

**BPSCCL's replies to Queries (C&I & Electrical) raised by various parties for the work of "Renovation & Modernization of Boiler # 1"**

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCCL
1.	Vol-2, Sec-C	12/121	3.2	Two number operating work station, one number operator cum engineering work station & one no. A4 (black & white) leaser jet printer for each boiler in bidder's scope of supply.	Bidder understands that this tender is for one boiler only. Please clarify if Bidder's understanding is correct and PLC / DCS system to be supplied for only one boiler which is under R&M and not a common system to accommodate future provisions of remaining four boilers.	Bidder's understanding is correct. The tender is only for one Boiler.
2.	Vol-2, Sec-C	12/121	3.2	All measuring Instruments, field instruments, sensors, actuators, flow elements for BF / CO Gas / Oil firing. For existing system, the equipment's will be supplied as per list given in ANNEXURE – 2.	Please provide the details of C&I for existing BF/CO Gas / Oil firing system for bidder's information in order to review and analyze the same for bidding purpose.	BF/CO Gas details provided.
3.	Vol-2, Sec-C	12/121	3.2	MCC (motor control center) and cables required for any new electrical drives and MOVs (Motor operated valves).	Bidder understands that Power supply arrangement for existing drive which will be replaced or uprated will be in Customer scope.  Further bidder understands that Incomer feeder for newly supplied MCC (If Any) including cabling, termination and laying will be in Customer scope.  Please confirm if the Bidder's understanding is correct.	Agreed  BPSCCL will provide the source of Power Supply. Other works will be in bidder's scope.  Other works will be in bidder scope.
4.	Vol-2, Sec-C	12/121	3.2	Hardwired Alarm Annunciation system with hooter for BMS	With the latest PLC / DCS system the alarm annunciation and Hooter can be handled with in the system. Hence no need to consider separate Hardwired Alarm Annunciation system. Bidder requests Customer to reconsider the same.  In case Customer still wants to have a separate Hardwired Alarm Annunciation system, then please clarify the no. of Alarm Annunciation windows to be considered for the same.	Only Hard wired Alarm Annunciation Hooter to be provided for critical parameters with simultaneous display in HMI.
5.	Vol-2, Sec-C	12/121	3.2	Any other item/ instruments / equipment not covered herein but required for successful installation and commissioning of complete functional I&C system shall be included by the bidder in their scope.	Any item which is not mentioned in the tender (Annexure-2) for the existing system and required for the completion shall be supplied as per agreed price of addition/deletion.  Please confirm.	As per TS.

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCL
6.	Vol-2, Sec-C	12/121	3.4	Cabling: Input terminal of Switchgear/MCC for all cable coming from PLC & other existing controls, equipments etc. Glanding and termination at Switchgear/MCC input terminal by Bidder. Terminations at both ends shall be done by Bidder (irrespective of the one end or both ends in their scope). All termination from MCC /switchgear shall be established through interposing relays.	Any modification required in MCC/SWGR for interfacing the existing MCC/SWGR with the new PLC system shall be in Customer scope. Please confirm  Further as per Annexure-3 clause 20.0 the interposing relays (IPR) for MCC/SWGR shall be mounted in the respective MCC/SWGR. Bidder understands that these IPRs will be available in the existing MCC/SWGR for PLC/DCS interface.  Please confirm.	Bidder's understanding is correct. However, all cabling required for interfacing between PLC/DCS and MCC/SWGR will be in Bidder's scope.
7.	Vol-2, Sec-C	13/121	3.4	Power supply connection to UPS, & non UPS distribution boards input terminals is under the Bidder's scope. (irrespective of the one end or both end in their scope)	Bidder understands that the incoming supply to the UPS input terminals including cables, cable laying & termination will be in Customer's Scope. Please confirm if the Bidder's understanding is correct.	All are in bidder's scope.
8.	Vol-2, Sec-C	15/121	4.0	<b>CONTROL PHILOSOPHY</b> Microprocessor based Boiler management System (preferable on PLC / DCS platform) shall be operated, controlled & monitored through their <b>dedicated operation work station for each Boiler</b> . The control and automation system shall be suitably designed to achieve the plant performance and safety requirements.	Bidder understands that this tender is for one boiler only. Please clarify if Bidder's understanding is correct and PLC / DCS system to be supplied for only one boiler.	Bidder's understanding is correct.
9.	Vol-2, Sec-C	14/121	4.1	<b>RELIABILITY AND AVAILABILITY</b> Adequate redundancy in system design shall be provided at hardware, software and sensor level to satisfy the availability criteria mentioned above. For the protection system, independent sensing devices shall be provided to ensure adequate safety of plant equipment.	Redundancy required at the sensor level for the existing C&I system shall be Customer scope.  Presently bidder has considered the sensors / Field instruments for the existing system as per Annexure-2. Any additional instruments / sensors and their process connection required to meet the redundancy requirement shall be provided by Customer.	Bidder's understanding is correct.
10.	Vol-2, Sec-C	14/121	4.2	<b>Typical Redundancy Requirement of Measurements and Controls loops:</b> For critical control loops, triple redundant	Redundancy of measurement (triple or double) will depend on the design of the existing system. If the same is available then it will be utilized accordingly. Otherwise it will be Customer's responsibility to	Materials will be provided by BPSCL. Erection and commissioning is under bidder's scope.

