Amendment –VI dated 04.07.2022 on the Request for Proposal Document and Transmission Service Agreement issued for selection of bidder as Transmission Service Provider to establish "Transmission Scheme for Solar Energy Zone in Gadag (1500 MW), Karnataka: Part A-Phase-II" through tariff based competitive bidding process

<table>
<tr><th>Sl. No.</th><th>Clause No.</th><th>Existing Provisions</th><th>New / Revised Clause</th></tr>
<tr><td>1.</td><td>RFP & TSA</td><td>
Scope of Work:
<table>
<tr><th>Sl.</th><th>Scope of the Transmission Scheme</th><th>Scheduled COD in months from Effective Date</th></tr>
<tr><td>1</td><td>400/220 kV, 3x500 MVA ICT Augmentation at Gadag Pooling Station

<u>400/220 kV, 500 MVA ICT – 3</u>
<u>400 kV ICT bays – 3</u>
<u>220 kV ICT bays – 3</u>
<u>220 kV line bays – 4</u></td><td rowspan="3">18</td></tr>
<tr><td>2</td><td>Gadag PS-Koppal PS 400 kV (high capacity equivalent to quad moose) D/c line</td></tr>
<tr><td>3</td><td><u>2 nos. of 400 kV line bays at each end of Gadag PS-Koppal PS 400 kV D/c line Line bays – 4</u></td></tr>
</table>
Note:

(i) Developer of Koppal PS to provide space for 2 no. of 400 kV line bays at Koppal PS for termination of Gadag PS-Koppal
</td><td>
Scope of Work:
<table>
<tr><th>Sl.</th><th>Scope of the Transmission Scheme</th><th>Scheduled COD in months from Effective Date</th></tr>
<tr><td>1</td><td>400/220 kV, 3x500 MVA ICT Augmentation at Gadag Pooling Station
• <u>400/220 kV, 500 MVA ICT – 3 nos.</u>
• <u>400 kV ICT bays – 3 nos.</u>
• <u>220 kV ICT bays – 3 nos.</u>
• <u>400 kV line bays – 2 nos. (for termination of Gadag PS – Koppal PS 400 kV D/C Line)</u>
• <u>220 kV line bays – 4 nos.</u>
• <u>220 kV Sectionalization bays: 1 sets</u>
• <u>200 kV Bus Coupler (BC) Bay – 1 nos.</u>
• <u>220 kV Transfer Bus Coupler (TBC) Bay – 1 nos.</u></td><td>18</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Sl. No.</th><th>Clause No.</th><th>Existing Provisions</th><th>New / Revised Clause</th></tr>
<tr><td></td><td></td><td>PS 400 kV (high capacity equivalent to quad moose) D/C Line.
(ii) Developer of Gadag-Ph I PS to provide space for 2 no. of 400 kV line bays at Gadag PS for termination of Gadag PS-Koppal PS 400 kV (high capacity equivalent to quad moose) D/C Line and space for ICT augmentation at Gadag pooling station.</td><td>
<table>
<tr><td>2</td><td>Gadag PS - Koppal PS 400 kV (high capacity equivalent to quad moose) D/C Line</td><td></td></tr>
<tr><td>3</td><td><u>400 kV line bays at Koppal PS for Gadag PS - Koppal PS 400 kV D/c line</u>

<u>400 kV line bays – 2 nos.</u></td><td></td></tr>
</table>
Note:
i) Developer of Koppal PS shall provide space for 2 no. of 400 kV line bays at Koppal PS. for termination of Gadag PS-Koppal PS 400 kV (high capacity equivalent to quad moose) D/C Line.

ii) Developer of Gadag PS under phase-I scheme shall provide space for augmentation of Gadag PS for above mentioned elements and space for ICT augmentation at Gadag pooling station.
</td></tr>
<tr><td>2.</td><td>SECTION 1 / Clause No. 1 of RFP

Schedule 1 (82)</td><td>1.3 Project Description

…….

B. Transmission Scheme for evacuation of 1500 MW from Gadag SEZ under Phase-II

……</td><td>1.3 Project Description

……

B. Transmission Scheme for evacuation of 1500 MW from Gadag SEZ under Phase-II

……</td></tr>
</table>

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
		The Transmission Scheme for evacuation of 1000 MW from Gadag SEZ under Phase-I has been notified by Ministry of Power in Gazette of India on 19.07.2021 and the transmission scheme **is under bidding stage and is expected to be awarded by Jan, 2022** with implementation schedule of 18 months. However, the Transmission Scheme for evacuation of 1500 MW from Gadag SEZ under Phase-II was refereed back to the NCT for recommendation to MoP for implementation as and when there is certainty of RE generation projects in Gadag REZ. The Transmission Scheme for evacuation of 1500 MW from Gadag SEZ under Phase-II was discussed again in the 7th NCT meeting held on 03.12.2021 wherein MNRE stated that as per the information received from SECI regarding award of RE projects, the action for development of 2nd phase of Gadag PS beyond 1000 MW needs to be taken up on priority basis. The NCT after deliberations agreed that ICT augmentation at Gadag PS scheme may be approved by CTU based on the progress of RE generations so that the transformation capacity can be optimized. The balance part of the transmission scheme was approved for implementation by NCT which included 2 nos. of 400kV bays at Koppal PS & Gadag PS and Gadag PS-Koppal PS 400 kV (high capacity equivalent to quad moose) D/c line ……	The Transmission Scheme for evacuation of 1000 MW from Gadag SEZ under Phase-I has been notified by Ministry of Power in Gazette of India on 19.07.2021 and the transmission scheme **has been transferred to successful bidder on 17.03.2022** with implementation schedule of 18 months **from date of transfer of SPV**. However, the Transmission Scheme for evacuation of 1500 MW from Gadag SEZ under Phase-II was refereed back to the NCT for recommendation to MoP for implementation as and when there is certainty of RE generation projects in Gadag REZ. The Transmission Scheme for evacuation of 1500 MW from Gadag SEZ under Phase-II was discussed again in the 7th NCT meeting held on 03.12.2021 wherein MNRE stated that as per the information received from SECI regarding award of RE projects, the action for development of 2nd phase of Gadag PS beyond 1000 MW needs to be taken up on priority basis. The NCT after deliberations agreed that ICT augmentation at Gadag PS scheme may be approved by CTU based on the progress of RE generations so that the transformation capacity can be optimized. The balance part of the transmission scheme was approved for implementation by NCT which included 2 nos. of 400kV bays at Koppal PS & Gadag PS and Gadag PS-Koppal PS 400 kV (high capacity equivalent to quad moose) D/c line. **Subsequently, in 8th NCT meeting, held on 25.03.2022, it was agreed to include implementation of 3x500 MVA, 400/220 kV ICTs and 4 nos. of 220 kV line bays under TBCB along with transmission scheme Gadag PS – Koppal PS 400 kV (high capacity equivalent to quad moose) D/c line.**

