

Our Ref: KETRACO/PT/045/2023

20th May 2024

Notice to all Bidders.

TENDER ADDENDUM AND CLARIFICATION No. 12 (TAC 12)

RE: Procurement of Plant, Design, Supply and Installation of the 220kV Mariakani - Dongo Kundu Transmission Line and Associated Substations (KETRACO/PT/045/2023)

The following amendments are made to the specified provisions for the bidding documents for procurement of plant, design, supply and installation of the 220kV Mariakani - Dongo Kundu Transmission Line and Associated Substations (KETRACO/PT/045/2023).

Save where expressly amended by the terms of this clarification, the Principal Tender Document shall continue to be in full force and effect.

Find herein the ADDENDUM and CLARIFICATION No. 12, consisting of Twelve (12) pages into the Principal Tender Documents as attached. This document should be returned along with dully filled Form of Tender.

All other terms and conditions of the Request for Proposal document remains the same.



PETER NJEHIA
SENIOR MANAGER, SUPPLY CHAIN

Tender Addendum and Clarification No. 12 of Tender No. KETRACO/PT/045/2023 has been received and incorporated in the Tender Documents.

Name of Tenderer (in block letters): _____

Signature: _____

Date: _____

Signed for the Tenderer by (Name in block letters): _____

In the office bearer capacity of: _____

A. Clarification No. 12.

No.	Volume	Part / Page	Section/ Clause No.	Reference	Clarification	Reply from KETRACO			
1.	Tender Addendum and Clarification No.3 (TAC 3)	Clarification no.6 Pdf Pg. 4/29	<table border="1"> <tr> <td data-bbox="504 1447 544 1644">6.14 16/46 & 1.34 data sheet</td> <td data-bbox="544 1447 751 1644">Section VI-2B: Specifications Substations 06- Power Transformer & Section VI-2B: Specifications Substations 06- Power Transformer</td> <td data-bbox="751 1447 863 1644">The numbers shall range from 1 upwards. Position 1 shall refer to the maximum LV no-load voltage and the highest number position shall refer to the minimum LV no-load voltage for the nominal HV load voltage.</td> <td data-bbox="863 1447 916 1644">Referring to two clauses, tapped winding will be at the HV side and maximum voltage on LV side. These are leads to HV and minimum voltage on LV side. Position Low = Max. LV No-load voltage and Position High = Min. LV No-load voltage. Please check once again.</td> </tr> </table>	6.14 16/46 & 1.34 data sheet	Section VI-2B: Specifications Substations 06- Power Transformer & Section VI-2B: Specifications Substations 06- Power Transformer	The numbers shall range from 1 upwards. Position 1 shall refer to the maximum LV no-load voltage and the highest number position shall refer to the minimum LV no-load voltage for the nominal HV load voltage.	Referring to two clauses, tapped winding will be at the HV side and maximum voltage on LV side. These are leads to HV and minimum voltage on LV side. Position Low = Max. LV No-load voltage and Position High = Min. LV No-load voltage. Please check once again.	<p>As per addendum, we understand that the requirement is for VFVV design i.e., variation on LV side and OLTC/tapped winding is on HV side, this will have below implications.</p> <p>VFVV design requires to design at lower flux densities which makes transformer size bigger.</p> <p>VFVV design makes different voltage on LV side and tertiary side at each tap position. which is not desirable for constant voltage load requirement?</p> <p>Substation transformers commonly made with CFVV instead of VFVV, considering variation on HV side and constant LV voltage requirement.</p> <p>Kindly reconfirm requirement.</p>	<p>Refer to TAC 3. No. 6.</p> <p>Max. Flux density in iron at rated voltage, power, frequency, and principle tapping must be 1.6 Tesla as per KETRACO's standard.</p>
6.14 16/46 & 1.34 data sheet	Section VI-2B: Specifications Substations 06- Power Transformer & Section VI-2B: Specifications Substations 06- Power Transformer	The numbers shall range from 1 upwards. Position 1 shall refer to the maximum LV no-load voltage and the highest number position shall refer to the minimum LV no-load voltage for the nominal HV load voltage.	Referring to two clauses, tapped winding will be at the HV side and maximum voltage on LV side. These are leads to HV and minimum voltage on LV side. Position Low = Max. LV No-load voltage and Position High = Min. LV No-load voltage. Please check once again.						

