KETRACO
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Our Ref: KETRACO/PT/006/2021 **23rd February, 2021**

Notice to all Bidders

RE: TENDER ADDENDUM AND CLARIFICATION 1

RE: CIRCUIT BREAKERS, ISOLATORS, SURGE ARRESTERS, CURRENT AND VOLTAGE TRANSFORMERS - KETRACO/PT/006/2021

The following amendments are made to the specified provisions of **Tender for Circuit Breakers, Isolators, Surge Arresters, Current and Voltage Transformers** - KETRACO/PT/006/2021. 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. 1, consisting of THREE (3) pages into the Principal Tender Documents. This document should be returned along with dully filled Form of Tender.

<table>
<tr><th colspan="4">CIRCUIT BREAKERS, ISOLATORS, SURGE ARRESTERS, CURRENT AND VOLTAGE TRANSFORMERS</th></tr>
<tr><th>No.</th><th>KETRACO Requirement Document (Page No.)</th><th>Clarification as requested by bidders</th><th>KETRACO Response</th></tr>
<tr><td>1</td><td>Technical specifications for Disconnectors and earthing switches

Section 5.1</td><td>What we understand from the specification is that these disconnectors have to be installed at 2200 m.a.s.l. This means that a derating has to be applied from the IEC (max 1000masl) standard rating. (derating factor of 0,9). This means that typically for a 420 kV with lightning impulse withstand voltage of 1425 kV you would go one step up to a 550-kV disconnector with 1550 kV lightning impulse withstand voltage. But the datasheet does it the other way around, specifying a lightning impulse withstand voltage of 1550 kV at 2200 m.a.s.l. which would force suppliers to take an 800 kV disconnector. This has to be corrected. Please clarify</td><td>Please see revised requirements for the 400kV disconnectors;
<table>
<tr><th></th><th>SPECIFICATION</th><th>REQUIREMENT</th></tr>
<tr><td>1</td><td>Design Altitude(m)</td><td>1000</td></tr>
<tr><td>2</td><td>Power Freq(kV) at <1000m</td><td></td></tr>
<tr><td></td><td>To Earth</td><td>520</td></tr>
<tr><td></td><td>Break</td><td>610</td></tr>
<tr><td>3</td><td>Lightning Impulse (kV) at <1000m</td><td></td></tr>
<tr><td></td><td>To Earth</td><td>1425</td></tr>
<tr><td></td><td>Break</td><td>1665</td></tr>
<tr><td>4</td><td>Switching Impulse(kV)</td><td></td></tr>
<tr><td></td><td>To Earth</td><td>1050</td></tr>
<tr><td></td><td>Btwn phases</td><td>1575</td></tr>
<tr><td></td><td>Break</td><td>1245</td></tr>
</table></td></tr>
<tr><td>2</td><td>Technical specifications for Disconnectors and earthing switches</td><td>Also it shall be clarified if all disconnectors are to be installed at 2200 or only a portion of the requested disconnectors. Please clarify</td><td>Average design altitude of 1800m except for 400kV disconnectors which is clarified in No. 1 above. The indicated Power frequency, lightning impulse and switching impulse in the Technical Data Sheets are at <1000m and are to</td></tr>
</table>

	Section 5.1		be corrected accordingly as per the relevant IEC standard.
3	Technical specifications for Disconnectors and earthing switches Section 5.1	The specifications speak about saline environments, with subsequent galvanizing + painting and stainless-steel bolting, but we just said that we were on top of a 2200 m high mountain. Please clarify.	These shall be spares and could be used on either environment.
4	Technical specifications for Disconnectors and earthing switches Section 5.4	The specification speaks of certain measures for H2S rich environments, but the DS does not specify H2S regime., also for high H2S content atmospheres we deploy silver plated copper contact, because tin plated contacts have rapid increasing contact resistance and blade overheating. Also our design does make use of bronze castings for the rotating contact housings and the balls in the same contacts are made out of silver plated bronze. Please clarify. All together it seems as if the design engineer used a marine/offshore specification for pressure vessel to make a specification of a disconnector. Please clarify.	Main contacts shall be copper alloy with silver plating of 25µm.
5		Bus transfer switching and induced current switching are specific applications that have to be specified if they are applicable. Please clarify	Not applicable
6	Technical specifications for Disconnectors and earthing switches Section 6.2	For the mentioned quantities, it will not be affordable to redo type tests per disconnector model). We are reasonably complete in terms of type tests on 420 kV and 245 kV and more or less for 145kV but all this might shift depending on the altitude derating that has to be deployed. Please clarify	Type tests will only be waived if previous type test reports for similar disconnectors are provided and acceptable to the client.
7		For neither model short circuit making tests are applicable and isolation values are calculated and the tested in the dielectric test (no insulation coordination test is done)-Please clarify	These are optional tests and not listed as a requirement.
8	Technical specifications for Disconnectors and earthing switches Section 5.3	Reading the specifications provided, your client seems to be on another page with regards to the definition of a disconnector. As per the Client's specifications the disconnectors are for providing physical separation/ safety isolation of a dead circuit. Clause 5.3 of the Specification reads '. They *shall be suitable for off-load isolation at the maximum permissible continuous*	Withstand for switching current (unless induced/bus transfer) not listed as a requirement.

		operating voltage and capable also of withstanding the short circuit forces specified.' Withstanding of short circuit currents is OK. Switching (either opening or closing) is not possible. Please clarify	
		Clarify on the tender validity period	Refer to Section II-Instructions to Tenderers Clause 2.15.1
		Clarify on the eligible countries of origin	All Tenderers are Eligible

All other terms and conditions of the tender document remains the same.

PETER NJEHIA
SENIOR MANAGER, SUPPLY CHAIN