) Raw coal storage yard
  - l) Dozer shed
  - m) Watch towers
  - n) Simulator buildings
  - o) Main Gate building

- p) Work shop building
  - q) Fire station building
  - r) Hydrogen storage sheds
  - s) Land scaping
11. PIR for switchyard
  12. No embankment /Protection for natural canal is envisaged in BHEL scope .
  13. Re-routing of existing 132KV, 220KV and 400KV transmission lines.
  14. Any other underground/ over ground structure.
  15. Computerized Maintenance & Inventory Management System.
  16. Access Control System/ Biometric Access system
  17. Re-routing of raw water pipe line within the project premises.
  18. Adjustable orifice.
  19. Online carbon in ash analyzer.
  20. Acoustic pyrometer.

#### **18.0 OWNER'S OBLIGATIONS AND SITE FACILITIES:**

1. Total land of the power plant shall be handed over free from all encumbrances.
2. Existing contour map of the area.
3. One reference Bench mark within/neat the plant area along with reference grids in two perpendicular directions.
4. Complete civil & architectural works outside the scope of BHEL and providing fronts for erection of the plant under scope.
5. Adequate land for storage facilities for various equipment/materials required for constructing the power station within the boundary wall of the power station.
6. Accommodation for BHEL Officials on hire basis and land for construction of temporary accommodation for the Contractor's personnel subject to availability.
7. Suitable approach road up to the boundary wall of the power station.
8. Construction power and water will be provided at one point each at plant premises.

#### **19.0 MISCELLANEOUS**

- o Design Engineering
- o Quality Control, shop testing and inspection.



- Consents, licenses and approvals from relevant statutory authorities other than those obtained by the OWNER.
- Packing and forwarding.

*Santh*  
29/03/18

Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

*Manoj*

मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
बी.एच.ई.एल. हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi - 110049

**DETAILS OF AUXILIARY POWER CONSUMPTION**

Contract No.3000000015/ED/TPC/SE 3/EME 9/D65/D.No.55/18,Dt: 29.03.2018

S.No.	Particulars	Number operating at 100% TGMCR condition	Duty Factor	Total Number provided (Operating + Standby)	Total Power Consumption in KW at 100% TGMCR condition	Remarks
<b>I</b>	<b>SG and its Auxiliaries</b>					
1	Coal mills	6	1.00	6+2	Included	
2	PA fans	2	1.00	2+0	Included	
3	FD fans	2	1.00	2+0	Included	
4	ID fans	2	1.00	2+0	Included	
5	DMCW Pumps (SG)	-	1.00	-	Included	5W+5S for station
6	GR Fans (If applicable)	N/A	-	-		
7	Regenerative air pre-heater	2	1.00	2+0	Included	
8	Fuel oil pumps	1	1.00	1+1	Included	
9	Coal feeders	6	1.00	6+2	Included	
10	Electrostatic precipitator	All fields	1.00	1	Included	
11	Seal air fans	1	1.00	1+1	Included	
12	Lube oil system pumps	As applicable for respective equipment	1.00	-	Included	
13	Electric heat tracing	N.A	-	-		
14	Scanner air fans	1	1.00	1+1	Included	
15	Any other Items					
	a) SCR Equipments	Lot	1.0		Included	
<b>II</b>	<b>STG and its auxiliaries</b>					
1	Control oil pumps	1	1.00	1+1	Included	
2	Oil vapour extractors	1	1.00	1+2	Included	
3	Lube oil purification equipment (centrifuge type)	1	1.00	1+0	Included	
4	Gland steam exhaustor	1	1.00	1	Included	
5	Air side seal oil pump	1	1.00	1+1	Included	
6	Hydrogen side seal oil pump	1	1.00	1+1	Included	
7	Hydrogen gas dryer blower	1	1.00	1+1	Included	
8	Stator water cooling pumps	1	1.00	1+1	Included	
9	Generator vapour extractor	1	1.00	1+1	Included	
10	EH polishing pump	1	1.00	-	-	
11	DMCW pump (TG)	-	1.00	1+1	Included	10W+5S for Strn
12	Generator gland seal flat pump	N.A	-	N.A	-	
13	Condenser vacuum pump	2	1.00	2+2	Included	
14	CEPs	2	1.00	2+1	Included	
15	STD BFP vapour extractor	N.A	-	-	-	
16	Main oil pump (motor driven)	1	1.00	1+1	Included	
17	Drip pump	1	1.00	1+1	Included	
<b>III</b>	<b>Balance of Plant</b>					
1	Raw water pumps		1.00		Included	5W+2S for station




2	Circulating water pumps		1.00		Included	20W+3S for station
3	CW Make up System		1.00		Included	5W+3S
4	Auxiliary cooling water pumps		1.00		Included	10W+3S for station
5	FGD Pumps (Stage-I&II)	2	1.00	2+2	Included	
6	Water treatment plant					
	a) Pre-treatment		0.80	LOT	Included	Common for station
	b) DM plant		0.50	LOT	Included	Common for station
	c)CW-Treatment		1.00	LOT	Included	Common for Stn
	d)Sewage Treatment plant		0.50	LOT	Included	Common for Stn
	e)Effluent Treatment plant		0.50	LOT	Included	Common for Stn
7	Instrumentation and Control system					
	a) DCS		1.00	LOT	Included	Refer Note.1, common for station
	b) Others		1.00	LOT	Included	Common for station
8	Any other Items					
	a) COLTCS		0.33	LOT	Included	Common for station
	b) SCS		0.33	LOT	Included	Common for station
	c)Debris Filter		0.33	LOT	Included	Common for station
9	Coal Handling Plant for the worst path (Max. Power Consumption) (including crusher house, coal path from stock pile to Bunkers with one Stacker cum Reclaimer operating in reclaiming mode but excluding intermittent equipment like electrical hoists, coal sampling unit, flap gate, rack & pinion gates and sump pumps)		0.86	LOT	Included	Common for station
10	Ash Handling System for bottom ash disposal system including clinker grinder up to ash disposal area and fly ash evacuation system up to silos.		1.00	LOT	Included	Common for station
11	Air Conditioning system					
i	Main Control Room		1.0	LOT	Included	Refer Note-2, Common for station
ii	ESP & VFD Control Room		1.0	LOT	Included	
iii	AHP Control Room		1.0	LOT	Included	Common for station
iv	CHP Control Room		1.0	LOT	Included	Common for

						station
v	Switchyard Control Room		1.0	LOT	Included	Common for station
vi	Service Building		1.0	LOT	Included	Common for station
vii	Aux Control Rooms		0.67	LOT	Included	Common for station
viii	FGD Control room		1.00	LOT	Included	Common for station
12	Compressor Air System					
	a) Plant Air Compressors (Service Air & Instrument Air)	-	0.5	-	Included	Common for station
	b) Plant Instrument air drying plant	-	0.5	-	Included	Common for station
13	Mill Reject System					
	Mill Reject Handling Compressors	-	1.0	-	Included	
14	Electrical System					
i	Losses in transformers GTs, UTs, STs, UATs, SATs etc.,	Transformers shown as per SLD	1.00	LOT	Included	
ii	Aux. Transformers Losses	Transformers shown as per SLD	1.00	LOT	Included	
iii	FGD Transformer Losses	Transformers shown as per SLD	1.00	1+1	Included	
15	HCSD System			LOT	Included	
16	Lime Handling Plant			LOT	Included	
17	FGD Plant			LOT	Included	
18	Lime Stone slurry preparation system			LOT	Included	
19	Gypsum Handling plant			LOT	Included	
20	Gypsum dewatering system			LOT	Included	
21	SUMP and utility system			LOT	Included	
	Total				Refer SI.No 3 of Annexure I	

**Note:**

1. Aux. Power consumption includes DCS power consumption for SG, TG, DAVR, Station DCS, CHP, AHP, MRHS, FOPH, CW/ACW & Compressor systems only.
2. Aux. Power consumption includes power consumption for AC System of Power House and Service building only.
3. The Auxiliaries indicated for common station auxiliaries shall be proportionately considered for per unit basis auxiliary power consumption.

  
 मनोज शाह / MANOJ SHAH  
 महाप्रबंधक / General Manager  
 पावर सेक्टर मार्केटिंग / Power Sector Marketing  
 भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
 वी.एच.ई.एल हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
 नई दिल्ली - 110049 / New Delhi - 110049

  
 Executive Director  
 Thermal Projects Construction  
 TSGENCO, Vidyut Soudha,  
 Khairatabad, Hyderabad-500 082.



Contract No.3000000015/ED/TPC/SE 3/ /EME 9/D65/D.No.55 /18,Dt:29.03.2018

**OTHER TERMS AND CONDITIONS**

**CLAUSE 1: DEFINITION OF TERMS:**

The following words shall have the meaning herein assigned to them unless there is something in the subject or context inconsistent with such construction.

- 1.01 : **'Purchaser' or 'Owner'** shall mean TSGENCO
- 1.02 : **'TSGENCO'** shall mean the Telangana State Power Generation Corporation Limited having its Head office at Vidyut Soudha, Khairatabad, Hyderabad-500082 (Telangana) and shall include its legal representatives, successors and permitted assignees.
- 1.03 : **'Contractor'** shall mean M/s. Bharat Heavy Electricals Ltd., BHEL House, Siri Fort, New Delhi-110 049 and shall include its legal representatives, successors and assignees.
- 1.04 : **'Sub-Contractor'** means any person (other than the Contractor) named in the Contract to carryout any part of the works or any person to whom any part of the Contract may be sub-let by the Contractor after informing TSGENCO, and will include the legal representatives, successors and assignees of such persons.
- 1.05 : **'Engineer'** shall mean the person nominated by TSGENCO for the time being and include such other officers as may be duly authorized and appointed in writing by TSGENCO to act as Engineer for the purpose of the Contract. In case where no such Engineer has been so nominated or appointed the word 'Engineer' shall mean Executive Director, Thermal Projects Construction, Telangana State Power Generation Corporation Limited, Vidyut Soudha, Khairatabad, Hyderabad-500 082, Telangana.
- 1.06 : **'Consulting Engineer'** shall mean Engineering consultant for the project i.e., M/s TATA Consulting Engineers Limited, Bangalore. The address of the consultant is M/s TATA Consulting Engineers Limited, 73/1, Sheriff Centre, St. Marks Road,Bangalore-560001.
- 1.07 : **'Plant', 'Equipment' or 'Stores',** shall mean and include plant, equipment, stores and materials to be provided by the Contractor.
- 1.08 : **'Contract'** shall mean and include this Contract and the annexures to this Contract, read with the basic proposals and subsequent correspondence, clarifications, amendments and addenda to be issued from time to time.
- 1.09 : **'Site'** shall mean the site of Yadadri Thermal Power Station located at Dameracherla(Mandal),Veerlapalem(Village), Nalgonda District of Telangana.

- 1.10 : **'Inspector'** shall mean the Executive Director, Thermal Projects Construction or Consulting Engineer or any such other person as may be duly authorised and appointed in writing by the Engineer to act as 'the INSPECTOR' for the purpose of the Inspection of materials/ Equipment/ Works/ Services etc.
- 1.11 : **'Approved'** shall mean the approval of the Engineer, the Third Party Inspector or the Consulting Engineer as the case may be.
- 1.12 : **'Tests on completion'** means such tests to be made by the Contractor before the works are taken over by the TSGENCO as are provided for in the Contract and such other tests as may be agreed to between TSGENCO and the Contractor and tests required to conform to applicable standards.
- 1.13 : **'Commissioning'** shall mean successful completion of trial operation of unit.
- 1.14 : **'Month'** shall mean calendar month.
- 1.15 : **'Writing'** shall include any manuscript, typewritten or printed statement under or over signature or seal as the case may be.
- 1.16 : **'Persons'** shall include any firms, companies, corporation and body of persons whether incorporated or not.
- 1.17 : Words incorporating the singular only shall include plural and vice-versa where the context requires.
- 1.18 : **'Warranty Period'** shall mean the period during which the Contractor shall remain liable for repairs or replacement of any defective part of the equipment supplied under the Contract as the case may be.
- 1.19 : Terms and conditions not defined herein shall have the meaning as are assigned to them in the Contract Act, 1872 read with amendments and failing that in the General Clauses Act, 1897 read with amendments.

**2.0 : SCOPE OF CONTRACT:**

Shall be as defined in Clause (1) of the Purchase Order. However, the TSGENCO may, if it so desires, vary the scope of the Contract after discussion and mutual agreement with the contractor.

**3.0 : CONTRACTOR TO INFORM HIMSELF FULLY:**

The Contractor shall be deemed to have fully examined the TSGENCO's requirements as specified in the Contract and also to have satisfied himself as to the nature and character of work and of site conditions and other relevant matters and detailed information he had or otherwise obtained from the TSGENCO, the Engineer, Consulting Engineer or Inspector or other sources shall not in any way relieve the Contractor from his responsibility under the terms of this Contract.



**4.0 : SCHEUDLE OF MATERIALS & SPARES:**

The Schedule of materials and prices shall be as per the terms set forth in the Purchase Order.

Any variation by way of either increase or reduction in Taxes and duties other statutory levies or new imposts introduced during the contractual delivery period shall be to TSGENCO's account provided that in cases where the delivery schedule is not adhered to by the Contractor for reasons attributable to Contractor, any increase in Taxes and duties statutory levies or imposts introduced after the agreed delivery dates shall be borne by the Contractor and any reduction thereof shall be to the credit of TSGENCO.

**5.0 : CODES AND STANDARDS:**

Design, Engineering, Manufacture, Testing, Erection & Commissioning of all equipments and material furnished by the Contractor shall meet the requirements of Indian Standards Codes/ International Standards as per the Volume-II to X of specification e-PCT/TS/K/02/2014-15 / read with resolution of deviation and statutory requirements of the Government of India and the Government of Telangana.

**6.0 : CONTRACTOR'S DRAWINGS:**

- 6.1 : The Contractor shall send according to mutually agreed time schedule, outline drawings of all equipment together with weights and sufficiently detailed overall dimensions to enable TSGENCO design foundations, structures and associated equipment.
- 6.2 : Within a reasonable time the Contractor shall send to the Engineer a list of all the drawings with their respective titles and the dates and category like approval, information, typical etc., on which they shall be supplied to the Engineer/Consultant. The list shall be amended or extended by the Contractor in consultation with the Engineer as and when necessary during the progress of the work. All titles, notes and inscriptions on the drawings shall be in English.
- 6.3 : Before proceeding with the manufacture, the Contractor shall send in accordance with the instructions of the Engineer or Inspector for his information, general assembly drawings and such other drawings of the equipment necessary for TSGENCO to design the power station and such additional assembly drawings as are necessary to demonstrate fully that all parts of the equipment to be furnished will conform to the provisions and intent of the Contract.
- 6.4 : The Contractor shall also send to the Engineer/Inspector or Consultant for his approval, the drawings for the layout of the station and auxiliaries and sub-assembly and erection drawings and erection sequence schedules. One copy will be returned to the Contractor marked approved/approved with corrections except in the case of erection drawings and erection sequence schedules. Upon receipt of the approved/prints, the Contractors shall furnish to TSGENCO prints of each drawing with soft copy on CDs in accordance with the distribution schedule as per Annexure-IX of this Purchase Order.

- 6.5 : CDs shall be of quality to produce clear and legible prints and any inferior quality may be returned by TSGENCO for replacement with suitable quality. The prints shall be accompanied by a letter of transmittal.
- 6.6 : Any manufacturing work in connection with the equipment prior to the approval of drawings shall be at the Contractor's risk. The Contractor shall make the equipment conform to the provisions and intent of the Contract without additional cost to TSGENCO. Approval of the Contractor's drawings shall not be held to relieve the Contractor of any part of Contractor's obligations to meet all the requirements of Contract or of the responsibility for the correctness of the Contractor's drawings.
- 6.7 : All drawings which Contractor shall send to the Engineer for approval shall be approved, rejected or returned for modifications within 7 working days of receipt of these by the Engineer. If within this period no information is received from TSGENCO, it shall be deemed to have been approved by TSGENCO. However, the Contractor shall give consideration in specific circumstances to reasonable request for extension of the afore-mentioned 7 working days.
- 6.8 : Upon approval by the Engineer, the drawings shall become the Contract drawings and the Contractor shall not depart from them anyway whatsoever, except by the written permission of the Engineer.
- 6.9 : The final Contract drawings will remain the property of the TSGENCO.

**7.0 : STATUTORY OBLIGATIONS:**

If the Contract price for due performance of the Contract shall be directly increased or reduced by reasons of the making, passing or promulgation or any law after the date of this Contract in India or any order, regulation or bylaw having the force of the law, the amount of such direct increase or reduction shall be added to or deducted from the Contract price as the case may be.

**8.0 : MISTAKES IN DRAWINGS:**

The Contractor shall be responsible for and shall pay for any alterations of the work due to any discrepancies, errors or omissions in the drawings or other particulars whether they have been approved by the Inspector or not provided that such discrepancies, errors/omissions be not due to inaccurate information or particulars furnished to the Contractor by the Engineer/Inspector/Consulting Engineer.





**9.0 : MATERIAL AND WORKMANSHIP:**

9.1 : The equipment shall be manufactured, constructed in the best and most efficient workmanship like manner and with the materials of the best of or approved qualities for their respective uses.

9.2 : All the materials used and the manufacture of equipment shall be of the best quality and shall conform to the relevant standards. The design and workmanship shall be of the highest norms with the relevant standards. The design and workmanship shall be of the highest quality so as to ensure satisfactory operation of the equipment. The entire equipment shall be in accordance with best modern practice.

**10.0 : COMPLETENESS OF EQUIPMENT/SYSTEMS:**

10.1 : The equipments/systems shall be complete in every respect with all mountings, fittings, fixtures and needed accessories even though not specifically detailed. The Contractor shall not be eligible for any extra payment in respect of such mountings, fittings, fixtures and needed accessories which are needed for safe and satisfactory operation of the equipment as required by the applicable codes within framework of the Contract.

10.2 : All similar component parts of similar equipment supplied shall be interchangeable with one another.

**11.0 : SUB-LETTING OF CONTRACT:**

The Contractor may with prior consent the Engineer or TSGENCO assign or sublet the Contract or any substantial part thereof other than for raw-materials, for minor details for any part of the plant for which the manufacturers and sub-contractors are named in the Contract provided that any such arrangement shall not relieve the Contractor from any obligation, duty or responsibility under this Contract.

**12.0 : TESTS AT SITE:**

12.1 : In all cases where the Contract provides for tests at the Site, Contractor, except otherwise specified, shall bear all costs such as labour and materials as required to carryout the tests as per relevant standards.

12.2 : All special instruments shall be arranged by the Contractor at the time of the test and taken back by the Contractor after completion of tests with permission of TSGENCO except where specified that same are required for post commissioning O&M purpose.

**13.0 : PACKING:**

13.1 : The Contractor shall include and provide for security protecting and packing equipment so as to avoid damage in transit to site under proper conditions and he shall be responsible for any losses or damages caused or occasioned by any defect in packing. All polished surfaces shall be thoroughly protected from rust during transit. All open ends of tubes nozzles or headers shall be properly plugged and safe-guard against

damages to shop prepared edges, flanged ends shall be adequately blanked.

13.2 : All equipment shall be packed in suitable storage cases wherever essential. Large articles such as plates, which are not packed in cases, shall have all screwed holes plugged suitably and machined surfaces properly protected. The Engineer may also issue specific packing requirement for certain items and the Contractor shall endeavour to comply with the same. Weight and size limitation for transport shall be taken care of by the Contractor and Contractor shall get himself informed about transport logistic arrangements.

13.3 : It may be noted that the marking on all packages dispatched to site shall be in English preferably in black paint. Where ever necessary special marking in English shall be painted on the packages as per standard practice.