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCCL
				transmitters/ temperature elements shall be provided and shall be used in median selection for control purpose. For other important measurements, 2 transmitters/ temperature elements shall be provided and one of the two shall be selected for control / display while the other shall be standby. For critical protection systems, the measurements shall be 2 out of 3, i.e., 3 sensors / transmitters/switches used in a 2 out of 3 voting logic for protection function. Also, for the boiler MFT triple sensors / transmitter / switches shall be provided.	provide the same.  Please clarify.	
11.	Vol-2, Sec-C	22/121	6.1	<b>Pressure Transmitter / Differential Pressure Transmitter</b> For all critical control applications, 3 transmitters shall be provided.	Bidder understands that for existing C&I system this point has already been taken care of by Customer and the required transmitters are already included in the Instrument list provided in Annexure-2.	Bidder's understanding is correct.
12.	Vol-2, Sec-C	23/121	6.2	<b>Temperature Indicators</b> Temperature indicators shall be provided for following applications: <ul style="list-style-type: none"> <li>• On all process lines where local indication is warranted by the system either for monitoring or testing.</li> <li>• Capillary type temperature indicators shall be used in vibration prone areas.</li> <li>• Thermowell shall be provided for all temperature indicators.</li> </ul>	No temperature indicators are listed in Annexure-2. Please clarify the scope for the same. If required to be considered, then please provide the quantity with appropriate specification & details.	Temp. Indicators are indicated for R&M part only.
13.	Vol-2, Sec-C	23/121	6.2	<b>Thermowells</b> All Thermowells shall be provided along with new temp gauge, thermocouples & RTDs. Old Thermowells which are related to BMS/MFT logics shall be replaced.	No Thermowells are listed in Annexure-2. Please clarify the scope for the same. If required to be considered, then please provide the quantity with appropriate specification & details.	For R&M part only.
14.	Vol-2,	23/121	6.2	<b>Thermocouple</b>	Bidder understands that Thermocouples shall be supplied and	Bidder's understanding is correct.

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCCL
	Sec-C			All existing thermocouples related to BMS/MFT/Auto control logics system shall be replaced with new ones. Additional new temperature measurement TC shall be provided as required.	replaced for the existing system as per quantity mentioned in Annexure-2. Please review & confirm.	
15.	Vol-2, Sec-C	23/121	6.2	<b>Resistance Temperature Detectors (RTD)</b> All existing RTD's related to area under boundary limit shall be replaced with new ones. Additional new temperature measurement RTD shall be provided as required.	No RTDs are listed in Annexure-2. Please clarify the scope for the same. If required to be considered, then please provide the quantity with appropriate specification & details.	For R&M part only.
16.	Vol-2, Sec-C	24/121	6.3	<b>PR. GAUGE, D.P. GAUGE, LEVEL GAUGE</b> All Gauges required for systems under boundary limits shall be replaced / provided.	No PR. GAUGE, D.P. GAUGE, LEVEL GAUGE are listed in Annexure-2. Please clarify the scope for the same. If required to be considered, then please provide the quantity with appropriate specification & details.	For R&M part only.
17.	Vol-2, Sec-C	25/121	6.4	<b>FLOW ELEMENTS</b> Primary and Secondary air flow measurement shall be provided.	For existing C&I System no Flow elements are listed in Annexure-2. Please clarify the scope for the same. If required to be considered, then please provide the quantity with appropriate specification & details.	For R&M part only.
18.	Vol-2, Sec-C	27/121	7.0	<b>UPS / DC POWER SUPPLY SYSTEM</b>	Bidder understands that the UPS shall be supplied for the PLC / DCS System and equipment under bidder's scope only. If additional load for customer's equipment and existing C&I system to be considered then please provide the details for the same. Please also clarify the minimum KVA rating to be considered for the UPS.	UPS for Boiler#1 to be considered. For existing system additional 2 KVA load have to be considered.
19.	Vol-2, Sec-C	36/121	8.1	<b>IMPULSE PIPING</b> Suitable access platforms are required for some locations in order to reach the instruments for routine maintenance.	Please clarify the scope for the access platforms.	As per TS.
20.	Vol-2, Sec-C	42/121	9.1	<b>INSTRUMENTATION CABLES</b> Actual estimate of Control & instrument	Bidder understands that Cables shall be supplied as per the quantity mentioned in Annexure-2. Unit rate shall be applicable for the	Cables for R&M jobs are under bidder's scope in addition to Annexure 2.

