Pre Bid Technical Clarification No.3 dated 11.04.2025 to NIB No.475 dated 21.01.2025 For Pkg-III EM Works of 186MW Tato-I HEP

Sl. No.	Volume	Clause No.	Tender Provision	Bidders Pre-bid queries	NEEPCO Replies
1	Vol-II, Sec -II, PART-II, Sub-Sec- 23	23.1.4	**Description of Air Conditioning System** The system shall consist of ductable split Air Conditioning units. 5 Nos. of 2 Ton cooling capacity each (4 Nos. working and 1 No. standby) for Control Room shall be provided. All units shall be identical. The evaporating units shall be suspended from the ceiling of the rooms over the false ceiling. The return air shall be collected through return air slits in the false ceiling and taken back to plenum formed above false ceiling. Fresh air in each control room shall be supplied through a tube axial supply air fan, duct and grilles. Condensing units shall be located at El. 1031m. The conditioned air from the evaporating units shall be transported through the diffusers in the control room floor areas.	Due to layout constraint, customer is requested to allow for selection of the higher capacity Ductable Split Air Conditioning units.	Agreed.
2	Vol-II, Sec -II, PART-II, Sub-Sec- 23	23.1.6.1	**Evaporator Unit** Evaporator unit shall be horizontally/vertically mounted type as required and constructed of galvanised steel sheet of thickness not less than 18 gauge. It shall be suitable for indoor installation above false ceiling and shall have provision for draining out condensate water……..	These items are mass production item and are as per OEM standard. Hence details of the equipment's, shall be as per the OEM standard only. Please accept.	Bid stipulations shall prevail. The bidder / contractor shall be required to select the OEM accordingly.
3	Vol-II, Sec -II, PART-II, Sub-Sec- 23	23.1.6.2	**Condensing Unit** The condensate units shall be supplied in weather proof heavy gauge enclosure suitable for outdoor installation. Each unit shall comprise of 2 or 3 independent hermetically/ semi hermetically sealed compressor units together with associated air cooled condensers, refrigerant tubing and electrical system so that if one compressor unit is down, the other compressors can remain in service. The condenser tubes shall be of copper having extended aluminium fins. The refrigerant shall be (i.e. R407 C). The condenser heat shall be removed with the help of a quiet, low speed propeller fan(s)…		
4	Vol-II, Sec -II, PART-II, Sub-Sec- 23	23.1.6.3	The duct shall be insulated with 25 mm thick resin bonded mineral wool conforming to IS:8183 and covered with insulation wrapped with wire mesh etc. Diffusers shall be made of heavy gauge extruded aluminium metal. These shall be provided with volume control damper, frame work and gasketing at each duct flange……	Use of nitrile rubber type thermal insulation is also to be permitted.	Bid stipulations shall prevail.
5	Vol-II, Sec -II, PART-II, Sub-Sec- 23	23.2.4	……It is required to install adequate number of centrifugal/axial flow fans (main and stand by) in the above mentioned locations, that would be capable of meeting the entire requirements of the air for ventilation system.	Ventilation system of the power house shall be arrived by use of multiple running centrifugal / axial fan. Hence standby unit for centrifugal / axial fans of ventilation system, are not required. Customer is requested to review and accept.	Bid stipulations shall prevail.
6	Vol-II, Sec -II, PART-II, Sub-Sec- 23	23.2.10.1	**Centrifugal Fans** …… The contractor shall provide adequate number of fans and spares (to be decided during detailed engineering). The fans shall be of double inlet, double width centrifugal type and designed to operate satisfactorily over a range of the rated speed.		
7	Vol-II, Sec -II, PART-II, Sub-Sec- 23	23.2.6	**Exhaust System** The exhaust system shall be designed to exhaust 90% of the forced air quantity by installation of exhaust fans of suitable capacity.	The exhaust system shall be designed to exhaust 70% of the forced air quantity by installation of exhaust fans of suitable capacity in order to maintain the positive pressure inside power house. Customer is requested to review and accept.	Bid stipulations shall prevail.
8	Vol-II, Sec -II, PART-II, Sub-Sec- 23	23.2.7	…… The schematic drawing shows the routing of main and distribution ducts for guidance of the tenderers to enable them to quote for the same quantities. This would also include the cost of duct supports, hanger, fames and air grill etc. as required.	Schematic drawing is not available in technical specification. Kindly facilitate the drawing referred in the clause.	The referred paragraph of Clause no. 23.2.7 stands deleted. The contract being EPC in nature, the contractor shall design and accordingly prepare the relevant drawings and supply, erect and commission all required materials/equipments. The bidder is therefore requested to make his own assessment and quote accordingly.