14.0 : **REVISIONS AND/OR MODIFICATIONS:**

14.1 : TSGENCO shall have full power, subject to the provision hereinafter contained, from time to time during the execution of the Contract by notice in writing to instruct the Contractor to alter, omit, add to or otherwise revise and modify the work without prejudice to the Contract. The Contractor shall carryout such revisions and modifications and shall be bound by the same conditions as far as applicable as though the revisions and modifications occurred in the specifications, provided, however, that any such revisions and modifications would in the opinion of the Contractor, if carried out, prevent him from fulfilling any of his obligation or guarantee under the Contract, he shall so notify TSGENCO in writing. TSGENCO shall decide forthwith whether or not the revisions and modifications shall be carried out and if TSGENCO confirms the instructions, the Contractor shall be held relieved of such obligations or guarantees so far as only the suggested revisions and obligations can be shown to affect the Contractor's obligations or guarantees.

14.2 : The difference in price, if any, occasioned by the said revisions and modifications shall be added to or deducted from the Contract price as mutually agreed. TSGENCO shall not become liable for the payment of any change in respect of such revisions and modifications unless the instructions for the performance of the same shall have been given in writing by TSGENCO.

15.0 : **REPLACEMENT OF DEFECTIVE MATERIALS/ PLANT:**

If during the progress of work, the Engineer shall decide and notify in writing to the Contractor that any part of the work executed by the Contractor is unsound or imperfect and inferior in quality to that specified, the Contractor on receiving details of such defect or deficiency shall, if he accepts the Engineer's findings, alter, reconstruct or remove such plant or part of plant or provide fresh materials upto the standard of the specification at his own expense, with in such time as may be reasonably necessary for the purpose. In case the Contractor fail to do so, TSGENCO may give the Contractor 7 days notice in writing of their intention to do so, proceed to alter, reconstruct or remove such plant or part or provide



all such materials at the Contractor's cost provided that nothing, in this clause shall be deemed to deprive TSGENCO or affect any rights of the Contractor which he may otherwise have in respect of such defects or deficiencies and provided that such replacements shall be carried out by TSGENCO within a reasonable time and at a reasonable price and when reasonably possible to the same specifications and under competitive conditions.

**16.0 : WARRANTY:**

- 16.1 : The Contractor warrants that the plant will be new and in accordance with the specifications and that the equipment will be free from defects in design and workmanship.
- 16.2 : For a period of 12 calendar months commencing immediately from the date on which the plant is commissioned called 'Warranty Period' the Contractor shall be liable to repair or replace any defective parts that may develop in the plant under conditions provided by the Contract and under proper use and arising solely from faulty design, materials or workmanship free of all costs to TSGENCO provided that notice of any such defects or failure to conform to the specifications and satisfactory proof thereof is given reasonably and promptly by TSGENCO to the Contractor. In the event of the commissioning being delayed for reasons not wholly attributable to the Contractor, the Contractor's obligations under this clause shall cease on the expiry of 18 months from the date on which the commissioning would have been completed but for such delay.
- 16.3 : The Contractor's liability under this clause shall be limited, at Contractor's option to repair or replace with all transport charges from site to Contractor's works and back shall be to the contractor's account.
- 16.4 : The acceptance of the plant by the Engineer shall in no way relieve the Contractor of his obligation under this clause.
- 16.5 : In the case of defective parts not repairable at site, but essential in the meantime for the commercial operation of the plant, the Contractor and TSGENCO shall mutually agree to a programme of replacement or renewal which will minimize to the maximum extent interruption in the operation of the plant.
- 16.6 : If it becomes necessary to replace or renew any defective part under this article, the provisions of this article shall apply to replaced part until the expiry of 6 months from the date of such replacements/renewal or until the end of the warranty period specified in sub-clause whichever may be later.
- 16.7 : The provisions contained in this clause will not be applicable.
- i) If TSGENCO has not operated the equipment according to generally approved industry practices and in accordance with the conditions of operation specified and in accordance with operation manuals if any.



- ii) If TSGENCO has not notified the Contractor in writing within reasonable time any defect occurred.
- iii) In cases of normal wear and tear.

**17.0 : FAILURE TO PERFORM:**

If the Contractor shall neglect to manufacture or supply plant, material and equipment or to perform the work with due diligence and expedition or shall refuse or neglect to comply with any orders given to him in writing by the Inspector or Engineer which are specifically made binding on the Contractor by the terms of the Contract or shall contravene the provisions of the Contract or if the completed work or any portion thereof, before it is taken over be defective or fails to fulfill the requirements of this Contract subject to the provisions of the warranty in Clause (16), TSGENCO may give notice to the Contractor in writing calling upon him to make good the failure, neglect or contravention complained of and should the Contractor fail to comply with such notice within a reasonable time after the date of service thereof or otherwise within such time as may be reasonable and necessary for making it good then and in such case TSGENCO and the Contractor shall endeavour to reach a mutually satisfactory agreement. Failing such agreement TSGENCO shall have the right to terminate the Contract in whole or in part and claim damages.

**18.0 : CO-ORDINATION:**

18.1 : The Contractor agrees to co-operate with the TSGENCO's Consulting Engineers and the other Contractors for associated equipment and freely exchange with them such technical information as is necessary to obtain the most efficient and economical design and to avoid un-necessary duplication of equipment. No remuneration shall be claimed from the TSGENCO for such technical cooperation.

18.2 : TSGENCO reserves the right to perform or have performed in and about the works during the time when the Contractor is performing his hereunder such other work as TSGENCO desires and the Contractors shall make all reasonable effort to perform his work hereunder in such manner as will enable such other work to be performed without hindrances. TSGENCO or its Engineer shall co-ordinate such activities of the various Contractors to ensure that the work to be performed by the Contractor is not affected or interrupted or put to delay or additional expenses.

**19.0 : PATENT RIGHTS:**

19.1 : The Contractor shall at his cost defend any claim which results in a suit or proceeding against the TSGENCO that the equipment or any part thereof constituted an infringement of any patent of the country of foreign or India, if notified reasonably and promptly in writing and given authority, information and assistance for the defence and the Contractor shall pay all damages and costs if any awarded against TSGENCO in such suit or proceedings for patent infringement. In case the equipment in such suit or proceedings is held to constitute infringement and the use of the equipment or part is prohibited for TSGENCO the right to continue using





the equipment or replace the same with a non-infringing or remove the equipment and Contractor shall refund the price plus the transportation and installation costs thereof.

**20.0 : FORCE MAJEURE:**

20.1 : Force majeure shall mean any event beyond the reasonable control of the parties to the contract which is unavoidable, notwithstanding the reasonable care taken by the party affected.

The activities, but not limited to the following, shall constitute Force majeure:

- i) Natural phenomena, including but not limited to weather conditions, floods, droughts, earthquakes and epidemics.
- ii) Acts of any government authority domestic or foreign, including but not limited to war, declared or undeclared, priorities, quarantine, embargoes, licensing control or production or distribution restrictions.
- iii) Accidents and disruptions including but not limited to fires, explosions, breakdowns of essential machinery or equipment and power shortage.
- iv) Strikes, slow-downs, lock-outs, sabotage.
- v) Defects in heavy forgings and castings.
- vi) Failure or delay in Contractor's source of supply due to force majeure causes enumerated at (i) to (v).

20.2 : The Contractor shall not be liable for delays in performing his obligations resulting directly or indirectly from any force majeure clause as referred to and/or defined in paragraph above. Dates of completion shall, subject to as hereinafter provided be extended by a reasonable time even though such cause may occur after the Contractor's performance of his obligations has been delayed for other causes solely not attributable to the Contractor. If any such delay lasts for more than six months, the parties hereto shall immediately consult one another for purpose of agreeing upon a reasonable basis on which the Contractor shall resume supply and if the parties do not agree upon a solution of the problem involved including adjustment of the price, such price adjustment being both upwards and downwards then either party may cancel the contracts, and if the rights of the parties on such cancellations are not amicably settled, any dispute in regard thereto may be settled by arbitration. All the provisions of this clause shall apply whether the disruptions caused is total or partial in its effect upon the ability of the Contractor to perform.

**21.0 : COMPLIANCE WITH LAWS AND REGULATIONS:**

The Contractor shall comply with all laws, statutes, by-laws ordinances and regulations of statutory and government authorities which are applicable to this Contract, guarantee full compliance with the said laws and regulations by any sub-contractor and agree to indemnify the TSGENCO against any cost, loss, liability or obligation which may arise as a consequence of the failure of the Contractor or any sub-contractor or their agents or workmen to comply fully with the said laws and regulations, or which may arise as a consequence of any injury, illness or death of any employee of the Contractor or sub-contractor engaged on the work.

**22.0 : TITLE:**

Title to all of the materials, equipment and apparatus covered by this Contract shall pass on to the TSGENCO on dispatch from the Contractor's works/sub-Contractor's works/port of entry. However, TSGENCO shall have the right to have the possession or use of any completed or partially completed work-such possession or use shall not be deemed to be acceptance of any work not in accordance with the Contract.

**23.0 : PROGRESS REPORTS:**

The Contractor shall furnish to TSGENCO progress reports of the supplies and services at the end of every month indicating adherence to major mile stone activities/dates and slippages/holdups, if any, with remedial actions taken etc. The form and content shall be mutually agreed.

**24.0 : ENGINEER'S DECISION:**

In respect of all matters which are left to the decision of the Engineer including the granting or with-holding of the certificates, the Engineer shall and if required to do so by or the Contractor, give in writing the decision thereon and his reasons for such decision. If the decision is not accepted by the Contractor the matter shall be mutually discussed and settled.

**25.0 : REJECTION OF DEFECTIVE PLANT:**

If the completed plant or any portion thereof before it is taken over, be found to be defective or fails to fulfill the requirements of the Contract the Engineer shall forthwith give the Contractor notice setting forthwith particulars of defects or failure and the Contractor, if he accepts the defects in working, shall forthwith make good the defects or correct the same to make sure compliance with the requirements of the Contract. If the Contractor fails to do so within a reasonable time, TSGENCO may reject or replace at the cost of the Contractor the whole or any portion of the plant as the case may be which is defective or fails to fulfill the requirements of the Contracts. Such replacements shall be carried out by TSGENCO within a reasonable time and at a reasonable price and where reasonably possible to the same specification and under competitive conditions. In case of such replacement by TSGENCO the Contractor shall be liable to pay TSGENCO the extra cost, if any, of such replacement delivered and/or erected as provided for in the original Contract such cost being the ascertained difference between the price paid by TSGENCO under the provisions above mentioned, for such replacement and the Contract price for the plant so replaced and also to reimburse the price paid by the TSGENCO to the Contractor in respect of such defective plant. If TSGENCO does not so replace the rejected plant within a reasonable time, the Contractor shall be liable only to repay all money paid by TSGENCO to him in respect of such plant.

In the event of such rejections, TSGENCO shall be entitled to the use of the plant in a reasonable and a proper manner for a time reasonably sufficient to enable him to obtain other replacement plant. The rejected plant shall be the property of the Contractor.



**26.0 : DEDUCTIONS FROM CONTRACT PRICE:**

All costs, damages, expenses which the TSGENCO may have paid for which under the Contract, the Contractor shall be demanded by the TSGENCO through separate bills/invoices. If the money due or becoming due by the Contractor to TSGENCO is not paid within a reasonable time, TSGENCO may recover such amounts due to the Contractor under this Contract or any other contract in vogue.

**27.0 : TESTS AND COMMISSIONING:**

After erection of each item of equipment and duly inspected by both the parties for correctness and completeness, the necessary standard, pre-commissioning tests including those required by the consultants will be carried and unit will be taken for trial operation.

**28.0 : PERFORMANCE GUARANTEE TESTS:**

- 28.1 : Final tests as mutually agreed to check the performance guarantees shall be carried out by the Contractor preferably, immediately after taking over.
- 28.2 : The above tests should be carried out in the presence of the Engineer or his authorized representatives to his entire satisfaction.
- 28.3 : In case of unsatisfactory result of guarantee tests representatives of both the parties to the Contractor will agree upon appropriate repairs or adjustments necessary for the achievement of the guaranteed values. The performance guarantee tests shall be repeated on the same conditions after carrying out the repairs or adjustment as stated in previous sub paragraph.
- 28.4 : The tests conducted shall conform to relevant ISS or ISO or equivalent international standards.
- 28.5 : In addition, the performance capabilities of individual auxiliaries shall also be ascertained.

**29.0 : PERFORMANCE:**

The performance figures in respect of guaranteed parameters thereof would be as offered by the Contractor and as indicated in the clause 9(b) of this purchase order.

**30.0 : INSTRUCTION MANUALS:**

- 30.1 : The Contractor shall furnish hard copies and soft copies of instruction manuals for installation, adjustments, O&M of all equipments covered under this Contract as per distribution schedule at Annexure-IX. The manuals shall be specific to the equipment furnished. Instructions of assembly and installation shall show identified part numbers of the dismantled equipment.

30.2 : The Contractor shall make available all the O&M manuals at least six months before commissioning of the unit to TSGENCO to enable its engineers to study the operation and maintenance instructions.

30.3 : Separate instruction manuals shall be furnished for each equipment covered under this Contract.

30.4 : All the above documentation/drawings/manuals shall also be made available in computer based software in the form of CDs compatible for LAN operation requisite number of user licenses.

**31.0 : SPARE PARTS:**

31.1 : The Contractor will also undertake that supplies of necessary spare parts will be made available for the life of the equipment on a continuous basis at reasonable prices.

31.2 : The Contractor agrees and undertakes that before going out of production of the spare parts he will give adequate advance notice to TSGENCO so that the later may order their requirements of spares in one lot, if they so desire.

31.3 : The Contractor agrees and undertakes that if he goes out of production of spare parts and the equipments supplied become obsolete, then he will make available blue prints, drawings of spare parts and specification of materials at no cost to TSGENCO if and when required in connection with equipment to enable TSGENCO to fabricate or procure spare parts from other sources.

**32.0 : TAKING OVER CERTIFICATE:**

32.1 : After the unit has been successfully commissioned, the unit along with the auxiliary equipment shall be taken over by TSGENCO and, taking over certificate shall be issued. Such taking over certificate shall not be unduly delayed and shall be issued within 15 days of successful commissioning of the unit.

32.2 : Small defects which do not endanger the safe operation of the equipment shall not be considered as reasons for not taking over the Unit. The defects will be listed out and will be gradually set right within a reasonable time stipulated by TSGENCO.

32.3 : If, by reasons or any default on the part of the Contractor, taking over certificate has not been issued in respect of any portion of the works within one month after the time for completion or extended time as the case may be, TSGENCO shall be at liberty to use the works or any portion thereof in respect of which a taking over certificate has not been issued, provided that the works or the portion so used and that aforesaid shall be reasonably capable of being used and that the Contractor shall be afforded the earliest possible opportunity of taking such steps as may be necessary to permit the issue of the taking over certificates.





**33.0 : NOTICES:**

33.1 : Notices and other communications between TSGENCO and the Contractor shall be deemed validly given if transmitted in writing , fax message, e-mail/ internet messages addressed respectively as follows (Presently applicable list. Modifications if any shall be informed as and when required during contract execution stage):

1. TSGENCO : The Chairman & Managing Director,  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.
2. Engineer : The Executive Director,  
Thermal Projects Construction,  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.
3. : The Chief Engineer (Contrcution),  
YTPS/TSGENCO,  
Dameracherla(Mandal),  
Veerlapalem(Village),,  
Nalgonda District.
4. : The Executive Director (Civil/Thermal),  
TSGENCO, Vidyut Soudha,  
Hyderabad-500 082.
5. : The Superintending Engineer,  
TPC- III, TSGENCO,  
Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.
6. Consultant : M/s TATA Consulting Engineers Ltd,  
73/1, Sheriff Centre , St. Marks Road,  
Bangalore-560001
7. Contractor : M/s. Bharat Heavy Electricals Ltd.,  
Power Sector - Marketing,  
BHEL House, Siri Fort,  
New Delhi - 110 049.

33.2 : Necessary copies of communications, drawings, documents and test reports, operation instructions O&M manuals, as built documents etc., shall be sent as per the distribution schedule Annexure-IX.

33.3 : English language shall be used in all written communications between TSGENCO and the Contractor in connection with the Contract.



#### **34.0 : SUSPENSION OF WORK**

The purchaser reserves the right to suspend and reinstate execution of the whole or any part of the contract without invalidating the provisions of the contract. Orders for suspension or reinstatement of the works shall be issued by the Engineer to the Contractor in writing. The time for completion of the works shall be extended for a period equal to the duration of the suspension.

If, by virtue of a suspension order given by the Purchaser, other than by reason of the Contractor's default, the Contractor's performance of any part of its obligations is suspended for an aggregate period of more than ninety (90) days, then at any time thereafter and provided that at that time such performance is still suspended, the Contractor may give a notice to the Purchaser requiring that the Owner shall, within twenty-eight (28) days of receipt of the notice, order the resumption of such performance.

If the Owner fails to do so within such period, the Contractor may, by a further notice to the Owner, elect to treat the suspension, where it affects a part only of the plant and equipment, as a deletion of such part or, where it affects the whole of the plant and equipment, as termination of the Contract.

##### **34.1 : If**

(a) the Owner has failed to pay the Contractor any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause, or commits a substantial breach of the Contract, the Contractor may give a notice to the Owner that requires payment of such sum, requires approval of such invoice or supporting documents, or specifies the breach and requires the Owner to remedy the same, as the case may be. If the Owner fails to pay such sum, fails to approve such invoice or supporting documents or give its reasons for withholding such approval, or fails to remedy the breach or take steps to remedy the breach within fourteen (14) days after receipt of the Contractor's notice or

(b) the Contractor is unable to carry out any of its obligations under the Contract for any reason attributable to the Owner, including but not limited to the Owner's failure to provide possession of or access to the Site, or failure to obtain any governmental permit necessary for the execution and/or completion of the Facilities;

then the Contractor may by fourteen (14) days' notice to the Owner suspend performance of all or any of its obligations under the Contract, or reduce the rate of progress.

**34.2 :** If the Contractor's performance of its obligations is suspended or the rate of progress is reduced pursuant to this Clause 35.0, then the Time for Completion shall be extended in accordance, and any additional costs or expenses incurred by the Contractor as a result of such suspension or reduction shall be paid by the Owner to the Contractor in addition to the Contract Price, except in the case of suspension order or reduction in the rate of progress by reason of the Contractor's default or breach of the Contract



**35.0 : LIMITATION OF LIABILITY**

- 35.1 : The final payment by the Purchaser in pursuance of the contract shall mean, the release of the Contractor from all his liabilities under the contract except his obligations under the warranty period. All other payments made under the contract shall be treated as on-account payments.
- 35.2 : The Contractor shall not be liable to the Owner, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of profit, cost of capital, cost of replacement power or increased cost of operation, provided that this exclusion shall not apply to any obligation of the contractor to pay liquidated damages to the owner, and
- 35.3 : The aggregate liability of the contractor to the owner under the contract shall not exceed 10% of the Total contract price 2.0, provided that this limitation shall not apply to any obligation of the contractor to repair or replace defective equipment or to indemnify the owner with respect to patent infringement.

**36. COMPLETION OF WORK:**

The equipment & plant shall be erected in every respect with all mountings, fittings, fixtures and needed accessories even though not specifically detailed in the specifications. Contractor shall not be eligible for any extra payment in respect of erection or such mounting, fittings, fixtures and accessories which are needed for safe operation of the equipment as required by applicable codes within frame work of the Contract.



मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
बी.एच.ई.एल. हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi - 110049



29/03/18  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

5X800 MW YADADRI THERMAL POWER STATION- SERVICES CONTRACT

**ADVANCE CUM PERFORMANCE BANK GUARANTEE FOR .... UNITS**

Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha  
Hyderabad - 500082

Guarantee No:

Date:

In consideration of the **Telangana State Power Generation Corporation Limited (TSGENCO)**, a Company incorporated under the provisions of the Indian Companies Act, 2013 and having its registered Office at Vidyut Soudha, Hyderabad (hereinafter called 'the Corporation') having at our request agreed to accept this Bank Guarantee No. .... in lieu of Cash Deposit required from **M/s. Bharat Heavy Electricals Limited (BHEL)**, a Company incorporated under the provisions of the Indian Companies Act, 1956 and having its registered Office at *BHEL House, Siri Fort, New Delhi - 110049* (hereinafter called "the Contractor"). For the due fulfilment by the Contractors of the terms and conditions of the Revised Letter of Intent No. ED/TPC/SE-III/EME-9/Yadadri TPS (5X800MW)/D.No.102/17,dated 17.10.2017, made by the Corporation for Unloading ,Handling, Storage, Erection, Supervision, Testing, and Commissioning, Completion of Trial Operation including Comprehensive Insurance of Steam Generator Package, Turbine & Generator Package and Balance of Plant equipment for 5x800MW *Yadadri Thermal Power Station* (hereinafter called "said Agreement") during the period, if any, to indemnify and keep indemnified the Corporation to the extent of **Rs.....** Representing .....% of the value of the said Agreement for ... Units of 800MW against all the losses, claims, damages and costs suffered by TSGENCO caused to or suffered by the Corporation by reason of any breach by the said Contractor; of any terms and conditions of the said agreement.

