

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
1	500 MVA, 400/220/33 KV, 3-phase Auto Transformer (ICT) complete in all respect alongwith its MB Box, Radiator Bank and its cooling arrangement, Conservator, Cooler Control Cabinet/Marshalling Kiosk, accessories and insulating oil. Work includes erection of all auxiliaries viz turrets, bushings, terminal connectors, associated earthing works (excluding riser connections to main earthmat), laying of cable from Transformer auxiliaries to MK, Oil filtration, filling of oil, hot oil circulation, Oil testing etc as required to complete the installation of Transformer (Supervision of unloading, Erection, Testing and commissioning will be done by OEM). Note:- 1) Charges for Oil filtration, filling of oil, hot oil circulation etc for first time commissioning of Transformer are deemed to be covered in this line item. 2) Charges for testing of oil supplied in drums are covered separately under item no. 1.8 below. Unloading of Transformer tank main body is excluded in this scope, the same is covered under a seperate line item below.		2	Nos.	13,91,328.75	27,82,657.50
2	500 MVA, 400/220/33 KV, 3-phase Auto Transformer (ICT) - RTCC Panel with Transformer Monitoring cum Tap Changer Control System alongwith associated accessories complete in all respect.		2	Nos.	5,250.00	10,500.00
3	500 MVA, 400/220/33 KV, 3-phase Auto Transformer (ICT)- Unloading of TransformerTank (main body)		2	Nos.	1,31,250.00	2,62,500.00
4	500 MVA, 400/220/33 KV, 3-phase Auto Transformer (ICT) - Dragging/shifting charges of above mentioned transformer (1 No.) on ground , upto rail cum road / jacking pad		80	Meter	2,625.00	2,10,000.00
5	500 MVA, 400/220/33 KV, 3-phase Auto Transformer (ICT) - Dragging / shifting charges of above mentioned transformer (1 No.) on rail cum road		30	Meter	2,625.00	78,750.00
6	500 MVA, 400/220/33 KV, 3-phase Auto Transformer (ICT) - Complete dryout of Transformer by N2 filling/ vaccuming/ purging and heating (if required) as per BHEL procedure (Annexure-F). Complete in all respect excluding supply N2 gas.		2	Lot	39,690.00	79,380.00
7	500 MVA, 400/220/33 KV, 3-phase Auto Transformer (ICT) - Supply of N2 gas as per instruction of BHEL Site. Mode of measurement shall be number of gas cyliner (returnable) having 50kg N2 gas		160	Nos.	2,205.00	3,52,800.00
8	500 MVA, 400/220/33 KV, 3-phase Auto Transformer (ICT) - Oil Testing (BDV, ppm, Resistivity & Tan delta etc for oil supplied in drums (if required). 1 set equals all the tests on 1 sample.		25	Set	2,205.00	55,125.00
9	160 MVA, 220/132/33 KV, 3-phase Auto Transformer (ICT) complete in all respect alongwith its MB Box, Radiator Bank and its cooling arrangement, Conservator, Cooler Control Cabinet/Marshalling Kiosk, accessories and insulating oil. Work includes erection of all auxiliaries viz turrets, bushings, terminal connectors, associated earthing works (excluding riser connections to main earthmat), laying of cable from Transformer auxiliaries to MK, Oil filtration, filling of oil, hot oil circulation, Oil testing etc as required to complete the installation of Transformer (Supervision of unloading, Erection, Testing and commissioning will be done by OEM). Note:- 1) Charges for Oil filtration, filling of oil, hot oil circulation etc for first time commissioning of Transformer are deemed to be covered in this line item. 2) Charges for testing of oil supplied in drums are covered separately under item no. 2.8 below. Unloading of Transformer tank main body is excluded in this scope, the same is covered under a seperate line item below.		2	Nos.	5,25,000.00	10,50,000.00
10	160 MVA, 220/132/33 KV, 3-phase Auto Transformer (ICT) - RTCC Panel with Transformer Monitoring cum Tap Changer Control System alongwith associated accessories complete in all respect.		2	Nos.	5,250.00	10,500.00
11	160 MVA, 220/132/33 KV, 3-phase Auto Transformer (ICT) - Unloading of TransformerTank (main body)		2	Nos.	1,05,000.00	2,10,000.00

