



Bharat Heavy Electricals Limited

(A Govt. Of India Undertaking)

Power Sector, Eastern Region

BHEL BHAWAN, PLOT NO. DJ-9/1 , SECOTR II ,

SALT LAKE CITY , KOLKATA ,WEST BENGAL, INDIA

Phone : 033-23216130-31,033-23216130 FAX : 033-23211960

TENDER CHANGE NOTICE

Sub	TENDER CHANGE NOTICE (TCN-01 DTD. 17/02/2023).
Job	Pre-bid tie –up/ MOU for Execution of BOP packages (Outside BTG Island) on EPC basis at 1X800 MW SCCL PROJECT, Singareni, Telengana.
Ref	TENDER NO.: PSER:SCT:SNG-M2203:23 Date: 11/02/2023

With reference to above, following clarifications, relevant to tender, may please be noted and complied with while submitting the offer.

- 1) Revised TCC-CML-R01 and Revised Scope Matrix (Pre-Bid Tie Up) –R01 superseding earlier TCC-CML-R00 and Scope Matrix (Pre-Bid Tie Up) –R00 respectively issued alongwith NIT .Bidders are requested to go through the same before submission of their offer.
- 2) Introduction of Drawing for “ BTG Area Tentative Battery Limit ” for Tender Purpose only.
- 3) ‘No deviation certificate’ is attached. Bidder to submit their offer along with stamped & signed copy of this TCN & ‘No deviation certificate’ as per attached format only.
- 4) All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

Sr MGR (SCT)

(Signature, date & seal of authorized representative of the contractor)

ANNEXURE - IV

FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

To,
Bharat Heavy Electricals Limited,
POWER SECTOR – EASTERN REGION
2nd FLOOR, Block-DJ, Plot- 9/1, SECTOR
SALT LAKE CITY, KOLKATA – 700 091
FAX – 033-2321-1960

Sub	No Deviation Certificate.	
Job	Pre-bid tie –up/ MOU for Execution of BOP packages (Outside BTG Island) on EPC basis at 1X800 MW SCCL PROJECT, Singareni, Telengana.	
Ref	1.0	TENDER NO : PSER:SCT:SNG-M2203:23 Date: 11/02/2023 and TCN-01 dated 17/02/2023
	2.0	Other references (if any).

Dear Sirs,

With reference to above tender, this is to confirm you that we have gone through each and every terms and conditions mentioned in the enquiry (Terms and Conditions) and we offer our unqualified acceptance of the same.

We also confirm that we have not changed/modified the tender documents as appeared in the website/newspapers and in case of observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT and confirm our acceptance to integrity pact (if applicable) and we hereby convey our unqualified acceptance to all terms and conditions as stipulated in the tender and NIT.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer strictly in accordance with tender instructions.

Thanking you,

Yours faithfully,

(Signature of bidder with Seal)

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TCC-CML, R-1	TECHNICAL CONDITIONS OF CONTRACT	PAGE 1 OF 5

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This volume shall be construed as part of tender document and shall be read along-with others volumes of tender & tender floated by the owner/client (i.e. SCCL). Unless otherwise specified, in case of any confusion of any clause/ provision of this volume or any conflict/ inconsistency of any clause/ provision of this volume with that of other volume, the same shall be brought out by the bidder in writing to BHEL for clarification or during pre-bid discussions, if applicable, failing which BHEL interpretation, in line with tender philosophy, shall be binding to the bidder. Unless otherwise specified, all terms & conditions shall be applicable for entire scope and for each part/ package of the tender.