<table>
<tr><th>Sl. No.</th><th>Clause No.</th><th>Existing Provisions</th><th>New / Revised Clause</th></tr>
<tr><td></td><td></td><td></td><td>……</td></tr>
<tr><td>3.</td><td>SECTION 2, Clause No 2.6 of RFP

Annexure 8 (88)
Schedule 2 (108)

Schedule 5 (119)</td><td>
2.6 Project Schedule

2.6.1. All Elements of the Project are required to be commissioned progressively as per the schedule given in the following table;
<table>
<tr><th>Sl. No.</th><th>Name of the Transmission Element</th><th>Scheduled COD in months from Effective Date</th><th>Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project</th><th>Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element</th></tr>
<tr><td><u>1</u></td><td><u>Gadag PS - Koppal PS 400 kV (high capacity equivalent to quad moose) D/C line</u></td><td rowspan="2"><u>18</u></td><td rowspan="2"><u>100%</u></td><td><u>Element at Sl. No 2</u></td></tr>
<tr><td><u>2</u></td><td><u>400kV Line bays at Koppal PS: 2 nos. & 400kV Line bays at</u></td><td><u>Element at Sl. No 1</u></td></tr>
</table>
</td><td>
2.6 Project Schedule

2.6.1. All Elements of the Project are required to be commissioned progressively as per the schedule given in the following table;
<table>
<tr><th>Sl. No.</th><th>Name of the Transmission Element</th><th>Scheduled COD in months from Effective Date</th><th>Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project</th><th>Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element</th></tr>
<tr><td><u>1</u></td><td><u>Gadag PS - Koppal PS 400 kV (high capacity equivalent to quad moose) D/C line</u></td><td><u>18</u></td><td><u>47.34%</u></td><td><u>Elements at S.no 1, 2 & 3 are required to be commissioned simultaneously</u></td></tr>
<tr><td><u>2</u></td><td><u>400kV Line bays at Koppal PS: 2 nos. &</u></td><td><u>18</u></td><td><u>12.54 %</u></td><td></td></tr>
</table>
</td></tr>
</table>

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause				
		Gadag PS: 2 nos. [*for termination of Gadag PS - Koppal PS 400 kV (high capacity equivalent to quad moose) D/C Line]*		**400kV Line bays at Gadag PS: 2 nos. [*for termination of Gadag PS - Koppal PS 400 kV (high capacity equivalent to quad moose) D/C Line]***			
		……	**3**	**400/220 kV, 3x500 MVA ICT Augmentation at Gadag Pooling Station :** • **400/220 kV, 500 MVA ICT – 3 nos.** • **400 kV ICT bays – 3 nos.** • **220 kV ICT bays – 3 nos.**	**18**	**40.12%**	

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
			• **220 kV line bays – 4 nos.** • **220kV Sectionalization bay: 1sets** • **220 kV Bus Coupler (BC) Bay -1 nos.** • **220 kV Transfer Bus Coupler (TBC) Bay - 1 nos.** ……
4.	2.7.1 of RFP	The Bidders should submit the Bids online through the electronic bidding platform before the Bid Deadline i.e. on or before 1200 hours (IST) on **04.07.2022**. In addition to the online submission, the Bidder with lowest Final Offer will be required to submit original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14 before issuance of LoI	The Bidders should submit the Bids online through the electronic bidding platform before the Bid Deadline i.e. on or before 1200 hours (IST) on **04.08.2022**. In addition to the online submission, the Bidder with lowest Final Offer will be required to submit original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14 before issuance of LoI

<table>
<tr><th>Sl. No.</th><th>Clause No.</th><th>Existing Provisions</th><th>New / Revised Clause</th></tr>
<tr><td>5.</td><td>2.7.2 of RFP</td><td>Important timelines are mentioned below:

<table><tr><th>Date</th><th>Event</th></tr><tr><td>10.06.2022</td><td>Issue of written clarifications and revised RFP documents</td></tr><tr><td>20.06.2022</td><td>Issue of final RFP Project Documents</td></tr><tr><td>04.07.2022</td><td>Submission of Bid (Online submission of Bid through electronic bidding portal)</td></tr><tr><td>04.07.2022</td><td>Opening of Technical Bid</td></tr><tr><td>12.07.2022</td><td>Shortlisting and announcement of Qualified Bidders on bidding portal</td></tr><tr><td>13.07.2022</td><td>Opening of Financial Bid - Initial Offer</td></tr><tr><td>14.07.2022</td><td>Electronic reverse auction (Financial Bid – Final Offer) for the Qualified Bidders.</td></tr><tr><td>18.07.2022</td><td>Submission of original hard copies of Annexure 3, Annexure 4, Annexure 6, as applicable and Annexure 14 by the bidder with lowest Final Offer</td></tr><tr><td>22.07.2022</td><td>Selection of Successful Bidder and issue of LOI</td></tr><tr><td>01.08.2022</td><td>Signing of RFP Project Documents and transfer of .....[Insert the name of the SPV]</td></tr></table></td><td>Important timelines are mentioned below:

<table><tr><th>Date</th><th>Event</th></tr><tr><td>11.07.2022</td><td>Issue of written clarifications and revised RFP documents</td></tr><tr><td>20.07.2022</td><td>Issue of final RFP Project Documents</td></tr><tr><td>04.08.2022</td><td>Submission of Bid (Online submission of Bid through electronic bidding portal)</td></tr><tr><td>04.08.2022</td><td>Opening of Technical Bid</td></tr><tr><td>12.08.2022</td><td>Shortlisting and announcement of Qualified Bidders on bidding portal</td></tr><tr><td>16.08.2022</td><td>Opening of Financial Bid - Initial Offer</td></tr><tr><td>17.08.2022</td><td>Electronic reverse auction (Financial Bid – Final Offer) for the Qualified Bidders.</td></tr><tr><td>22.08.2022</td><td>Submission of original hard copies of Annexure 3, Annexure 4, Annexure 6, as applicable and Annexure 14 by the bidder with lowest Final Offer</td></tr><tr><td>25.08.2022</td><td>Selection of Successful Bidder and issue of LOI</td></tr><tr><td>05.09.2022</td><td>Signing of RFP Project Documents and transfer of GADAG II-A TRANSMISSION LIMITED</td></tr></table></td></tr>
<tr><td>6.</td><td>2.13.1 of RFP</td><td>…….

