

Amendment –XVII dated 06.06.2024 to RFP documents for selection of bidder as Transmission Service Provider to establish “Transmission system for evacuation of power from Shongtong Karcham HEP (450 MW) and Tidong HEP (150 MW)” through tariff based competitive bidding process

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1.	Clause A.8.0 (b) of specific technical requirement of Transmission Line	<p>A.8.0 (b)</p> <p><u>Wangtoo (HPPTCL) - Panchkula (PG) 400 kV D/C (Twin) Line</u></p> <p>Type of conductor: HTLS (High Temp & low Sag)</p> <p><u>Basic parameters:</u></p> <table border="1" data-bbox="365 560 1173 1002"> <thead> <tr> <th rowspan="2">Transmission Line</th> <th colspan="3">Basic parameter of single conductor</th> <th rowspan="2">Sub-conductor or Spacing (mm)</th> </tr> <tr> <th>Ampacity of HTLS conductor</th> <th>Minimum Conductor diameter (mm)</th> <th>Maximum DC Resistance at 20°C (Ω/km)</th> </tr> </thead> <tbody> <tr> <td>400kV Transmission line with <u>Twin HTLS</u> conductor</td> <td>1516 A</td> <td><u>28.62</u></td> <td>0.05552</td> <td>450</td> </tr> </tbody> </table>	Transmission Line	Basic parameter of single conductor			Sub-conductor or Spacing (mm)	Ampacity of HTLS conductor	Minimum Conductor diameter (mm)	Maximum DC Resistance at 20°C (Ω/km)	400kV Transmission line with <u>Twin HTLS</u> conductor	1516 A	<u>28.62</u>	0.05552	450	<p>A.8.0 (b)</p> <p>(i) <u>The conductor configuration for Panchkula- Point PW** 400 kV D/C line (Twin HTLS) shall be as follows: -</u></p> <p>Type of conductor: HTLS (High Temp and low Sag)</p> <p><u>Basic parameters:</u></p> <table border="1" data-bbox="1211 571 2130 916"> <thead> <tr> <th rowspan="2">Transmission Line</th> <th colspan="3">Basic parameter of single conductor</th> <th rowspan="2">Sub-conductor Spacing (mm)</th> </tr> <tr> <th>Ampacity of HTLS conductor</th> <th>Minimum Conductor diameter (mm)</th> <th>Maximum DC Resistance at 20°C (Ω/km)</th> </tr> </thead> <tbody> <tr> <td>400 kV Transmission Line with <u>Twin HTLS</u> conductor</td> <td>1516 A</td> <td><u>31.77</u></td> <td>0.05552</td> <td>450</td> </tr> </tbody> </table>	Transmission Line	Basic parameter of single conductor			Sub-conductor Spacing (mm)	Ampacity of HTLS conductor	Minimum Conductor diameter (mm)	Maximum DC Resistance at 20°C (Ω/km)	400 kV Transmission Line with <u>Twin HTLS</u> conductor	1516 A	<u>31.77</u>	0.05552	450
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			<p>(ii) <u>The conductor configuration for Point PW** - Wangtoo (HPPTCL) 400 kV D/C line shall be as follows: -</u></p>				
			<p><u>Transmission line</u></p>	<p><u>ACSR Conductor specified</u></p>	<p><u>Equivalent AAAC conductor based on 53% conductivity of Al Alloy</u></p>	<p><u>Equivalent minimum size of AL59 conductor based on 59% conductivity of AL Alloy*</u></p>	<p><u>Sub-conductor Spacing</u></p>
			<p><u>400 kV D/C (Quad Bundle) Transmission Line</u></p>	<p><u>Moose: Stranding 54/3.53 mm-Al + 7/3.53 mm-Steel, 31.77 mm diameter 528.5 mm², Aluminium area,</u></p> <p><u>Maximum DC Resistance at 20°C</u></p>	<p><u>Stranding details: 61/3.55 mm 31.95 mm diameter; 604 mm² Aluminium alloy area</u></p> <p><u>Maximum DC Resistance at 20°C</u></p>	<p><u>Stranding details: 61/3.31 mm 29.79 mm diameter; 525 mm² Aluminium alloy area</u></p> <p><u>Maximum DC Resistance at 20°C (Ω/km): 0.0566</u></p>	<p><u>457 mm</u></p>