CLAUSE NO	DESCRIPTION
1.0	NAME OF WORK
	Design, engineering, manufacturing, procurement, inspection, testing, painting, supply/ delivery duly packed at project site including transportation upto site, receipt, unloading, storage & handling at site, erection, commissioning, Training, PG test, final painting at site, trial run, handing over, etc. in line with drawings/ documents/ test procedures approved by BHEL/customer, for the total scope defined in the technical specification and terms & conditions of tender, taking into account all clarifications, amendments, corrigendum's, confirmations and agreements till date for BOP EPC package complete with all accessories, including supply of consumables, erection & commissioning spares, special tools & tackles for maintenance, mandatory spares, etc. for 1x800 MW Singareni TPP, Stage - II, Mancherla, Telangana.
2.0	BROAD PACKAGES/ SYSTEMS
2.1	Broad scope shall comprise of design, supply, erection & commissioning including related civil, structural & architectural work of all packages / systems outside BTG island on EPC basis.
2.2	List of major packages / systems outside BTG island is given below:
2.2.1	COOLING TOWERS,
2.2.2	CHIMNEY,
2.2.3	FGD & ITS AUXILLIARY SYSTEMS
2.2.4	RAW WATER SYSTEM,
2.2.5	WATER TREATMENT PLANTS SUCH AS PTP, ETP, STP, CLO2, CPU, ETC.
2.2.6	FUEL OIL HANDLING SYSTEMS & MISC. TANKS
2.2.7	MISC. EOT CRANES,
2.2.8	DELETED
2.2.9	CW PUMP HOUSE
2.2.10	AUXILLIARY BUILDINGS,
2.2.11	ROADS & DRAINS,
2.2.12	PIPE RACK AND CABLE RACK
2.2.13	LP PIPING
2.2.14	CABLE WORK
2.2.10	The above list is not exhaustive. All work outside BTG island are to be executed by the successful vendor.
2.3	List of major packages / systems for the entire project (i.e. inside and outside BTG Island) is given below:
2.3.1	COAL HANDLING PLANT
2.3.2	ASH HANDLING PLANT INCL ASH DYKE
2.3.3	AC & VENTILATION

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2.3.4	FIRE PROTECTION SYSTEM AND STATION LIGHTING SYSTEM
2.3.5	CONDENSATE POLISHING UNIT
2.3.6	PA SYSTEM & CCTV
2.3.7	DELETED
	Engg. Co-ordination for inputs, documents/drawings preparation, submission and approvals from end customer (owner) as per said procedures/schedules defined shall be in BOP vendor scope including meetings at customer (Owner) offices/sites/BHEL offices etc. as may be required.
2.3.8	The above list is not exhaustive.
	Note: BTG island shall start from Switch Yard including Transformer Yard, Power House, Boiler, ESP, and shall be up to ID fan.
3.0	BROAD SCOPE OF WORK
	The broad scope shall include, but not limited to following.
3.1	Refer Scope Matrix for broad scope of work
4.0	EXCLUSIONS
	DELETED
4.1	DELETED
4.1.1	DELETED
4.1.2	DELETED
4.2	DELETED
4.2.1	DELETED
4.2.2	DELETED
4.2.3	DELETED
4.2.4	DELETED
4.3	Geo-Technical Investigation and Topographical survey of entire plant
	Further, may please refer scope matrix for Terminal points and exclusion.
5.0	SITE VISIT
	The bidder must visit site, to acquaint themselves with the conditions prevailing at site and in & around the plant premises, together with all statutory, obligatory, mandatory requirements of various authorities before submission of bid.
6.0	CONSTRUCTION OF TEMPORARY OFFICE, STORES ETC
6.1	Successful bidder shall arrange at their own cost cleaning & grading of area allotted, construction of their temporary office, stores, godown, fabrication yards, etc. and also the watch & ward, etc.
6.2	Successful bidder shall construct and maintain Construction water & Construction Power for the entire project (BOP + BTG Area). They shall provide necessary tapping in/around BTG island to BHEL for their use.
6.3	Successful bidder shall construct and hand over temporary office for BHEL staff (around 400 Sqmt) along with canteen facility.
7.0	TOOLS & PLANTS, MMR TO BE PROVIDED BY SUCCESSFUL BIDDER
7.1	All T&Ps, as may be required for completion of the work, have to be provided by the successful bidder within the quoted rates.
8.0	RECONCILIATION OF BHEL ISSUED MATERIALS
8.1	Successful bidder shall submit a reconciliation statement of materials issued to them,