Further the Corporation has agreed to pay .....% of the contract price equivalent to **Rs.....for .... Units of 800MW** to the Contractor as interest free advance against this Advance Cum Performance Bank Guarantee to be furnished by the Contractor as per the said Contract.





We, Bank ----- (hereinafter referred to as the "Bank") further agree that the guarantee herein contained shall come into force upon its issuance and remain in full force and effect up to and inclusive of ..... or the expiry of the extended period if any, and that it shall continue to be enforceable till all the dues of the Corporation, under or by virtue of the said agreement, have been fully paid and its claims satisfied or discharged, or till the Executive Director/TPC, certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said Contractor; and accordingly discharges the guarantee subject to, however, that the Corporation shall have no right under this bond, unless the period is extended as aforesaid, after the expiry of .....

We the guarantor Bank undertake to pay the amount guaranteed hereunder, or such part thereof as required 'immediately' of the same being demanded by the Corporation without referring to the Contractor, and without questioning the right of the Corporation to make such demand or the propriety or legality of the demand.

This Bank Guarantee is subject to the Uniform Rules for Demand Guarantees 2010 Revision ICC Publication No.758 (URDG).

We, Bank----- (hereinafter referred to as the "Bank") lastly agree that this Bank Guarantee is

- i. Unconditional and absolute, and
- ii. Without any delay or demur if claim arises.

We, Bank ----- (hereinafter referred to as the "Bank") lastly undertakes not to revoke this guarantee during its currency except with the prior consent of the Corporation in writing.

Dated the       day of       ,... Year.

For ..... Bank

Witness:

Signature :-----


1.


Designation:-----

2.

Address: -----

Seal: -----

  
मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
घावर सेक्टर मार्केटिंग / Power Sector Marketing  
Telangana State Power Generation Corporation Ltd  
बी.एच.ई.एल. हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi - 110049

  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.  
Page 55 of 59

**Annexure- VI**

Contract No.3000000015/ED/TPC/SE 3/EME 9/D65/D.No.55/18,Dt:29.03.2018

**Detailed BBU terms and conditions for Erection and Commissioning**

- A. The billing prices indicated the approved BBUs are only indicative for progressive billing purpose and same shall be arranged with all requisite services, tools and tackles, erection materials etc,
- B. The billing break-up should contain details Stage wise(Stage-I & Stage-II) and common to Stage -I&II Break-up
- C. Payments shall be regulated as per the payment terms of purchase order clause No.6 and as per the approved rates in the billing breakup prices.
- D. The notional breakup prices should not be construed for any other purpose, except for raising invoices and for arranging progressive payments.
- E. M/s BHEL shall erect and commission the material and arrange the services in complete shape though they were not covered in the breakup of prices.
- F. In case of any dispute / discrepancy, the final payment shall be made only after dispute is settled.
- G. It is requested to intimate the details of equipment /material to be dispatched in each quarter and funds requirement, in advance ,keeping in view the L2 – Net work for supplies & Erection sequence, for planning of funds with M/s REC and M/s PFC timely release of Payments by TSGENCO



मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd.  
बी.एच.ई.एल. हाउस , सीरी फोर्ट / BHEL House , Siri Fort,  
नई दिल्ली - 110049 / New Delhi -110049



Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 032.



**ANNEXURE-VII**

**This document should be executed by M/s BHEL on Rs 100/- non judicial Stamp paper**

Contract No.3000000015/ED/TPC/SE-3/TPC /EME- 9/D65/D.No.55/18,Dt:29.03.2018

To

The Executive Director,  
Thermal Projects Construction,  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

Sir,

Sub:- Yadadri TPS (5X800MW) – EPC Contract - Interlinking document – Reg.

Ref:- 1. MOU signed b/w CMD BHEL & CMD TSGENCO on 04-10-2014.

2. Revised LOI.No.ED/TPC/SE-III/EME-9/Yadadri TPS(5x800MW)/D.No.102/17,  
Dt.17-10-2017.3. Supply Contract No.3000000014, Dated : . .2017

4. Erection & Commissioning Contract No. 3000000015,Dated : . .2017.

5. Civil Contract No. 3000000016, Dated : . .2017.

\* \* \*

Telangana State Power Generation Corporation Limited (TSGENCO) entered Memorandum of Understanding (MOU) with M/s Bharat Heavy Electricals Limited (M/s BHEL) for setting up of 6000MW Thermal power plants in the State of Telangana.

As part MOU, TSGENCO proposed to set up 5X800MW Supercritical Thermal Unit at Yadadri Thermal Power Station(5x800MW). M/s BHEL submitted their Revised techno-commercial offer vide 17.10.2017. After various discussions and negotiations M/s BHEL submitted acceptance for Rs. **20,379** Crores. Accordingly, TSGENCO vide ref(2) above issued Revised Letter Of Intent for Design, Engineering, Manufacture, Supply, transportation to site, insurance, erection, testing & commissioning of main plant & balance of plant equipment including civil works and mandatory spares of 5X800 MW Coal Fired Supercritical Thermal Unit to M/s BHEL.

TSGENCO has placed three separate Contracts as follows:

Supply Contract

Erection & Commissioning Contract

Civil Contract

M/s BHEL here by declares that M/s BHEL is liable to TSGENCO for the whole scope of the work in accordance with the Contracts under references cited above, as if the said three Contracts were One Composite Contract, not withstanding the split of the Contract into three separate Contracts.

M/s BHEL assures TSGENCO that any default on the part of M/s BHEL under any one of the three Contracts shall be treated as a default under all the Contracts and accordingly the rights of TSGENCO to repudiate the Contract, reject the goods, claim Liquidated Damages, Penalties etc., shall be available with respect to all the three Contracts, as per respective Clauses in the Contracts placed, even though the default may have occurred under one Contract only.

Thanking You,  
Yours faithfully,

M/s Bharat Heavy Electricals Limited



मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager

Telangana State Power Generation Corporation Ltd

पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
वी.एच.ई.एल. हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi - 110049



Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

Contract No.30000000015/ED/TPC/SE 3/EME 9/D65/D.No.55/18,Dt:29.03.2018

## DISTRIBUTION SCHEDULE

S.N o.	Description	CM D Hyd	TSGENCO						Consultant				Equip ment Vendo r	Remark s	
			Director (Project s)	ED/ Civil Hyd.	ED/ TPC Hyd	CE/ TPC	CE/ YTPS	SE (Civil) YTPS	SE (E&M) YTPS	EE YTPS	Head Office	HYD			YTPS Site
A.	Vendor Drawings														
1.	Preliminary	-	1	1	2		4	1	2	-	10	1	-	S	
2.	Return preliminary with comments	-	1	1	2		1	1	1	-	S+2	-	-	1	
3.	Final and any revision thereof	1	1	1	3		4	1	3	-	2	1	1	S	
B.	Progress Monthly Report														
1.	Monthly progress report	1	1	1	2		1	1	1	1	1	1	1	S	
C.	Instruction Manuals/ Data Books/As built drawings														
1.	Equipment manufacturer	-	-	-	2		1	-	1	4	2	1	1	S	
D.	Correspondence														
	Technical	1	1	-	1		1	4	1	1	1	1	1	S	
	2. General & Commercial	1	1	-	1		1	1	-	-	-	-	-	S	



S.N o.	Description	CM D Hyd	Director (Project s)	TSGENCO					Consultant				Equip ment Vendo r	Remark s
				ED/ Civil Hyd.	ED/ TPC Hyd	CE/ TPC	CE/ YTPS	SE (Civil) YTPS	SE (E&M) YTPS	EE YTPS	Head Office	HYD		
				S : Source										
				T : Transparency and soft copy on CD										

*Sanjay*  
22/05/18

Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

*Manoj*

मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
बी.एच.ई.एल. हाउस, सी.पी. कोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi -110049







**TELANGANA STATE POWER GENERATION CORPORATION LIMITED**  
TSGENCO CORPORATE OFFICE  
VIDYUTH SOUDHA, HYDERABAD

From:  
The Executive Director,  
Thermal Projects Construction,  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082  
Email ID: edtpctgenco@gmail.com

To:  
M/s Bharat Heavy Electricals Limited,  
Power Sector - Marketing,  
Siri Fort,  
BHEL House,  
NEW DELHI-110049

GST No: 36AAFCT0257Q3ZT  
TIN No : 36280126964  
PAN NO: AAFCT0257Q  
CIN No : U40102AP2014SGC094070

Vendor Code : 104841

Contract No.3000000014/ED/TPC/SE-III/EME -9 /D65/D.No.54/18, Dt:29.03.2018

Sir,

Sub: TSGENCO – Yadadri Thermal Power Station (5X800 MW) - Design, Engineering, Manufacture, Supply of main plant & balance of plant equipment including mandatory spares for 5X800 MW Coal Fired Supercritical Thermal Units – Detailed Supply Purchase Order - Issued.

Ref:

1. TSGENCO Letter No. CEE/KTPS-VII (1x 800 MW)/BHEL/ D.No. 72/14, Dated 07.10.2014
2. Soil Test report for Kothagudem 1x800 MW released by TSGENCO vide E-Mail Dated 13.10.2014
3. Technical Specification for Kothagudem (1x800 MW) released by TSGENCO Vide E-Mail dated 13.10.2014
4. MOM for resolutions against various technical deviations of BHEL dated 25.11.2014
5. Discussions between TSGENCO and BHEL on 05.05.2015 for finalizing the basis for submission of BHEL Commercial offer
6. TSGENCO E-Mail dated 06.05.2015 forwarding VTPS water analysis for initiating preliminary Engineering activities
7. BHEL E-Mail Dated 11.05.2015 forwarding Technical Drawings for the project.
8. BHEL E-Mail Dated 11.05.2015 forwarding Write-Ups for the BOP packages for the project.
9. BHEL Techno-Commercial offer Dated 12.05.2015
10. BHEL E-Mail Dated 12.05.2015 forwarding deviations to Kothagudem 800 MW project.
11. BHEL email dated 14.05.2015 forwarding CHP Technical offer for the project.
12. BHEL E-Mail Dated 16.05.2015 forwarding AHP Technical offer for the project.
13. TSGENCO E-Mail Dated 18.05.2015 forwarding Climatological data for 5x800 MW Yadadri TPS Project

14. TSGENCO Email dated 19.05.2015 forwarding Wind Rose diagram for 5x800 MW Yadadri TPS Project
15. Meeting and discussions between BHEL and TSGENCO on 20.05.2015
16. BHEL E-Mail Dated 22.05.2015 finalizing date for meeting with TSGENCO
17. TSGENCO letter no. CE/TPC/SE-III/DE/CS/EME-6/Yadadri TPS/D.No.8/15, dated 22.05.2015
18. Meeting between BHEL and TSGENCO on 23.05.2015
19. TSGENCO letter no. CE/TPC/SE-III/DE/CS/EME-6/Yadadri TPS/D.No.10/15 dated 23.05.2015
20. TSGENCO letter no. SE/TPC/O/o CE/TPC/DE(CS)/Yadadri TPS/D.No.12/15, dated 26.05.2015
21. BHEL email dated 27.05.2015 forwarding comments on TSGENCO Letter
22. BHEL Revised Techno-commercial offer Dated 28.05.2015
23. Discussions between BHEL and TSGENCO on 01.06.2015
24. BHEL Revised Techno-commercial offer dated 01.06.2015
25. LOI.No.CEE/TPC/SE-III/Yadadri TPS(5x800MW)/D.No.15/15, Dt.01-06-2015
26. MoEF & CC GOI, EC No. J-13012/18/2015/IA.I(T), Dated:29.06.2017.
27. CFE Order No. 10/TSPCB/CFE/RO-NLG/HO/2017, Dated:25.07.2017.
28. TSGENCO Lr No. ED/TPC/SE-III/EME-9/YTPS(5X800MW)/F.No.40/D.No.77/17, Dt:01.08.2017.
29. TSGENCO E-Mail on Raw water analysis, Dated 26.09.17.
30. MOM dated 04/10/2017 on various technical issues and scope issues discussed on 15.09.2017, 16.09.2017, 18.09.2017, 21.09.2017, 22.09.2017 and 04.10.2017
31. MOM dated 04.10.17 on deletion of scope of civil works for Non-plant buildings from BHEL scope
32. Commercial MOM signed on 09.10.2017 between M/s BHEL and M/s TSGENCO
33. M/s BHEL Revised Techno-Commercial Offer Letter MS-1-14-0007, Dt:17.10.2017.
34. Revised LOI.No.ED/TPC/SE-III/EME-9/Yadadri TPS(5x800MW)/D.No.102/17, Dt.17-10-2017.

\*\*\*

I, acting for and on behalf of and by the order and direction of Telangana State Power Generation Corporation Limited (hereinafter called 'TSGENCO') accept your Revised Techno-Commercial Offer in the reference (33) cited and with respect to the above correspondence regarding specification, related discussions, correspondence/ clarifications on deviations and negotiations for Basic & Detailed Design, Engineering, Manufacture, Procurement, Assembly, Pre-assembly, Inspection, Testing, Packing & Forwarding, Loading, Supply, Transportation to site and transit insurance, Unloading at site, Storage, Comprehensive insurance, Inter-site & Intra-site transportation & handling, construction, erection, testing & Commissioning, trial operation of the combined main plant, Balance of Plant equipment including civil works, Training of O&M Personnel, supply of start-up & commissioning and mandatory spares including warranty period for 365 days from the dates of commissioning



i.e, COD of respective unit all the five coal fired Supercritical thermal units (including boiler, turbine, generator, transformers, Station C&I, Civil works and all the required Balance of Plant packages etc.,) for 5X800 MW Yadadri Thermal Power Station, subject to the terms and conditions set out in this order.

Three Purchase Orders viz., Supply, Erection & Commissioning and Civil works are issued in regularization of Revised Letter of Intent Dated 17.10.2017 cited under reference (34) above.

M/s BHEL is liable to TSGENCO for the whole scope of the work in accordance with the Supply, Erection & Commissioning and Civil purchase orders.

## 1.0 SCOPE OF CONTRACT:

The scope of work against this contract covers the Basic & Detailed Design, Engineering, Manufacture, procurement, assembly, pre-assembly, inspection testing, Packing & Forwarding, loading, supply of main plant and balance of plant equipment as listed in Annexure-II for 5X800 MW Coal Fired Supercritical Thermal Units at Yadadri Thermal Power Station, Dameracherla, Nalgonda District of Telangana.

The details of the packages covered under this Contract and exclusions from BHEL scope are indicated in Annexure-II enclosed.

The broad scope, terminal points, inclusions, exclusions, owner's obligations and technical particulars are to be read in conjunction with various clarifications and replies furnished by BHEL against TSGENCO's comments/remarks on technical & commercial proposals of BHEL submitted in the references cited above. However, the scope of work shall also include any work which is implied by the related Technical and Commercial documentation and all other equipment, consumables not specifically mentioned but which may be inferred to be necessary for stability or completion or safe, reliable and efficient operation of the station.

## 2.0 SCHEDULE OF PRICES:

SI No	Description	Price (INR Crore)
A.	<b>SUPPLY CONTRACT</b>	
A.1	Supply of main plant equipment (Ex - BHEL works / BHEL's Sub-Contractor's works/ Port of Entry In India basis) excluding all kinds of taxes/duties.	11,942.12
A.2	Estimated GST @ 18 % on A.1 above	2,149.58
A.3	Supply(Ex - BHEL works / BHEL's Sub-Contractor's works/ Port of Entry In India basis)of Mandatory Spares excluding all kinds of taxes/duties	281.00
A.4	Estimated GST @ 18 % on A.3 above	50.58
A.5	<b>Total (Supply Contract)</b>	<b>14,423.28</b>
	(Rupees Fourteen Thousand Four Hundred Twenty Three Crores and Twenty Eight Lakhs only)	

Note:

1. Prices indicated above at Para 2.0 are firm till entire completion of the project for 5 units from the start of Zero date 17-10-2017.
2. The CIF component of Rs.3350.00 Crores (Rupees Three Thousand Three Hundred and Fifty Crores only) is included in the item 2.0 (A.1 & A.3), worked out at State Bank of India bill selling exchange rates as applicable on 01.06.2015.
3. Detailed break up of prices for material, spares, taxes & duties, levies, insurance etc., shall be furnished by M/s BHEL and get approved by TSGENCO immediately for arranging payments on pro-rata basis.

**3.0 TAXES AND DUTIES:**

- 3.1 GST at a rate of 18% has been considered in the above prices. However, GST on various items shall be billed as per the HSN codes and applicable GST rates and same shall be paid by TSGENCO at actuals without restricting to the values of GST indicated in the price schedule.
- 3.2 Other than GST if any other government / local body taxes become applicable, such taxes/duties/levies etc shall be paid by TSGENCO extra at actuals.
- 3.3 Basic concessional customs duty of 5% and applicable educational cess 3% is included in the prices at 2.0(A.1 & A.3) above towards the import of raw materials and components.
- 3.4 The CIF component of Rs.3,350.00 Crores (Rupees Three Thousand Three Hundred and Fifty Crores only) is included in the item 2.0 (A.1 & A.3), worked out at State Bank of India bill selling exchange rates as Applicable on 01.06.2015.
- 3.5 Exchange rate variation/Custom duty variation shall be limited to CIF value Indicated above
- 3.6 The Exchange rate variation / custom duty variation shall be paid as per the formula enclosed at Annexure -VIII. M/s BHEL shall not claim any Exchange rate variation, customs duty and customs duty variation for imports beyond Rs 3350.00 Crores. The essentiality certificate issued by Government of Telangana State will be arranged by TSGENCO
- 3.7 TDS will be deducted as per the rules made there under.
- 3.8 Any variation by way of increase or reduction in Taxes and Duties or other Statutory levies or new imposts introduced during the contractual delivery period shall be to TSGENCO's account provided that in cases where the delivery schedule is not adhered to by the contractor for reasons attributable to contractor , any increase in Taxes and duty or other statutory levies or imposts introduced after the agreed delivery dates shall be borne by the Contractor and any reduction thereof shall be to the credit of TSGENCO.

**4.0 PAYMENT TERMS:**

The terms of payment shall be as follows:

**A1) Supply of Main Plant Equipment (Ex- works):**

a) 10% Initial interest free advance to be released as follows:

- 2.5% of Contract Price towards supplies of main equipment and mandatory spares as interest free initial advance along with revised LOI against submission of stage wise advance cum performance bank guarantee for an equal amount.



- 2.5% of Contract Price towards supplies of main equipment and mandatory spares as interest free initial advance within three months of release of revised LOI against submission of stage wise advance cum performance bank guarantee for an equal amount.
- 5% of Contract Price towards supplies of main equipment and mandatory spares as interest free initial advance within twelve months of release of revised LOI against submission of stage wise advance cum performance bank guarantee for an equal amount.

The applicable GST on advance payment shall also be reimbursed by TSGENCO on submission of the invoice by BHEL.

- b) 70% of Contract Price along with 100% applicable GST (net of GST already paid with advance) on pro-rata dispatch of equipment to site.
- c) 15% of the Contract Price on pro-rata receipt of material at site.
- d) 3% of unit wise contract price against Synchronization of each unit.
- e) 2% of unit wise contract price against completion of Trial Operation of each unit.

Unit wise Contract Price for the purpose of payments indicated at (d) and (e) above will be considered as one fifth of 2.0 (A.1).

The advance cum performance Bank Guarantee will be non reducing and will be valid till completion of warranty of unit. No separate contract performance Bank Guarantee to be submitted.