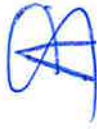
No.	Volume	Part / Page	Section/ Clause No.	Reference	Clarification	Reply from KETRA
2	10-Section VI-2B-06-Specifications-Power Transformer-20230704	Clause 6.2.0 Corrosion Protection and Painting VI-2B-06 – 19 Pdf Pg. 20/101	<ul style="list-style-type: none"> Conservator vessel (note 1), radiators, fan grills (note 2), pipework, control boxes or cubicles, marshalling cubicles shall be hot-dip galvanized and painted. 	Due to size limitation, hot dip galvanization is not possible for conservator, pipe work, control boxes etc., hence we provide corrosion resistant paint as per manufacturer standard practice for all the items except radiators, radiators will be hot dip galvanized. Kindly accept.	Not acceptable. Conservator vessel, radiators, fan grills, pipe work, control boxes, or cubicles, marshalling cubicles shall be hot-dip galvanized and painted.	
3.	10-Section VI-2B-06-Specifications-Power Transformer-20230704	6.22.2 Routine Tests VI-2B-06 – 25 Pdf Pg. 26/101	<ul style="list-style-type: none"> Vacuum deflection test, IEC 60076-1 sub-clause 11.9, applicable for tank and all other oil-filled compartments (150 Pa to be applied for at least 5 hours) Pressure deflection test, IEC 60076-1 sub-clause 11.10, applicable for tank and all other oil filled compartments at min. 100 kPa measured on tank bottom for at least 24 hours 	As per manufacturer feedback tank deflection criteria of 5mm, It is for above 100MVA. As per IEC for below 100MVA (Refer below snap). If the expected values are exceeded, the test shall be repeated to see if the tank dimensions have stabilized. If not, remedial actions,	Tests and remedial actions shall be according to IEC 60076-1.	

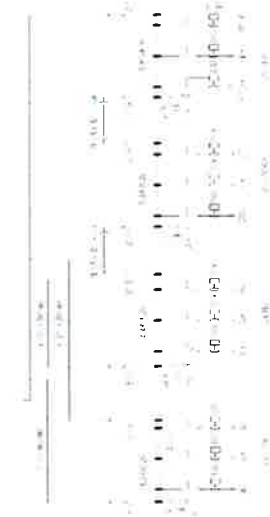


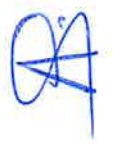
No.	Volume	Part / Page	Section/ Clause No.	Reference	Clarification	Reply from KETRA				
					<p>for example adding additional stiffening to the tank, shall be carried out.</p> <p>The above to be complied for both Vacuum & Pressure Deflection. Kindly accept.</p> <p>Normally the expected deflection under vacuum and the permanent deflection shall be calculated as per the manufacturer's data. Alternatively, the following typical values shall be used:</p> <ul style="list-style-type: none"> a) medium range transformers between 20 MVA and 100 MVA <ul style="list-style-type: none"> • permanent deflection after vacuum is released: 1 mm. b) large power transformers with plain tank with above 100 MVA: <ul style="list-style-type: none"> • permanent deflection after vacuum is released: 5 mm. <p>If the expected values are exceeded, the test shall be repeated to see if the tank dimensions have stabilized. If not, remedial actions for example adding additional stiffening to the tank shall be carried out.</p>					
4.	Tender Addendum and Clarification No.3 (TAC 3)	Clarification no.10 Pdf Pg.5/29	<table border="1"> <tr> <td data-bbox="1050 1449 1155 1621">9</td> <td data-bbox="1155 1449 1219 1621">1.28 data sheet 43/26</td> <td data-bbox="1219 1449 1299 1621">Section V-28: Specifications Substations 06 - Power Transformer</td> <td data-bbox="1299 1449 1372 1621">Maximum current density at rated power: 250A/cm²</td> </tr> </table>	9	1.28 data sheet 43/26	Section V-28: Specifications Substations 06 - Power Transformer	Maximum current density at rated power: 250A/cm ²	<p>We will propose the current density based on the design by confirming guaranteed losses and winding temperature rises. We can use optimum level of copper without current density limitation.</p>	<p>As per addendum, we understand that there is no current density limitation. However, proposed current density will be mentioned in data sheet in below snapshot. Please confirm our understanding.</p>	Confirmed.
9	1.28 data sheet 43/26	Section V-28: Specifications Substations 06 - Power Transformer	Maximum current density at rated power: 250A/cm ²							