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	once in two months. The same may be submitted along with RA bill.
8.2	Successful bidder shall properly account for the material issued to them as specified herein to the satisfaction of BHEL certifying that the balance material are available with successful bidder's custody at site.
9.0	INSURANCE
9.1	It is the entire responsibility of the successful bidder to insure their workmen Machineries against accident and injury while at work as required by the relevant rules and to pay compensation, if any, to their workmen as per statutory act. The successful bidder shall also insure their staff against accident/ injury with Workmen's compensation policy, group personal insurance, etc., as may be applicable.
9.2	The successful bidder shall take insurance covering for all materials (excluding plant material), tools & plants, manpower, workers, etc., required to be provided & deployed for the job by the bidder.
9.3	These insurance covers have to be taken prior to start of work and they shall make available the policy to Construction Manager, BHEL for necessary verification before start of work. However, irrespective of such verification/ acceptance, sole responsibility to maintain adequate insurance cover at all times during the period of contract shall lie with the successful bidder. Regarding aforesaid insurance cover, the successful bidder shall directly deal with the insurance company for all matters regarding the insurance in his scope.
9.4	BHEL/ customer shall arrange comprehensive insurance policy for total supply & services for main equipment/ system covering transit risks & loss, destruction or damage during handling at site, storage, civil works, erection, testing and commissioning up to trial operation/ completion of unit(s) including theft, sabotage, fire, lightning and other natural calamities.
9.5	Successful bidder shall timely intimate dispatches/ discrepancy during contract operation, to the underwriter. The name of the underwriter and Policy No shall be intimated in due course of time.
9.6	The successful bidder will take necessary precautions/ due care to protect the material at project site, while in their custody from any damage/ loss till the same is handed over to BHEL/ customer at project site. For lodging/ processing of insurance claim the successful bidder will submit necessary documents. BHEL reserve the right to recover the loss from the successful bidder in case the damage/ loss is due to negligence/ carelessness on the part of the successful bidder. In case of theft of material under successful bidder's custody, the same shall be reported to police by the successful bidder immediately and copy of FIR and subsequently police investigation report shall be submitted to BHEL/ customer for taking up with insurance. However, this will not relieve the successful bidder of their contractual obligation for the materials in his custody.
9.7	In case the damage/ loss/ theft of materials are attributable to negligence/ failure in discharging the duties and obligations of the successful bidder, the expenses incurred for repair/ replacement of such components in excess of the amount realized from the underwriters, limited to Normal Excess (Deductible Franchise) shall be recovered from the successful bidder.
9.8	In case the claim is summarily rejected by the underwriters, the entire cost of repair/replacement will be borne by the successful bidder.
9.9	It will be responsibility of the successful bidder to replenish the items lost/ damaged in time without hampering the schedule of work and without waiting for settlement of insurance claim. Amount received from the underwriters on settlement of insurance claim shall be passed on to the successful bidder as and when available.
10.0	COMPLETION PERIOD
10.1	The entire scope of work is to be completed within 48 months (Fourty Eight

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	months) from the start of zero date of the project by Customer (SCCL).
11.0	OVER RUN CHARGES
	Not applicable in this tender.
12.0	PRICE VARIATION CLAUSE/ ESCALATION
	As per customer (SCCL) contract
13.0	EXTRA/ ADDITIONAL ITEMS OF WORK
	No Extra/ additional claim of the successful bidder shall be given by BHEL beyond the contract value.
	However, if any Extra/ additional claim is received from customer pertaining to the scope of work of successful bidder, 80% of the same shall be passed onto the successful bidder.
14.0	CONTRACT PRICE
	Bidder shall quote their price as per the format of Volume-III, price schedule (Latest revision) only.
15.0	OTHER TERMS
15.1	All relevant term & conditions of customer (SCCL) contract shall be applicable as the contract shall be awarded on back to back basis.
15.2	For all tender documents of customer (SCCL) tender, including latest corrigendum and amendments, bidder shall visit the website https://tender.telangana.gov.in and search for SCCL EPC tender with tender id 368417. Bidder to keep themselves updated with all such information and submit their bid considering the same.
15.3	Any other Security Deposit/ Performance Bond/ BG, as applicable, for the job scope as per Customer tender conditions shall be submitted by the successful bidder.