#### **A2) Supply of Mandatory Spares:**

- a) 10% Initial interest free advance to be released as per clause 4 A1(a) above
- b) 90% of Contract Price along with corresponding GST (net of GST already paid with advance) against receipt of material at site on pro - rata basis.
- c) Delivery of mandatory spares shall be only after 30 months of Zero date

#### **5.0 MODE OF PAYMENT:**

The payment by TSGENCO shall be released within 30 days of receipt of Invoices in quadruplicate provided such invoices are submitted in accordance with the terms and conditions of the contract. TSGENCO has tied up required funds with Power Finance Corporation Ltd., New Delhi (PFC) and Rural Electrification Corporation Ltd (REC), New Delhi.

#### **6.0 COMPLETION PERIOD:**

The dispatches from BHEL works and the erection activities will be planned to achieve a commissioning schedule (Completion of Trial Operation) of 36 months reckoned from the Zero Date for two units and balance three units within 48 Months from Zero date as detailed below.

Unit No.	Schedule of completion of Trial Operation
UNIT-1 (First unit of Stage 1)	36 Months from the zero date
UNIT-2 (Second unit of stage 1)	36 Months from the zero date
UNIT-3 (First unit of stage 2)	48 Months from the zero date
UNIT-4 (Second unit of stage 2)	48 Months from the zero date
UNIT-5 (Third unit of stage 2)	48 Months from the zero date

## **7.0 LIQUIDATED DAMAGES**

### **(a) For Delays:**

Any delay in the commissioning of the equipment (Completion of 14 days of Trial Operation) beyond the contractual commissioning schedule of 36 months reckoned from the Zero Date for two units and balance three units within 48 Months from Zero Date, due to delays solely attributable to the Contractor shall be subject to levy of liquidated damages at the rate of 0.5% of the unit wise contract price per week of delay subject to a maximum ceiling of 5% of the Unit wise Contract price. Unit wise Contract Price for the purpose of liquidated damages for delay will be considered as one fifth of 2.0 (A.1)

### **(b) For Mandatory Spares:**

In case of delay in supply of mandatory spares beyond 48 months, due to reasons attributable to the contractor, LD shall be levied @ 0.5% of the contract price of undelivered mandatory spares (excluding taxes and duties) per week of delay or part thereof, subject to a ceiling of 5% of the contract price of the undelivered mandatory spares (excluding taxes and duties). Mandatory spares shall be supplied after 30 months.

### **(c) For Guaranteed Performance Parameters:**

- BHEL Guarantees the performance parameters in respect of each of the 5 units, which shall be established by conducting performance, guarantee tests. In case of any shortfall in achieving these guaranteed parameters, liquidated damages as per the rates indicated in the Annexure-I will be levied.
- The maximum ceiling for liquidated damages for performance of each unit shall be 5% of the Unit wise Contract price. Unit wise Contract Price for the purpose of liquidated damages for performance will be considered as one fifth of 2.0 (A.1)

Note:

- (a) The combined total liability of the Contractor on account of liquidated damages for performance and delay in commissioning for each unit shall be 10% of the Unit wise Contract price. Unit wise Contract Price for the purpose of liquidated damages will be considered as one fifth of 2.0 (A.1)
- (b) In addition to and not in derogation any payment obligation pursuant to the above, (and without limitation of any remedies otherwise available to Purchaser in Contract or law), Contractor shall continue to expeditiously perform, repair, replace and modify the Plant and undertake Work until such time the Performance Acceptance occurs.
- (c) In case, the contractor does not fulfil the guaranteed parameters, Purchaser may undertake to rectify the system/equipment and expenditure incurred along with any other incidentals shall be recovered from the contractor from the available bills/retention amounts/BGs (as applicable).



(d) The liquidated damages under Erection & Commissioning and Civil Purchase Orders of YTPS (5x800MW) can also be recovered from this Purchase Order, if it becomes necessary.

(e) In case, the value of performance guarantee gets reduced at any time on account of claims, if any, due to recovery of liquidated damages for delay in completion or for deficiency in guaranteed parameters, the same shall be enhanced to its original value immediately and retain its validity up to the warranty period of one year and a claim period of 6 months thereafter.

#### **8.0 ORDER OF PRECEDENCE:**

For the purpose of interpretation of the provisions of this order, especially in the event of any inconsistency, the following order of precedence shall apply:

1. Amendments/addenda, if any, to this order that may be issued after the date of this order on mutually agreed basis.
2. This purchase order.
3. This office LOI.No.ED/TPC/SE-III/EME-9/Yadadri TPS (5X800MW)/  
D.No.102/17,Dt:17.10.2017
4. M/s BHEL Revised Techno-Commercial Offer Letter MS-1-14-0007, Dt: 17.10.2017.
5. Commercial M.O.M between TSGENCO and M/s BHEL Dated 09.10.2017
6. Technical M.O.M between TSGENCO and M/s BHEL Dated 04.10.2017
7. KTPS-VII (1x800MW) Specification, Technical Clarifications, Deviations and, resolutions.

#### **9.0 CONTRACT PERFORMANCE GUARANTEE:**

As per clause no 4.0.A1(a) M/s BHEL shall submit Advance cum Performance bank guarantees of 10% (2.5%+2.5%+5%) of supply price mentioned under clause 2.0 (A1) towards contract performance. Advance cum Performance BG shall be valid for a period of 12 months from the date of completion period with a claim period of six months there after. Proforma of performance Bank guarantee is enclosed.

The above bank guarantees shall be submitted towards:

- i) Due performance of the Contract until successful completion of COD & Performance guarantee tests.
- ii) Due performance of Contractor's obligations during warrantee period.

Upon issuance of final completion certificate, the Advance cum performance bank guarantee shall be promptly returned to the Contractor, provided that no claim under the Contract is pending.



## **10.0 TRIAL OPERATION/ COMMISSIONING/ COD AND HANDING OVER:**

### **A) Trial Operation:**

i. On completion of erection of any major items along with its auxiliaries, the same shall be thoroughly inspected by the Contractor together with TSGENCO's Engineers for correctness and completeness and acceptability for Pre- Commissioning Tests. Though the TSGENCO's Engineers associate themselves with such inspection, the responsibility for declaration for correctness, completeness and acceptability shall rest with the Contractor and the pre-commissioning tests shall be carried out after such declaration. The pre-commissioning tests to be performed at site as well as necessary documentation and formats for the protocols to be signed during and after the tests shall be prepared by the Contractor taking into account relevant Indian/International/ Manufacturers' standards as applicable and finalized by the TSGENCO sufficiently in advance through mutual discussions. On conclusion of Satisfactory pre-commissioning tests of each individual equipment, the trial operation of each unit shall start consistent with parameters of the technical specifications.

ii. The duration of trial operation shall be for 14 days during which period the unit shall run as follows:

- a) Half to full load or any other load cycle mutually agreed to during which period the unit shall also run on economical load (90% of Full/ Available Load) for 48 hours continuously.
- b) During the above trial operation the standby auxiliary equipment shall also run for a minimum period of more than 72 hours during which period the equipment including standby equipment shall run at its rated capacity for a maximum period of 24 hrs subject to (a) above.
- c) Full load continuous operation for seventy two (72) hours.

Any interruption caused by the Contractor up to 24 hours will not affect the period of 14 days trial operation indicated above. In case of such interruption occurring for more than 24 hours, the above period shall be extended correspondingly. The unit is deemed to be commissioned on successful completion of the above trial operation. Upon successful completion of trial operation, a protocol shall be signed by the both parties.

iii. A document shall be prepared on the results of trial operation. This document besides recording of the details of the various observations during the trial run will also include the date of start and finish of the trial operation and will be signed by the representative of both the parties. The document of the trial operation shall have log sheets and all adjustments, repairs, interruptions etc., shall be recorded therein.

iv. The readiness of the unit for the trial operation shall be intimated by written notice to TSGENCO. After receipt of such notice and a consent within 15 days from TSGENCO, if the trial operation could not be performed or could not be completed due to any reasons not attributable to the Contractor, the Contractor shall be absolved of the responsibility for the delay and the plant shall be deemed to have been taken over by the TSGENCO at the end of 60 days after the Contractor's notifications of readiness of the same. In case TSGENCO does not reply within 15 days from



contractors notification of readiness of Trial Operation, the responsibility of insurance of plant and equipment shall pass on to TSGENCO.

- v. The trial operation shall be carried out in compliance with relevant manufacturer's standards and/or relevant Indian / International standards and manufacturer's operation directions before starting them.
- vi. Defects which are minor in nature and do not endanger the safe operation of the plant, shall not be considered as reasons for not taking over the plant by the TSGENCO. These defects shall be listed in the above mentioned documents and shall be rectified by the Contractor in accordance with the agreement made in this respect.

#### **B) TAKING OVER AND COMMERCIAL OPERATION:**

- (i) TSGENCO shall provisionally take over each of 5 Units upon completion of Trial Operation 14 days conducted as per clause 10(A) above, acceptable to the TSGENCO. Contractor may apply to TSGENCO for Final Taking over Certificate by notice enclosing the Protocol, referred to in clause 10(A) above, and test results, after successful completion of Performance Guarantee Tests. TSGENCO shall, within fourteen (14) days after the receipt of the Contractor's application:

- a) Issue the Taking over Certificate to the Contractor, stating the date on which the Performance Guarantee Tests are completed in accordance with the Contract including the date of passing of the Test on Completion. The Advance cum Performance Bank Guarantees shall be returned to the contractor at the end of Warranty Period.

Or

- b) Reject the application, giving reasons and specifying the work required to be done by Contractor to enable the Taking over Certificate to be issued. Contractor shall then complete such work before issuing a further notice under this section.
- (ii) The unit shall be taken over or deemed to have been taken over by the TSGENCO when the Trial Operation is completed or TSGENCO utilises the facilities for generation of power (incl. Infirm Power) whichever is earlier and the responsibility of Insurance will get transferred to the Owner.
  - (iii) Commercial operation shall begin from the date of successful completion of the trial operation as in 10(A) above or taking over by TSGENCO, whichever is earlier.

#### **11.0 SURPLUS MATERIAL/ SCRAP**

Ownership of any Plant and Equipment in excess (i.e., surplus material including scrap & commissioning spares) of the requirements for Facilities shall lie with M/s BHEL upon Completion of Trial operation or at such earlier time when the TSGENCO and M/s BHEL agree that the surplus material/scrap in question are no longer required for the completion of facilities. The TSGENCO will issue necessary gate pass for taking

back the surplus material/removal of scrap/commissioning spares after such agreement within one week of request by M/s BHEL.

It is clarified by M/s BHEL that surplus material/commissioning spares and equipment may be stocked at site, in excess to the ordered quantity on M/s BHEL, to take care of any contingency during Erection.

#### **12.0 WARRANTY:**

Warranty for the plant and equipment shall be 12 months from the date of completion of COD of the respective unit. COD will be considered as completion of Trial Operation of the each unit. The liability of the Contractor under the aforesaid warranty shall be in line with clause no 17 of Annexure-IV.

#### **13.0 PROGRAMME/PROGRESS OF MANUFACTURE/INSPECTION:**

- 13.1 M/s BHEL shall furnish a detailed programme chart indicating various key phases of execution of work such as design, documentation, procurement, manufacturing, shop inspection, testing and dispatch including schedule of materials procurement, names of sub-suppliers etc within 30 days from the date of issue of this Purchase Order. M/s BHEL shall also furnish monthly reports on progress/programme of work thereafter for each of the plant and equipment under the scope of this Contract.
- 13.2 TSGENCO's representative shall have access to the Supplier's or sub-supplier's works at any time during working hours for the purpose of inspecting the plant/equipment/material during manufacture or testing and select test samples from the materials going into the plant/equipment. M/s BHEL shall provide facilities for testing such samples. Despatches shall be affected only if the plant/ equipment/ material and the test results comply with the relevant standards and/ or purchase order.
- 13.3 The Contractor shall give reasonable notice to the TSGENCO's Engineer whenever such work is ready, before packing, or covering up. The TSGENCO's Engineer shall then either carryout the inspection without unreasonable delay or notify to Contractor that it is considered not necessary and waive the inspection.
- 13.4 TSGENCO reserves the right to appoint or nominate or depute any Third Party Inspector other than TSGENCO's Engineer for inspection of any equipment at any stage of its design or manufacture or testing before despatch.
- 13.5 Despatch of major equipment for which TSGENCO's inspection is envisaged as per agreed quality plans shall be affected only after inspection by TSGENCO's Engineer or nominee or after written waiver of such inspection. However, such waiver does not absolve Contractor's responsibility for satisfactory performance of the equipment/plant as per the Contract.

#### **14.0 QUALITY ASSURANCE:**

The Contactor shall provide a quality assurance system applicable to the entire scope of work including field quality plans. A quality assurance system shall be developed and instituted to demonstrate compliance with the requirements of the Contract.



However, compliance with the quality assurance system shall not relieve the Contractor of his duties, obligations or responsibilities under the Contract. Details of all procedures and compliance documents shall be submitted to TSGENCO for perusal/approval/ information. TSGENCO shall be entitled to review any aspect of the system and may require corrective action to be taken by the Contractor to comply with this clause.

#### **15.0 TESTS & TEST CERTIFICATES:**

The plant/equipment/material shall be tested satisfactorily and factory tested in line with manufacturer's standard practice in accordance with the latest Indian standards/International standards as applicable. The tests specified in technical specifications and/or any other tests which may be necessary to ensure that the plant/equipment/material is satisfactory, shall also be conducted in line with manufacturers standard practice.

The purchaser shall be supplied with certified test reports of all the tests carried out on plant/equipment/material. The Contractor shall evaluate the test results and rectify any defects in plant/equipment/material by his/TSGENCO's evaluation of the tests without charges to the TSGENCO. The TSGENCO and/or its representative reserve the right to witness any or all tests.

The TSGENCO at its option may waive all/any of the tests provided the test reports for these tests carried out on essentially representative units are furnished by the manufacturer.

Tests on components, associated equipment covered by the contract shall be carried out in accordance with the relevant IS/International standards/ manufacturer's standards. If such equipments are purchased on sub-contract, such equipment shall also be tested to comply with these requirements. Copies of such reports shall be furnished for verification.

#### **16.0 INSURANCE & PACKING:**

The material and equipment shall be supplied duly covered under insurance including marine Insurance and Insurance related to high Sea sales, if any. The material so received shall be insured during storage at site till completion of equipment commissioning in full shape. The insurance of plant and equipment i.e ...all the FIVE units shall be the responsibility of BHEL till successful completion of trial operation. The insurance shall be arranged in the name of TSGENCO/PFC LTD/REC LTD

All accessories which are likely to get damaged during transit if transported as mounted on the equipment, shall be removed, adequately packed and transported separately. Packing shall be sturdy and adequate to protect all assemblies, components, accessories from injuring by corrosion, dampness, heavy rains, and breakage, vibration encountered during transportation, handling and storage at the plant site. All the equipment shall be securely packed in such a manner so as to avoid damage and withstand rough handling during transport to site.

BHEL shall intimate to TSGENCO, within a maximum period of one week any mishap that has occurred to equipment/material being transported to the project by any mode of transportation resulting in damages to the equipment/material. BHEL shall

not claim payment for such consignments until such consignments are finally received at site in good condition.

#### **17.0 MAXIMUM WEIGHTS & DIMENSIONS:**

The Contractor shall be responsible for informing himself of the facilities that exist for the road/rail transport to site, maximum weight and size of packages conveyed by Railways and cranes, lifts etc., available at the Railway station /destination at site.

#### **18.0 BILLING BREAK-UP:**

The prices indicated at Clause No.2 above are on lump sum basis only. The billing break-up indicating quantities and unit prices for notional billing purpose and payment purpose shall be furnished by the Contractor and got approved by TSGENCO before raising invoice for first progressive payment.

#### **19.0 DESPATCH INSTRUCTIONS:**

The materials and equipment shall be consigned to

The Divisional Engineer (Stores),  
Construction Division,  
Yadadri Thermal Power Station (5x800MW) ,  
Damarcharle (M), Veerlapalem (V),  
Miryalaguda, Nalgonda Dist  
Telangana.

#### **20.0 INVOICES**

All the invoices shall be sent in quadruplicate to:  
Superintending Engineer/ E&M /  
Yadadri Thermal Power Station (5x800MW),  
Damarcharle (M), Veerlapalem (V),  
Miryalguda-, Telangana.

With a copy marked to CE/Construction/YTPS

The above arrangement is to be followed presently. However, the changes if any during the execution of the contract shall be intimated in due course.

#### **21.0 TERMINATION OF THE CONTRACT:**

21.1 TSGENCO's representative may, if he notices that the execution of Scope of Work is not proceeding in accordance with this Contract, give a notice to the Contractor requiring him to make good such failure and immediately commence and diligently proceed to remedy the same within a specified reasonable time and in accordance with the Contract.

21.2 If the Contractor:

- i) Fails to comply with a notice under Clause 21.1, provided the Contractor has not responded within a reasonable time;



- ii) Abandons or repudiates the Contract;
- iii) Consistently or materially ceases all activities under the Contract for a continuous period of 30 days or more.
- iv) Fails to commence or proceed with the scope of works in accordance with the Contract.

then TSGENCO may, after having given ninety (90) days' notice to the Contractor within which the Contractor has failed to commence and diligently to continue to remedy its default, terminate the Contract with immediate effect and expel the Contractor from the Site having first allowed the Contractor a maximum of fourteen (14) days, or any other period as may be mutually agreed, to remove Contractor's Equipment from the Site. The Contractor shall remove the Contractor's Equipment without damaging the works or prejudicing the safety of the Works in any way.

- 21.3 The Contractor shall then deliver all Equipment documents, and other design documents made by or for him, to TSGENCO. The Contractor shall not be relieved from any of his obligations or liabilities under the Contract prior to the date of termination. The rights and authorities conferred on TSGENCO by the Contract shall not be affected.
- 21.4 TSGENCO may upon such termination complete the Scope of Work itself and/or by any other Contractor. TSGENCO or such Contractor may use for such completion so much of the Equipment Documents, other design documents made by or on behalf of the Contractor Equipment as they may deem fit.
- 21.5 TSGENCO and Contractor under mutual agreement basis, as soon as possible after termination under Clause 21.2, determine all sums then due to the Contractor in respect of work properly performed as at the date of termination (the 'Termination Value').
- 21.6 After termination under Clause 21.2, the TSGENCO shall not be liable to make any further payments to the Contractor until the costs of design, execution, completion and remedying of any defects, liquidated damages for delay in completion (if any), and all other costs incurred by TSGENCO as permitted in accordance with the Contract, have been established (the "Cost of Completion"). If the completion cost exceeds the total contract value, the Contractor shall pay to TSGENCO such excess cost less termination value determined under Clause 21.5. If this becomes negative, then TSGENCO shall pay to the Contractor the termination value less excess cost so incurred by TSGENCO in completing the station.

## **22.0 FINAL COMPLETION CERTIFICATE:**

The Contract period shall end upon issuance of Final Completion Certificate. The Contractor may give notice to TSGENCO's representative requesting to issue the final completion certificate at any time after taking over certificate is issued and if no notice of Contractor's defect or damage is given or if such notice is given, the Contractor reasonably believes that such defect or damage has been remedied and passed all tests if any and upon expiration of warranty period. Within 14 days of receipt of the notice, the TSGENCO representative shall issue Final Completion Certificate stating the date on which Contract period expired (OR) reject the notice giving full and detailed reasons and specifying the work required to be done by the

Contractor. The Contractor shall then complete such works before issuing a further notice under this clause.

### 23.0 DISTRIBUTION SCHEDULE FOR DRAWINGS AND DOCUMENTS:

The drawings and documentation for design, engineering and contract execution drawings & documentation are to be distributed as per Annexure-IX.

### 24.0 CONSULTING ENGINEERS:

M/s TATA Consulting Engineers Limited, Bangalore are the Review Engineering consultants for the project. The address of the consultant is as follows:

M/s TATA Consulting Engineers Limited  
73/1, Sheriff Centre, St. Marks Road,  
Bangalore – 560001

### 25.0 JURISDICTION:

All the disputes arising out of or in connection with this contract shall be settled in the courts of Hyderabad and Secunderabad in the State of Telangana only.