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12	160 MVA, 220/132/33 KV, 3-phase Auto Transformer (ICT) - Dragging/shifting charges of above mentioned transformer (1 No.) on ground , upto rail cum road / jacking pad		80	Meter	2,100.00	1,68,000.00
13	160 MVA, 220/132/33 KV, 3-phase Auto Transformer (ICT) - Dragging / shifting charges of above mentioned transformer (1 No.) on rail cum road		30	Meter	2,100.00	63,000.00
14	160 MVA, 220/132/33 KV, 3-phase Auto Transformer (ICT) - Complete dryout of Transformer by N2 filling/ vaccuming/ purging and heating (if required) as per BHEL procedure (Annexure-F) . Complete in all respect excluding supply N2 gas.		2	Lot	39,690.00	79,380.00
15	160 MVA, 220/132/33 KV, 3-phase Auto Transformer (ICT) - Supply of N2 gas as per instruction of BHEL Site. Mode of measurement shall be number of gas cyliner (returnable) having 50kG N2 gas		100	Nos.	2,205.00	2,20,500.00
16	160 MVA, 220/132/33 KV, 3-phase Auto Transformer (ICT) - Oil Testing (BDV, ppm, Resistivity & Tan delta etc for oil supplied in drums (if required). 1 set equals all the tests on 1 sample.		25	Set	2,205.00	55,125.00
17	420kV 125 MVA, 3-Ph, Reactor complete in all respect alongwith its MB Box, Radiator Bank and its cooling arrangement, Conservator, Cooler Control Cabinet/Marshalling Kiosk, accessories and insulating oil. Work includes erection of all auxiliaries viz turrets, bushings, terminal connectors, associated earthing works (excluding riser connections to main earthmat), laying of cable from Transformer auxiliaries to MK, Oil filtration, filling of oil, hot oil circulation, Oil testing etc as required to complete the installation of Reactor (Supervision of unloading, Erection, Testing and commissioning will be done by OEM). Note:- 1) Charges for Oil filtration, filling of oil, hot oil circulation etc for first time commissioning of Transformer are deemed to be covered in this line item. 2) Charges for testing of oil supplied in drums are covered separately under item no. 3.7 below. Unloading of Reactor tank main body is excluded in this scope, the same is covered under a sepearte line item below.		1	Nos.	6,33,937.50	6,33,937.50
18	420kV 125 MVA, 3-Ph, Reactor - Unloading of Reactor Tank (main body)		1	Nos.	1,14,108.75	1,14,108.75
19	420kV 125 MVA, 3-Ph, Reactor - Dragging/shifting charges of above mentioned Reactor (1 No.) on ground , upto rail cum road / jacking pad		80	Meter	1,521.45	1,21,716.00
20	420kV 125 MVA, 3-Ph, Reactor - Dragging / shifting charges of above mentioned Reactor (1 No.) on rail cum road		30	Meter	1,521.45	45,643.50
21	420kV 125 MVA, 3-Ph, Reactor - Complete dryout of 400kV Bus Reactor by N2 filling/ vaccuming/ purging and heating (if required) as per BHEL Bhopal procedure (Annexure-F) . Complete in all respect excluding supply N2 gas.		2	Lot	39,690.00	79,380.00
22	420kV 125 MVA, 3-Ph, Reactor - Supply of N2 gas as per instruction of BHEL Site. Mode of measurement shall be number of gas cyliner (returnable) having 50kG N2 gas		80	Nos.	2,205.00	1,76,400.00
23	420kV 125 MVA, 3-Ph, Reactor - Oil Testing (BDV, ppm, Resistivity & Tan delta etc for oil supplied in drums (if required). 1 set equals all the tests on 1 sample.		25	Set	2,205.00	55,125.00

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Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
24	<p>4A1- 400kV Transformer Bay Module: GIS (400kV- 50kA for 3 sec)</p> <p>Work shall include erection / installation, testing and commissioning of 66kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		2	set	1,39,649.69	2,79,299.37
25	<p>4A2- 400kV Bus Reactor Bay Module: GIS (400kV- 50kA for 3 sec) Work shall include erection / installation, testing and commissioning of 66kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		1	set	1,39,649.69	1,39,649.69
26	<p>4A3- 400kV Line Feeder Bay Module: GIS (400kV- 50kA for 3 sec)</p> <p>Work shall include erection / installation, testing and commissioning of 66kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		4	set	1,61,469.95	6,45,879.78