Opening of Envelope (Technical Bid): 1230 hours (IST) on <u>04.07.2022</u>

……</td><td>…….

Opening of Envelope (Technical Bid): 1230 hours (IST) on <u>04.08.2022</u>

……</td></tr>
</table>

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
		Opening of Initial Offer: Initial Offer shall be opened by the Bid Opening Committee in presence of the Bid Evaluation Committee at 1230 hours (IST) on **13.07.2022** in the office of CEA.	Opening of Initial Offer: Initial Offer shall be opened by the Bid Opening Committee in presence of the Bid Evaluation Committee at 1230 hours (IST) on **16.08.2022** in the office of CEA.
7.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE of RFP & Schedule: 1 of TSA	A.6.0 A) For power line crossing of 400 kV or above voltage level **(if crossed over** the existing line**)**, large angle & dead end towers (i.e. D/DD/QD) shall be used on either side of power line crossing. B) …….	A.6.0 A) For power line crossing of 400 kV or above voltage level (**if crossing above** the existing line), large angle & dead end towers (i.e. D/DD/QD) shall be used on either side of power line crossing. B) …….
8.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE of	**A.17.0** Wherever, transmission lines are passing through cyclone prone areas i.e. areas upto 60 km from coast following shall also be applicable: **a)** Terrain category with terrain roughness factor (K2) shall be considered as per IS 802 (part 1/ Sec 1), as amended from time to time, for tower design for exposed open terrain with few or no obstruction which also includes open sea coasts, open stretch of water, desert and flat treeless plains.	**A.16.0** Wherever, transmission lines are passing through cyclone prone areas i.e. areas upto 60 km from coast following shall also be applicable: Terrain category with terrain roughness factor (K2) shall be considered as per IS 802 (part 1/ Sec 1), as amended from time to time, for tower design for exposed open terrain with few or no obstruction which also includes open sea coasts, open stretch of water, desert and flat treeless plains.

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
	RFP & Schedule: 1 of TSA	**b)** Importance factor for cyclonic region (K4) of 1.3 shall be considered for tower design. **c)** The number of consecutive spans between the section points/ angle point shall not exceed 10 spans or 3km instead of conventional practice of 15 spans or 5km, in order to reduce the failure of such towers in coastal areas due to cascading effect. The section shall be terminated with tension tower/ angle tower and angle of deviation should be based on the site requirement.	Importance factor for cyclonic region (K4) of 1.3 shall be considered for tower design. The number of consecutive spans between the section points/ angle point shall not exceed 10 spans or 3km instead of conventional practice of 15 spans or 5km, in order to reduce the failure of such towers in coastal areas due to cascading effect. The section shall be terminated with tension tower/ angle tower and angle of deviation should be based on the site requirement.
9.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE of RFP & Schedule: 1 of TSA	**A.18.0** Wherever, transmission lines are passing through cyclone prone areas (i.e. areas upto 60 km from coast)/ creek regions/ aggressive soil areas following shall also be applicable: **a)** The fabricated tower parts and stubs shall have a minimum overall zinc coating of 900 gram/sq m of surface area except for plates and sections below 5mm which shall have a minimum overall zinc coating of 610 gram/ sqm of surface area. The average zinc coating for all sections and plates 5mm and above shall be maintained as 127 microns and that for plates and sections below 5mm shall be maintained as 87 microns. **b)** Ready mix concrete of M30 Grade shall be used to avoid use of locally available saline water. However, design mix concrete of M30 Grade conforming to IS 456 with potable water can be used at locations where transportation of ready-mix concrete is not feasible. Minimum cement	**A.17.0** Wherever, transmission lines are passing through cyclone prone areas (i.e. areas upto 60 km from coast)/ creek regions/ aggressive soil areas following shall also be applicable: The fabricated tower parts and stubs shall have a minimum overall zinc coating of 900 gram/sq m of surface area except for plates and sections below 5mm which shall have a minimum overall zinc coating of 610 gram/ sqm of surface area. The average zinc coating for all sections and plates 5mm and above shall be maintained as 127 microns and that for plates and sections below 5mm shall be maintained as 87 microns. Ready mix concrete of M30 Grade shall be used to avoid use of locally available saline water. However, design mix concrete of M30 Grade conforming to IS 456 with potable water can be used at locations where transportation of ready-mix concrete is not feasible. Minimum cement

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
		content in any case shall not be less than 330kg/m^3. **c)** The surface of the reinforced steel shall be treated with epoxy-based coating to enhance corrosion performance of foundation. Use of epoxy coated reinforcement in foundation shall be as per IS 13620. In addition, two (2) coats of bituminous painting of minimum 1.6kg/m^2 per coat shall be applied on all exposed faces of foundation (i.e. pedestal & base slab). **d)** Double coat 20mm thick cement plaster shall be provided on all exposed concrete surface as well up to 300mm below ground level to give protection to concrete surface from environmental and saline effect. **e)** Before coping of chimney top portion, three coats of anti-corrosive paint of minimum 30-35 microns dry film thickness each shall be applied on the stub in the 50mm coping portion as well as up to 350mm above CL portion.	content in any case shall not be less than 330kg/m^3. The surface of the reinforced steel shall be treated with epoxy-based coating to enhance corrosion performance of foundation. Use of epoxy coated reinforcement in foundation shall be as per IS 13620. In addition, two (2) coats of bituminous painting of minimum 1.6kg/m^2 per coat shall be applied on all exposed faces of foundation (i.e. pedestal & base slab). Double coat 20mm thick cement plaster shall be provided on all exposed concrete surface as well up to 300mm below ground level to give protection to concrete surface from environmental and saline effect. Before coping of chimney top portion, three coats of anti-corrosive paint of minimum 30-35 microns dry film thickness each shall be applied on the stub in the 50mm coping portion as well as up to 350mm above CL portion.
10.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION	**A.19.0** The raised chimney foundation is to be provided in areas prone to flooding/water stagnation like paddy field /agricultural field & undulated areas to avoid direct contact of water with steel part of tower. The top of the chimney of foundation should be at least above HFL (High Flood Level) or the historical water stagnation/ logging level (based on locally available data) or above High Tide Level or 500 mm above Natural Ground level (whichever is higher).	**A.18.0** The raised chimney foundation is to be provided in areas prone to flooding/water stagnation like paddy field /agricultural field & undulated areas to avoid direct contact of water with steel part of tower. The top of the chimney of foundation should be at least above HFL (High Flood Level) or the historical water stagnation/ logging level (based on locally available data) or above High Tide Level or 500 mm above Natural Ground level (whichever is higher).