### 26.0 OTHER TERMS & CONDITIONS:

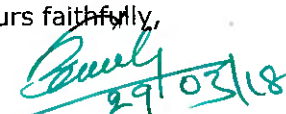
The other terms and conditions are indicated in the Annexure-IV enclosed.

### 27.0 ACKNOWLEDGEMENT:

This order is sent to you in duplicate. Please acknowledge the receipt of this order with confirmation of having accepted the terms and conditions enumerated therein. The duplicate copy may please be returned to us with your signature and seal.

Encl: Annexures – I to IX

Yours faithfully,

  
EXECUTIVE DIRECTOR/TPC  
(For and on behalf of TSGENCO)

We accept the terms and conditions of this order.



Copy communicated to:

1. Executive Director/Civil/Thermal/TSGENCO/VS/Hyderabad.
2. Chief Engineer/Construction/YTPS
3. Chief Engineer/Gen/TSGENCO/VS/Hyderabad.
4. Chief Engineer/Civil/Hydel & General Services/TSGENCO/VS/Hyderabad.

  
M/s BHEL

मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
बी.एच.ई.एल हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi - 110049



5. Chief Engineer/Coal & Commercial/TSGENCO/VS/Hyderabad.
6. Chief Engineer/Telecom/TPC/TSGENCO/VS/Hyderabad.
7. Chief General Manager/IS/ERP
8. FA & CCA/Accounts/TSGENCO/VS/Hyderabad.
9. FA & CCA/Audit/TSGENCO/VS/Hyderabad.
10. FA & CCA/RES&CFO/TSGENCO/VS/Hyderabad.
11. JS to CMD/TSGENCO/VS/Hyderabad.

Copy to:

1. SE /Tech. to CMD/TSGENCO/VS/Hyderabad.
2. Superintending Engineer/Civil/YTPS
3. All SEs/ O/o ED/TPC/TSGENCO/VS/Hyderabad-500082.
4. DE /Tech. to Director/Projects/TSGENCO/VS/Hyderabad.
5. DE /Tech. to Director/Thermal/ TSGENCO/VS/Hyderabad.
6. DE /Tech. to Director/Hydel/ TSGENCO/VS/Hyderabad.
7. Dy CCA to Director/Finance/TSGENCO/VS/Hyderabad.
8. DE /Tech. to Director/HR/TSGENCO/VS/Hyderabad.
9. SAO/Pay & Accounts/TSGENCO/VS/Hyderabad-500082
10. Pay Officer/TSGENCO/VS/Hyderabad.
11. All EMEs/O/o. ED/TPC/TSGENCO/VS/Hyderabad-500082.
12. Resident Audit Officer, EBRA, Vidyut Soudha, Hyderabad-500082.
13. Dy.CCA/YTPS



### Annexure – I

Contract No.3000000014/ED/TPC/SE-III/EME-9/D65/D.No.54/18, Dt:29.03.2018


#### **Liquidated damages for Guaranteed Performance Parameters**

Item No.	Performance Parameters	Unit	Guaranteed Value	Liquidated Damages Amount
1.	Gross Electrical output of each unit	MW	800(at 100% TMCR, 0% Make Up, 33°C CWT)	Rs.1, 00,000/- (Rupees One lakh only) per every KW shortfall.
2.	Gross Station Heat Rate of each unit at 100% STG MCR.	Kcal/Kwh	2019.4 (*)	Rs.7.5Crores (Rupees Seven Crores fifty Lakhs Only) for each Kcal/Kwh increase.
3.	Auxiliary Power Consumption	KW	255900 (**) (For all 5 units as per CEA/ERC norms)	Rs.2, 00,000/- (Rupees Two lakhs only) per KW increase.
4.	ESP Particulate Emission at 100% STG MCR with (n-1) fields in service	mg/Nm <sup>3</sup>	30	---
5.	NOx emission Maximum total NOx (thermal as well as fuel) emission at the outlet of SCR for the range of coal specified	mg/Nm <sup>3</sup>	100	---
6.	SOx emission at the FGD outlet for the range of coal specified	mg/Nm <sup>3</sup>	100	---

\* At 100% TMCR, firing with design coal (Blend of 50% imported coal & 50% indigenous coal) @ 27 deg C & 60% Relative humidity.

\*\* For the list of auxiliaries considered for auxiliary power consumption are enclosed at Annexure-III

  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

  
मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
बी.एच.ई.एल हाउस , सीरी फोर्ट / BHEL House , Siri Fort,  
नई दिल्ली - 110049 / New Delhi -110049



## **Annexure-II**

### **MAJOR PACKAGES TO BE SUPPLIED UNDER THE SCOPE OF THIS**

**Contract No.3000000014/ED/TPC/SE-III/EME-9/D65/D.No.54 /18, Dt:29.03.2018**

#### **I. BROAD SCOPE:**

The scope of the Contract shall comprise Basic & Detailed Design, Engineering, manufacture, procurement, assembly, pre-assembly, inspection and tests at contractor's and/or his sub-contractors works, supply, packing & forwarding for the complete plant and equipment inclusive of all mechanical, electrical, instrumentation & control systems and mandatory spares of the Main Plant and Balance of Plant equipment for putting into commercial operation of the complete coal fired Supercritical steam power plant for 5X800 MW Yadadri Thermal Power Station, including but not limited to the following. The systems and equipment shall conform to the technical requirements specified in the Specification and subsequent correspondence.

The Contractor shall requisite supply everything including start-up auxiliary steam and necessary to complete the power station properly and in accordance with good engineering notwithstanding the fact that every item may not be specifically mentioned or the item mentioned may be inadequate for its intended purpose. Details and items which are not specifically mentioned herein shall also be adequately and properly supplied by the Contractor at no extra cost if such details and/or items are necessary to complete the intent of this specification or otherwise to complete the entire power station.

Contractor's attention is drawn into the following important design requirements.

#### **Auxiliary Equipment Performance with Fluctuation in Power Supply Condition.**

All auxiliary equipment and drive motors shall be capable of delivering satisfactorily their rated outputs continuously for a voltage variation and frequency as indicated in Specification.

#### **Design Requirements**

For the entire power plant only those designs and systems shall be used which have been proven in continuous operation for long periods. Innovations and prototypes are not acceptable.

The Plant shall be new and have a working life of 25 to 30 years. The equipment/components of the plant shall be designed for reliable and trouble free operation over the entire life of the plant. The anticipated mode of operation of the plant is likely to be 8000 hrs annually at base load with 206 starts (average). Minimum no of start ups in a year would (1) Cold start ups = 6, (2) Warm Start ups = 40 and (3) Hot start ups = 160.



All component parts including spares and spare assemblies shall be completely interchangeable. All equipment/systems shall be designed to meet the requirements specified in respective sections.

## **1.0 The Supply Scope covers the following Major Packages:**

The detailed scope of the contract is as per the Volumes II to X of the specification e-PCT/TS/K/02/2014-15 of KTPS-VII (1x800MW) read with subsequent clarifications.

However, the broad scope is as follows:

### **1.1 Steam Generator (SG) Island**

- Complete super-critical once through, forced flow with dry bottom, balanced draft, outdoor type pulverized coal fired with oil as start-up and stabilising fuel steam generating unit, complete with all major auxiliary plant and equipment as required.
- Furnace / evaporator complete with water walls tubes, Ducts, headers, steam generating tubes, risers, furnace bottom hoppers etc for once through boiler.
- Economiser, Super heater, Re-heater, Start Up Vents, Separator other Pressure Parts, Safety valves, EMRV, Soot Blowing System etc including circulation pumps (for low load and start up).
- Integral pipe work, valves and specialties along with supporting system, Wind Box.
- Draft plant including Tri-sector type air pre-heaters, ducting and accessories.
- Coal preparation and firing system including start-up/ stabilisation system with fuel oil.
- Integral instrumentation, safety interlocks and controls for steam generator.
- Stairs, Galleries, platforms and structural steelwork as required.
- Electrostatic precipitators.
- Chemical Dosing system.
- Thermal Insulation
- All control, protection and monitoring devices, refractories as required
- Start Up Boiler
- Equipment to meet the safety requirements, All other accessories and auxiliaries as required.

### **1.2 Steam Turbine (STG) Island**

- Multi-cylinder (minimum three cylinders) double casing (HP & IP and LP) tandem compound, single/double reheat, regenerative, condensing type turbine-generator sets complete with all related auxiliaries matching super critical boiler parameters.
- Steam turbine along with auxiliary systems e.g. gland sealing, turbine lube oil and control oil system for lubrication protection-governing, water spray, steam washing systems etc. as applicable.
- Stop and control valves on Main Steam (MS) and Hot Reheat (HR) Inlet with strainers, quick closing non-return valves on extraction lines and Cold Reheat (CR) outlet, H.P.& L.P. Bypass valves etc. together with hydraulic actuation system, reheater isolating device, blanking pieces etc. as necessary for protection during steam blowing.
- All integral piping for turbine steam, drain and vent systems including flash boxes, oil, air and water systems.
- Condensate Polishing System.
- Generator coupled to steam turbines and complete with auxiliary systems e.g. excitation, seal oil, hydrogen cooling, stator cooling, carbon-di-oxide purging systems etc. as necessary.



- Integral instrumentation, safety interlocks and controls for the turbo-generator.
- Thermal insulation

### 1.3 DE-NOX System:

- In Furnace Techniques: Low Nox burners, Air Staging( Horizontal-Concentric Fire System, Vertical-Over Fire Air)
- Post Combustion Techniques: SCR Reactor, Catalyst, Ammonia tank, Vaporizers, Dilution Fan, SCR Injection and Mixing system, Soot blowing system

### 1.4 FLUE GAS DESULFURIZATION (FGD):

- Absorber, Absorber Tank, Absorber Mist Eliminator, Gas to Gas Heater, Ball Mill System for Limestone, Gypsum Dewatering Section

### 1.5 OIL SYSTEM: HFO, LDO

- 1.6 Low pressure and high pressure feed heaters and de-aerator complete with integral instrumentation and valves, supports, platforms, rails, handling devices as required.

- 1.7 Turbine oil purification system and central turbine oil storage and transfer system

- 1.8 Power Cycle piping consisting of main steam, hot reheat, cold reheat extractions, auxiliary steam, air evacuation, cascade drains, condensate, feed water, cycle make-up, drains to waste and atmospheric vents etc. Blanking devices for emergency stop and reheat stop valves and other items as required for steam blowing operation along with steam blowing piping and quick opening valve as required.

- 1.9 Large diameter piping for condenser and auxiliaries Cooling Water Systems.

- 1.10 Low pressure piping for various water (cooling, service, drinking, plant make-up etc.), air (instrument, plant service etc.), steam (other than that covered in item 1.8 above) and other services.

- 1.11 Steel storage tanks/vessels such as, condensate storage tank, service water tank, potable water tank, waste drain and other tanks as required.

- 1.12 Thermal insulation and Noise Insulation including cladding material as required for conservation of heat and for personnel protection, as required

- 1.13 Water cooled, horizontal surface condensers complete with integral accessories, CW line tied type expansion joints, butterfly valves, water box handling devices, air evacuation, on load tube cleaning system etc. All power cycle pumps and drives as required including Boiler feed pumps, Condensate Extraction Pumps, Heater Drain Pumps if necessary, the pumps are to be complete with accessories for sealing and lubrication, flexible/hydraulic couplings, gear box, integral instrumentation, handling devices, etc. and Auxiliary steam turbine and ancillaries for Boiler feed pump device as required.

1.14 Complete Control & instrumentation (C&I) systems as required, including but not limited to the following:

- Valmet DNA based Distributed Digital Control & Management Information System (DDCMIS) for control, monitoring, data acquisition, alarm and sequence of events recording for the unit.
  - All boiler integral instrumentation including secondary air damper control system, Burner Management System (BMS), Soot blower control system, etc.
  - All turbine integral instrumentation like turbine supervisory instruments, condition monitoring system, Automatic Turbine Run Up System (ATRS), Turbine Stress Evaluator (TSE), Electro-hydraulic Governor Control (EHG), Automatic Turbine Testing System, Turbine Protection System HP-LP bypass system etc
- a) GPS Master clock system
  - b) Large video screens
  - c) Performance calculation
  - d) Plant Performance Analysis, Diagnostic and Optimization (PADO) system
  - e) DCS based controls for the packages Viz. Coal mill reject system except air compressors
  - f) Complete SG & auxiliaries' integral control & instrumentation including BMS, MFT.
  - g) Complete TG & auxiliaries' integral control & instrumentation including EHG and TG protection.
  - h) CCTV with wi-fi facility: The project progress is being monitored at Head quarter level regularly duly providing CCTVs during construction phase. As wired CCTV failures are common during construction activities, it is now proposed to have wireless CCTV with wi-fi facility.
  - i) Plant wide data network
  - j) On line rotating machine condition monitoring system
  - k) Optical fibre/UTP interface between DCS and PLC /microprocessor based control in BOP area.
  - l) Control panel, Desk, Junction box, Racks, cabinets.
  - m) All final control elements like control valves, de-super heaters and actuators.
  - n) Steam and Water Analysis System
  - o) Flue Gas Emission Monitoring Instruments/Stack emission monitoring
  - p) Control valves and dampers with actuators and accessories
  - q) Flow elements with root valves and accessories
  - r) Field instruments including transmitters, switches, temperature elements and gauges
  - s) Instrumentation signal & control cable, extension & compensating cable, special cable and optical fibre cables
  - t) Erection hardware for instrument process hook.
  - u) Erection hardware for the pneumatic hook up.
  - v) Cable erection accessories
  - w) Cubicles, enclosure, local panels pneumatic and process hook up hardware, cables and other erection materials and accessories.
  - x) Sequence of event recording and alarm annunciation system integral to DCS.
  - y) 3.3 KV and 415 V auxiliary power system and equipment / plant status monitoring in DCS.
  - z) Un-interrupted power supply system along with batteries
  - aa) Operation & control of circuit breakers requiring synchronising from ECP.



- bb) Hot well sample extraction system for cat-ion conductivity measurement
- cc) 1 No Operator Training Simulator
- dd) Acoustic steam leak detection system with 30 channels
- ee) Furnace flame viewing system with 2 nos. of cameras.

1.15 Complete cooling water system as required

- a) Cooling Tower
- b) Condenser Circulating Water (CW) system along with pumps, drives and accessories.
- c) Auxiliary Cooling Water (ACW) system along with pumps, drives and accessories.
- d) Closed circuit DM cooling water system along with pumps, drives and accessories.
- e) Heat exchangers for closed circuit DM cooling water systems.
- f) Cycle make-up pumps and Condensate Transfer Pumps and condensate storage tank.

1.16 Complete Instrument Air and Service Air Systems.

1.17 Ventilation and Air-conditioning system including all equipment, piping, false ceiling, insulation, ducting etc. as required for all buildings and facilities except for non-plant building as per MOM dated 04/10/2017

1.18 Fire Protection System along with all pumps, drives and accessories for all plant, equipment and facilities for complete main and balance of plant.

1.19 Sump Pumps complete with drives and accessories for drainage of pits from all buildings/facilities as required.

1.20 Miscellaneous Cranes complete with drives, electrical and all other accessories as required.

1.21 Miscellaneous hoists & Lifting devices complete with drives and accessories for all buildings and facilities for handling of equipment above 500Kg as required.

1.22 Elevators total 2 nos of 1088 Kg conventional type for power house complete with drives, electricals, control and instrumentation and all other accessories

1.23 Plant Water System including Raw Water System, Clarified Water System, Potable Water System, Service Water System consisting of all equipment, facilities and auxiliaries as required and water system has to be designed for stage wise.

1.24 Sewage Treatment Plant (STP)

1.25 Effluent Treatment Plant (ETP)

1.26 Coal Handling Plant:

- Conveyors with capacity 2500TPH for Stage -I & II,
- Conveyor Galleries
- Crushed coal stock piles
- 3D coal stock pile measurement for accurate coal stock measurement.
- RCC Pavement for Crushed coal storage yard
- Stackers, Reclaimers, Wagon Tipplers, Track Hoppers

- 1.27 Ash Handling plant: Ash handling system will be stage wise based with Economiser hoppers, Air preheater hopper, Ash slurry sump, Ash slurry lines, Dry and wet fly ash handling system, CSD system, SILOs, Ash water recovery
- 1.28 Mill Reject System
- 1.29 Hydrogen, Carbon-dioxide and Nitrogen gas cylinders (adequate number for refilling), storage, handling and distribution system for preservation purpose, for Generator.
- 1.30 Diesel Electric Locomotives: 6 nos. 1400 HP Locomotives
- 1.31 Limestone handling plant and Gypsum handling plant
- 1.32 Electrical system

Complete Electrical equipment and accessories, including but not limited to the following:

- a) Generator with Brushless Excitation system and Auxiliary system
- b) Generator Bus duct & MV Bus duct
- c) Generator Circuit Breaker
- d) Transformers and 5 Nos 20 KL transformer oil tanks
- e) Switchgears
- f) DC System
- g) Motors
- h) Electrical Actuators
- i) Variable Frequency Drives
- j) Cabling
- k) Cables
- l) Grounding & Lightning Protection
- m) Station Lighting
- n) DG Set
- o) EHV Switchyard for Stage-I & II
- p) Energy Management System
- q) 2 Nos. 125 MVar bus reactors for the 400 KV Switchyard
- r) 0.2s Class metering CTs and CVTs for Generator Transformers and Station Transformers also for tariff metering.

1.33 Miscellaneous equipment

- Start up and commissioning spares as required
- Special tools and tackles, as required, for the entire plant.
- Chemicals, reagents and other consumables except resin required for pre-commissioning, commissioning, performance testing till one year operation of plant.
- AAQMS station
- Electrical Lab, C&I Lab and Chemical Lab Equipments as required.
- MIS system: To have wide connectivity including Head Quarters MIS system has to be designed as unit wise.
- Public Address system





- IP based EPBAX System-1000 lines
- IP based CCTV System
- Walkie talkie system with 150 walky talkies
- Fire Tenders
- Chemical Lab Equipment
- Coal sampling Units
- Rooftop solar PV panels
- PIMS including 3D Modelling
- Weigh Bridges
- Work shop equipment
- Hydrogen Generation plant

#### 1.34 All Structural Steel Works

- Boiler structural steel works, all necessary stairs, gallery with roof and side covers wherever required.
- Pent house on furnace roof with rain protection.

## 2.0 ENGINEERING SERVICES

The Contractor shall render engineering services for the plant in scope including complete detailed engineering, design, submission and documentation as specified and as required for a good design and installation ensuring efficiency, operability, availability, maintainability and reliability of the plant. Prior to commencement of the engineering work all aspects of design, viz., criteria for selection and sizing of all equipment and systems, design margins, analysis and design calculations etc. shall be stated by the Contractor in design basis reports. As part of design submissions, the design reports shall be submitted for approval by the Owner representative. The approved design basis reports shall form the basis for the detailed engineering work.

At any stage during the performance of the works, the Owner may require up-gradation / improvements in the Contracted Plant and consequent modification in the equipment / system designs in view of additional information available at a later date (s) or feedback (s) received during execution / operation of similar units. If so desired by the Owner, the Contractor shall make the necessary design modifications and carry out the up-gradation / improvements in the Plant. Commercial and time implications of such action shall be mutually agreed upon between the Owner and the Contractor.

During the course of review of detailed engineering, it may be essential in Owner's opinion to obtain data and information on similar equipment and plants engineered by the Contractors. In case Owner so desires the Contractor shall submit such analogous data and information to the Owner.

The Contractor shall cooperate with the Owner's other Contractors and Owner representative and freely exchange with them such technical information as are necessary to obtain the most efficient and economical design and to avoid unnecessary duplication of efforts. The Owners representative shall be provided with

copies of all correspondences addressed by the Contractor to other Contractors and Owners representative in respect of such exchange of technical information.

The Contractor shall furnish a comprehensive and detailed schedule of drawings and design documents, which shall be submitted by him after the award of Contract indicating submission dates against each document. The list shall be subject to the approval of the Owner / Owner representative.