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCL
				cable shall be done by bidder. Same shall be supplied by bidder. Also, Old Control & instrument cable are to be removed and it is in the bidder's scope.	additional quantity and type & quantities not mentioned. Please confirm.	
21.	Vol-2, Sec-C	47/121	9.7	<b>Junction Boxes</b>	Please provide details of existing Junction Boxes to be replaced as the same is not available in Annexure-2	For R&M part only.
22.	Vol-2, Sec-C	49/121	10.1	<b>Control Valves, Dampers, Actuators</b> All necessary Control valves and modulating dampers of OBMS and GBMS shall be supplied along with pneumatic actuators.	Please provide the list and details of all such control valves, Dampers, Actuators. Annexure-2 is asking for only 30 nos. electric actuators.	For R&M part required control valves, dampers and actuators for OBMS and GBMS have to be supplied by the bidder in addition to quantity mentioned in Annexure-2.
23.	Vol-2, Sec-C	57/121	11.1	<b>Control Room Layout</b>	Please provide the layout drawings for the existing control room and equipment room. Only minor civil work required for the panel installation work is considered in Bidder's scope. Any civil work required for the modification of the control room and for providing additional floor cutouts for panel installation is not in bidder's scope. Please confirm.	Given  Any civil work required for installation of panels is under bidder's scope.
24.	Vol-2, Sec-C	84/121	18.0	Documents to be submitted along with BID: • Control room Layout • GA of Control Desk & panel	Please note that Control room layout and GA of control desk and panels shall be submitted during detail engineering after award of Contract. Please confirm acceptance.	Bidder's understanding is correct.
25.	Vol-2, Sec-C	110/121	Annex 3: 9.0	For the systems where only monitor & keyboard based operator's station has been envisaged, alarm/ annunciation will be displayed in the operator's station.	AS per clause 3.2 page 12 of 121, Hardwired Alarm Annunciation system with hooter for BMS has been asked for. But as per this clause alarm/annunciation will be displayed in the operator's station. Please clarify whether Hardwired Alarm Annunciation system with hooter for BMS is required or not.	Only Hooter is required.
26.	Vol-2, Sec-C	112/121	Annex 3: 20.0	Interface of the system with MCC / Switchgears shall be in the form of potential free contacts via interposing relay modules mounted in the respective switchgear or MCC unit.	As existing MCC / SWGR is in BPSCL scope. We understand that the IPR required for MCC / SWGR interface with PLC / DCS System will be available in the existing MCC / SWGR. In case the existing MCC / SWGR required to be modified to incorporate the IPR then the same shall be done by Customer. Please confirm.	Bidder's understanding is correct. However, all cabling required for interfacing between PLC/DCS and MCC/SWGR will be in Bidder's scope.

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCL
27.	Vol-2, Sec-B	53/114	4.0	<b>TERMINAL POINTS &amp; EXCLUSIONS</b> <b>EXCLUSIONS:</b> 11. All electrical systems other than Scanner Fans (02 nos.) as per Clause no. 3.2.16.1, Page no. 43 of 116 of Volume – 2, Section – B of Technical Specification and actuators as per list provided by the owner which will be supplied by the bidder.	Bidder understands that Terminal Point at AC/DC starter panel (for Scanner Air Fan) for 415VAC / 220VDC and 230VAC (1phase) including cable laying and terminal till starter panel will be Customer's scope.  Please confirm if the Bidder's understanding is correct.	BPSCL shall only provide the source for tapping power. All required cabling, termination & other associated activities shall be in Bidder's scope.
28.	Vol-2, Sec-B	53/114	4.0	<b>TERMINAL POINTS &amp; EXCLUSIONS</b> <b>EXCLUSIONS:</b> 11. All electrical systems other than Scanner Fans (02 nos.) as per Clause no. 3.2.16.1, Page no. 43 of 116 of Volume – 2, Section – B of Technical Specification and actuators as per list provided by the owner which will be supplied by the bidder.	There are no requirements mentioned in the tender for the scope of electrical Power & control cables. Bidder understands that all Power cable required for the electrical power supply from MCC / SWGR to various field equipments / Panels etc. are under Customer's scope except outgoing UPS ACDB supply to Bidder's supplied C&I items/Equipments.  Please confirm if the Bidder's understanding is correct.	All cabling, termination & associated works required for operation of equipments supplied by Bidder under R&M scope shall be the responsibility of the Bidder.
29.	General				Following inputs are required for the existing C&I System for proper estimation of the C&I scope of work: <ol style="list-style-type: none"> <li>1. P&amp;IDs of existing Plant.</li> <li>2. Plant Layout Drawings.</li> <li>3. Existing Instrument schedule (Instrument List with details of Instruments like type, range, model, service. Etc.).</li> <li>4. List of drives (Electrical as well as Pneumatic) motors, valves, dampers (On/Off type and regulating type) etc..</li> <li>5. Single Line Diagram of the Plant Electrical</li> <li>6. Details of the existing control system and existing control loop and logic diagrams and write-ups.</li> <li>7. IO list of the existing control system.</li> <li>8. Drive control philosophy of the plant for various types of drives (HT, LT, MOV, MOVI, CV, SOV, etc.) for deciding their interface with new control system.</li> <li>9. Existing CCR &amp; CER Layout and floor cutout details for panel installation.</li> </ol>	All available drawing and documents will be shared. .