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
	LINE of RFP & Schedule: 1 of TSA		
11.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE of RFP & Schedule: 1 of TSA	**A.20** For the transmission lines upto 400 kV level which are passing through wildlife/ eco sensitive zones, the towers located in such sections shall be designed for Multicircuit (4 circuits) configuration of same voltage level considering reliability level of at least two (2). The top two circuits of these multi-circuit towers shall be used for stringing of the subject transmission line and the bottom two circuits shall be made available for stringing of any future transmission line passing through the same wildlife/ eco sensitive zone and owned by any transmission service providers/ State transmission utilities/Central transmission utilities, whatever the case may be. Further, the configuration and coordinates of such transmission towers shall be submitted to CEA & BPC's by the transmission service provider.	**A.19.0** For the transmission lines upto 400 kV level which are passing through wildlife/ eco sensitive zones, the towers located in such sections shall be designed for Multicircuit (4 circuits) configuration of same voltage level considering reliability level of at least two (2). The top two circuits of these multi-circuit towers shall be used for stringing of the subject transmission line and the bottom two circuits shall be made available for stringing of any future transmission line passing through the same wildlife/ eco sensitive zone and owned by any transmission service providers/ State transmission utilities/Central transmission utilities, whatever the case may be. Further, the configuration and coordinates of such transmission towers shall be submitted to CEA & BPC's by the transmission service provider.
12.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION of RFP &	**B.1.1 Insulation Coordination** The system design parameters for substations/switchyards shall be as given below:	**B.1.1 Insulation Coordination** The system design parameters for substations/switchyards shall be as given below:

<table>
<tr><th>Sl. No.</th><th>Clause No.</th><th>Existing Provisions</th><th>New / Revised Clause</th></tr>
<tr><td></td><td>Schedule: 1 of TSA</td><td>
<table>
<tr><th>Sl No</th><th>Description of parameters</th><th>Extn. of 400kV Gadag PS</th><th>Extn. of 400kV Koppal PS</th></tr>
<tr><td></td><td></td><td>400 kV System</td><td>400 kV System</td></tr>
<tr><td>1.</td><td>System operating voltage</td><td>400kV</td><td>400kV</td></tr>
<tr><td>2.</td><td>Maximum voltage of the system (rms)</td><td>420kV</td><td>420kV</td></tr>
<tr><td>3.</td><td>Rated frequency</td><td>50Hz</td><td>50Hz</td></tr>
<tr><td>4.</td><td>No. of phase</td><td>3</td><td>3</td></tr>
<tr><td>5.</td><td>Rated Insulation levels</td><td></td><td></td></tr>
<tr><td>i)</td><td>Impulse withstand voltage for (1.2/50 micro sec.)

- for Equipment <u>other than</u> Transformer and Reactors

- for Insulator String</td><td>1425kVp

1550kVp</td><td>1425kVp

1550kVp</td></tr>
</table>
</td><td>
<table>
<tr><th>Sl No</th><th>Description of parameters</th><th>Extn. of 400kV Koppal PS</th><th colspan="2">Extn. of 400kV Gadag PS</th></tr>
<tr><td></td><td></td><td>400 kV System</td><td>400 kV System</td><td><u>220 kV System</u></td></tr>
<tr><td>1.</td><td>System operating voltage</td><td>400kV</td><td>400kV</td><td><u>220 kV</u></td></tr>
<tr><td>2.</td><td>Maximum voltage of the system (rms)</td><td>420kV</td><td>420kV</td><td><u>245 kV</u></td></tr>
<tr><td>3.</td><td>Rated frequency</td><td>50Hz</td><td>50Hz</td><td><u>50Hz</u></td></tr>
<tr><td>4.</td><td>No. of phase</td><td>3</td><td>3</td><td><u>3</u></td></tr>
<tr><td>5.</td><td>Rated Insulation levels</td><td></td><td></td><td></td></tr>
<tr><td>i)</td><td>Impulse withstand voltage for (1.2/50 micro sec.)

- for equipment <u>except</u> Transformer and Reactors

- for Insulator String</td><td>1425kVp

1550kVp</td><td>1425kVp

1550kVp</td><td><u>1050 kVp</u>

<u>1050 kVp</u></td></tr>
</table>
</td></tr>
</table>

Sl. No.	Clause No.	Existing Provisions				New / Revised Clause				
			ii)	Switching impulse withstand voltage (250/2500 micro sec.) dry and wet	1050kVp	1050kVp		ii)	Switching impulse withstand voltage (250/2500 micro sec.) dry and wet	1050kVp	1050kVp	**-NA-**
			iii)	One minute power frequency dry withstand voltage (rms)	630kV	630kV		iii)	One minute power frequency dry withstand voltage (rms)	630kV	630kV	**460 kV**
			iv)	**One minute power frequency dry and wet withstand voltage (rms)**	**-**	**-**		6.	Corona extinction voltage	320V	320kV	**-**
			6.	Corona extinction voltage	320kV	320V		7.	Max. radio interference voltage for frequency between 0.5 MHz and 2 MHz	1000 micro-volts at 266kV rms	1000 micro-volts at 266kV rms	**1000 micro-volts at 156kV rms**
			7.	Max. radio interference voltage for frequency between 0.5 MHz and 2 MHz	1000 micro-volts at 266kV rms	1000 micro-volts at 266kV rms		8.	Minimum creepage distance for insulator string/ longrod insulators/ outdoor bushings	13020 mm (31mm/kV)	13020 mm (31mm/kV)	**7595 mm (31mm/kV)**
			8.	Minimum creepage distance for insulator string/ longrod	13020 mm (31mm/kV)	13020 mm (31mm/kV)						