The documents shall be divided into two categories:

- (a) For approval
- (b) For information / reference only.

Documents submitted during contract stage, shall be revalidated or revised as required and submitted as certified document for approval / information of the Owner.

- (a) System scheme drawings, pipeline and instrumentation diagrams
- (b) Design basis reports
- (c) Specification for major bought-out items
- (d) Equipment data sheets and general arrangement drawings.
- (e) Drive motor list for all system covered under the scope of this contract.
- (f) Materials for Construction
- (g) Layout drawings
- (h) Operation logic diagrams
- (i) Typical control circuits
- (j) Protection schemes

### **3.0 OPERATING MANUALS AND MAINTENANCE INSTRUCTIONS**

The Contractor shall submit to the Owner / Owner representative, instruction manuals for all equipment covered under the contract at least thirty (30) days before the first shipment of the equipment.

The operating manuals and maintenance instructions shall be in sufficient detail to enable the Owner to operate, maintain, dismantle, re-assemble, adjust or replace all equipment and components during the lifetime of the plant. The manuals shall be specifically prepared for the contracted plant. Only a collection of manufacturer's standard leaflets shall not be acceptable as the manuals.

In addition, the Contractor shall provide at least six (6) months before the time of commissioning and before taking over of the plant and equipment, a consolidated manual for the complete plant detailing out instructions for operation and maintenance.

The operating manuals and maintenance instructions manual shall be submitted in fifteen (15) copies as well as four (4) copies in compact disks (CDs). The instruction manuals will be reviewed and approved by the owner before issue by the Construction contractor. Such approval will be not be unreasonably withheld.



If after the commissioning and the initial operation of the plant, the instruction manuals require modifications / additions, the same shall be incorporated by the Contractor and updated final version of the manuals shall be submitted.

The Contractor shall submit fifteen (15) sets of spare parts catalogues.

#### **4.0 PLANT HANDBOOK AND AS-BUILT DOCUMENTATION**

##### **PLANT HANDBOOK**

The Contractor shall submit to the Owner, a preliminary plant handbook preferably in A-4 size which shall contain all approved design basis and design calculations, the design and performance data of various plant, equipment and systems covering the complete project including single line flow diagrams, within twelve (12) months from Notice to Proceed. The final plant handbook complete in all respects shall be submitted by the Contractor three (3) months before start-up and commissioning activities. The plant handbook shall be submitted in ten(10) copies along with one (1) copy in Compact Disks (CDs).

##### **"As-built" Documentation**

The Contractor shall provide and keep up to date "As built" drawings of all structures constructed and all equipment and accessories and miscellaneous metal works erected or installed. These drawings shall show all changes and revisions from the original drawings and specifications, including the exact "As-built" locations, sizes and kinds of equipment and accessories, miscellaneous metal works, embedded piping and electrical systems and other concealed items of work. These drawings shall be kept in Contractor's field office but shall be made available at all times for review of the Owner representative. At the end of every work, all entries, changes or revisions made in the drawings by the Contractor shall be checked and approved by the Owner representative. Prints with requisite copies of all "As-Built" drawings shall be progressively handed over to the Owner after taking over the Plant by the Owner. In addition, all the as-built drawings / documents shall be submitted to the Owner in CDs.

#### **5.0 SUB-CONTRACTORS**

The Contractor shall submit to the Owner the details of all major items that he deems necessary to be sub-contracted. The Contractor shall not change major Sub-Contractors without prior approval of the Owner.

The Contractor's orders to the Sub-Contractors shall quote the Owner's contract reference and station name, and instruct the sub-contractors to quote that number and name and also the order number in all correspondences.

An unpriced copy of all purchase orders placed on sub-contractors, and of all orders placed by sub-contractors shall be supplied to the Owner.

The Contractor shall be responsible for maintaining an up-to-date list of all sub-orders and interworks order and shall make this available to the Owner as required.



M/s BHEL should not resort to the reverse auction process for the services Sub-Contracts. However, on a case to case and with prior approval of TSGENCO, BHEL can take up reverse auction for the services Sub- Contracts.(This condition is applicable to Services and Civil Contracts only)

The Owner's Contract Reference and Station name, shall be added to all interworks and sub-orders.

The Owner reserves the right to check that the Contractor is making timely payments to his sub-contractors.

The Contractor shall ensure that their sub-contractors follow the requirements of this contract and have adequate control over all aspects covered by the specification.

## **6.0 PROGRESS REPORTS**

During the design and manufacturing stages the Contractor shall submit to the Engineer reports and information on the progress and manufacture by himself and by the Sub-Contractors of all plant and materials required for the execution of the works. The reports shall be based on the plant manufacturing programs.

The detailed procedure and requirements for progress reporting will be agreed with the Owner during the early phase of the works, as part of regular contract / project status reporting.

The Contractor shall also submit to the Owner monthly progress reports and any other reports as required by Owner / Lenders / Statutory authorities.

## **7.0 ACCESS FOR PROGRESS MONITORING**

The Owner or his nominated representative shall be entitled at all reasonable times to visit all premises where design and manufacturing of the plant is being carried out in order to monitor and verify progress.

## **8.0 MISCELLANEOUS**

- Design Engineering
- Quality Control, shop testing and inspection.
- Consents, licenses and approvals from relevant statutory authorities other than those obtained by the OWNER.
- Packing and forwarding.

## **II. EXCLUSIONS:**

The following are excluded from M/s BHEL scope:

1. Raw water Intake system and Raw water reservoir. BHEL scope starts from Raw water pump house.
2. Dismantling of existing structures.
3. Dismantling of any other underground/Over ground structure including rerouting of Nallahs, roads ,etc





4. Construction Power and water
5. Plant boundary along with patrol road at project
6. Patrol road and area drainages study
7. Ash dyke and road along ash slurry pipes
8. Marshalling yard and railway siding including its levelling and grading
9. In motion weigh bridge
10. Non plant buildings as listed as follows
  - a) All Roads and drains, bridges and culverts
  - b) Make-Up water reservoir(Raw water reservoir)
  - c) Administrative Building
  - d) Security Building
  - e) Canteen Building
  - f) Stores Building with office building
  - g) Service building
  - h) Chemical Lab building
  - i) Parking sheds
  - j) Rain water harvesting
  - k) Raw coal storage yard
  - l) Dozer shed
  - m) Watch towers-20 Nos
  - n) Simulator buildings
  - o) Main Gate building
  - p) Work shop building
  - q) Fire station building
  - r) Hydrogen storage sheds
  - s) Land scaping
11. PIR for switchyard
12. No embankment /Protection for natural canal is envisaged in BHEL scope .
13. Re-routing of existing 132KV, 220KV and 400KV transmission lines.
14. Any other underground/ over ground structure.
15. Computerized Maintenance & Inventory Management System.
16. Access Control System/ Biometric Access system
17. Re-routing of raw water pipe line within the project premises.
18. Adjustable orifice.
19. Online carbon in ash analyzer.
20. Acoustic pyrometer.



### III. OWNER'S OBLIGATIONS AND SITE FACILITIES:

1. Total land of the power plant shall be handed over free from all encumbrances.
2. Existing contour map of the area.
3. One reference Bench mark within/neat the plant area along with reference grids in two perpendicular directions.
4. Complete civil & architectural works outside the scope of BHEL and providing fronts for erection of the plant under scope.
5. Adequate land for storage facilities for various equipment/materials required for constructing the power station within the boundary wall of the power station.
6. Accommodation for BHEL Officials on hire basis and land for construction of temporary accommodation for the Contractor's personnel subject to availability.
7. Suitable approach road up to the boundary wall of the power station.
8. Construction power and water will be provided at one point each at plant premises .

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29/03/18  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Kharatabad, Hyderabad-500 082.

  
मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
वी.एच.ई.एल हाउस , सीरी फोर्ट / BHEL House , Siri Fort,  
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**Annexure-III**

Contract No.3000000014/ED/TPC/SE III/EME-9/D65/D.No.54/18, Dt:29.03.2018

**DETAILS OF AUXILIARY POWER CONSUMPTION**

S.No.	Particulars	Number operating at 100% TGMCR condition	Duty Factor	Total Number provided (Operating + Standby)	Total Power Consumption in KW at 100% TGMCR condition	Remarks
<b>I</b>	<b>SG and its Auxiliaries</b>					
1	Coal mills	6	1.00	6+2	Included	
2	PA fans	2	1.00	2+0	Included	
3	FD fans	2	1.00	2+0	Included	
4	ID fans	2	1.00	2+0	Included	
5	DMCW Pumps (SG)	-	1.00	-	Included	5W+5S for station
6	GR Fans (If applicable)	N/A	-	-		
7	Regenerative air pre-heater	2	1.00	2+0	Included	
8	Fuel oil pumps	1	1.00	1+1	Included	
9	Coal feeders	6	1.00	6+2	Included	
10	Electrostatic precipitator	All fields	1.00	1	Included	
11	Seal air fans	1	1.00	1+1	Included	
12	Lube oil system pumps	As applicable for respective equipment	1.00	-	Included	
13	Electric heat tracing	N.A	-	-		
14	Scanner air fans	1	1.00	1+1	Included	
15	Any other Items					
	a) SCR Equipments	Lot	1.0		Included	
<b>II</b>	<b>STG and its auxiliaries</b>					
1	Control oil pumps	1	1.00	1+1	Included	
2	Oil vapour extractors	1	1.00	1+2	Included	
3	Lube oil purification equipment (centrifuge type)	1	1.00	1+0	Included	
4	Gland steam exhaustor	1	1.00	1	Included	
5	Air side seal oil pump	1	1.00	1+1	Included	
6	Hydrogen side seal oil pump	1	1.00	1+1	Included	
7	Hydrogen gas dryer blower	1	1.00	1+1	Included	
8	Stator water cooling pumps	1	1.00	1+1	Included	
9	Generator vapour extractor	1	1.00	1+1	Included	
10	EH polishing pump	1	1.00	-	-	
11	DMCW pump (TG)	-	1.00	1+1	Included	10W+5S for Stn
12	Generator gland seal flat pump	N.A	-	N.A	-	
13	Condenser vacuum pump	2	1.00	2+2	Included	
14	CEPs	2	1.00	2+1	Included	
15	STD BFP vapour extractor	N.A	-	-	-	
16	Main oil pump (motor driven)	1	1.00	1+1	Included	
17	Drip pump	1	1.00	1+1	Included	
<b>III</b>	<b>Balance of Plant</b>					

1	Raw water pumps		1.00		Included	5W+2S for station
2	Circulating water pumps		1.00		Included	20W+3S for station
3	CW Make up System		1.00		Included	5W+3S
4	Auxiliary cooling water pumps		1.00		Included	10W+3S for station
5	FGD Pumps (Stage-I&II)	2	1.00	2+2	Included	
6	Water treatment plant					
	a) Pre-treatment		0.80	LOT	Included	Common for station
	b) DM plant		0.50	LOT	Included	Common for station
	c)CW-Treatment		1.00	LOT	Included	Common for Stn
	d)Sewage Treatment plant		0.50	LOT	Included	Common for Stn
	e)Effluent Treatment plant		0.50	LOT	Included	Common for Stn
7	Instrumentation and Control system					
	a) DCS		1.00	LOT	Included	Refer Note.1, common for station
	b) Others		1.00	LOT	Included	Common for station
8	Any other Items					
	a) COLTCS		0.33	LOT	Included	Common for station
	b) SCS		0.33	LOT	Included	Common for station
	c)Debris Filter		0.33	LOT	Included	Common for station
9	Coal Handling Plant for the worst path (Max. Power Consumption) (including crusher house, coal path from stock pile to Bunkers with one Stacker cum Reclaimer operating in reclaiming mode but excluding intermittent equipment like electrical hoists, coal sampling unit, flap gate, rack & pinion gates and sump pumps)		0.86	LOT	Included	Common for station
10	Ash Handling System for bottom ash disposal system including clinker grinder up to ash disposal area and fly ash evacuation system up to silos.		1.00	LOT	Included	Common for station
11	Air Conditioning system					
i	Main Control Room		1.0	LOT	Included	Refer Note-2, Common for station



ii	ESP & VFD Control Room		1.0	LOT	Included	
iii	AHP Control Room		1.0	LOT	Included	Common for station
iv	CHP Control Room		1.0	LOT	Included	Common for station
v	Switchyard Control Room		1.0	LOT	Included	Common for station
vi	Service Building		1.0	LOT	Included	Common for station
vii	Aux Control Rooms		0.67	LOT	Included	Common for station
viii	FGD Control room		1.00	LOT	Included	Common for station
12	Compressor Air System					
	a) Plant Air Compressors (Service Air & Instrument Air)	-	0.5	-	Included	Common for station
	b) Plant Instrument air drying plant	-	0.5	-	Included	Common for station
13	Mill Reject System					
	Mill Reject Handling Compressors	-	1.0	-	Included	
14	Electrical System					
i	Losses in transformers GTs, UTs, STs, UATs, SATs etc.,	Transformers shown as per SLD	1.00	LOT	Included	
ii	Aux. Transformers Losses	Transformers shown as per SLD	1.00	LOT	Included	
iii	FGD Transformer Losses	Transformers shown as per SLD	1.00	1+1	Included	
15	HCSD System			LOT	Included	
16	Lime Handling Plant			LOT	Included	
17	FGD Plant			LOT	Included	
18	Lime Stone slurry preparation system			LOT	Included	
19	Gypsum Handling plant			LOT	Included	
20	Gypsum dewatering system			LOT	Included	
21	SUMP and utility system			LOT	Included	
	Total				Refer Sl.No 3 of Annexure I	

**Note:**

1. Aux. Power consumption includes DCS power consumption for SG, TG, DAVR, Station DCS, CHP, AHP, MRHS, FOPH, CW/ACW & Compressor systems only.
2. Aux. Power consumption includes power consumption for AC System of Power House and Service building only.
3. The Auxiliaries indicated for common station auxiliaries shall be proportionately considered for per unit basis auxiliary power consumption.

मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
Tamil Nadu State Power Generation Corporation Ltd  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
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नई दिल्ली - 110049 / New Delhi - 110049

*29/08/18*  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Kharatabad, Hyderabad-500 082.

Contract No 3000000014/ ED/TPC/SE III/EME- 9/D65/D.No.54/18, Dt:29.03.2018

**OTHER TERMS AND CONDITIONS**

**CLAUSE 1: DEFINITION OF TERMS:**

The following words shall have the meaning herein assigned to them unless there is something in the subject or context inconsistent with such construction.

- 1.01 : **'Purchaser' or 'Owner'** shall mean TSGENCO
- 1.02 : **'TSGENCO'** shall mean the Telangana State Power Generation Corporation Limited having its Head office at Vidyut Soudha, Khairatabad, Hyderabad - 500082 (Telangana) and shall include its legal representatives, successors and permitted assignees.
- 1.03 : **'Contractor'** shall mean M/s. Bharat Heavy Electricals Ltd., BHEL House, Siri Fort, New Delhi-110 049 and shall include its legal representatives, successors and assignees.
- 1.04 : **'Sub-Contractor'** means any person (other than the Contractor) named in the Contract to carryout any part of the works or any person to whom any part of the Contract may be sub-let by the Contractor after informing TSGENCO, and will include the legal representatives, successors and assignees of such persons.
- 1.05 : **'Engineer'** shall mean the person nominated by TSGENCO for the time being and include such other officers as may be duly authorized and appointed in writing by TSGENCO to act as Engineer for the purpose of the Contract. In case where no such Engineer has been so nominated or appointed the word 'Engineer' shall mean Executive Director, Thermal Projects Construction, Telangana State Power Generation Corporation Limited, Vidyut Soudha, Khairatabad, Hyderabad-500 082, Telangana.
- 1.06 : **'Consulting Engineer'** shall mean Engineering consultant for the project i.e., M/s TATA Consulting Engineers Limited, Bangalore. The address of the consultant is M/s TATA Consulting Engineers Limited, 73/1, Sheriff Centre, St. Marks Road, Bangalore-560001.
- 1.07 : **'Plant', 'Equipment' or 'Stores',** shall mean and include plant, equipment, stores and materials to be provided by the Contractor.
- 1.08 : **'Contract'** shall mean and include this Contract and the annexures to this Contract, read with the basic proposals and subsequent correspondence, clarifications, amendments and addenda to be issued from time to time.
- 1.09 : **'Site'** shall mean the site of Yadadri Thermal Power Station located at Dameracherla(Mandal),Veerlapalem(Village), Nalgonda District of Telangana.



- 1.10 : **'Inspector'** shall mean the Executive Director, Thermal Projects Construction or Consulting Engineer or any such other person as may be duly authorised and appointed in writing by the Engineer to act as 'the INSPECTOR' for the purpose of the inspection of materials/ Equipment/ Works/ Services etc.
- 1.11 : **'Approved'** shall mean the approval of the Engineer, the Third Party Inspector or the Consulting Engineer as the case may be.
- 1.12 : **'Tests on completion'** means such tests to be made by the Contractor before the works are taken over by the TSGENCO as are provided for in the Contract and such other tests as may be agreed to between TSGENCO and the Contractor and tests required to conform to applicable standards.
- 1.13 : **'Commissioning'** shall mean successful completion of trial operation of unit.
- 1.14 : **'Month'** shall mean calendar month.
- 1.15 : **'Writing'** shall include any manuscript, typewritten or printed statement under or over signature or seal as the case may be.
- 1.16 : **'Persons'** shall include any firms, companies, corporation and body of persons whether incorporated or not.
- 1.17 : Words incorporating the singular only shall include plural and vice-versa where the context requires.
- 1.18 : **'Warranty Period'** shall mean the period during which the Contractor shall remain liable for repairs or replacement of any defective part of the equipment supplied under the Contract as the case may be.
- 1.19 : Terms and conditions not defined herein shall have the meaning as are assigned to them in the Contract Act, 1872 read with amendments and failing that in the General Clauses Act, 1897 read with amendments.

**2.0 : SCOPE OF CONTRACT:**

Shall be as defined in Clause (1) of the Purchase Order. However, the TSGENCO may, if it so desires, vary the scope of the Contract after discussions and mutual agreement with the Contractor.

**3.0 : CONTRACTOR TO INFORM HIMSELF FULLY:**

The Contractor shall be deemed to have fully examined the TSGENCO's requirements as specified in the Contract and also to have satisfied himself as to the nature and character of work and of site conditions and other relevant matters and detailed information he had or otherwise obtained from the TSGENCO, the Engineer, Consulting Engineer or Inspector or other sources shall not in any way relieve the Contractor from his responsibility under the terms of this Contract.



#### **4.0 : SCHEDULE OF MATERIALS & PRICES:**

The Schedule of materials and prices shall be as per the terms set forth in the Purchase Order.

Any variation by way of either increase or reduction in Taxes and Duties or other statutory levies or new imposts introduced during the contractual delivery period shall be to TSGENCO's account provided that in cases where the delivery schedule is not adhered to by the Contractor for reasons attributable to Contractor, any increase in Taxes and Duty or other statutory levies or imposts introduced after the agreed delivery dates shall be borne by the Contractor and any reduction thereof shall be to the credit of TSGENCO.

#### **5.0 : CODES AND STANDARDS:**

The design, manufacture, testing and supply of all equipment and materials furnished by the Contractor shall meet the requirements of Indian Standards Codes/ Codes & Standards as mentioned in Volume-II of specification e-PCT/TS/K/02/2014-15 / other mutually agreed Codes and Standards and statutory requirements of the Government of India and the Government of Telangana State.

#### **6.0 : CONTRACTOR'S DRAWINGS:**

6.1 : The Contractor shall send according to mutually agreed time schedule, outline drawings of all equipment together with weights and sufficiently detailed overall dimensions to enable TSGENCO design foundations, structures and associated equipment.

6.2 : Within a reasonable time the Contractor shall send to the Engineer a list of all the drawings with their respective titles and the dates and category like approval, information, typical etc., on which they shall be supplied to the Engineer/Consultant. The list shall be amended or extended by the Contractor in consultation with the Engineer as and when necessary during the progress of the work. All titles, notes and inscriptions on the drawings shall be in English.