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCL
					<p>10. Existing cable tray layout and C&amp;I cable schedule.  11. Existing MCC/Switchgear location and layout.  12. Existing UPS and Battery room layout.  13. Existing O&amp;M manual for the plant.</p>	
30.	Vol-2, Sec-C	108/121	Annex 2, Point G	RELAYS - Electrical System	<p>As per our discussion during the site visit on 6<sup>th</sup>&amp; 7<sup>th</sup> April, 2017 and review of the existing electrical system at site, it is found that the existing Electrical system for MCC/SWGR for LT/HT Drives and existing Motorized valves which is to be interfaced with new PLC / DCS system are not compatible for new PLC / DCS interface. Modification is required in existing MCC / SWGR to make it compatible for new PLC / DCS interface.</p> <p>IPR (24VDC coil Voltage with sufficient contact rating to handle the required control supply of MCC/SWGR) to be installed in MCC / SWGR to receive commands from PLC / DCS and Potential Free contacts to be provided for wiring the feedbacks (ON/OPEN, OFF/CLOSE, FAULT, FEEDER HEALTHY, ETC.) to PLC / DCS System.</p> <p>Bidder understands that all these modification in the existing electrical system will be in Customer (BPSCL) Scope.</p> <p>As per our discussion with BPSCL during the site visit, it is understood that Bidder has to only include the loose relays as per the type and quantity mentioned in <b>Annexure-2 point G</b> in bidder's scope.</p> <p>Please confirm if the Bidder's understanding is correct.</p>	Bidder's understanding is correct. However, all cabling required for interfacing between PLC/DCS and MCC/SWGR will be in Bidder's scope.
31.		107/121	Annex 2, Point D	ELECTRICAL ACTUATORS	<p>As per the tender requirement mentioned at <b>Annexure-2 point D</b>, 30 nos. of Modulating type electrical actuators for dampers has to be included in Bidders scope.</p> <p>However, as per the inputs provided by BPSCL C&amp;I during our site visit, we understand that out of 30 nos, only 13 Nos. are to be supplied as modulating type and rest 17 nos. are to be supplied as inching type actuator.</p>	Bidder's understanding is correct.

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCL
					Please confirm if the Bidder's understanding is correct.	
32.	Site Visit Dated 6 <sup>th</sup> & 7 <sup>th</sup> April 2017			Control Philosophy & Logics for the existing system	<p>Bidder understands that the logics and operation philosophy for the drives and actuators and close loop controls for the existing system shall be implemented in the new PLC / DCS as per the inputs provided by the customer (BPSCL).</p> <p>Please confirm if the Bidder's understanding is correct.</p>	For existing system, logic & operation philosophy for drives & actuators will be provided by BPSCL.. However, for R&M part Logic and Operation Philosophy for the drives and Actuators is in bidder's scope.
33.		27/121	7.0	UPS & BATTERY	<p>As per our Site visit, Bidder understands that presently there is no existing UPS. Customer (BPSCL) to provide the location for the new UPS and Battery to be included in bidder's scope under this tender.</p> <p>Customer (BPSCL) also to provide the UPS and Battery Room Layout and ensure the AC environment for the UPS Room.</p> <p>Please confirm if the Bidder's understanding is correct.</p>	Location for UPS and Battery will be provided. BPSCL will ensure AC environment for UPS Room
34.		9/121	2.2	General Description of Existing Control & Instrumentation System	<p>As per the information provided under this clause, it is mentioned that the existing orifices &amp; nozzles are suspected to be erroneous. However scope of replacement of these orifices &amp; nozzles has not been asked for in the tender.</p> <p>Bidder understands that customer (BPSCL) will do the necessary replacement of all such erroneous orifices &amp; nozzles in order to provide the accurate measurement for proper operation and control of the unit and no scope is required to be considered by bidder in this regard.</p> <p>Please confirm that Bidder's understanding is correct.</p>	Bidder has to consider Orifice and Nozzles for R&M part only as per TS requirement. In addition to that, any permanent flow measuring device that may be needed in the existing system to demonstrate PG parameters to be considered by Bidder.
35.	Site Visit Dated 6 <sup>th</sup> & 7 <sup>th</sup> April 2017			Scope of Combustion Control and Air Flow Control	<p>As per our site visit, bidder understands that presently combustion (Fuel Flow &amp; Air Flow) control is done manually by the operator and there is no Measurement device available for Air flow and Fuel flow. For implementing the combustion control in the new PLC / DCS, Air Flow Measurement and Fuel Flow Measurement is absolutely required.</p>	Requirement of primary and secondary air flow is indicated in clause no 6.4, page 25 of 121 of C&I part. Requirement of BFG & COG flow is indicated in clause no 3.2.13.2 B v. page 37 of 114 of mechanical part.