<table>
<tr><th>Sl. No.</th><th>Clause No.</th><th>Existing Provisions</th><th>New / Revised Clause</th></tr>
<tr>
<td></td>
<td></td>
<td>
<table>
<tr><td></td><td>insulators/ outdoor bushings</td><td></td><td></td></tr>
<tr><td>9.</td><td>Minimum creepage distance for switchyard equipment</td><td>10500mm (25mm/kV)</td><td>10500mm (25mm/kV)</td></tr>
<tr><td>10.</td><td>Max. fault current</td><td>63kA</td><td>63kA</td></tr>
<tr><td>11.</td><td>Duration of fault</td><td>1 sec</td><td>1 Sec</td></tr>
</table>
</td>
<td>
<table>
<tr><td>9.</td><td>Minimum creepage distance for switchyard equipment</td><td>10500mm (25mm/kV)</td><td>10500mm (25mm/kV)</td><td><u>6125mm (25mm/kV)</u></td></tr>
<tr><td>10.</td><td>Max. fault current</td><td>63kA</td><td>63kA</td><td><u>50kA</u></td></tr>
<tr><td>11.</td><td>Duration of fault</td><td>1 Sec</td><td>1 sec</td><td><u>1 Sec</u></td></tr>
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<tr>
<td>13.</td>
<td>Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION of RFP & Schedule: 1 of TSA</td>
<td>
B.1.2 Switching Scheme

The switching schemes, as mentioned below, shall be adopted at various voltage levels of substation/switchyard:

<table>
<tr><th>Substation</th><th>400kV side</th></tr>
<tr><td>Extn. of 400kV Gadag PS</td><td>One & half breaker (AIS)</td></tr>
<tr><td>Extn. of 400kV Koppal PS</td><td>One & half breaker (AIS)</td></tr>
</table>

Notes: -
i. At 400kV voltage level, each circuit of a double circuit transmission line shall be terminated in different diameters..
</td>
<td>
B.1.2 Switching Scheme

The switching schemes, as mentioned below, shall be adopted at various voltage levels of substation/switchyard:

<table>
<tr><th>Substation</th><th>400kV side</th><th><u>220 kV side</u></th></tr>
<tr><td>Extn. of 400kV Koppal PS</td><td>One & half breaker (AIS)</td><td><u>-</u></td></tr>
<tr><td>Extn. of 400kV Gadag PS</td><td>One & half breaker (AIS)</td><td><u>Double Main & Transfer</u></td></tr>
</table>

Notes: -
i. At 400kV voltage level, each circuit of a double circuit transmission line shall be terminated in different diameters.
ii. <u>Two transformers of same HV rating shall not be connected in the same diameter and similarly, two bus</u>
</td>
</tr>
</table>

<table>
<tr><th>Sl. No.</th><th>Clause No.</th><th>Existing Provisions</th><th>New / Revised Clause</th></tr>
<tr><td></td><td></td><td></td><td>iii. <u>reactors of same HV rating shall also not be connected in the same diameter.</u>
<u>400kV line bays shall be suitable for installation of switchable line Reactor in future and necessary space provision for switchable line Reactor along the bay is to be kept</u></td></tr>
<tr><td>14.</td><td>Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION of RFP & Schedule: 1 of TSA</td><td>B.2.0 Substation Equipment and facilities (Voltage level as applicable):

The switchgear shall be designed and specified to withstand operating conditions and duty requirements. All equipment shall be designed considering the following capacity.

<table>
<tr><th rowspan="2">Sl. No</th><th rowspan="2">Description of bay</th><th>Extn. of 400kV Gadag PS</th><th>Extn. of 400kV Koppal PS</th></tr>
<tr><th>400kV</th><th>400kV</th></tr>
<tr><td>1.</td><td>Bus Bar</td><td>4000A</td><td>4000A</td></tr>
<tr><td>2.</td><td>Line bay</td><td>3150A</td><td>3150A</td></tr>
</table></td><td>B.2.0 Substation Equipment and facilities (Voltage level as applicable):

The switchgear shall be designed and specified to withstand operating conditions and duty requirements. All equipment shall be designed considering the following capacity.

<table>
<tr><th rowspan="2">Sl. No</th><th rowspan="2">Description of bay</th><th colspan="2">Extn. of 400kV Gadag PS</th><th>Extn. of 400kV Koppal PS</th></tr>
<tr><th>400kV</th><th><u>220kV</u></th><th>400kV</th></tr>
<tr><td>1.</td><td>Bus Bar</td><td>4000A</td><td><u>3150A</u></td><td>4000A</td></tr>
<tr><td>2.</td><td>Line bay</td><td>3150A</td><td><u>1600A</u></td><td>3150A</td></tr>
<tr><td><u>3.</u></td><td><u>ICT bay</u></td><td><u>3150A</u></td><td><u>1600A</u></td><td><u>3150A</u></td></tr>
<tr><td><u>4.</u></td><td><u>Bus Coupler bay</u></td><td><u>-</u></td><td><u>3150A</u></td><td><u>-</u></td></tr>
<tr><td><u>5.</u></td><td><u>Transfer Bus coupler bay</u></td><td><u>-</u></td><td><u>1600A</u></td><td><u>-</u></td></tr>
</table></td></tr>
<tr><td>15.</td><td>Annexure C: SPECIFIC TECHNIC</td><td>B.2.1 400kVAIS Substation equipment (as applicable)

B.2.1.1 Circuit Breakers (AIS)</td><td>B.2.1 400kV & 220kV AIS Substation equipment (as applicable)