1x800MW SCCL											
SCOPE MATRIX (PRE - BID TIE UP)-R-01											
BROAD SCOPE: All supplies/work (Civil, structural, architectural, mechanical, electrical, and C&I) outside BTG island will be in the scope of BOP vendor on EPC basis and inside BTG island shall be in BHEL scope. (Refer Table below for exception points)											
BTG ISLAND: BTG island shall start from Switch Yard including Transformer Yard, Power House, Boiler, ESP, and shall be up to ID fan Outlet.											
MAJOR INCLUSIONS (BOP PKG): CHP, AHP, FGD, Raw Water System, WATER TREATMENT, COOLING TOWERS, CHIMNEY, ASH DYKE, FUEL OIL HANDLING SYSTEMS, MISC. TANKS, HVAC, FIRE FIGHTING SYSTEM, STATION LIGHTING, MISC. EOT CRANES, AUXILIARY BUILDINGS,ELEVATORS etc.											
E-TENDER NO :PSER:SCT:SGN-M2203:23											
Sl. No.	Description	SCOPE IN AGENCY (BHEL / BOP)	Broad Scope	DESIGN / ENGG	SUPPLY & ERECTION / EXECUTION (CIVIL/ STR/ ARCH)	SUPPLY & ERECTION (MECH, ELEC, C&I)	TESTING / COMMISSIONING	Terminal Points Description	Terminal Point No.	Exclusions	Remarks
A	MECHANICAL SYSTEM										
1	STEAM GENERATOR AND AUXILIARIES INCLUDING ESP	BHEL	Complete SG and Auxiliary package in BHEL scope.	BHEL	BHEL	BHEL	BHEL				
2	SELECTIVE CATALYTIC REDUCTION SYSTEM	BHEL	Complete Pkg by BHEL	BHEL	BHEL	BHEL	BHEL				BOP Vendor to furnish provisions in their respective systems(like Pipe Rack,Utility,Space etc.) for future installation of SCR.
3	FLUE GAS DESULPHURISATION SYSTEM	BOP Vendor	Complete Pkg on EPC Basis	BOP	BOP	BOP	BOP				FGD Control room (Outside BTG battery limit) shall be in BOP vendor scope.
4	STEAM TURBINE AND AUXILIARIES	BHEL	Complete TG and Auxiliary package in BHEL scope.	BHEL	BHEL	BHEL	BHEL				
5	POWER CYCLE PIPING	BHEL	Complete Pkg by BHEL	BHEL	BHEL	BHEL	BHEL			For Areas mentioned specifically under BOP Vendor scope.	
6	LOW PRESSURE PIPING	BHEL/ BOP Vendor	Within BTG Island - BHEL Outside BTG island - BOP vendor	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				As specified for respective areas/packages/system/TP at Battery limit
7	CHIMNEY	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP				
8	WATER TREATMENT PLANT	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP				
9	DM plant and CW chemical treatment.	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP				
10	Pre treatment Plant	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP				
11	Liquid effluent treatment plant	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP			Effluent collected from BTG area shall be terminated at BTG Battery Limit by BHEL.	BOP vendor to furnish the Pressure required by BTG Vendor at Terminal Point.
12	Gas chlorination	BOP Vendor	Complete Pkg on EPC Basis	BOP	BOP	BOP	BOP				
13	Condensate polishing unit including regeneration facility	BHEL	Complete Pkg on EPC Basis.	BHEL	BHEL	BHEL	BHEL	Terminal Point for DM Water For CPU Regeneration Facilities shall be at BTG Battery Limit.		Associated Civil,Str, & Arch Works outside BTG island in BOP vendor scope.	

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14	CW SYSTEM										
A	Equipment Cooling water system including ACW pumps.	BHEL	Complete system in BHEL scope Mechanical - BHEL Electrical – BHEL Civil – BHEL Instrumentation –BHEL	BHEL	BHEL	BHEL	BHEL			Piping & Distribution, Instrumentation for DM Cooling water for BOP facilities (Like Compressors, AHP Compressors etc.), which are in BOP vendor scope	TP for BOP area's DMCW system shall be at TG Gable end.
B	Circulating water system including CW pumps	BOP Vendor	Complete system in BOP vendor scope	BOP	BOP	BOP	BOP	TP for CW (Inlet and return header) shall be at BTG area battery limit.			CW system limiting parameters by BTG contractor: A.Flow- B.Pressure drop
C	IDCT-Cooling towers for circulating water system	BOP Vendor	Complete Pkg on EPC Basis	BOP	BOP	BOP	BOP				CW system limiting parameters by BTG contractor: A. Flow-
D	Aux water system including Raw water pumps	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP				
14	PLANT UTILITIES										
A	Compressed air system	BOP Vendor	Complete Pkg on EPC Basis	BOP	BOP	BOP	BOP	BOP vendor shall provide one tapping points each near TG Gable end and boiler area for further distribution (by BHEL) within BTG boundary limit			
B	Air conditioning and ventilation system	BHEL/ BOP Vendor	Within BTG Island - BHEL Outside BTG island - BOP vendor	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP			1. HVAC for facilities/buildings, which is in BOP vendor scope, shall be by BOP vendor. 2. HVAC for facilities/buildings, which is in BTG scope, shall be by BTG Vendor.	HVAC Systems for AHP Control Room, AHU Silo Area, AHP MCC Room, FGD Control Room shall be by BOP Vendor. As per specification, common AC System to be provided for above buildings (BOP Vendor Scope) and ESP Control Room Building (BTG Scope). One no. Tapping for Chilled Water Supply and Return line will be provided at Battery Limit near the ESP Control Room Building (TP-2) for further distribution by BOP Vendor.
C	Fire detection and protection system	BOP Vendor	Complete Pkg on EPC Basis	BOP	BOP	BOP	BOP				
15	COAL & BIOMASS HANDLING PLANT	BOP Vendor	Complete Pkg on EPC Basis	BOP	BOP	BOP	BOP	Coal & Boimass feeding to the bunker.			
16	FUEL OIL UNLOADING SYSTEM	BOP Vendor	Complete Pkg on EPC Basis	BOP	BOP	BOP	BOP	TP for FOHS shall be at Battery limit of BTG area (Supply and return line both)			