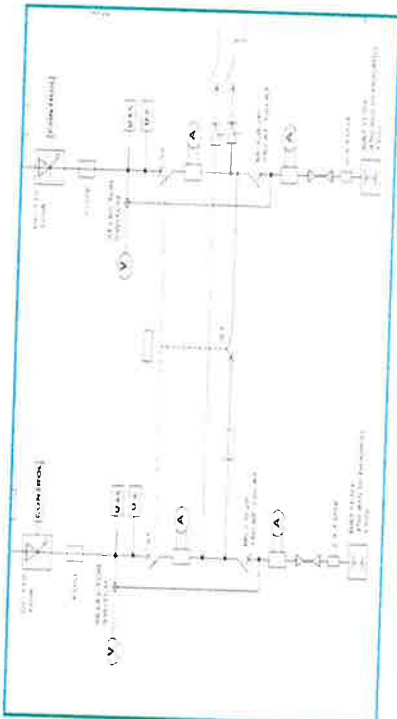
No.	Volume	Part / Page	Section/ Clause No.	Reference	Clarification	Reply from KETRA				
5.	05-Section VI- 2B-01- Specifications- Circuit Breakers- 20230704	6.10 Conservator VI-2B-06 -- 9		Where silica gel type breathers are used, they shall be of adequate capacity and of the maintenance-free type, with integrated heater, capable of automatic recharge. Breathers shall be fitted with oil traps and contain a minimum of 2.5 kg of silica gel. Breather compartments and oil cup shall be made of glass. The breather and associated pipework shall be firmly fixed to the transformer tank.	<table border="1" data-bbox="336 349 400 846"> <tr> <td>1.28</td> <td>Maximum current density at rated power:</td> <td>4/cm²</td> <td>250</td> </tr> </table> <p>Maintenance free breather type does not require oil cup and other mentioned accessories. Hence same is not considered. Kindly accept.</p>	1.28	Maximum current density at rated power:	4/cm ²	250	
1.28	Maximum current density at rated power:	4/cm ²	250							
		Pdf Pg. 10/101				<p>Silica gel type breather and maintenance free breather type are both acceptable.</p> <p>Maintenance free breather type does not require oil traps/cup and other accessories unlike the silica gel type breather.</p>				