6.3 : Before proceeding with the manufacture, the Contractor shall send in accordance with the instructions of the Engineer or Inspector for his information, general assembly drawings and such other drawings of the equipment necessary for TSGENCO to design the power station and such additional assembly drawings as are necessary to demonstrate fully that all parts of the equipment to be furnished will conform to the provisions and intent of the Contract.

6.4 : The Contractor shall also send to the Engineer/Inspector or Consultant for his approval, the drawings for the layout of the station and auxiliaries and sub-assembly and erection drawings and erection sequence schedules. One copy will be returned to the Contractor marked approved/approved with corrections except in the case of erection drawings and erection sequence schedules. Upon receipt of the approved/prints, the Contractors shall furnish



to TSGENCO prints of each drawing with soft copy in CDs in accordance with the distribution schedule as per Annexure- IX of this Purchase Order.

- 6.5 : CDs shall be of quality to produce clear and legible prints and any inferior quality may be returned by TSGENCO for replacement with suitable quality. The prints shall be accompanied by a letter of transmittal.
- 6.6 : Any manufacturing work in connection with the equipment prior to the approval of drawings shall be at the Contractor's risk. The Contractor shall make the equipment conform to the provisions and intent of the Contract without additional cost to TSGENCO. Approval of the Contractor's drawings shall not be held to relieve the Contractor of any part of Contractor's obligations to meet all the requirements of Contract or of the responsibility for the correctness of the Contractor's drawings.
- 6.7 : All drawings which Contractor shall send to the Engineer for approval shall be approved, rejected or returned for modifications within 7 working days of receipt of these by the Engineer. If within this period no information is received from TSGENCO, it shall be deemed to have been approved by TSGENCO. However, the Contractor shall give consideration in specific circumstances to reasonable request for extension of the afore-mentioned 7 working days.
- 6.8 : Upon approval by the Engineer, the drawings shall become the Contract drawings and the Contractor shall not depart from them anyway whatsoever, except by the written permission of the Engineer.
- 6.9 : The final Contract drawings will remain the property of the TSGENCO.

**7.0 : STATUTORY OBLIGATIONS:**

If the Contract price for due performance of the Contract shall be directly increased or reduced by reasons of the making, passing or promulgation or any law after the date of this Contract in India or any order, regulation or bylaw having the force of the law, the amount of such direct increase or reduction shall be added to or deducted from the Contract price as the case may be.

**8.0 : MISTAKES IN DRAWINGS:**

The Contractor shall be responsible for and shall pay for any alterations of the work due to any discrepancies, errors or omissions in the drawings or other particulars whether they have been approved by the Inspector or not provided that such discrepancies, errors/omissions be not due to inaccurate information or particulars furnished to the Contractor by the Engineer/Inspector/Consulting Engineer.



**9.0 : MATERIAL AND WORKMANSHIP:**

9.1 : The equipment shall be manufactured, constructed in the best and most efficient workmanship like manner and with the materials of the best of or approved qualities for their respective uses.

9.2 : All the materials used and the manufacture of equipment shall be of the best quality and shall conform to the relevant standards. The design and workmanship shall be of the highest norms with the relevant standards. The design and workmanship shall be of the highest quality so as to ensure satisfactory operation of the equipment. The entire equipment shall be in accordance with best modern practice.

**10.0 : COMPLETENESS OF EQUIPMENT/SYSTEMS:**

10.1 : The equipments/systems shall be complete in every respect with all mountings, fittings, fixtures and needed accessories even though not specifically detailed. The Contractor shall not be eligible for any extra payment in respect of such mountings, fittings, fixtures and needed accessories which are needed for safe and satisfactory operation of the equipment as required by the applicable codes within framework of the Contract.

10.2 : All similar component parts of similar equipment supplied shall be interchangeable with one another.

**11.0 : SUB-LETTING OF CONTRACT:**

The Contractor may with prior consent of the Engineer or TSGENCO assign or sublet the Contract or any substantial part thereof other than for raw-materials, for minor details for any part of the plant for which the manufacturers and sub-contractors are named in the Contract provided that any such arrangement shall not relieve the Contractor from any obligation, duty or responsibility under this Contract.

**12.0 : INSPECTION, TESTING AND TEST CERTIFICATES:**

12.1 : The Engineer/Inspector and/or his representative shall have at all reasonable times access to the Contractor's or sub-contractors premises of work, and shall have the power at all reasonable times to inspect the drawings on any portion of the equipment or examine the materials and workmanship of the equipment during its manufacture and if part of the equipment is being manufactured in other premises the Contractor shall endeavour to obtain and arrange all necessary requirements to inspect such equipment.

12.2 : The inspector shall, within 7 working days from the date of inspection as defined in sub-paragraph 12.3 below give notice in writing to the Contractor of any objection to any drawings and all or any equipment and workmanship which in his opinion is not in accordance with the Contract. The Contractor shall give due considerations to such objections and shall either make the modifications that may be necessary to meet the said objections or shall confirm in writing to the Engineer/Inspector giving reasons wherein that no modifications are necessary to comply with the Contract.



- 12.3 : The Contractor shall give the Engineer/Inspector 7 working days written notice of any materials being ready for testing. Such tests shall be to the Contractor's account except for the expenses of the Inspector and the Engineer/Inspector unless the inspection of the tests is virtually waived, shall attend such tests within 7 working days of the date on which the equipment is notified as being ready failing which the Contractor may proceed with the tests which shall be deemed to have been made in the Inspector's presence and he shall forthwith forward to the Inspector duly certified copies of the tests.
- 12.4 : When the factory tests have been completed at the Contractor's or sub-contractor's works, the Engineer/Inspector shall issue a certificate to this effect within 7 working days after completion of tests. If the tests are not witnessed by the Engineer/Inspector, the certificate shall be issued within 7 working days of receipt of the Contractor's test certificate by the Engineer/Inspector. Failure of the Engineer/Inspector to issue such a certificate shall not prevent the Contractor from continuing the work. The completion of these tests, or the issuing of the certificate shall not bind the TSGENCO to accept the equipment, should it, on further tests after erection be found not to comply with the Contract.
- 12.5 : In all cases where the Contract provides for tests, whether at the premises of works of the Contractor or of any Sub Contractor, the Contractor except where otherwise specified, shall provide free of charges such labour, materials, electricity, fuel, water, stores, apparatus and instruments as are required and carryout efficiently such tests of the equipment in accordance with the Contract and shall give facilities to the Engineer/Inspector or to his authorized representative to witness such tests of the equipment in accordance with Contract/as per applicable standards.
- 13.0 : TESTS AT SITE:**
- 13.1 : In all cases where the Contract provides for tests at the Site, Contractor, except otherwise specified, shall bear all costs such as labour and materials as required to carryout the tests as per relevant standards.
- 13.2 : All special instruments shall be arranged by the Contractor at the time of the test and taken back by the Contractor after completion of tests with permission of TSGENCO except where specified that same are required for post commissioning O&M purpose.
- 14.0 : PACKING:**
- 14.1 : The Contractor shall include and provide for securely protecting and packing equipment so as to avoid damage in transit to site under proper conditions and he shall be responsible for any losses or damages caused or occasioned by any defect in packing. All polished surfaces shall be thoroughly protected from rust during transit. All open ends of tubes nozzles or headers shall be properly plugged and safe-guard against damages to shop prepared edges, flanged ends shall be adequately blanked.



14.2 : All equipment shall be packed in suitable storage cases wherever essential. Large articles such as plates, which are not packed in cases, shall have all screwed holes plugged suitably and machined surfaces properly protected. The Engineer may also issue specific packing requirement for certain items and the Contractor shall endeavour to comply with the same. Weight and size limitation for transport shall be taken care of by the Contractor and Contractor shall get himself informed about transport logistic arrangements.

14.3 : It may be noted that the marking on all packages dispatched to site shall be in English preferably in black paint. Where ever necessary special marking in English shall be painted on the packages as per standard practice.

**15.0 : REVISIONS AND/OR MODIFICATIONS:**

15.1 : TSGENCO shall have full power, subject to the provision hereinafter contained, from time to time during the execution of the Contract by notice in writing to instruct the Contractor to alter, omit, add to or otherwise revise and modify the work without prejudice to the Contract. The Contractor shall carryout such revisions and modifications and shall be bound by the same conditions as far as applicable as though the revisions and modifications occurred in the specifications, provided, however, that any such revisions and modifications would in the opinion of the Contractor, if carried out, prevent him from fulfilling any of his obligation or guarantee under the Contract, he shall so notify TSGENCO in writing. TSGENCO shall decide forthwith whether or not the revisions and modifications shall be carried out and if TSGENCO confirms the instructions, the Contractor shall be held relieved of such obligations or guarantees so far as only the suggested revisions and obligations can be shown to affect the Contractor's obligations or guarantees.

15.2 : The difference in price, if any, occasioned by the said revisions and modifications shall be added to or deducted from the Contract price as mutually agreed. TSGENCO shall not become liable for the payment of any change in respect of such revisions and modifications unless the instructions for the performance of the same shall have been given in writing by TSGENCO.

**16.0 : REPLACEMENT OF DEFECTIVE MATERIALS/ PLANT:**

If during the progress of work, the Engineer shall decide and notify in writing to the Contractor that any part of the work executed by the Contractor is unsound or imperfect and inferior in quality to that specified, the Contractor on receiving details of such defect or deficiency shall, if he accepts the Engineer's findings, alter, reconstruct or remove such plant or part of plant or provide fresh materials upto the standard of the specification at his own expense, with in such time as may be reasonably necessary for the purpose. In case the Contractor fail to do so, TSGENCO may give the Contractor 7 days notice in writing of their intention to do so, proceed to alter, reconstruct or remove such plant or part or provide all such materials at the Contractor's cost provided that nothing, in this clause shall be deemed to deprive TSGENCO or affect any rights of the Contractor which he may otherwise have in respect of such defects or deficiencies and provided that such replacements



shall be carried out by TSGENCO within a reasonable time and at a reasonable price and when reasonably possible to the same specifications and under competitive conditions.

**17.0 : WARRANTY:**

- 17.1 : The Contractor warrants that the plant will be new and in accordance with the specifications and that the equipment will be free from defects in design and workmanship.
- 17.2 : For a period of 12 calendar months commencing immediately from the date on which the plant is commissioned called 'Warranty Period' the Contractor shall be liable to repair or replace any defective parts that may develop in the plant under conditions provided by the Contract and under proper use and arising solely from faulty design, materials or workmanship free of all costs to TSGENCO provided that notice of any such defects or failure to conform to the specifications and satisfactory proof thereof is given reasonably and promptly by TSGENCO to the Contractor. In the event of the commissioning being delayed for reasons not wholly attributable to the Contractor, the Contractor's obligations under this clause shall cease on the expiry of 18 months from the date on which the commissioning would have been completed but for such delay.
- 17.3 : The Contractor's liability under this clause shall be limited, at Contractor's option to repair or replace with all transport charges from site to Contractor's works and back shall be to the contractor's account.
- 17.4 : The acceptance of the plant by the Engineer shall in no way relieve the Contractor of his obligation under this clause.
- 17.5 : In the case of defective parts not repairable at site, but essential in the meantime for the commercial operation of the plant, the Contractor and TSGENCO shall mutually agree to a programme of replacement or renewal which will minimize to the maximum extent interruption in the operation of the plant.
- 17.6 : If it becomes necessary to replace or renew any defective part under this article, the provisions of this article shall apply to replaced part until the expiry of 6 months from the date of such replacements/renewal or until the end of the warranty period specified in sub-clause whichever may be later.
- 17.7 : The provisions contained in this clause will not be applicable.
- i) If TSGENCO has not operated the equipment according to generally approved industry practices and in accordance with the conditions of operation specified and in accordance with operation manuals if any.
  - ii) If TSGENCO has not notified the Contractor in writing within reasonable time any defect occurred.
  - iii) In cases of normal wear and tear.



**18.0 : FAILURE TO PERFORM:**

If the Contractor shall neglect to manufacture or supply plant, material and equipment or to perform the work with due diligence and expedition or shall refuse or neglect to comply with any orders given to him in writing by the Inspector or Engineer which are specifically made binding on the Contractor by the terms of the Contract or shall contravene the provisions of the Contract or if the completed work or any portion thereof, before it is taken over be defective or fails to fulfill the requirements of this Contract subject to the provisions of the warranty in Clause (17), TSGENCO may give notice to the Contractor in writing calling upon him to make good the failure, neglect or contravention complained of and should the Contractor fail to comply with such notice within a reasonable time after the date of service thereof or otherwise within such time as may be reasonable and necessary for making it good then and in such case TSGENCO and the Contractor shall endeavour to reach a mutually satisfactory agreement. Failing such agreement TSGENCO shall have the right to terminate the Contract in whole or in part and claim damages.

**19.0 : CO-ORDINATION:**

19.1 : The Contractor agrees to co-operate with the TSGENCO's Consulting Engineers and the other Contractors for associated equipment and freely exchange with them such technical information as is necessary to obtain the most efficient and economical design and to avoid un-necessary duplication of equipment. No remuneration shall be claimed from the TSGENCO for such technical cooperation.

19.2 : TSGENCO reserves the right to perform or have performed in and about the works during the time when the Contractor is performing his hereunder such other work as TSGENCO desires and the Contractors shall make all reasonable effort to perform his work hereunder in such manner as will enable such other work to be performed without hindrances. TSGENCO or its Engineer shall co-ordinate such activities of the various Contractors to ensure that the work to be performed by the Contractor is not affected or interrupted or put to delay or additional expenses.

**20.0 : PATENT RIGHTS:**

The Contractor shall at his cost defend any claim which results in a suit or proceeding against the TSGENCO that the equipment or any part thereof constituted an infringement of any patent of the country of foreign or India, if notified reasonably and promptly in writing and given authority, information and assistance for the defence and the Contractor shall pay all damages and costs if any awarded against TSGENCO in such suit or proceedings for patent infringement. In case the equipment in such suit or proceedings is held to constitute infringement and the use of the equipment or part is prohibited for TSGENCO the right to continue using the equipment or replace the same with a non-infringing or remove the equipment and Contractor shall refund the price plus the transportation and installation costs thereof.



**21.0 : FORCE MAJEURE:**

21.1 : Force majeure shall mean any event beyond the reasonable control of the parties to the contract which is unavoidable, notwithstanding the reasonable care taken by the party affected.

The activities, but not limited to the following, shall constitute Force majeure:

- i) Natural phenomena, including but not limited to weather conditions, floods, droughts, earthquakes and epidemics.
- ii) Acts of any government authority domestic or foreign, including but not limited to war, declared or undeclared, priorities, quarantine, embargoes, licensing control or production or distribution restrictions.
- iii) Accidents and disruptions including but not limited to fires, explosions, breakdowns of essential machinery or equipment and power shortage.
- iv) Strikes, slow-downs, lock-outs, sabotage.
- v) Defects in heavy forgings and castings.
- vi) Failure or delay in Contractor's source of supply due to force majeure causes enumerated at (i) to (v).

21.2 : The Contractor shall not be liable for delays in performing his obligations resulting directly or indirectly from any force majeure clause as referred to and/or defined in paragraph above. Dates of completion shall, subject to as hereinafter provided be extended by a reasonable time even though such cause may occur after the Contractor's performance of his obligations has been delayed for other causes solely not attributable to the Contractor. If any such delay lasts for more than six months, the parties hereto shall immediately consult one another for purpose of agreeing upon a reasonable basis on which the Contractor shall resume supply and if the parties do not agree upon a solution of the problem involved including adjustment of the price, such price adjustment being both upwards and downwards then either party may cancel the contracts, and if the rights of the parties on such cancellations are not amicably settled, any dispute in regard thereto may be settled by arbitration. All the provisions of this clause shall apply whether the disruptions caused is total or partial in its effect upon the ability of the Contractor to perform.

**22.0 : COMPLIANCE WITH LAWS AND REGULATIONS:**

The Contractor shall comply with all laws, statutes, by-laws ordinances and regulations of statutory and government authorities which are applicable to this Contract, guarantee full compliance with the said laws and regulations by any sub-contractor and agree to indemnify the TSGENCO against any cost, loss, liability or obligation which may arise as a consequence of the failure of the Contractor or any sub-contractor or their agents or workmen to comply fully with the said laws and regulations, or which may arise as a consequence of any injury, illness or death of any employee of the Contractor or sub-contractor engaged on the work.



**23.0 : TITLE:**

Title to all of the materials, equipment and apparatus covered by this Contract shall pass on to the TSGENCO on dispatch from the Contractor's works/sub-Contractor's works/port of entry. However, TSGENCO shall have the right to have the possession or use of any completed or partially completed work-such possession or use shall not be deemed to be acceptance of any work not in accordance with the Contract.

**24.0 : PROGRESS REPORTS:**

The Contractor shall furnish to TSGENCO progress reports of the supplies and services at the end of every month indicating adherence to major mile stone activities/dates and slippages/holdups, if any, with remedial actions taken etc. The form and content shall be mutually agreed.

**25.0 : ENGINEER'S DECISION:**

In respect of all matters which are left to the decision of the Engineer including the granting or with-holding of the certificates, the Engineer shall and if required to do so by or the Contractor, give in writing the decision thereon and his reasons for such decision. If the decision is not accepted by the Contractor the matter shall be mutually discussed and settled.

**26.0 : REJECTION OF DEFECTIVE PLANT:**

If the completed plant or any portion thereof before it is taken over, be found to be defective or fails to fulfill the requirements of the Contract the Engineer shall forthwith give the Contractor notice setting forthwith particulars of defects or failure and the Contractor, if he accepts the defects in working, shall forthwith make good the defects or correct the same to make sure compliance with the requirements of the Contract. If the Contractor fails to do so within a reasonable time, TSGENCO may reject or replace at the cost of the Contractor the whole or any portion of the plant as the case may be which is defective or fails to fulfill the requirements of the Contracts. Such replacements shall be carried out by TSGENCO within a reasonable time and at a reasonable price and where reasonably possible to the same specification and under competitive conditions. In case of such replacement by TSGENCO the Contractor shall be liable to pay TSGENCO the extra cost, if any, of such replacement delivered and/or erected as provided for in the original Contract such cost being the ascertained difference between the price paid by TSGENCO under the provisions above mentioned, for such replacement and the Contract price for the plant so replaced and also to reimburse the price paid by the TSGENCO to the Contractor in respect of such defective plant. If TSGENCO does not so replace the rejected plant within a reasonable time, the Contractor shall be liable only to repay all money paid by TSGENCO to him in respect of such plant.



In the event of such rejections, TSGENCO shall be entitled to the use of the plant in a reasonable and a proper manner for a time reasonably sufficient to enable him to obtain other replacement plant. The rejected plant shall be the property of the Contractor.

**27.0 : DEDUCTIONS FROM CONTRACT PRICE:**

All costs, damages, expenses which the TSGENCO may have paid for which under the Contract, the Contractor shall be demanded by the TSGENCO through separate bills/invoices. If the money due or becoming due by the Contractor to TSGENCO is not paid within a reasonable time, TSGENCO may recover such amounts due to the Contractor under this Contract or any other contract in vogue.

**28.0 : PERFORMANCE GUARANTEE TESTS:**

28.1 : Final tests as mutually agreed to check the performance guarantees shall be carried out by the Contractor preferably, immediately after taking over.

28.2 : The above tests should be carried out in the presence of the Engineer or his authorized representatives to his entire satisfaction.

28.3 : In case of unsatisfactory result of guarantee tests representatives of both the parties to the Contractor will agree upon appropriate repairs or adjustments necessary for the achievement of the guaranteed values. The performance guarantee tests shall be repeated on the same conditions after carrying out the repairs or adjustment as stated in previous sub paragraph.

28.4 : The tests conducted shall conform to relevant ISS or ISO or equivalent international standards.

28.5 : In addition, the performance capabilities of individual auxiliaries shall also be ascertained.

**29.0 : PERFORMANCE:**

The performance figures in respect of guaranteed parameters thereof would be as offered by the Contractor and as indicated in the Liquidated Damages of this purchase order.

**30.0 : INSTRUCTION MANUALS:**

30.1 : The Contractor shall furnish hard copies and soft copies of instruction manuals for installation, adjustments, O&M of all equipments covered under this Contract as per distribution schedule at Annexure-IX. The manuals shall be specific to the equipment furnished. Instructions of assembly and installation shall show identified part numbers of the dismantled equipment.