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Additional points											
1	Service & Potable Water System	BHEL/ BOP Vendor	Within BTG Island - BHEL Outside BTG island - BOP vendor	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	Service & Potable water TP 1. Within battery Limit- BHEL 2. Outside Boundary Limit-- BOP Vendor TP for service /Potable water shall be at TG gable end.			Following Inputs shall be provided by BHEL to BOP Vendor: Service water : Flow & Pressure Potable water : Flow & Pressure
2	Hotwell Make Up System	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP	1.TP for Hotwell make-up (Normal & emergency) and boiler fill pump (supply & return header) shall be at BTG battery Limit			DMST and CST tank by BOP vendor. 1.Normal make-up pump •Flow • pressure 2.Emergency make-up pump •Flow • pressure 3 .Boiler fill pump •Flow • Pressure
3	Sewage Treatment Plant	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP	Sewage for BTG area shall be terminated at Battery Limit by BHEL.			
4	Rain Water Harvesting System	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP	Rain water collected from BTG area shall be terminated at 2 points in transformer area by BTG contractor.		Rain water collection from BTG area	
5	Weigh Bridge	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP				
6	CHP Runoff water treatment system	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP				
7	FGD. Tanks & Agitator	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP				
8	Gypsum Dewatering system	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP				

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E-TENDER NO :PSER:SCT:SGN-M2203:23											
Sl. No.	Description	SCOPE IN AGENCY (BHEL / BOP)	Broad Scope	DESIGN / ENGG	SUPPLY & ERECTION / EXECUTION (CIVIL/ STR/ ARCH)	SUPPLY & ERECTION (MECH, ELEC, C&I)	TESTING / COMMISSIONING	Terminal Points Description	Terminal Point No.	Exclusions	Remarks
NOTES:											
1	Pipe cum cable rack within BTG area shall be provided by BTG contractor. Pipe BOQ (size and number) to laid by BOP vendor (in BTG area) on pipe cum cable rack shall be informed by BOP vendor for pipe rack design										
2	Pipe cum cable rack within BOP area shall be provided by BOP vendor. Pipe BOQ (size and number) to laid by BTG contractor on pipe cum cable rack in BOP area shall be informed by BTG contractor for pipe rack design.										
3	BOP packages for which DCS based control is envisaged, DCS panels shall be in Scope of BTG contractor. Corresponding details shall be shared with BOP vendor for accommodation in their layout.										
4	3D Modeeling of BOP Packages as per specifications. Acceptable file formats for 3D review model shall be as below: 1. .dgn 2. .vue 3. .rvn 4. .sat										
B	MISC. CIVIL/STR / ARCH Works										
1	Buildings, Structures	BHEL/ BOP Vendor	Within BTG Island - BHEL Outside BTG island - BOP vendor	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				1. BTG contractor scope-(All Civil, structural, architectural, Foundation works related to Fans(ID,FD,PA,SA), ESP and its control room, Boiler and auxiliaries(Mills, bunker), powerhouse building including TG, applicable Duct, Transformer yard. 2. All civil works except mentioned above in sr.no, point 1 shall be in BOP vendor scope.
2	Roads and Drains	BHEL/ BOP Vendor	Within BTG Island - BHEL Outside BTG island - BOP vendor	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				Within the battery limit of BTG by BTG contractor (Proposed battery limit-Refer Plot plan)
3	Paving	BHEL/ BOP Vendor	Within BTG Island - BHEL Outside BTG island - BOP vendor	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				Within the battery limit of BTG by BTG contractor (Proposed battery limit-Refer Plot plan)
4	Geo-Technical Investigation and Topographical survey	BHEL	Complete system in BHEL Scope	BHEL	BHEL	--	---				Geotechnical Investigation & Topographical Survey of whole plant area shall be done by BHEL.
5	Pipe rack and cable rack	Within BTG Island - BHEL Outside BTG Island - BOP vendor		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				Within the battery limit of BTG by BHEL (Proposed battery limit-Refer Plot plan) Outside BTG Island battery limit by BOP vendor.
6	Ash Dyke	BOP vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP				
7	Plant Storm Water Drainage System	BOP Vendor	Complete Pkg on EPC Basis.	BOP	BOP	BOP	BOP	Storm water collected from BTG area shall be terminated at one points in transformer area by BTG contractor.			

