

ANNEXURE-10-ELECTRICAL, CONTROL AND INSTRUMENTATION SCOPE MATRIX FOR 2X800 MW DVC KODERMA AHP-EPC PACKAGE-I- Dry Bottom Ash System

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SL. NO.	SCOPE DETAILS	INPUT DETAILS	ENGINEERING / DESIGN	SUPPLY	RECEIPT, UNLOADING, STORAGE, ERECTION, TESTING, COMMISSIONING	REMARKS
1	Complete Electrical and C&I System for EPC PACKAGE-I- Dry Bottom Ash System Note: Following uncabled power supply feeders shall be provided by Main Ash Handling Package Vendor (Package-II) to DBA Vendor (Package-I). Further distrubition shall be in DBA Vendor (Package-I) scope. a) 2 No of 415 V uncabled ACB Feeder for Unitised DBA application at below location for Unit#3: Location of 415 V Source: At AHP ER-2 building Maximum KVA Available :650KVA b) 2 No of 415 V uncabled ACB Feeder for Unitised DBA application at below location for Unit#4: Location of 415 V Source: At AHP ER-3 building Maximum KVA Available : 650KVA c) 2 Nos. of uncabled Feeder for below system: c.1) 220 V DC Source: At AHP ER-2 & 3 MCC building c.2) 24V DC Source: At AHP ER-2 & 3 MCC building c.3) UPS Source: At AHP ER-2 & 3 MCC building	DBA Vendor (Package-I)	DBA Vendor (Package-I)	DBA Vendor (Package-I)	DBA Vendor (Package-I)	DBA Vendor (Package-I) shall submit total load (kVA) within 3 months from LOI for LT transformer sizing. LT Transformer is in the scope of Main Ash Handling Package Vendor (Package-II) Interface with upstream breaker at 415 V System is in DBA Vendor (Package-I) scope. DBA Vendor (Package-I) to coordinate with Main Ash Handling Package Vendor (Package-II) for relay coordination. Earthing between nearest riser/mat and DBA Vendor (Package-I) supplied equipment is in the scope of DBA Vendor (Package-I). Below ground earthing and Electronic earthing of DCS panels will be in the scope of Main Ash Handling Package Vendor (Package-II). Cable trays & Supports inside the AHP ER-2 & AHP ER-3 MCC building is in the scope of Main Ash Handling Package Vendor (Package-II). DBA Vendor (Package-I) to provide the cable tray requirement within the MCC building to Main Ash Handling Package Vendor (Package-II). Wherever integration of DBA Vendor (Package-I) supplied items with BHEL & Main Ash Handling Package Vendor (Package-II) supplied system is involved, necessary integration shall be done by the DBA Vendor (Package-I). DBA Vendor (Package-I) to co-ordinate with Main Ash Handling Package Vendor (Package-II) for the Civil inputs required in MCC buildings for DBA system equipment's. Obtaining Statutory clearance for DBA Vendor (Package-I) scope of items is in DBA Vendor (Package-I) scope. Security of all equipment's erected by DBA Vendor (Package-I) till handing over to end customer is in scope of DBA Vendor (Package-I). Suppliers Finalization: DBA Vendor (Package-I) to follow Customer referred sub vendor list of Elec/ C&I items which is part of NIT. In case of requirement of any new make, DBA Vendor (Package-I) shall submit Vendor list with credential. Approval of vendors is subject to Customer/BHEL approval. DBA Vendor (Package-I) is fully responsible in preparation and getting certification for the Erection, Testing & Commissioning protocols from the end customer. The protocols shall be made for every equipment / system where E&C is in DBA Vendor (Package-I) scope.
2.1	AHP ER-2 & AHP ER-3 MCC buildings	DBA Vendor (Package-I)/ Main Ash Handling Package Vendor (Package-II)	Main Ash Handling Package Vendor (Package-II)	Main Ash Handling Package Vendor (Package-II)	Main Ash Handling Package Vendor (Package-II)	DBA Vendor (Package-I) to refer Plot plan (refer Annexure - 1) for MCC building locations which are tentative and may vary during detailed engineering. DBA Vendor (Package-I) shall provide not to exceed list of equipment with dimensions , mentioning whether to be located in AC area or ventilated area etc along with the offer and within 3 months from LOI in the event of order. AC and Ventilation of AHP ER-2 & AHP ER-3 building is excluded from DBA Vendor (Package-I) scope. However heat load for DBA Vendor (Package-I) supplied equipment's in AHP ER-2 and AHP ER-3 shall be shared to Main Ash Handling Package Vendor (Package-II). DBA Vendor (Package-I) to note that only space provision for DBA Vendor (Package-I) equipment's shall be provided in MCC building. Base frame , channels, angles, conduits/pipes ,inserts, any supporting arrangement required for DBA Vendor (Package-I) equipment in the MCC building is in the scope of DBA Vendor (Package-I).