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Sl. No.	Volume	Clause No.	Tender Provision	Bidders Pre-bid queries	NEEPCO Replies
9	Vol-II, Sec -II, PART-II, Sub-Sec- 23	23.2.4	**Design and Computational Details** Tato-1 Hydroelectric Project is a surface power station with an installation of three units of 62 MW each. Still, it is proposed to provide forced air ventilation through ventilation ducts for supply of air to various floors and galleries. For exhaust of air, forced exhaust fans are to…….. …It is required to install adequate number of centrifugal/axial flow fans (main and stand by) in the above mentioned locations, that would be capable of meeting the entire requirements of the air for ventilation system.	There is mismatch in type of ventilation system in both of referred clause. Bidder understand that dry type of the ventilation system for on 100% fresh air supply though centrifugal / axial fan, is applicable. Please review and confirm.	At present, no water requirement for AHU is envisaged and the same may be reviewed if required during detail engineering. In the drawing, the terminal point has been kept as provision, in case found required during detail engineering.
10	Vol-II, Sec-IV		**COOLING WATER SYSTEM FLOW DIAGRAM (W.003159-20719-MD-7101)** **A terminal point shown as TO AHU COOLING COIL FOR HVAC SYSTEM**		
11	Vol-II, Sec -I, Page 30-31	2.1.1	**Mandatory Spare Parts** At least the quantity of general spare parts specified in various subsections of the Particular Technical Specifications (Volume-II, Section II) and the Schedule of Requirements (Volume II, Section III) shall be included in the Total Tender Price and consequently in the Scope of Works of the Contract.	List of Mandatory spares applicable for Air conditioning and Ventilation system is not available in the technical specification. Bidder understand that Mandatory spares for Air conditioning and Ventilation system, is not applicable. Customer is requested to review and confirm.	Attached as per Annexure - V
12	Vol-II, Sec -II, PART-II, Sub-Sec- 18	18.4.9	Lighting poles shall be fabricated from ERW steel tubular pipes.	Octagonal Poles are commonly used nowadays over other types of poles, due to its various features like aesthetic, sleek and ultra-modern in appearance and easy to maintain. Octagonal poles may please be accepted.	Agreed.
13	Vol-II, Sec -II, PART-II, Sub-Sec- 18	18.3.3. & 18.3.5	Incandescent lamps shall be provided with screwed (G.E.S) type caps The emergency lighting fixture will be of incandescent type suitable for both AC and DC supply.	Incandescent fixtures have been discontinued for power plant applications and are not offered by any lighting fixture supplier. Therefore, bidder is offering LED lighting fixtures in line with ongoing practice in lighting system. LEDs may please be accepted.	Agreed.
14	Vol-II, Sec -II, PART-II, Sub-Sec- 18	18.4.1	Bus bar shall be electrolytic grade hard drawn copper.	Generally Aluminium busbars are used in LDBs and LPs. Therefore, to optimize cost and reduce risk of thefts in case of copper busbars, Aluminium busbars may please be accepted for LDBs and LPs.	Agreed.
15	Vol-II, Sec -II, PART-II, Sub-Sec- 18	18.4.15	All cables shall be copper conductor PVC insulated FRLS.	(i) Cables shall be used only till Lighting panel incoming. Lighting panel outgoing and downstream distribution shall be through wires. Please confirm. (ii) To optimize cost and to reduce risk of thefts, please accept aluminium conductor cables as per standard practice. (iii) Further, please accept multicore cables.	Bid stipulations shall prevail.
16	Vol-II, Sec -II, PART-II, Sub-Sec- 18	18.4.12	Lighting mast (if required)	Please provide number and precise locations of lighting mast.	The contract being EPC in nature, the contractor shall design and assess the requirements and locations to maintain the required lux level as per specifications.
17	Vol-II Sec-III-SOR		There is no clarity about BUS BAR Protection.	bidder is considering Centralized BUS BAR protection for proposed 220KV switchyard for 10bays (Including 2 future line Bays). Kindly Confirm.	Please refer to clause no. 8.1.1.3-c wherein it is stated that Bus Bar protection scheme shall be centralized or distributed type ……
18	Vol-II Sec-III-SOR	12.1	Protection Board for Generator and Generator Step up Transformer (UPBs), Set of complete board comprising of a free standing 3 section Rack Mounting type cubicle, each section 750x750x2000 front (tempered glass) and back door, IP62 dust tight.	All protection and control panels are intended for indoor applications, with the front glass door having undergone type testing to IP54 standards, making it especially appropriate for such environments. Therefore, it is advisable to consider panels that have been type tested to IP54.	Agreed.
19	Vol-II Sec-III-SOR	12.17	Stand Alone Event Logger and Disturbance Recorder	Bidder provides a comprehensive range of Numerical Relays designed for protection purposes. The Disturbance Recorder (DFR) is an integrated feature of these Numerical Relays, which means that a separate Disturbance Recorder is not required. We recommend considering the Numerical Relays equipped with this integrated DFR.	Bid stipulations shall prevail.