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCL
					Please review & clarify the scope for the same.	
36.	Site Visit Dated 6 <sup>th</sup> & 7 <sup>th</sup> April 2017			Scope of Furnace Pressure Instruments	As per our site visit, bidder understands that presently only one pressure measurement (transmitter) on each side (Left & Right) is available. However as per tender specification for control and protection, 2v3 measurement shall have to be provided.  Please review & clarify the scope for the same.	Noted and confirmed.
37.	Site Visit Dated 6 <sup>th</sup> & 7 <sup>th</sup> April 2017			Scope of Valves/Dampers on Mill Fan discharge	Based on site visit, Bidder understands that the existing Valves /Dampers on the Mill FAN discharge to Burners are Manual type. For BMS operation through PLC/DCS, these should be either Pneumatic or electric operated.  Please review & clarify the scope for the same.	Electrical Actuators mentioned in Annexure 2 Includes primary and secondary air damper actuators.
38.	Vol-2, Sec-B	16/114	2.6	Blade Type Dust Feeders Number of feeders per boiler 6 Maximum capacity of coal (TPH) 8 Motor rating (K W) 3.4 Motor speed (rpm) 500 – 1500 Motor rated voltage (V) 220 DC	BPSCL shall inform whether speed control is available for Blade type dust feeder. If yes, how the demand signal is generated for Speed Control.	Speed control of dust feeders is available. Presently Manual command is given for speed controlling.
39.	Vol-2, Sec-B	35/114	3.2.13.2 m	The safety shutoff valve ahead of the flow control station and individual burner/Nozzle/Spud shutoff and vent valves shall be furnished with motorized drives. Block and Bleed valves shall be provided on BFG & CO Gas as per the NFPA requirements.	Clause 3.2.13 .2 includes safety shut off valve ahead of Flow control station is in scope of supply. Terminal point for BFG starts with BFG isolating valve of each burner.  Both clauses are contradicting. Hence BPSCL shall provide the complete P&ID Scheme for Oil, BFG/COG, and Coal Feeder/Mill/Cyclone separator along with instrument and details bifurcating the scope for R&M and Overhauling.	P&I Diagram available to be collected from site.
		52/114		Terminal Points: <ul style="list-style-type: none"> <li>• BFG line - Outlet flange of the BF Gas line isolating valve of each burner.</li> <li>• COG line - common gas header in left and right side of Furnace first pass.</li> <li>• Oil Line - Outlet flange of the first</li> </ul>		

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCL
				isolating valve from common header for main line & first valve from recirculation header for recirculation line. • Coal line - 10 m from burner inlet.		
40.	Vol-2, Sec-B	35/114	3.2.13.1	Provision for new multi fuel scanner and igniters (High Energy Arc Igniter). Direct firing is possible with furnace oil. (Complete replacement of burner panel for accommodating the new burner, new igniters, new scanners).	BPSCL shall inform whether Flame Scanners/Igniters were provided In the original Burner design at the time of initial commissioning of Boiler in 1972. If yes, BPSCL shall inform the type. Make, of originally/existing name scanners and igniters.  BPSCL shall elaborate the requirement of Flame sensing camera.	Not Available.
		71/114		Bill of Quantities 17. iv) Replacement of scanner igniters (High Energy Arc Igniter). Complete replacement for accommodating the new burner, new igniters, new scanners and flame sensing camera.		Flame Sensing Camera to be read as Flame sensing device for BMS interlock.
41.	Vol-2, Sec-B	37/114	3.2.13.2	v) The burner should have fuel flow control valves and flow meters.	BPSCL shall clarify whether flow meter for BF/CO gas is required in the common gas line (OR) in individual burners.	Flow meters for Individual BF/CO gas Line is required.
42.	Vol-2, Sec-B	38/114	3.2.14.2	a) Bidder shall furnish a list of all dampers, their purpose and torque rating, etc., together with the details of actuators and accessories for control from PLC / DDCMIS system.	Replacement of Air and Flue Gas ducts, BF/CO gas lines, coal preparation and Transportation system are in Overhauling scope. Hence it is BPSCL's responsibility to provide list of all dampers, their purpose and complete Fuel Oil / BF / CO gas / Coal schemes along with field equipment and instruments.	Bidder can collect the documents available at site.
43.	Vol-2, Sec-B	42/114	3.2.16.1	<b>Scanner Fans (2 nos. each / unit) Technical Requirement</b> Two (2) 100%, one AC Motor driven and the other DC Motor driven Scanner Air Fans shall also be provided for the Flame Scanner cooling. Power source shall be provided by owner. However, DC Starter Panel shall be provided by Contractor.	Whether motor starter for Scanner Air Fan AC Motor can be accommodated in existing MCC. Whether space is available for accommodating additional Motor Starter Panels.	Only AC and DC sources for the respective devices will be available.
44.	Vol-2,	52/114	Annex III	Terminal Point:	Raw coal feeders, coal dust feeders, Ball Mill. Mill air fan, Cyclone	Documents available at site will be provided.