No.	Volume	Part / Page	Section/ Clause No.	Reference	Clarification	Reply from KETRA
9.	07-Section-VI-3B-04-Specifications-SF6 Ring Main Unit-20230704 and 02-Specification – VI-3A – Scope of Work – Distribution	4. SPECIFICATION FOR SF6 RING MAIN UNIT 4.1 Scope Page VI-3B-04-1 and 4. 36kV SF6 Gas Insulated Switchgear	4.1 Scope This specification is for newly manufactured factory assembled gas insulated Ring Main Unit (RMU) for 33kV-50Hz distribution system The ring main unit shall be extensible type (both sides) and shall have two cable feeder lead break switch (LBS) and one transformer feeder with vacuum circuit breaker (basic formation). The units shall be automation ready fully wired to allow remote control full automation Reference is made to Part 2 – Employer's Requirement -02-Section-VI-3A-Scope of Work (Distribution network) – Section 4 -36kV SF6 Gas Insulated Switchgear	<p>4.1 Scope</p> <p>This specification is for newly manufactured factory assembled gas insulated Ring Main Unit (RMU) for 33kV-50Hz distribution system</p> <p>The ring main unit shall be extensible type (both sides) and shall have two cable feeder lead break switch (LBS) and one transformer feeder with vacuum circuit breaker (basic formation). The units shall be automation ready fully wired to allow remote control full automation</p> <p>Reference is made to Part 2 – Employer's Requirement -02-Section-VI-3A-Scope of Work (Distribution network) – Section 4 -36kV SF6 Gas Insulated Switchgear</p> <p>4. 36kV SF6 Gas Insulated Switchgear</p> <p>4.1 Type-I (I) or Industrial Park use (I No.) The switchgear is consisted of:</p> <ul style="list-style-type: none"> -Two (2) Incoming Feeder with 630A, 25kA Load Break Switch, remote on-off operation -One (1) Bus section with 630A, 25kA Load Break Switch, remote on-off operation -Three (3) Outgoing Feeder with 630A, 25kA Circuit Breaker, self-thermal trip circuit, remote on-off operation by 48V DC control source, with two (2) cable termination -One (1) Auxiliary Transformer 25 kVA, 33.0/415kV -Remote Terminal Unit (RTU) interface with local control center at Donggo Kundu Station and also controllable at RCC -Live bus, dead bus indication lamps -Two (2) gas-insulated bus-bars, 1250A, 25kA with voltage transformer -Cable test facility 	Please clarify whether disconnector is single phase separate control or three phase control together.	Clarification No. 6 item No. 66. The disconnector shall be three phase controlled gang operated.
				As per specification bus bar rating is mentioned as 1250A, whereas in SLD MSEZ-2022-DL-E-001-Substation-SLD 33kV Distribution System (1) it is mentioned as 630A. Kindly confirm busbar rating.		Bus bar rating shall be 1,250A.



No.	Volume	Part / Page	Section/ Clause No.	Reference	Clarification	Reply from KETRA																									
	Networks - 20230704	4.1 Type-1 Page VI-3A-3																													
10.	Volume III of VII-PART 2, 12- Section VI-2B- 08- Specifications- Low Voltage Switchgear-dr1- 20230707, 8.13. Technical Data Sheets for Low Voltage Switchgear & 6- MSEZ-2022-SS- E-004_110V DC POWER SUPPLY SYSTEM AND	VI-2B-08 - 43	<table border="1" data-bbox="654 1008 1149 1612"> <thead> <tr> <th colspan="2">SUBSTATION</th> </tr> </thead> <tbody> <tr> <td>2.10 V DC SYSTEM SERVICES SUPPLY</td> <td></td> </tr> <tr> <td>2.11 110V BATTERY UNITS</td> <td></td> </tr> <tr> <td>2.11.1 Manufacturer</td> <td></td> </tr> <tr> <td>2.11.2 Type designation</td> <td></td> </tr> <tr> <td>2.11.3 Number of battery units</td> <td>2 x 30%</td> </tr> <tr> <td>2.11.4 Type of cell</td> <td>Nickel Cadmium</td> </tr> <tr> <td>2.11.5 Operating voltage per cell</td> <td>1.2</td> </tr> <tr> <td>2.11.6 Number of cells</td> <td></td> </tr> <tr> <td>2.11.7 Standard</td> <td></td> </tr> <tr> <td>2.11.8 Discharge capacity</td> <td></td> </tr> <tr> <td>2.11.9 10 hour rate</td> <td></td> </tr> <tr> <td></td> <td>min. 900Ah as confirmed by</td> </tr> </tbody> </table>	SUBSTATION		2.10 V DC SYSTEM SERVICES SUPPLY		2.11 110V BATTERY UNITS		2.11.1 Manufacturer		2.11.2 Type designation		2.11.3 Number of battery units	2 x 30%	2.11.4 Type of cell	Nickel Cadmium	2.11.5 Operating voltage per cell	1.2	2.11.6 Number of cells		2.11.7 Standard		2.11.8 Discharge capacity		2.11.9 10 hour rate			min. 900Ah as confirmed by	<p>Please note technical schedule specified 2 x 50% of 900AH 110V battery bank. Whereas Single line diagram mentioned 2 set of 450AH, 110V battery bank instead of 900AH. Hence please clarify whether 450AH (or) 900AH capacity.</p>	<p>Refer to TAC 11, item no.9.</p>
SUBSTATION																															
2.10 V DC SYSTEM SERVICES SUPPLY																															
2.11 110V BATTERY UNITS																															
2.11.1 Manufacturer																															
2.11.2 Type designation																															
2.11.3 Number of battery units	2 x 30%																														
2.11.4 Type of cell	Nickel Cadmium																														
2.11.5 Operating voltage per cell	1.2																														
2.11.6 Number of cells																															
2.11.7 Standard																															
2.11.8 Discharge capacity																															
2.11.9 10 hour rate																															
	min. 900Ah as confirmed by																														