B.2.1.1Circuit Breakers (AIS)</td></tr>
</table>

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
	AL REQUIREMENTS FOR SUBSTATION of RFP & Schedule: 1 of TSA	The circuit breakers and accessories shall conform to IEC: 62271-100, IEC: 62271-1 and shall be of SF6 Type. The circuit breakers shall be of class C2-M2 (as per IEC) with regard to restrike probability during capacitive current breaking and mechanical endurance. The rated break time shall not exceed 40ms for 400kV circuit breakers. 400kV Circuit breakers shall be provided with single phase and three phase auto reclosing. The Circuit breakers controlling 400kV lines of more than 200km length shall be provided either with pre insertion closing resistor of about 400 ohms maximum with 8ms minimum insertion time or with Controlled Switching Device. The short line fault capacity shall be same as the rated capacity and this is proposed to be achieved without use of opening resistors. The controlled switching device shall be provided in 400kV Circuit breaker of switchable line reactor and in Main & Tie circuit breakers of line with non-switchable line reactors and Bus reactors.	The circuit breakers and accessories shall conform to IEC: 62271-100, IEC: 62271-1 and shall be of SF6 Type. The circuit breakers shall be of class C2-M2 (as per IEC) with regard to restrike probability during capacitive current breaking and mechanical endurance. The rated break time shall not exceed 40ms for 400kV circuit breakers **and 60ms for 220kV circuit breakers**. 400kV **and 220kV** Circuit breakers shall be provided with single phase and three phase auto reclosing. The Circuit breakers controlling 400kV lines of more than 200km length shall be provided either with pre insertion closing resistor of about 400 ohms maximum with 8ms minimum insertion time or with Controlled Switching Device. The short line fault capacity shall be same as the rated capacity and this is proposed to be achieved without use of opening resistors. The controlled switching device shall be provided in 400kV Circuit breaker of switchable line reactor and in Main & Tie circuit breakers of line with non-switchable line reactors and Bus reactors.
16.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION of RFP &	**B.2.1.2 Isolators (AIS)** The isolators shall comply to IEC 62271-102 in general. 400 kV Isolators shall be double break type. All Isolators and earth switches shall be motor operated. Earth switches shall be provided at various locations to facilitate maintenance. Isolator rated for 400kV shall be of extended mechanical endurance class - M2 and suitable for bus transfer current switching duty as per IEC-62271-102. Main blades and earth blades shall be interlocked and interlock shall be fail safe type. 400kV earth switch for line isolator shall be suitable for induced current switching duty as defined for Class-B.	**B.2.1.2 Isolators (AIS)** The isolators shall comply to IEC 62271-102 in general. 400 kV **and 220kV** Isolators shall be double break type. All Isolators and earth switches shall be motor operated. Earth switches shall be provided at various locations to facilitate maintenance. Isolator rated for 400Kv **and 220kV** shall be of extended mechanical endurance class - M2 and suitable for bus transfer current switching duty as per IEC-62271-102. Main blades and earth blades shall be interlocked and interlock shall be fail safe type. 400kV **and 220kV** earth switch for line isolator shall be suitable for induced current switching duty as defined for Class-B.

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
	Schedule: 1 of TSA		
17.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION of RFP & Schedule: 1 of TSA	**B.2.1.3 Current Transformers (AIS)** Current Transformers shall comply with IEC 61869 in general. All ratios shall be obtained by secondary taps only. Generally, Current Transformers (CT) for 400kV shall have six cores (four for protection and two for metering). The burden and knee point voltage shall be in accordance with the requirements of the system including possible feeds for telemetry. Accuracy class for protection core shall be PX and for metering core it shall be 0.2S. The rated burden of cores shall be closer to the maximum burden requirement of metering & protection system (not more than 20VA for metering core) for better sensitivity and accuracy. The instrument security factor shall be less than 5 for CTs upto 400kV voltage class.	**B.2.1.3 Current Transformers (AIS)** Current Transformers shall comply with IEC 61869 in general. All ratios shall be obtained by secondary taps only. Generally, Current Transformers (CT) for 400kV shall have six cores (four for protection and two for metering). **220kV Current Transformers shall have five cores (four for protection and one for metering).** The burden and knee point voltage shall be in accordance with the requirements of the system including possible feeds for telemetry. Accuracy class for protection core shall be PX and for metering core it shall be 0.2S. The rated burden of cores shall be closer to the maximum burden requirement of metering & protection system for better sensitivity and accuracy. The instrument security factor shall be less than 5 for CTs upto 400kV voltage class.
18.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION of RFP & Schedule: 1 of TSA	**B.2.1.4 Capacitive Voltage Transformers (AIS)** Capacitive Voltage transformers shall comply with IEC 61869 in general. These shall have three secondaries out of which two shall be used for protection and one for metering. Accuracy class for protection cores shall be 3P and for metering core shall be 0.2. The Capacitive voltage transformers on lines shall be suitable for Carrier Coupling. The Capacitance of CVT for 400kV shall be of 4400/8800 pF depending on PLCC requirements. The rated burden of cores shall be closer to the maximum burden requirement of metering & protection system (not more than 50VA for metering core) for better sensitivity and accuracy.	**B.2.1.4 Capacitor Voltage Transformers (AIS)** Capacitive Voltage transformers shall comply with IEC 61869 in general. These shall have three secondaries out of which two shall be used for protection and one for metering. Accuracy class for protection cores shall be 3P and for metering core shall be 0.2. The Capacitive voltage transformers on lines shall be suitable for Carrier Coupling. The Capacitance of CVT for 400kV **and 220kV** shall be of 4400/8800 pF depending on PLCC requirements. The rated burden of cores shall be closer to the maximum burden requirement of metering & protection system (not more than 50VA for metering core) for better sensitivity and accuracy.

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
19.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION of RFP & Schedule: 1 of TSA	**B.2.1.5 Surge Arresters (AIS)** **336kV Station High (SH) duty gapless type Surge arresters with thermal energy (Wth) of minimum 12 kJ/kV conforming to IEC 60099-4 in general shall be provided for 420kV system.** Other characteristics of Surge arrester shall be chosen in accordance with system requirements. Surge arresters shall be provided near line entrances, transformers & Reactor so as to achieve proper insulation coordination. Surge Arresters shall be provided with porcelain/ polymer housing fitted with pressure relief devices. A leakage current monitor with surge counter shall be provided with each surge arrester.	**B.2.1.5 Surge Arresters (AIS)** **336kV Station High (SH) class & 216kV Station Medium (SM) class gapless type Surge arresters with thermal energy (Wth) of minimum 12 kJ/kV & 7 kJ/kV conforming to IEC 60099-4 in general shall be provided for 400kV & 220 kV systems respectively.** Other characteristics of Surge arrester shall be chosen in accordance with system requirements. Surge arresters shall be provided near line entrances, transformers & Reactor so as to achieve proper insulation coordination. Surge Arresters shall be provided with porcelain/ polymer housing fitted with pressure relief devices. A leakage current monitor with surge counter shall be provided with each surge arrester.
20.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION of RFP & Schedule: 1 of TSA	**New Clause Added**	**B.2.1.6 400/220/33kV, 3-phase Autotransformer** **500 MVA 400/220/33kV, 3-phase Transformer shall conform to CEA's "Standard Specifications and Technical Parameters for Transformers and Reactors (66 kV and above)" as amended up to date available on CEA website**
21.	Annexure C: SPECIFIC TECHNIC	**B.2.2 Protection Relaying & Control System** **……**	**B.2.2 Protection Relaying & Control System** **……**