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCL
	Sec-B			<p>12. BF Gas Pipe - Outlet flange of the BF Gas line isolating valve of each burner. Any new gas pipe, valves and dampers associated with implementation of Gas Firing Controls and its integration with PLC / DDCMIS system is under the scope of bidder.</p> <p>13. CO Gas Pipe - Tapping point from the common gas header in left and right side of Furnace first pass. Any new gas pipe, valves and dampers associated with implementation of Gas Firing Controls and its integration with PLC / DDCMIS system is under the scope of bidder.</p>	<p>separator, Gas line valves, Replacement of BF and CO gas line up to terminal points of R&amp;M for BFG and COG line are included in Overhauling.</p> <p>Operation and control of the above field equipment is also part of Burner Management System. The details of the equipment, operation, Interlocks and control of the above shall be provided by BPSCL.</p> <p>BPSCL is requested to provide existing Process &amp; Instrumentation Scheme for Oil, BFG/COG, and Coal Feeder/Mill/Cyclone separator along with instrument and details.</p>	
		102/114		<p>OVERHAULING SCOPE: R.C Feeders, C.D Feeders, Bunkers, Ball Mill, Mill Fan, Cyclone &amp; Separator of Mill System, Coal dust pipes of Mill System Gas line valves, Gas Line Job</p>		
45.	Vol-2, Sec-B	53/114		<p>EXCLUSIONS: 11. All electrical systems other than Scanner Fans (02 nos.), as per Clause no. 3.2.16.1, Page no. 43 of 116 of Volume – 2, Section – B of Technical Specification and actuators as per list provided by the owner which will be supplied by the Bidder.</p>	<p>BPSCL shall confirm whether operating voltage is 3 phase 415 Volts / 230 Volts.</p> <p>We understood that it is 3 phase, 415 V.</p> <p>Power supply for these actuators is from 415 V ACDB. BPSCL shall inform whether 415 V ACDB shall be provided by BPSC (OR) this is to be included in Bidder scope.</p>	As per TS.
	Vol-2, Sec-C	107/121		<p>D. ELECTRICAL ACTUATOR: 30 Nos. 3 Phase, 50 Hz, 230 V AC operated.</p>		
46.	Vol-2, Sec-B	101/114	Annex II	<p>SCHEMATIC FOR THE MILLING SYSTEM</p>	<p>Scheme indicated in Annexure II and attached Schemes collected from BPSCL during site visit are without instruments and legends. BPSCL is requested to provide existing Process &amp; Instrumentation</p>	Same is provided.

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCL
				Following schemes collected from BPSCL during site visit: Scheme of CO Gas of TPP area Scheme of BF Gas of TPP area Coal Dust Scheme	Scheme for Oil, BFG/COG and Coal along with details.	
47.	Vol-2, Sec-B	101/114	Annex II	SCHEMATIC FOR THE MILLING SYSTEM	<p>BPSCL shall clarify the following:</p> <p>In the Scheme diagram, Tapping point for cold air is not shown. From which point tapping is taken for cold air?</p> <p>How the Cold / Hot / Warm air dampers are controlled?</p> <p>Whether ON / OFF valves are provided with Open / Close type electric actuators?</p> <p>Whether Dampers are provided with regulating electric actuators?</p> <p>Suction for Mill Air Fan is only from Cyclone (OR) from atmospheric air also?</p> <p>One branch of Mill Air Fan outlet is going to Mill via recirculation line. BPSCL shall elaborate the purpose of recirculation line to Mill.</p>	<p>Presently hot/cold/warm air dampers are controlled manually.</p> <p>Dampers are provided with electrical actuators.</p> <p>Suction for Mill Air Fan is from Cyclone &amp; atmosphere also.</p> <p>Mill recirculation line is for controlling Mill outlet pressure.</p>
48.	Vol-2, Sec-C	8/121	2.1	Bidder has to shift and implement five nos. of Auto Control Loops in new PLC / DCS. The same has been mentioned in tender as "Analog Auto / Manual Controls".	BPSCL may kindly list out the five nos. of auto control loops and provide the existing analog control scheme. Customer shall also confirm only these five nos. of auto control loops shall be implemented in Boiler Analog controls. If not, BPSCL shall inform the additional requirement.	Drum Level control, SHS Temp. control Left and Right, Furnace Draft control and Combustion control.
49.	Vol-2, Sec-C	22/121	6.1	Ultrasonic Level Transmitter	BPSCL may kindly specify Bill of Quantity and application wise details for Ultrasonic level transmitter.	N.A
50.	Vol-2, Sec-C	107/121		Electrical Actuator: 30 Nos. 3 Phase, 50 Hz, 230 V AC operated Torque Rating: 2000 NM – 24 Nos., 4000 NM – 6 Nos. Enclosure: IP 67	BPSCL may kindly provide the application wise details for 2000 Nm and 4000 Nm torque rating electric actuators.	Same is provided.

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCL
51.	Vol-2, Sec-C	12/121	3.2	MCC (motor control center) and cables required for any new electrical drives and MOVs (Motor operated valves)	Whether motor Starter for additional electrical drives can be accommodated in existing MCC. BPSCL to clarify.	No
52.	Vol-2, Sec-C	12/121	3.2	Final control elements, control valves with actuators, on/off valves with actuators, power Cylinders - Pneumatic actuator as per requirement for the successful operation of new BF / CO Gas / Oil firing system.	Clause 3.2 indicates Pneumatic actuator for BF/CO gas/oil firing. Clause 3.2.13.2 indicates motorized actuator. Both clauses are contradicting. BPSCL shall clarify.	Only Pneumatic actuators for BF/CO gas/oil firing have to be provided.
	Vol-2, Sec-B	35/114	3.2.13.2 m	The safety shutoff valve ahead of the flow control station and individual burner / Nozzle / Spud shutoff and vent valves		
53.	Vol-2, Sec-C	12/121	3.2	All measuring Instruments, field instruments, sensors, actuators, flow elements for BF / CO Gas / Oil firing.	Flow elements for SF/COG firing are included in R&M Scope. Burt terminal point for BFG starts with BFG isolating valve of each burner. Both clauses are contradicting. Hence BPSCL shall provide the complete P&IDs Scheme for Oil, BFG/COG, and Coal Feeder/Mill/Cyclone separator along with instrument and details bifurcating the scope for R&M and Overhauling.	Flow elements for individual CO/BF gas line (which is in bidder's scope) have to be provided.
	Vol-2, Sec-B	52/114		Terminal Points: <ul style="list-style-type: none"> <li>• BFG line - Outlet flange of the BF Gas line isolating valve of each burner.</li> <li>• COG line - common gas header in left and right side of Furnace first pass.</li> <li>• Oil Line - Outlet flange of the first isolating valve from common header for main line &amp; first valve from recirculation header for recirculation line.</li> <li>• Coal line - 10m from burner inlet.</li> </ul>		
54.	Vol-2, Sec-C	17/121	5.1	<b>SG related Control &amp; Instrumentation System / Equipments</b> BMS Scheme shall be based on the schemes furnished by SG Bidder and the implementation of schemes shall be	Whether Burner Management System has been provided for this Boiler during first commissioning of Boiler in 1972. BPSCL shall confirm.  If yes, BPSCL shall provide BMS logic, auto controls.	Not Available.