2.2	Any local rooms for E&I application (if required) other than MCC building in the DBA Vendor (Package-I) structures	DBA Vendor (Package-I)	DBA Vendor (Package-I)	DBA Vendor (Package-I)	DBA Vendor (Package-I)	AC/Ventilation as applicable for Local rooms shall be in DBA Vendor (Package-I)'s scope
3	Cable trestle/Rack from AHP ER-2 & AHP ER-3 building up to the area as indicated in Annexure 10A.	DBA Vendor (Package-I)/ Main Ash Handling Package Vendor (Package-II)	Main Ash Handling Package Vendor (Package-II)	Main Ash Handling Package Vendor (Package-II)	Main Ash Handling Package Vendor (Package-II)	DBA Vendor (Package-I) shall provide the tray requirement with loading for design of cable trestle/rack. Supply and E&C of cable trays & support in these cable trestle/rack is in the scope of Main Ash Handling Package Vendor (Package-II). Further cable tray , tray routing, along with supporting arrangement for DBA systrem equipments is in the scope of DBA Vendor (Package-I). However cable tray, tray routing along with supporting arrangements for Main Ash Handling Package Vendor (Package-II) equipments in Bottom ash intermediate Silo is in the scope DBA Vendor (Package-I).
4	Video Camera, CCTV system	DBA Vendor (Package-I)	DBA Vendor (Package-I)	DBA Vendor (Package-I)	DBA Vendor (Package-I)	Integration with main package is in the scope of DBA Vendor (Package-I).
5	Main control system (DCS)	DBA Vendor (Package-I)	BHEL EDN	BHEL EDN	DBA Vendor (Package-I)	DBA Vendor (Package-I)'s scope includes the following: 1. Local loading/unloading /transportation of these materials from BHEL storage to DBA Vendor (Package-I) storage/facilities. 2. Detailed IO list , KKS tagging, P&ID Diagram, set-points, Control Philosophy & write up, block logic diagram & HMI screens (for software development), Functional grouping. 3. Detailed IO list shall be submitted within 6 months of LOI in the format prescribed by BHEL which shall be shared to successful bidder . Any addition of IO's at later stage is not acceptable. 4. DBA Vendor (Package-I) shall visit BHEL/Customer during software development, application testing , FAT and ensure the completeness of software for E&C. 5. Any logic modification during commissioning stage & till handing over shall be executed by DBA Vendor (Package-I). 6. DBA Vendor (Package-I) to coordinate with BHEL-EDN before finalisation of field bus based instruments/actuator regarding communication protocol. 7. Interpanel wiring between various DCS panels for DBA system Note: Networking cables for DCS panels is in the scope of Main Ash Handling Package Vendor (Package-II).
6	Illumination, Welding Receptacles, 240V Switch Socket	DBA Vendor (Package-I)	Main Ash Handling Package Vendor (Package-II)	Main Ash Handling Package Vendor (Package-II)	Main Ash Handling Package Vendor (Package-II)	DBA Vendor (Package-I) to provide GA drawings (AutoCAD) for preparation of Illumination layouts. Interface checking with DBA Vendor (Package-I) equipment is in the scope of DBA Vendor (Package-I).
7	Cable Tray, Supports and accessories	DBA Vendor (Package-I)	DBA Vendor (Package-I)/Main Ash Handling Package Vendor (Package-II)	DBA Vendor (Package-I)/Main Ash Handling Package Vendor (Package-II)	DBA Vendor (Package-I)/Main Ash Handling Package Vendor (Package-II)	Cable tray and support for the following location is included in the scope of Ash Handling Package Vendor (Package-II) : AHP ER-2 MCC Building, AHP ER-3 MCC Building, Cable Trestle as marked in Annexure 10A DBA Vendor (Package-I) shall provide tray and support for balance location including boiler main structures as required for DBA Vendor (Package-I) equipments

Name of BHEL UNIT for coordination with successful bidder of various system during Engineering		
SI No	System	BHEL-Unit
1	Plot Plan with Switchgear location, cable routing, earthing, illumination	BHEL-ISG/Main Ash Handling Package Vendor (Package-II)
2	Design and integration of 415 V system along with upstream breaker interface	Main Ash Handling Package Vendor (Package-II)
3	DCS, VMS, UPS, 24V DC System	BHEL EDN/Main Ash Handling Package Vendor (Package-II)
4	Fire Fighting and FDA system	Main Ash Handling Package Vendor (Package-II)