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
	AL REQUIREMENTS FOR SUBSTATION of RFP & Schedule: 1 of TSA	**a) Transmission Lines Protection** 400kV lines shall have Main-I numerical three zone distance protection scheme with carrier aided inter-tripping feature. 400kV lines shall also have Main-II numerical distance protection scheme like Main-I but from different make that of Main-I. The Main-I and Main-II protection relays of same make may be provided only if they are of different hardware & manufacturing platform or different principle of operation ……	**a) Transmission Lines Protection** 400kV **and 220kV** lines shall have Main-I numerical three zone distance protection scheme with carrier aided inter-tripping feature. 400kV **and 220kV** lines shall also have Main-II numerical distance protection scheme like Main-I but from different make that of Main-I. The Main-I and Main-II protection relays of same make may be provided only if they are of different hardware & manufacturing platform or different principle of operation. …… **In case of 220kV line bays where the line lengths are not indicated, Numerical Distance protection relay as Main–I and Line Current differential relay (with back up distance protection feature) as Main-II shall be provided. Further, in such case, the matching line current differential relay for remote end shall be provided by the remote end bay owner.**
		Further, all 400kV lines shall be provided with single and three phase auto-reclosing facility to allow reclosing of circuit breakers in case of transient faults. These lines shall also be provided with distance to fault locators to identify the location of fault on transmission lines. All 400kV lines shall also be provided with two stages over voltage protection. Over voltage protection & distance to fault locator may be provided as in-built feature of Main-I & Main-II protection relays. Auto reclose as built-in function of Bay Control Unit (BCU) is also acceptable.	Further, all 400kV **and 220kV** lines shall be provided with single and three phase auto-reclosing facility to allow reclosing of circuit breakers in case of transient faults. These lines shall also be provided with distance to fault locators to identify the location of fault on transmission lines. All 400kV **and 220kV** lines shall also be provided with two stages over voltage protection. Over voltage protection & distance to fault locator may be provided as in-built feature of Main-I & Main-II protection relays. Auto reclose as built-in function of Bay Control Unit (BCU) is also acceptable.

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
		The Main-I and Main-II protection relays shall be fed from separate DC sources and shall be mounted in separate panels. For 400kV transmission lines, directional IDMT earth fault relay should be provided as standalone unit or in-built feature of Main-I and Main -II feature.	The Main-I and Main-II protection relays shall be fed from separate DC sources and shall be mounted in separate panels. For 400kV **and 220kV** transmission lines, directional IDMT earth fault relay should be provided as standalone unit or in-built feature of Main-I and Main -II feature. **b) Auto Transformer Protection** **These shall have the following protections:** **i) Numerical Differential protection** **ii) Numerical Restricted earth fault protection** **iii) Numerical Back-up Over-current and earth fault protection on HV & MV side** **iv) Numerical Over fluxing protection on HV & MV side** **v) Numerical Overload alarm** **vi) Numerical Back up Impedance protection (HV Side)** **Further, Numerical Back-up Over-current and earth fault protection on HV & MV side of autotransformer shall not be combined with other protective functions (except back up Impedance protection) in the main relays and shall be independent relays. Besides these, power transformers shall also be provided with Buchholz relay, protection against high oil and winding temperature and pressure relief device etc.** **Suitable monitoring, control (operation of associated circuit breaker & isolator) and protection for LT auxiliary**

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
			transformer connected to tertiary winding of auto-transformer for the purpose of auxiliary supply shall be provided. The Over current and other necessary protection shall be provided for the auxiliary transformer. These protection and control may be provided as built in feature either in the bay controller to be provided for the auxiliary system or in the control & protection IEDs to be provided for autotransformer.
		b) Bus bar Protection The high speed low impedance type bus bar differential protection, which is essential to minimize the damage and maintain system stability at the time of bus bar faults, shall be provided for 400kV buses. Duplicated bus bar protection is envisaged for 400kV bus-bar protection. Bus bar protection scheme shall be such that it operates selectively for each bus and incorporate necessary features required for ensuring security. The scheme shall have complete bus bar protection for present as well as future bays envisaged i.e. input / output modules for future bays shall also be provided Bus Bar protection system for new substation shall be de-centralized (distributed) type. In case, the bus section is provided, then each side of bus section shall have separate set of bus bar protection schemes. For existing substations, the existing bus bar protection shall be augmented as per requirement.	**c) Bus bar Protection** The high speed low impedance type bus bar differential protection, which is essential to minimize the damage and maintain system stability at the time of bus bar faults, shall be provided for 400kV **and 220kV** buses. Duplicated bus bar protection is envisaged for 400kV bus-bar protection. Bus bar protection scheme shall be such that it operates selectively for each bus and incorporate necessary features required for ensuring security. The scheme shall have complete bus bar protection for present as well as future bays envisaged i.e. input / output modules for future bays shall also be provided. Bus Bar protection system for new substation shall be de-centralized (distributed) type. In case, the bus section is provided, then each side of bus section shall have separate set of bus bar protection schemes. For existing substations, the existing bus bar protection shall be augmented as per requirement.

Sl. No.	Clause No.	Existing Provisions	New / Revised Clause
		c) Local Breaker Back up Protection This shall be provided for each 400kV circuit breakers and will be connected to de-energize the affected stuck breaker from both sides. …….	**d) Local Breaker Back up Protection** This shall be provided for each 400kV **and 220kV** circuit breakers and will be connected to de-energize the affected stuck breaker from both sides. …….
22.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION of RFP & Schedule: 1 of TSA	**B.3.1 AC & DC power supplies** For catering the requirements of three phase & single phase AC supply and DC supply for various substation equipment, existing facilities shall be augmented as required.	**B.3.1 AC & DC power supplies** For catering the requirements of three phase & single phase AC supply and DC supply for various substation equipment **(for present and future scope)**, existing facilities shall be augmented as required.
23.	Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION of	**New Clause Added**	**B.3.7 Oil evacuating, filtering, testing & filling apparatus** **To monitor the quality of oil for satisfactory performance of transformers, shunt reactors and for periodical maintenance necessary oil evacuating, filtering, testing and filling apparatus would be provided at new substations. Oil storage tanks of adequate capacities for storage of transformer oil would be provided.**

<table>
<tr><th>Sl. No.</th><th>Clause No.</th><th>Existing Provisions</th><th>New / Revised Clause</th></tr>
<tr><td></td><td>RFP & Schedule: 1 of TSA</td><td></td><td></td></tr>
<tr><td>24.</td><td>Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION of RFP & Schedule: 1 of TSA</td><td>
B.5.0 EXTENSION OF EXISTING SUBSTATION