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCCL
				subject to approval of Owner / consultant		
55.	Vol-2, Sec-C	24/121	6.3	<b>Pressure Indicator / Gauges</b> Pressure indicators shall be provided for Suction and discharge lines of pumps, including on header section, if two or more pumps are employed for the same service.	BPSCCL shall provide the application and details of Pump which are in R&M Scope of supply.	As per T S
56.	Vol-2, Sec-C	24/121	6.2	<b>Metal Temperature Measurement:</b> Boiler Tube Metal temperature measurement shall be mineral insulated (MI) thermocouples with MgO filled metal sheathed extension wires terminated in junction boxes at boiler platforms.	BPSCCL shall provide number of Boiler Metal temp. Measurements along with length and its location.	Metal Temp. For R&M scope only.
57.	Vol-2, Sec-C	47/121	9.7	<b>Junction Box (JB):</b> Junction Boxes shall have following features: <ul style="list-style-type: none"> <li>• Double door type with cable entry from bottom.</li> <li>• .....</li> <li>• Enclosure shall be IP 55 or better for indoor locations. For all outdoor (Boiler area) locations the protection class shall be IP 65.</li> </ul>	IP-65 cannot be met with double door type Junction Box. Hence, all Junction Boxes will be provided with single door. The dimensions of field JBs are comparatively small and hence single door will be provided.	As per TS.
58.	Vol-2, Sec-C	106/121	Annex 2	Scope of Supply & Erection for Existing C&I System (Beyond Boundary limit of R&M) A. Transmitters: 50 nos. (Pressure & DP)	Existing field instruments are provided with tag numbers. From that it is understood that Scheme of Air and Flue gas, Fuel oil / Gas / Coal preparation and transportation, Steam and Water scheme should be available. BPSCCL shall provide the same.	Same is provided.
59.	Vol-2, Sec-C			List of Sub-vendors for Instrumentation: <b>1. PLC:</b> Rockwell Automation, SIEMENS, ABB	We would like to submit that BHEL is a market leader for power plant controls based on our maxDNA / Metso DNA platform. Total installed capacity through BHEL make control system exceeds 1,50,000 MW. BHEL make Boiler controls (based on maxDNA / Metso DNA platform) have been supplied and are in successful operation throughout India and abroad for various power plants from small MW rating to supercritical ratings. This includes Boiler controls provided for various	Already considered in TS.

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCL
					<p>SAIL and DVC projects like Bhilai (2×250 MW) expansion plant, Mejia U#4 (1×210 MW), U#5 &amp; 6 (2×250 MW) and U#7 &amp; 8 (2×500 MW). Koderma 2×500 MW, Maithon 2×525 MW, Chandrapura U#7 &amp; 8 (2×250 MW), Durgapur TPS (2×500 MW), Bokaro 'A' (1×500 MW), etc.</p> <p>Our proposed control system meets tender's provenness criteria as mentioned at <b>Page 63 of 113 of Volume-2</b>.</p> <p>Hence we request BPSCL to kindly include BHEL's name in the sub-vendor list for Boiler Controls.</p>	
60.	Vol-2, Sec-C			<p>List of Sub-vendors for Instrumentation:  <b>2. DCS (to be removed):</b>  Yokogawa, Honeywell, Emerson, ABB</p>	<p>Sub-vendor list in Annexure-4 mentions: <b>"DCS (to be removed)"</b>  Please clarify the significance of the same under sub-vendor list applicable for this project.</p>	Already considered in TS.
61.	Vol-2, Sec-C			<p>List of Sub-vendors for Instrumentation:  <b>16. Control Panel / Desk:</b>  Rittal, Pyrotech, ILK</p>	<p>We would like to submit that Control panel is an in-house item for BHEL and is manufactured at BHEL Bangalore unit. Same have been supplied for all BHEL projects throughout India and abroad and is in successful operation. BPSCL is requested to add BHEL's name as make for Control Panels / desk.</p>	Already considered in TS.
62.	Vol-2, Sec-C			<p><b>List of Sub-vendors for Instrumentation:</b>  Sl. No. 3 to 26 (except Sl. no. 16)</p>	<p>We would like to submit that a list of proposed sub-vendors will be submitted for various items as per BHEL's approved vendor list and the same can be discussed and finalized during contract execution stage. These vendors are approved by BHEL after rigorous qualification process including for SAIL and DVC projects indicated above. BPSCL may please confirm acceptance.</p>	As per TS
63.				<p>Modernize the control &amp; instrumentation systems of boiler with a PLC based system and implement the gas firing control , oil firing control, BMS logics, MFT Logics, protection, interlocks, existing C&amp;I system measurements and analog auto / manual controls for steam generator &amp; auxiliaries on the system.</p>	<p>A. As per Clause no. 2. 1 (Vol-II, Page 8 of 113) we understand that only components and devices related to Oil firing system and Gas firing system are to be replaced by the bidder while existing Coal firing system shall be retained. However the proposed boiler control system shall also include controls for coal firing system and analog auto / manual controls for steam generator &amp; auxiliaries on the system. Please confirm if our understanding is correct.</p> <p>B. Clause 2.1 mentions about "Analog auto / manual controls for</p>	Same will be provided at the time of detailed engineering