1x800MW SCCL											
SCOPE MATRIX (PRE - BID TIE UP)-R-01											
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E-TENDER NO :PSER:SCT:SNG-M2203:23											
Sl. No.	Description	SCOPE IN AGENCY (BHEL / BOP)	Broad Scope	DESIGN / ENGG	SUPPLY & ERECTION / EXECUTION (CIVIL/ STR/ ARCH)	SUPPLY & ERECTION (MECH, ELEC, C&I)	TESTING / COMMISSIONING	Terminal Points Description	Terminal Point No.	Exclusions	Remarks
C ELECTRICAL SYSTEM / EQUIPMENTS											
1	Generator along with all auxiliaries	BHEL	Complete system in BHEL Scope	BHEL	BHEL	BHEL	BHEL				
2	Electrical Control & Relay Panel	Within BTG Island - BHEL Outside BTG Island - BOP vendor		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				
3	400KV AIS switchyard	BHEL	Complete system in BHEL Scope	BHEL	BHEL	BHEL	BHEL				
4	Substation Automation System	BHEL	Complete system in BHEL Scope	BHEL	BHEL	BHEL	BHEL				
5	Power Transformer (GT, ST, UT, Reactor)	BHEL	Complete system in BHEL Scope	BHEL	BHEL	BHEL	BHEL			Refer note 4	
6	Auxiliary Power Transformer (11/6.9 kV)	Within BTG Island/Battery Limit - BHEL Outside BTG Island/battery Limit - BOP vendor		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				
7	Neutral Grounding Resistor (6.6kV & 11kV)	Within BTG Island - BHEL Outside BTG Island -BOP vendor		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				
8	Isolated Phase Bus Duct & Neutral Grounding Equipment	BHEL	Complete system in BHEL Scope	BHEL	BHEL	BHEL	BHEL				
9	6.6 KV & 11 KV Segregated Phase Bus Ducts	Within BTG Island/Battery Limit - BHEL Outside BTG Island/battery Limit - BOP vendor		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				
10	HV (11 kV & 6.6 kV) Switchgear	Within BTG Island/Battery Limit - BHEL Outside BTG Island/battery Limit - BOP vendor		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/BOP				1.For BOP packages (Except CHP/AHP) which are placed in BTG area, Uncabled feeder shall be provided by BHEL. However, list of these feeders to be informed at tender stage by BOP vendor 2.For CHP/AHP/FGD- 2 nos. each 11 KV Uncabled feeder shall be provided by BHEL. 3. Refer marked up ESLD.

1x800MW SCCL											
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11	Service Transformer (Dry type Transformers).	Within BTG Island - BHEL:Lighting & Welding loads of BTG area shall also be included. Outside BTG Island - BOP vendor :Lighting & Welding loads of BOP area shall also be included.(Refer Note 4)		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				
12	415 V Switchgear & DC Boards	Within BTG Island - BHEL Outside BTG Island - BOP vendor		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				For BOP packages which are placed in BTG area, Uncabled feeder shall be provided by BHEL.However list of these feeders to be informed at tender stage by BOP vendor
13	Non Segregated Phase Bus Ducts	Within BTG Island - BHEL Outside BTG Island - BOP vendor		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				
14	Local Push Button Station & Miscellaneous Equipment	Within BTG Island - BHEL Outside BTG Island - BOP vendor		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				
15	AC & DC Motors	Within BTG Island - BHEL Outside BTG Island -BOP vendor		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				
16	Electrical Actuators with Integral Starters	Within BTG Island - BHEL Outside BTG Island - BOP vendor		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				
17	Electricals of Elevator, EOT Cranes, Hoist & US EOT Crane	Within BTG Island - BHEL Outside BTG Island - BOP vendor		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				