The following drawings/details of existing substation is attached with the RFP documents for further engineering by the bidder.
<table>
<tr><th>Sl. No.</th><th>Drawing Title</th><th>Drawing No./Details</th><th>Rev. No.</th></tr>
<tr><td>A.</td><td colspan="3">Extn. of 400kV Gadag S/S</td></tr>
<tr><td>1.0</td><td>Single Line Diagram</td><td rowspan="6"><u>Developer is yet to be finalized by BPC</u></td><td rowspan="6"></td></tr>
<tr><td>2.0</td><td>General Arrangement</td></tr>
<tr><td>3.0</td><td>Earthmat Layout</td></tr>
<tr><td>4.0</td><td>Visual Monitoring System</td></tr>
<tr><td>5.0</td><td>Bus Bar Protection (400kV System)</td></tr>
<tr><td>6.0</td><td>Substation Automation System (SAS)</td></tr>
<tr><td>B.</td><td colspan="3">Extn. of 400kV Koppal S/S</td></tr>
<tr><td>1.0</td><td>Single Line Diagram</td><td rowspan="6"><u>The drawings are yet to be finalized by developer.</u></td><td rowspan="6"></td></tr>
<tr><td>2.0</td><td>General Arrangement</td></tr>
<tr><td>3.0</td><td>Earthmat Layout</td></tr>
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B.5.0 EXTENSION OF EXISTING SUBSTATION

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<tr><td>A.</td><td colspan="3">Extn. of 400kV Gadag S/S</td></tr>
<tr><td>1.0</td><td>Single Line Diagram</td><td><u>5427PC051-GAD-400-SYD-ACS-S5020-SL-000</u></td><td><u>0</u></td></tr>
<tr><td>2.0</td><td>General Arrangement</td><td rowspan="5"><u>The drawings are yet to be finalized by developer.</u></td><td rowspan="5"></td></tr>
<tr><td>3.0</td><td>Earthmat Layout</td></tr>
<tr><td>4.0</td><td>Visual Monitoring System</td></tr>
<tr><td>5.0</td><td>Bus Bar Protection (400kV System)</td></tr>
<tr><td>6.0</td><td>Substation Automation System (SAS)</td></tr>
<tr><td>B.</td><td colspan="3">Extn. of 400kV Koppal S/S</td></tr>
<tr><td>1.0</td><td>Single Line Diagram</td><td><u>5427PC050-KOP-400-SYD-ACS-S5020-SL-0001</u></td><td><u>3</u></td></tr>
<tr><td>2.0</td><td>General Arrangement</td><td><u>5427PC050-KOP-400-SYD-ACS-S2020-GA-0001</u></td><td><u>3</u></td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Sl. No.</th><th>Clause No.</th><th>Existing Provisions</th><th>New / Revised Clause</th></tr>
<tr><td></td><td></td><td>Bidder is also advised to visit the substation sites and acquaint themselves with the topography, infrastructure such as requirement of roads, cable trench, drainage etc. and also the design philosophy.</td><td>
<table>
<tr><td>3.0</td><td>Earthmat Layout</td><td rowspan="4"><u>The drawings are yet to be finalized by developer.</u></td><td rowspan="4"></td></tr>
<tr><td>4.0</td><td>Visual Monitoring System</td></tr>
<tr><td>5.0</td><td>Bus Bar Protection (400kV System)</td></tr>
<tr><td>6.0</td><td>Substation Automation System (SAS)</td></tr>
</table>

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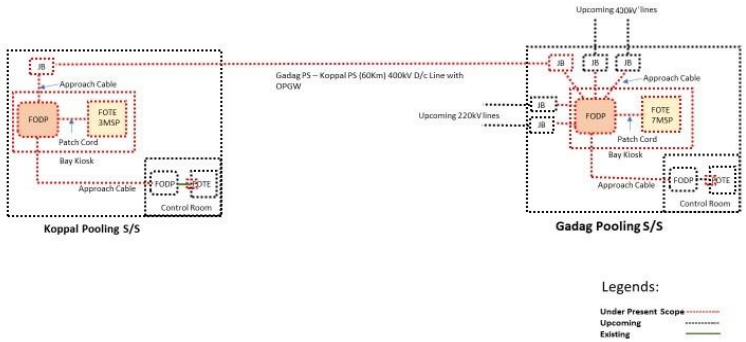
</td></tr>
<tr><td>25.</td><td>Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR COMMUNICATION of RFP & Schedule: 1 of TSA</td><td><u>C.3.0: 2 no. of 400 kV line bays at Gadag PS end for Gadag PS Koppal PS 400kV D/c line</u>

<u>…….</u></td><td><u>C.3.0: 400/220 kV, 3x500 MVA ICT Augmentation at Gadag Pooling Station</u>

<u>…….</u></td></tr>
</table>

<table>
<tr><th>Sl. No.</th><th>Clause No.</th><th>Existing Provisions</th><th>New / Revised Clause</th></tr>
<tr><td></td><td></td><td>Proposed Communication for Transmission Scheme for evacuation of 1500 MW from Gadag SEZ under Phase-II
 

<u>Figure F.1</u></td><td>Proposed Communication for Transmission Scheme for evacuation of 1500 MW from Gadag SEZ under Phase-II
 

<u>Figure F.1</u></td></tr>
<tr><td>26.</td><td>Annexure C: SPECIFIC TECHNICAL REQUIREMENTS FOR COMMUNICATION of RFP & Schedule: 1 of TSA</td><td>C.4.0 PLCC:

……

- PLCC equipment for all the transmission lines covered under the scheme (consisting of one set of analog PLCC channel along with circuit protection coupler and one set of Digital protection coupler for both ends) shall be provided by TSP. CVT & Wave trap for all the line bays under present scope shall be provided by TSP.

……</td><td>C.4.0 PLCC:

……

- PLCC equipment for all the transmission lines covered under the scheme (consisting of one set of analog PLCC channel along with circuit protection coupler and one set of Digital protection coupler for both ends) shall be provided by TSP. <u>PLCC to be provided for following lines under present scope:</u>

<table>
<tr><th><u>Sl. No</u></th><th><u>Line name</u></th><th><u>PLCC configuration</u></th></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Sl. No.</th><th>Clause No.</th><th>Existing Provisions</th><th>New / Revised Clause</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td><u>1</u></td><td><u>400kV Gadag PS-Koppal PS D/C</u></td><td><u>1 set Analog PLCC + 1 set Digital Protection Coupler for each circuit at both ends.</u></td></tr>
</table>
<u>Further, CVT & Wave trap for all 400kV & 220kV line bays under present scope shall be provided by TSP</u>.
……</td></tr>
<tr><td>27.</td><td>RFP & TSA</td><td>Name of the Project Specific SPV</td><td>Name of the Project Specific SPV All the reference to the name of the SPV may be read as “GADAG II-A TRANSMISSION LIMITED”.</td></tr>
</table>