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCCL
				<p>----- The scope of control &amp; instrumentation work to be carried out based on the following:</p> <p>a) Supply of components and devices as required for new gas burner firing system, furnace oil firing system.</p> <p>b) Replacement of C&amp;I components &amp; devices for existing system as per list given in Annexure-2.</p> <p>2. The I/O count for the existing system beyond battery limit as given in Annexure-2 shall also be included for design of the system.</p> <p>G. I/O Count &amp; Interposing Relays for interfacing of existing system with PLC</p>	<p>steam generator &amp; auxiliaries on the system". Please elaborate what all controls are covered under the same?</p> <p>C. In case above point no. (A) is correct then bidder shall require logic/ scheme for the retained systems i.e., Coal firing system and Auto/Manual controls for SG Auxiliaries during engineering stage. BPSCCL may please confirm that the same shall be provided to the bidder during engineering stage.</p> <p>D. We also understand that the IO count provided at Annexure-2 Clause no. G only covers the IO signals for existing system to be retained i.e., Coal firing system and SG auxiliaries and other IOs for new systems viz. Oil &amp; Gas firing systems are not included in the same and are to be estimated and considered by the bidder. Please confirm if the understanding is correct.</p>	
64.	Whether overhauling will be carried out early & at later stage dismantling & R&M will be carried out? Or Overhauling & R&M shall be carried out simultaneously?				As per discretion of bidder	
65.	What will be the shut down for total job? Or if overhauling & R&M jobs are not carried out simultaneously, what will be the shutdown period for each occasion?				As per T.S	
66.	Whether covered storage facility available with customer for storage of Electrical, C&I, Insulation & other materials prone to damage by water ingress?				No	
67.	Whether any T&P can be provided by customer e.g. Crane/Hydra, free or chargeable basis?				No	
68.	Whether Guest House accommodation can be provided for BHEL staffs deputed for R&M & Overhauling work?				No	
69.	Whether any other civil work is required except seal air fan foundation?				As per T.S	
70.	Please clarify Insurance scope for overhauling job (Materials/equipment's).				Commercial Query	
71.	Quantity for Overhauling to be specified for the following systems under Annexure III (Volume-2, Section-B): Item No. 1 – Ball Mill Item No. 2 – Mill Fan Item No. 3 – Capital Repair of F.D Fan Item No. 4 – Secondary Air Damper & Ducts: Weight of Duct plate, no of dampers, compensators to be specified.				As per T.S	

Sl.	Volume / Section	Page No.	Clause No.	Bid Specification	Bidder's Query	Clarification by BPSCCL
				Item No. 5 – Cyclone & Separators of Mill System (Weight of Pipe, other items to be specified) Item No. 6 – Coal Dust Pipes of Mill System (weight to be specified) Item No. 7 – Ducts & compensators of Flue gas path (Weight required) Item No. 8 – Seal pots & Platform: Weight required. Item No. 10 – Gas Line job: Weight required Item No. 14 – A. R.C Feeders, B. C.D Feeders, C) Bunkers: Quantity required Item No. 19 – ID Fan: Quantity required		
72.	Vol-2, Sec-C	108/121	Annex II / G	I/O Count & Interposing Relays for interfacing of existing system with PLC / DCS	Only quantity of I/O signals is mentioned in tenderspecification. Detailed list of signals fromfield/other system to/from BMS which are not inBidder's scope of supply like feeder, mill etc. shallbe provided by Customer.	List of I/O signals is available at site. Party may collect the data during their site visit.
73.	Vol-2, Sec-C	17/121	5.1	SG related Control & Instrumentation System / Equipment	Customer shall clarify whether Single coil /Dualcoil solenoids shall be provided for BMS controlledvalves/dampers.	Single coil solenoid may be provided.

(N PATTANAYAK)  
DGM (Electrical)

(M PARAMSIVAN)  
DGM (Maintenance)

(A.K DAS)  
DGM (C&I)

(Y.K MISHRA)  
DGM (Operation)

(A.K SINGH)  
GM (Maintenance)