1x800MW SCCL											
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18	HV Cables	Within BTG Island - BHEL:Supply & installation of HV & LV Power, Control and Instrumentation Cables for BTG package. Cable trays & supports required for these cables. Refer Note 1 & 2. Outside BTG Island -BOP vendor:Supply & Installation of HV & LV Power, Control and Instrumentation Cables for Balance of Plant Area. Cable trays & supports required for these cables. Refer Note 1 & 2		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				Cable trays & supports required for these cables. Refer Note 1 & 2.
19	LV Cable	Within BTG Island - BHEL:Supply & installation of HV & LV Power, Control and Instrumentation Cables for BTG package. Cable trays & supports required for these cables. Refer Note 1 & 2. Outside BTG Island - BOP vendor:Supply & Installation of HV & LV Power, Control and Instrumentation Cables for Balance of Plant Area. Cable trays & supports required for these cables. Refer Note 1 & 2		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				
20	Control cables	Within BTG Island - BHEL:Supply & installation of HV & LV Power, Control and Instrumentation Cables for BTG package. Cable trays & supports required for these cables. Refer Note 1 & 2. Outside BTG Island - BOP vendor:Supply & Installation of HV & LV Power, Control and Instrumentation Cables for Balance of Plant Area. Cable trays & supports required for these cables. Refer Note 1 & 2		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				
21	Cabling system	Within BTG Island - BHEL:Supply & installation of HV & LV Power, Control and Instrumentation Cables for BTG package. Cable trays & supports required for these cables. Refer Note 1 & 2. Outside BTG Island - BOP vendor:Supply & Installation of HV & LV Power, Control and Instrumentation Cables for Balance of Plant Area. Cable trays & supports required for these cables. Refer Note 1 & 2		BHEL/ BOP	BHEL/ BOP	BHEL/ BOP	BHEL/ BOP				

[illegible]

1x800MW SCCL											
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Note: 1. When equipment's at both ends are in BTG Contractor's scope, supply & installation of HV & LV power, control and instrumentation cables including special cable along with cable carrier system and cable termination & accessories will be in BTG Contractor's scope. If only one end equipment is in BTG Contractor scope, HV & LV power, control and instrumentation cables including special cables along with cable carrier system and cable termination & accessories for BOP package will be in BOP Contractor's scope. All special cables for BTG Package will be in BTG Contractor's scope. 2. All cable trays (along with supporting arrangement) required for both the two packages (BTG and BOP) within package boundary battery limits of BTG Package, shall be supplied & erected by the BTG package vendor. Similarly, within package boundary Battery Limits of BOP Package, shall be supplied & erected by the BOP package vendor. BOP contractor shall inform details of cable trays (no & type) for cable in BOP vendor scope in BTG area. 3. Road lighting for roads in BTG Package scope (for BTG area) shall be in BOP scope. Suitable feeder(s) for Street Lighting Panels (SLP) shall be provided in BTG Lighting Distribution Boards. Rating & numbers of feeders for Street Lighting Panels shall be informed by BOP vendor. Cable & cable carrier system from LDB (of BTG scope) to SLP shall be in BOP scope as per note-1 above. BTG portion of cable carrier system could be used by BOP vendor for these cables wherever available. Further, distribution from Street Lighting Panels to Lighting Poles shall be in BOP scope. 4. Transformer in BOP scope for BOP Package scope shall be by BOP vendor: i. Losses of transformer shall be governed by IS & Technical Specification. ii. Auxiliary losses to be informed by BOP vendor. iii. Load & feeder requirement to be informed by BOP vendor for sizing of BTG scope Transformers. 5. UPS supply requirement for BTG portion of PA system in BTG area shall be provided by BTG vendor at one point. BOP vendor to inform rating of this one UPS feeder. 6. Cathodic LT Power supply requirement for BTG portion of CW Pipes in BTG area shall be provided by BTG vendor at one point. BOP vendor to inform rating of this one LT Power supply feeder. 7. For Electrical System design, BOP vendor has to provide Electrical details like impedance of transformers, number & rating of transformer, details of HT Motors etc. for BOP scope. Optimised transformer impedance calculated through system studies shall be binding for BOP vendor subject to relevant IS and detailed Technical Specification. 8. For establishing interconnection of BOP Package Earth mat with earth mat of BTG area, 4 nos. interconnecting earth pits shall be provided in BTG area in all four directions. Detailed location shall be provided during detailed engineering. 9. Electrical lab package for the complete project shall be in BOP vendor scope. Space requirement & LT Power feeder requirement for Electrical Lab package in main Plant to be informed by BOP vendor. 10. System study will be done by BHEL based on various inputs provided by BOP vendor. However, the generated parameters based on system studies as informed by BHEL shall be binding on BOP vendor.											
D	Instrumentation & Control Works										
SR. NO.	Description	BTG Package Scope	BOP Package Scope						Remarks		
2	Distributed Digital Control, Monitoring & Information System	BTG Scope	BTG Scope	BHEL	BHEL	BHEL	BHEL				
3	PLC, microprocessor, Relay panel, Local control panels, Local Starter Panel	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
4	Supervisory Control Panels, Supervisory Desks and Equipment Panels	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
5	HMI, Network panel, Interface panels	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
6	Large Video Screens (LVS) System	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
7	DDCMIS interface with PLC/microprocessor panel/local control panels of BOP system	NIL	BOP Scope	BOP	BOP	BOP	BOP	DCS Panel at CCR.			