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Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
27	<p>4A4- 400kV Bus Bars: GIS (400kV- 50kA for 3 sec) Work shall include erection / installation, testing and commissioning of 66kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer. Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		2	Set	1,07,231.00	2,14,462.01
28	<p>4A5- 400kV Voltage Transformer module (for Busbars)GIS (400kV- 50kA for 3 sec) - Work shall include erection / installation, testing and commissioning of 400kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer. Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		2	Set	67,642.82	1,35,285.63
29	<p>4A6- 400kV Bus Coupler Bay Module: GIS (400kV- 50kA for 3 sec) Work shall include erection / installation, testing and commissioning of 400kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer. Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		1	set	55,125.00	55,125.00

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Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
30	<p>4A9- 400kV SF6 to Air Bushing GIS (400kV- 50kA for 3 sec) Work shall include erection / installation, testing and commissioning of 66kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		21	nos.	8,728.10	1,83,290.18

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Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
31	<p>4A10- 400kV GIS duct from GIS ICT/Line Bays to SF6 to Air bushing GIS (400kV- 50kA for 3 sec) -</p> <p>Work shall include erection / installation, testing and commissioning of 400kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		600	m	793.46	4,76,078.40
32	<p>4A11-Local Control Cainenet (LCC) for 400kV GIS (400kV- 50kA for 3 sec)</p> <p>Work shall include erection / installation, testing and commissioning of 400kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		8	nos.	7,934.64	63,477.12
33	<p>4A12- Controlled Switching Device for ONE set of 2000A, 3x1-phase, SF6 insulated circuit breaker - GIS (400kV- 50kA for 3 sec)</p> <p>Work shall include erection / installation, testing and commissioning of 66kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		3	nos.	5,250.00	15,750.00
34	<p>GIS (400kV- 50kA for 3 sec) - SF6 Gas Filling/Recovery/Re-filling Cycle. The cycle of the gas filling/recovery/re-filling will be followed multiple time till the Completion of the HV test. Gas processing and filling unit (DILO machine) shall be in the scope of BHEL/manufaturer.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		1	lot	1,64,587.13	1,64,587.13

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35	<p>GIS (400kV- 50kA for 3 sec) - Structure work for Installation of GIS including (excluding bus duct) support structure, fixing of foundation bolts/ base frame, aligning, jointing, welding , fixing of embedded parts / support plates in floors etc., which are required for installation of GIS as per the specification.</p> <p>Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		9	bays	40,233.96	3,62,105.67
36	<p>GIS (400kV- 50kA for 3 sec) -HV Test for GIS - HV test kit shall be arranged by GIS Supplier. Test shall also be conducted by GIS supplier. All necessary support i.e. unloading, shifting, minor assembling of HV test kit, support for complete HV Test, dismantling & loading on carrier. Complete in all respect.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		1	Lot	1,22,311.25	1,22,311.25
37	<p>GIS (400kV- 50kA for 3 sec) -Grounding/ Earthing for GIS complete including Gas Insulated Bus duct, LCC, SF6 to air bushing, using braided Cu wire (insulated/ non-insulated)/ earth strip (Cu/Al/GI flat). Work includes cutting, lug crimping , bolting , fixing etc. and connecting with riser/earth strip (GI/AL /Cu flat) complete in all respect. Grounding Material will be supplied by GIS Supplier /BHEL.</p> <p>Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		9	modules	13,828.68	1,24,458.09