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Sl. No.	Volume	Clause No.	Tender Provision	Bidders Pre-bid queries	NEEPCO Replies
20	Vol-II, Sec-III, SOR	20.1	5 km long 33 kV single circuit transmission line using "ACSR DOG" conductor, one no. earth wire strung on steel tubular poles from powerhouse to Upstream area (HRT Intake area & Valve house location) including Tapping arrangement at Intake and Valve house area, Lightning Arrestors, Horn Gap Fuses & Air break Switches etc. and provision for stringing of ADSS cable and mounting of street Lights on pole.	There is no technical specification available for the transmission line in Particular technical specifications volume-II, Section-II. Also, there is no route drawings available for the 33kV Transmission line. Customer is requested to exclude the 33kV Transmission line from E&M bidder's scope as same is outside plant boundary and hence same should not be in scope of this package.	The 33 kV Transission Line shall remain within the scope of the bid. The specifications of the transmisison line and associated equipments . shall be as per clause 11.24 of attached Annexure-IV
21	Vol-II, Sec-IV		Drg no. W.003159-20716-EMD-7201 POWERHOUSE CROSS SECTION	Whether intermediate floor is envisaged between Pothead Yard, GIS and Transformer caverns for routing of LT power and Control cables and GIS Bus ducts. Please confirm. Same practice is followed in NHPC projects.	Intermediate floor is not envisaged at present. However, the same can be considered during detail engineering, if required.
22	Vol-II, Sev-II, Sub-sec-17	17.2 i)	i) Underground earthing network The underground earthing network shall consist of underground earth mat in power house, transformer area, tailrace, pothead yard area	A) Bidder understand there will be concrete flooring in the Pothead Yard area. Please confirm. B) Earth mat consist of 40mm dia MS rods will be laid 600mm below concrete flooring. Please confirm. C)Auxiliary earthing mat will be provided for Disconnectors only in the pothead yard area. Same practice is followd in all Powergrid proejcts.Please confirm. D) In case of concere flooring in Pothead Yard, Bentonite backfill/3mtr long vertical electrodes are not applicable. Please confirm. E) Please provide referance drawings for earthing philosophy.	A) Agreed. B) The contract being EPC in nature, the contractor shall design the earthing system so as to attain earth resistance of less than 1.0 ohm. For power house earthing mat minimum size of conductor shall be 40 mm MS. For other areas, including Pot head yard, conductor size (rod / flat) shall be as per bidders design. C) Confirmed. D) Bentonite back fill / 3 mtr long vertical electrodes in the pot head yard will not be required. However, the same may be required as per design to achieve overall earth resistance less than 1.0 ohms, as per clause 17.11. E) Earthing Philosophy shall be as per standards at clause 17.4.
23	Vol-II, Sev-II, Sub-sec-17	17.1	Earth mat shall be placed at a depth of 600mm from the gravel level to ensure stability and resistance to external disturbances like soil erosion Auxiliary earthing mat comprising of closely spaced (300mmx300mm) conductors may be provided at depth of 300mm from ground level if the design of earth mat so requires.		
24	Vol-II, Sev-II, Sub-sec-17	17.11	1) bentonite backfill or similar conductive materials or 2) increasing grid size or adding vertical electrode shall be used.		
25	Vol-II, Sec-IV		Drg no. W.003159-20716-EMD-7201 POWERHOUSE CROSS SECTION		

ANNEXURE - IV

11.24 33 kV Transmission Line-

a. The works covered under this section comprise of design, manufacture of components, testing at works, supply, erection & assembly at site and commissioning of the following works:

- Approximately 5 km long 33 kV single circuit transmission line using "ACSR DOG" conductor, one no. earth wire strung on steel tubular poles from powerhouse to Upstream area (HRT Intake area & Valve house location) including Tapping arrangement at Intake and Valve house area, Lightning Arrestors, Horn Gap / D.O. Fuses & Air break Switches etc. and provision for stringing of ADSS cable and mounting of street Lights on pole".
- Pole structure arrangement for 33 kV cable termination near powerhouse for Intake and valve house area. The arrangement shall comprises of pole mounted Lightening arrester, gang operated disconnect switch, Horn gap fuse, insulator & conductors for termination.
- 33 / 0.4 kV Tapping arrangement at Intake area & Valve house location) , each comprises of pole structure along with pole mounted step-down transformer, Lightening arrester, gang operated disconnect switch, Horn gap fuse, insulator & conductors for termination.
- The ADSS optical fibre cable shall be of non- metallic Aerial type designed for installation on 33 kV transmission poles. The cable shall be designed to withstand all prevailing environmental conditions including the effects of high electric and magnetic fields produced by the proximity of live power conductors. The ADSS OFC cable shall be complete with all clamps and accessories required for laying between powerhouse and valve house as well as extension from valve house to intake area.

b. The scope shall also include the following:

- Obtaining right-of-way;
- Survey;
- Line design;
- Right-of-way clearance and access tracks;
- Foundation works;
- Grounding & Earth wire;
- Erection of poles, mounting structures etc.;
- Stringing works, Stay wires, Guy Strain Insulators ;
- Testing, final inspection and commissioning;
- Any other work required to complete the work.

c. Statutory charges for obtaining necessary clearances shall be borne by the Corporation.

d. All parameters and equipment used for the 33 kV transmission line shall conform to standard 33 kV system designs and comply with all relevant Indian and applicable international standards, including those issued by BIS, IEC, IS, and CEA. The contractor/bidder shall be fully responsible for ensuring that the transmission line design and all associated works strictly adhere to the latest applicable standards, regulations, and statutory requirements, and that the system performs reliably under the specified conditions and operational requirements.

e. All apparatus and materials shall be designed and manufactured to ensure reliable and efficient operation under the site-specific atmospheric and environmental conditions. Equipment must be capable of withstanding sudden variations in load and voltage, as may occur under normal and abnormal operating conditions, including short circuits and faulty synchronization—within their rated capacity.

f. The design shall incorporate all reasonable precautions and safety provisions to ensure the protection of personnel involved in the installation, operation, and maintenance of the transmission line and associated equipment. Consideration must also be given to the safety and compatibility of existing installations and previously established systems.

g. Only high-quality materials shall be used, suitable for the operational and environmental conditions described. All components shall withstand temperature fluctuations and atmospheric changes without deterioration, deformation, or undue internal stress. Mechanical integrity, electrical performance, and durability must be maintained under all operating conditions.

Annexure-V

1. Mandatory Spare Parts for Air Conditioning & Ventilation System:

Sl. No.	Description of Items	Quantity
1	Air Filter Bank Set	1 no. of each type and size
2	V- belts set	2 nos. of each type and size
3	Cooling Water Pump (if applicable)	
	a) Complete pump-motor sets	1 no.
	b) Impellers	1 nos.
	c) Stators	1 no.
	d) Shafts	1 no.
	e) Pump mechanical seals	2 nos. of each type
	f) Set of seals, gasket and O-rings	2 nos. of each type
	g) Pump bearings each size & type	2 nos. of each type
	h) Motor bearings each size & type	2 nos. of each type
4	Automatic Self-cleaning Filters	
	a) Set of complete element assembly consisting of multiple candles, as per design for primary cooling circuit	1 no.
	b) Pneumatic and motorised valve of each type	2 nos.
	c) Motor for automatic filter of each type	1 no.
	d) Solenoid valve of each type	2 nos.
5	Air handling fan-motor set	1 no. of each type and size
6	Blowers fan-motor set	1 no. of each type and size
7	Cooling coils set	2 nos. of each type and size
8	MCCB , MCB & Contactors	1 no. each type
9	Fuses	5 nos. of each type and rating
10	Indicating lamps (LED)	10 nos. of each colour (red, blue, yellow, green, amber)
11	Push buttons	5 nos. of each type
12	Motorised valve along with motor panel and associated accessories	2 nos. of each size and type
13	Pressure gauges and pressure switches	2 nos. of each size and type
14	Temperature gauge, temperature switches/ transmitter	2 nos. of each size and type
15	Valves of DN 80 and above	2 nos. of each size and type