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8	UPS, 24V DC Charger, any other Control Supply as required	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
9	ACDBs / DCDBs / PDBs, ATS, Automatic changeover system	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
10	Battery System	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
11	HMI furniture, Control Desk, Table, Chairs, CPU racks etc.	BTG Scope	BOP scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
12	Vibration Monitoring system	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP	At Field JB	VMS of BOP packages having DCS control shall be provided by BTG contractor.		
13	LIEs / LIRs /Junction Boxes	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
14	Field and Measuring Instruments, transmitters, transducers including final control elements like Control Valves, Motorized valves, Electro-hydraulic valves, SOV, etc.	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
15	Steam and Water Analysis System (SWAS)	BTG Scope	BOP sscope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
16	All types of Analyzers	BTG Scope	BOP sscope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				

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17	Instrumentation and Control Cables including special cables	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP		Refer Note, For instrument installed in BOP area by BTG like analyzer etc., cabling shall be by BTG.		
18	Cable Engineering	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
19	Maintenance and calibration Equipment's	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
20	Instruments hook-up, Process Connection & Piping material	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
21	Type Test Requirement	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
22	Quality Assurance and Testing and Guarantee	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
23	Erection material including transmitter cubicles / racks, JB's, CJB's, impulse pipe & fittings, trays support, clamps, glands, lugs etc. including Local instrument enclosures / racks.	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
24	Environment Monitoring Systems	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
25	Statutory Clearances, Statutory requirements, Effluent Monitoring System	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
26	Material Supply, Ware Housing, Erection, Testing and Commissioning	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
27	HART Management System	BTG Scope	BOP scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
28	PG Test requirement	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
29	General Information and Design Criteria	BTG Scope	BOP Scope	BTG/BOP	BTG/BOP	BTG/BOP	BTG/BOP				
30	SAFETY CONTROL ROOM AND EQUIPMENT	BTG Scope	BOP Scope	BOP Scope	BOP Scope	BOP Scope	BOP Scope				

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NOTES:											
1	For soft-link communication and Hardwired interfacing between BOP's PLC/Microprocessor based control system etc, and BTG's DDCMIS all the interfacing hardware such as converters / modem /power supply unit, software etc shall be supplied by BOP EPC supplier scope , wherever both ends or single end are in BOP EPC supplier's scope.										
2	Complete Communication armored FO cables, signal cables and control cables between BOP's PLC/Microprocessor based control system etc to BTG's DDCMIS shall be in BOP EPC Vendor's scope.										
3	All the cables shall be routed through cable trays or GI conduit pipes/HDPE protection pipes in BOP EPC vendor scope.										
4	In case of redundant communication cables, each cable shall be laid in two separate trays /conduit.										
5	Supply, engineering, design, Erection, Laying and termination for all cables shall be in BOP EPC vendor scope including preparation of cable schedule, wherever single/one end are in BTG EPC supplier scope.										
6	For Time Synchronization Signals from BTG's master clock system to BOP's PLC/DCS/Microprocessor based control system etc., all the interfacing hardware such as signal conditioner cards /converters / modem / power supply unit, software etc. shall be supplied by BOP EPC supplier, wherever both ends or single end are in BOP EPC supplier's scope.										
7	Terminal point with respect to interface with DDCMIS / PLC / Microprocessor System of BOP Scope is the terminal boxes of DDCMIS panel(s) supplied under BTG scope and placed in Central Control Room										
8	For BOP packages, BOP vendor shall provide necessary JB's also for profibus based instruments.										