No.	Volume	Part / Page	Section/ Clause No.	Reference	Clarification	Reply from KETRA
	230V INVERTER SUPPLY SYSTEM_s2					
11.	C2_SUBSTATION PRICE SCHEDULES			<p>C2-Schedule No.3 – Item no :330 C2-Schedule No.4 – Item no :430,453,491</p> <p>The above mentioned items are not provided Description and Qty in the price schedule</p>	<p>Kindly advise what bidder require to fill these blank items ?</p>	<p>C2-Schedule No.3 item no. 330, and C2-Schedule No.4 item nos. 430, 453, 491 are blank, not applicable.</p>



No.	Volume	Part / Page	Section/ Clause No.	Reference	Clarification	Reply from KETRA
12.	Transmission Line Price Schedules Schedule of Daywork Rates: 1. Labour Schedule of Daywork Rates: 2. Materials Schedule of Daywork Rates: 3. Contractor's Equipment	A-TL Day work Rates		As per Revised Price schedule , the detailed Description of Day work rates for i) Labour, ii) Materials, iii) Contractor Equipment was not provided.	Kindly provide the Description of Day work.	Refer to TAC 11, item no. 30.
13.	Volume I of VII Section III. Evaluation and Qualification Criteria (without prequalification) 2.4 Experience –		EQC(A)(II)-9	(a). A minimum number of one similar contract, each of minimum value of USD 30,000,000 that have been satisfactorily completed as a prime contractor (single entity or JV member) between 1st January 2013 and Bid submission deadline. The similarity of the contracts shall be based on the following: 220kV and above substation and/or Transmission line.	We request you to consider the similarity of the contracts shall be based on the following: 132kV and above substation and/or Transmission line, instead of 220kV and above.	Not acceptable. Requirement in clause 2.4.2 "Specific Experience" of EQC(A) (ii)-9 Section III shall prevail.



No.	Volume	Part / Page	Section/ Clause No.	Reference	Clarification	Reply from KETRA
	2.4.2 -Specific Experience					
14	<p>Volume I of VII</p> <p>Section III. Evaluation and Qualification Criteria (without prequalification)</p> <p>2.4 Experience – 2.4.2 -Specific Experience</p>	EQC(A)(II)-9		<p>(a). A minimum number of one similar contract, each of minimum value of USD 30,000,000 that have been satisfactorily completed as a prime contractor (single entity or JV member) between 1st January 2013 and Bid submission deadline.</p> <p>The similarity of the contracts shall be based on the following: 220kV and above substation and/or Transmission line.</p>	<p>We understand that a specialized subcontractor's experiences can be accepted same as the Eligibility of Qualification Criteria 2.4.2 (b). Is our understanding correct?</p>	Not acceptable.