30.2 : The Contractor shall make available all the O&M manuals at least six months before commissioning of the unit to TSGENCO to enable its engineers to study the operation and maintenance instructions.

30.3 : Separate instruction manuals shall be furnished for each equipment covered under this Contract.

30.4 : All the above documentation/drawings/manuals shall also be made available in computer based software in the form of CDs and floppies compatible for LAN operation requisite number of user licenses.

**31.0 : TRAINING OF TSGENCO'S PERSONNEL:**

**31.1 : Inland Training:**

The Contractor shall undertake during the currency of the Contract to train adequate number of Engineers elected and sent by TSGENCO at free of cost. The period of training shall be agreed upon mutually, between the Contractor and TSGENCO. These Engineers shall be given special training in the shops where the equipment will be manufactured and where possible in any other power plant where the Contractor's identical manufactured equipment is under installation or test to enable them to become familiar with the equipment forming part of the work.

The Contractor shall provide bachelor's accommodation to the Engineers near the place of training at free of cost. The living expenses for the engineers to be trained during the total period of training will be borne by M/s BHEL. The engineers while undergoing training shall be responsible to the Contractor for discipline. However, the travelling expenses shall be borne by TSGENCO.

**31.2 : Foreign Training:**

The contractor shall provide foreign visit with maximum of 40 Engineers of the purchaser (Total 40 man-weeks, each man-week consisting of 5 working days) for inspection/Supervision and witnessing of performance tests/ progress review of work /Training of the various equipment where the equipment is manufactured by the contractors sub-vendor/associate/collaborator to enable TSGENCO engineers to become familiar with equipment being furnished by the contractor. All expenses inherently related to the above foreign visits shall be borne by the contractor and shall include travel expenses (international and inland fares), medical insurance, lodging and boarding reimbursement of Visa processing fee etc. The living expenses to TSGENCO officials shall be at par with BHEL employees who visit abroad in connection with inspection / witnessing equipment's testing.

31.3 : The Contractor shall also train mutually agreed number of TSGENCO's personnel/ operators during testing, commissioning and performance testing at site.

31.4 : In the event of TSGENCO failing to avail of the training facilities for any reason it shall not be entitled for any rebate on this account.





**32.0 : SPARE PARTS:**

- 32.1 : The Contractor will also undertake that supplies of necessary spare parts will be made available for the life of the equipment on a continuous basis at reasonable prices.
- 32.2 : The Contractor agrees and undertakes that before going out of production of the spare parts he will give adequate advance notice to TSGENCO so that the later may order their requirements of spares in one lot, if they so desire.
- 32.3 : The Contractor agrees and undertakes that if he goes out of production of spare parts and the equipments supplied become obsolete, then he will make available blue prints, drawings of spare parts and specification of materials at no cost to TSGENCO if and when required in connection with equipment to enable TSGENCO to fabricate or procure spare parts from other sources.

**33.0 : TAKING OVER CERTIFICATE:**

- 33.1 : After the unit has been successfully commissioned, the unit along with the auxiliary equipment shall be taken over by TSGENCO and, taking over certificate shall be issued. Such taking over certificate shall not be unduly delayed and shall be issued within 15 days of successful commissioning of the unit.
- 33.2 : Small defects which do not endanger the safe operation of the equipment shall not be considered as reasons for not taking over the Unit. The defects will be listed out and will be gradually set right within a reasonable time stipulated by TSGENCO.
- 33.3 : If, by reasons or any default on the part of the Contractor, taking over certificate has not been issued in respect of any portion of the works within one month after the time for completion or extended time as the case may be, TSGENCO shall be at liberty to use the works or any portion thereof in respect of which a taking over certificate has not been issued, provided that the works or the portion so used and that aforesaid shall be reasonably capable of being used and that the Contractor shall be afforded the earliest possible opportunity of taking such steps as may be necessary to permit the issue of the taking over certificates.

**34.0 : NOTICES:**

- 34.1 : Notices and other communications between TSGENCO and the Contractor shall be deemed validly given if transmitted in writing or by telegrams, cables, radio message, fax message, e-mail/ internet messages addressed respectively as follows (Presently applicable list. Modifications if any shall be informed as and when required during contract execution stage):

1. TSGENCO : The Chairman & Managing Director,  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.



2. Engineer : The Executive Director,  
Thermal Projects Construction,  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.
3. : The Chief Engineer(Construction),  
YTPS/TSGENCO,  
Dameracherla(Mandal),  
Veerlapalem(Village),,  
Nalgonda District.
4. : The Executive Director (Civil/Thermal),  
TSGENCO, Vidyut Soudha,  
Hyderabad-500 082.
5. : The Superintending Engineer,  
TPC- III, TSGENCO,  
Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.
6. Consultant : M/s TATA Consulting Engineers Ltd,  
73/1, Sheriff Centre , St. Marks Road, Bangalore-  
560001
7. Contractor : M/s. Bharat Heavy Electricals Ltd.,  
Power Sector - Marketing,  
BHEL House, Siri Fort,  
New Delhi - 110 049.

34.2 : Necessary copies of communications, drawings, documents and test reports, operation instructions O&M manuals, as built documents etc., shall be sent as per the distribution schedule Annexure-IX.

34.3 : English language shall be used in all written communications between TSGENCO and the Contractor in connection with the Contract.

**35.0 : SUSPENSION OF WORK**

The purchaser reserves the right to suspend and reinstate execution of the whole or any part of the contract without invalidating the provisions of the contract. Orders for suspension or reinstatement of the works shall be issued by the Engineer to the Contractor in writing. The time for completion of the works shall be extended for a period equal to the duration of the suspension.

If, by virtue of a suspension order given by the Purchaser, other than by reason of the Contractor's default, the Contractor's performance of any part of its obligations is suspended for an aggregate period of more than ninety (90) days, then at any time thereafter and provided that at that time such performance is still suspended, the Contractor may give a notice to the Purchaser requiring that the Owner shall, within twenty eight (28) days of receipt of the notice, order the resumption of such performance.



If the Owner fails to do so within such period, the Contractor may, by a further notice to the Owner, elect to treat the suspension, where it affects a part only of the plant and equipment, as a deletion of such part or, where it affects the whole of the plant and equipment, as termination of the Contract.

35.1 : If

(a) the Owner has failed to pay the Contractor any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause, or commits a substantial breach of the Contract, the Contractor may give a notice to the Owner that requires payment of such sum, requires approval of such invoice or supporting documents, or specifies the breach and requires the Owner to remedy the same, as the case may be. If the Owner fails to pay such sum, fails to approve such invoice or supporting documents or give its reasons for withholding such approval, or fails to remedy the breach or take steps to remedy the breach within fourteen (14) days after receipt of the Contractor's notice or

(b) the Contractor is unable to carry out any of its obligations under the Contract for any reason attributable to the Owner, including but not limited to the Owner's failure to provide possession of or access to the Site, or failure to obtain any governmental permit necessary for the execution and/or completion of the Facilities;

then the Contractor may by fourteen (14) days' notice to the Owner suspend performance of all or any of its obligations under the Contract, or reduce the rate of progress.

35.2 : If the Contractor's performance of its obligations is suspended or the rate of progress is reduced pursuant to this Clause 35.0, then the Time for Completion shall be extended in accordance, and any additional costs or expenses incurred by the Contractor as a result of such suspension or reduction shall be paid by the Owner to the Contractor in addition to the Contract Price, except in the case of suspension order or reduction in the rate of progress by reason of the Contractor's default or breach of the Contract

## **36.0 : LIMITATION OF LIABILITY**


36.1 : The final payment by the Purchaser in pursuance of the contract shall mean, the release of the Contractor from all his liabilities under the contract except his obligations under the warranty period. All other payments made under the contract shall be treated as on-account payments.

36.2 : The Contractor shall not be liable to the Owner, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of profit, cost of capital, cost of replacement power or increased cost of operation, provided that this exclusion shall not apply to any obligation of the contractor to pay liquidated damages to the owner, and

36.3 : The aggregate liability of the contractor to the owner under the contract shall not exceed 10% of the contract price (as mentioned under Liquidated damages clause), provided that this limitation shall not apply to any obligation of the contractor to repair or replace defective equipment or to indemnify the owner with respect to patent infringement.



मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
वी.एच.ई.एल. हाउस, सीटी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi -110049

  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.



## 5X800 MW YADADRI THERMAL POWER STATION- SERVICES CONTRACT

**ADVANCE CUM PERFORMANCE BANK GUARANTEE FOR .... UNITS**

Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha  
Hyderabad - 500082

Guarantee No:

Date:

In consideration of the **Telangana State Power Generation Corporation Limited (TSGENCO)**, a Company incorporated under the provisions of the Indian Companies Act, 2013 and having its registered Office at Vidyut Soudha, Hyderabad (hereinafter called 'the Corporation') having at our request agreed to accept this Bank Guarantee No. .... in lieu of Cash Deposit required from **M/s. Bharat Heavy Electricals Limited (BHEL)**, a Company incorporated under the provisions of the Indian Companies Act, 1956 and having its registered Office at *BHEL House, Siri Fort, New Delhi - 110049* (hereinafter called "the Contractor"). For the due fulfilment by the Contractors of the terms and conditions of the Revised Letter of Intent No. ED/TPC/SE-III/EME-9/Yadadri TPS (5X800MW)/D.No.102/17,dated 17.10.2017, made by the Corporation for *Design, Engineering, Manufacture, Supply of Steam Generator Package, Turbine & Generator Package and Balance of Plant equipment including mandatory spares for 5x800 MW Yadadri Thermal Power Station* (hereinafter called "said Agreement") during the period, if any, to indemnify and keep indemnified the Corporation to the extent of **Rs.....** Representing .....% of the value of the said Agreement for ... Units of 800MW against all the losses, claims, damages and costs suffered by TSGENCO caused to or suffered by the Corporation by reason of any breach by the said Contractor; of any terms and conditions of the said agreement.

Further the Corporation has agreed to pay .....% of the contract price equivalent to **Rs.....for .... Units of 800MW** to the Contractor as interest free advance against this Advance Cum Performance Bank Guarantee to be furnished by the Contractor as per the said Contract.



We, Bank ----- (hereinafter referred to as the "Bank") further agree that the guarantee herein contained shall come into force upon its issuance and remain in full force and effect up to and inclusive of ..... or the expiry of the extended period if any, and that it shall continue to be enforceable till all the dues of the Corporation, under or by virtue of the said agreement, have been fully paid and its claims satisfied or discharged, or till the Executive Director/TPC, certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said Contractor; and accordingly discharges the guarantee subject to however, that the Corporation shall have no right under this bond, unless the period is extended as aforesaid, after the expiry of .....

We the guarantor Bank undertake to pay the amount guaranteed hereunder, or such part thereof as required 'immediately' of the same being demanded by the Corporation without referring to the Contractor, and without questioning the right of the Corporation to make such demand or the propriety or legality of the demand.

This Bank Guarantee is subject to the Uniform Rules for Demand Guarantees 2010 Revision ICC Publication No.758 (URDG).

We, Bank----- (hereinafter referred to as the "Bank") lastly agree that this Bank Guarantee is

- i. Unconditional and absolute, and
- ii. Without any delay or demur if claim arises.

We, Bank ----- (hereinafter referred to as the "Bank") lastly undertakes not to revoke this guarantee during its currency except with the prior consent of the Corporation in writing.

Dated the            day of            ,... Year.

For ..... Bank

Witness:

Signature :-----

1.

Designation:-----

2.

Address: -----

Seal: -----

---



मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd.  
बी.एच.ई.सी. हाउस / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi-110049

  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.





**Annexure- VI**

Contract No 3000000014/ED/TPC/SE III/EME 9/D65/D.No. 54/18, Dt:29.03.2018.

**Detailed BBU terms and conditions for Supply Contract**

- A. The billing prices indicated the approved BBUs are only indicative for progressive billing purpose.
- B. The billing break-up should have Stage wise(Stage-I & Stage-II) and common to Stage -I&II Break-up
- C. Payments shall be regulated as per the payment terms of purchase order clause No.4 and as per the approved rates in the billing breakup prices.
- D. The notional breakup prices should not be construed for any other purpose, except for raising invoices and for arranging progressive payments.
- E. M/s BHEL shall supply the material, which were not covered in the breakup of prices, as free issue items for system completion and to meet functional requirements of complete system.
- F. M/s BHEL is requested to plan and dispatch all the DUs/components required for assembly of PGMA/Assembly, when the billing break-up is approved in terms of Rs./unit weight (Rs./kg)
- G. M/s BHEL may please arrange for dispatch of the materials in a sequential manner to suit the erection programme.
- H. In case of any dispute / discrepancy, the final payment shall be made only after dispute is settled.
- I. It is requested to intimate the details of equipment /material to be dispatched in each quarter and funds requirement, in advance, keeping in view the L2 - Network for Supplies & Erection sequence, for planning of funds with M/s REC & M/s PFC and timely release of Payments by TSGENCO
- J. The effect of change in quantities in the BBUs shall be adjusted within balance supplies/work without a change in total contract price.

  
मनोज शाह / MANOJ SHAH  
महप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
बी.एच.ई.एल हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi -110049

  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

## ANNEXURE-VII

Contract No 3000000014/ ED/TPC/SE III/EME 9/D65/D.No.54/18,Dt:29.03.2018

To  
The Executive Director,  
Thermal Projects Construction,  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

Sir,

Sub:- Yadadri TPS (5X800MW) -Single EPC Contract - Interlinking document - Reg.

Ref:- 1. MOU signed b/w CMD BHEL & CMD TSGENCO on 04-10-2014.

2. Revised LOI.No.ED/TPC/SE-III/EME-9/Yadadri TPS(5x800MW)/D.No.102/17,  
Dt.17-10-2017.

3. Supply Contract No. 3000000014, dated . .2017

4. Erection & Commissioning Contract No. 3000000015, dated . .2017

5. Civil Contract No.3000000016, dated . .2017

\* \* \*

Telangana State Power Generation Corporation Limited (TSGENCO) entered Memorandum of Understanding (MOU) with M/s Bharat Heavy Electricals Limited (M/s BHEL) for setting up of 6000MW Thermal power plants in the State of Telangana.

As part MOU, TSGENCO proposed to set up 5X800MW Supercritical Thermal Unit at Yadadri Thermal Power Station, Dameracherla(Mandal), Nalgonda District. M/s BHEL submitted their Revised techno-commercial offer vide 17.10.2017. After various discussions and negotiations, M/s BHEL submitted acceptance for Rs.20,379 Crores. Accordingly, TSGENCO vide ref(2) above issued Revised Letter Of Intent for Design, Engineering, Manufacture, Supply, transportation to site, insurance, erection, testing & commissioning of main plant & balance of plant equipment including civil works and mandatory spares of 5X800 MW Coal Fired Supercritical Thermal Unit to M/s BHEL.

TSGENCO has placed three separate Contracts as follows:

1. Supply Contract
2. Erection & Commissioning Contract
3. Civil Contract

M/s BHEL here by declares that M/s BHEL is liable to TSGENCO for the whole scope of the work in accordance with the Contracts under references cited above, as if the said three Contracts were One Composite Contract, not withstanding the split of the Contract into three separate Contracts.

M/s BHEL assures TSGENCO that any default on the part of M/s BHEL under any one of the three Contracts shall be treated as a default under all the Contracts and accordingly the rights of TSGENCO to repudiate the Contract, reject the goods, claim Liquidated Damages, Penalties etc., shall be available with respect to all the three Contracts, as per respective Clauses in the Contracts placed, even though the default may have occurred under one Contract only.

Thanking You,  
Yours faithfully,



मनोज शाह / MANOJ SHAH  
प्रबंधक / General Manager

M/s Bharat Heavy Electricals Limited

पावर सेक्टर मार्केटिंग / Power Sector Marketing  
Bharat Heavy Electricals Ltd.

Telangana State Power Generation Corporation Ltd

बी.एच.ई.एल. हाउस, मीरी फोर्ट / BHEL House, Siri Fort,  
नई दिल्ली - 110049 / New Delhi -110049

  
Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.



## ANNEXURE-VIII

### 5X800 MW YADADRI TPS FORMULA FOR CALCULATION OF VARIATION ON ACCOUNT OF FOREIGN EXCHANGE RATE AND CUSTOM DUTY VARIATION

$$P1 = P0 \left[ \frac{ER1 \times \{100 + CD1\}}{100} - \frac{ER0 \times \{100 + CD0\}}{100} \right]$$

Where

P1 = Variation in price on account of variation in foreign exchange rates and custom duty rate.

P0 = Value of imported raw material/ component (CIF content) in Foreign Currency as mentioned in BOE.

ER1 = Exchange rate as mention in BOE

ER0 = Bill Selling Exchange rate as on 01.06.2015

CD1 = Custom Duty Rates expressed in percentage as mentioned in BOE.

CD0 = Custom Duty Rates expressed in percentage as on 01.06.15

Following documents shall be submitted by BHEL for claiming ERV/CDV:

1. BOE (Bill of Entry)
2. Undertaking by BHEL units certifying that the material is procured by BHEL for Yadadri (5x800 MW) TPS project .

#### ERV/CDV Payment

- On the basis of actual procurement of imported material, BHEL units will raise the ERV/CDV invoices on quarterly basis, starting at 12<sup>th</sup> month onwards (from zero date) till completion of all the imports required for the project or till the value of imported material reaches to a limit of Rs 3350 crore calculated at base exchange rates of 01.06.2015. Accordingly, the first ERV/CDV bill to be raised in October'18.
- 100% payment towards ERV/CDV claim alongwith applicable GST shall be released by TSGENCO on submission of the quarterly bills by BHEL units. The payment towards the ERV/CDV claims shall be released within 30 days of receipt on invoices by TSGENCO provided such invoices are submitted in accordance with the terms and conditions of the contract.

मनोज शाह / MANOJ SHAH  
महाप्रबंधक / General Manager  
पावर सेक्टर मार्केटिंग / Power Sector Marketing  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
वी.एच.ई.एल. हाउस, सीरी फोर्ट / BHEL House, Sec. Fort,  
नई दिल्ली-110049

Executive Director  
Thermal Projects Construction  
TSGENCO, Vidyut Soudha,  
Khairatabad, Hyderabad-500 082.

Contract No 30000000014/ ED/TPC/SE III/EME-9/D65/D.No.54/18, Dt:29.03.2018

**DISTRIBUTION SCHEDULE**

S.No	Description	TSGENCO										Consultant			Equipm ent Vendor	Remarks
		CMD Hyd	Director (Projects)	ED/ Civil Hyd.	ED (TPC) Hyd	CE/TPC	CE/ YTPS	SE (Civil) YTPS	SE (E&M) YTPS	EE YTPS	Head Office	HYD	YTPS Site			
A.	Vendor Drawings															
1.	Preliminary	-	1	1	2		1	1	2	-	10	1	-	S		
2.	Return preliminary with comments	-	1	1	2		1	1	1	-	S+2	-	-	1		
3.	Final and any revision thereof	1	1	1	3		1	1	3	-	2	1	1	S		
B.	Progress Report Monthly															
1.	Monthly progress report	1	1	1	2		1	1	1	1	1	1	1	S		
C.	Instruction Manuals/ Data Books/As built drawings															
1.	Equipment manufacturer	-	-	-	2		1	-	2	4	2	1	1	S		
D.	Correspondence															
	Technical	1	1	-	1		1	-	1	1	1	1	1	S		
	2. General & Commercial	1	1	-	1		1	-	-	-	-	-	-	S		
		S : Source														

मनोज शाह / MANOJ SHAH  
 महाप्रबंधक / General Manager  
 पावर सेक्टर मार्केटिंग/Power Sector Marketing  
 भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd  
 बी.एस.ई.एल हाउस, सीरी फोर्ट / BHEL House, Siri Fort,  
 नई दिल्ली - 110049 / New Delhi -110049

29.03.18  
 Executive Director  
 Thermal Projects Construction  
 TSGENCO, Vidyut Soudha,  
 Khairatabad, Hyderabad-500 082.