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				<p>(Ω/km): <u>0.05552</u></p> <p>Minimum UTS: <u>161.20 kN</u></p>	<p>(Ω/km): <u>0.05506</u></p> <p>Minimum UTS: <u>159.80 kN</u></p>	<p>Minimum UTS: <u>124.70 kN</u></p>	
2.	Clause B.2.2 of specific technical specification of RfP	<p>B.2.2 Shunt Reactor Spare 1-phase Shunt Reactor unit shall be placed and connected in such a way that the spare unit can be utilized for all the bus and line reactor banks (including for future reactor banks) without its physical movement.</p>	<p>B.2.2 Shunt Reactor Spare 1-phase Shunt Reactor unit shall be placed and connected in such a way that the spare unit can be utilized for all the bus reactor banks (including for future reactor banks) without its physical movement.</p> <p>Point PW**: First point of 2000 m altitude of Panchkula-Wangtoo line from Panchkula end. Note [for conductor configuration of (ii) above]:</p> <ol style="list-style-type: none"> <i>*To select any size above the minimum, the sizes mentioned in the Indian standard IS-398(part-6) should be followed.</i> <i>The transmission lines shall have to be designed for a maximum operating conductor temperature of 85 deg C.</i> 				
3.	Clause B.2.2 of specific technical specification of RfP	<p>Neutral Grounding Reactor (NGR) and Surge Arrester for 400kV Line Reactors (as applicable)</p> <p><u>TSP shall provide NGR of suitable value (Ohm) as per actual line length. NGR shall be oil filled or dry type air core suitable for outdoor application. Line and ground side of NGR shall be rated for 145kV and 36kV class of insulation respectively. Oil filled NGR shall be rated for continuous current of 10A and short time current of 60A r.m.s for 10</u></p>	<p>Neutral Grounding Reactor (NGR) and Surge Arrester for 400 kV Line Reactors (as applicable)</p> <p><u>The neutral of the line reactors (wherever provided) shall be grounded through adequately rated Neutral Grounding Reactors (NGR) to facilitate single phase auto-reclosure, provided that the NGR shall be provided with suitable bypass arrangement so that the line reactor can be used as Bus reactor as and when required. The neutral of bus reactor shall be solidly grounded.</u></p>				

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		<p><u>seconds while air core NGR shall be rated for continuous current of 20A and short time current of 240A r.m.s for 1 minute. However, the air core NGR shall be designed for a short time current of 600 Amp r.m.s to ensure mechanical robustness. The air core NGR shall be mounted on support structure (non-magnetic material) high above ground level (2.55 meter) to allow free and safe access at ground level for personnel.</u></p> <p><u>The surge arresters (rated voltage 120kV) shall be provided & physically located between the neutral of shunt reactor (brought out at 145kV class bushing) and neutral grounding reactor. The surge arresters shall be of heavy duty station class gapless Metal oxide (ZnO) type conforming in general to IEC-60099-4. Arresters shall be hermetically sealed units, of self-supporting construction, suitable for mounting on structures</u></p>	<p><u>NGR shall be oil filled or dry type air core for outdoor application. NGR shall conform to CEA’s “Standard Specifications and Technical Parameters for Transformers and Reactors (66 kV and above Voltage class)”, as amended up to date. Technical parameters of NGR shall be as specified in Annexure-A of the above-mentioned document.</u></p> <p><u>The surge arresters (rated voltage of arrester in co-ordination with ohmic value of NGR shall be decided by the TSP) shall be provided and physically located between the neutral of shunt reactor (brought out at 145 kV class bushing) and neutral grounding reactor. The surge arresters shall be of Station Medium (SM) class duty gapless Metal Oxide/ Zinc Oxide (ZnO) type conforming in general to IEC-60099-4. Arresters shall be hermetically sealed units, of self-supporting construction, suitable for mounting on structures. The ohmic value of NGR of 300 ohm shall be considered for SLR at Panchkula S/s.</u></p>