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38	<p>GIS (400kV- 50kA for 3 sec) - Cabling between LCC and GIS including including termination, ferruling , laying, dressing, tagging etc. including arrangement of consumables etc. Cable shall be provided by GIS supplier / BHEL.</p> <p>Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		9	bays	17,456.21	1,57,105.87
39	400kV, 1 Ph, CVT complete with terminal connector without support structure.		6	Nos.	8,585.32	51,511.94
40	400kV, 1 Phase, Gapless type Metal Oxide Surge Arrester complete with surge counter, leakage current meter, insulating base, connecting cable and terminal connectors. -Low level (upto 8 m height from plinth)		9	Nos.	3,064.72	27,582.46
41	400kV, 1 Phase, Gapless type Metal Oxide Surge Arrester complete with surge counter, leakage current meter, insulating base, connecting cable and terminal connectors. -High level (above 8 m to 11 m height from plinth)		6	Nos.	3,589.72	21,538.31
42	400kV, 1 phase, Pedestal type Wave Trap complete with 3 nos. post insulators per WT with terminal connectors without support structure.		4	Nos.	12,462.23	49,848.94
43	400kV Post Insulators complete with corona ring & terminal connectors without support structure - low level (upto 8 m height from plinth)		15	Nos.	1,575.00	23,625.00
44	400kV - Post Insulators complete with corona ring & terminal connectors without support structure - High level (above 8 m to 11 m height from plinth)		9	Nos.	2,100.00	18,900.00
45	<p>2A1- 220kV Transformer (LV side of 500MVA, 400/220kV) Bay Module:GIS (220kV- 40kA for 3 sec) -</p> <p>Work shall include erection / installation, testing and commissioning of 220kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		2	Set	82,130.78	1,64,261.56
46	<p>2A2- 220kV Transformer (HV side of 160MVA, 400/220kV) Bay Module: GIS (220kV- 40kA for 3 sec) -</p> <p>Work shall include erection / installation, testing and commissioning of 220kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		2	Set	82,130.78	1,64,261.56

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Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
47	<p>2A3- 220kV Line Feeder Bay Module: GIS (220kV- 40kA for 3 sec)</p> <p>Work shall include erection / installation, testing and commissioning of 220kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		8	Set	94,963.71	7,59,709.69
48	<p>2A4- 220kV Bus Bars: GIS (220kV- 40kA for 3 sec)</p> <p>Work shall include erection / installation, testing and commissioning of 220kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		2	Set	55,181.62	1,10,363.23
49	<p>2A5- 220kV Voltage Transformer module (for Busbars) GIS (220kV- 40kA for 3 sec) -</p> <p>Work shall include erection / installation, testing and commissioning of 220kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		2	Set	39,782.10	79,564.19

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
50	<p>2A6- 220kV Bus Coupler Bay Module:</p> <p>Work shall include erection / installation, testing and commissioning of 220kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		1	Set	97,530.30	97,530.30
51	<p>2A7- 220kV Gas Insulated Bus Duct- GIS (220kV- 40kA for 3 sec)</p> <p>Work shall include erection / installation, testing and commissioning of 220kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		240	Metre	466.66	1,11,997.72
52	<p>2A8- 220kV SF6 to Air Bushing -GIS (220kV- 40kA for 3 sec) -</p> <p>Work shall include erection / installation, testing and commissioning of 220kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		12	nos.	5,133.18	61,598.12

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
53	<p>2A9- 220kV Cable termination for line bay Work shall include erection / installation, testing and commissioning of 220kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer. Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		8	set	12,600.00	1,00,800.00
54	<p>2A10- LCC for 220kV GIS Work shall include erection / installation, testing and commissioning of 220kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer. Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		13	nos.	4,666.52	60,664.76

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
55	GIS (220kV- 40kA for 3 sec) - Structure work for Installation of GIS including (excluding bus duct) support structure, fixing of foundation bolts/ base frame, aligning, jointing, welding , fixing of embedded parts / support plates in floors etc., which are required for installation of GIS as per the specification.		1	lot	85,309.84	85,309.84
56	GIS (220kV- 40kA for 3 sec) HV Test for GIS - HV test kit shall be arranged by GIS Supplier. Test shall also be conducted by GIS supplier. All necessary support i.e. unloading, shifting, minor assembling of HV test kit, support for complete HV Test, dismantling & loading on carrier. Complete in all respect.		1	lot	1,05,000.00	1,05,000.00
57	GIS (220kV- 40kA for 3 sec) Grounding/ Earthing for GIS complete including Gas Insulated Bus duct, LCC, SF6 to air bushing, using braided Cu wire (insulated/ non-insulated)/ earth strip (Cu/Al/GI flat). Work includes cutting, lug crimping , bolting , fixing etc. and connecting with riser/earth strip (GI/AL /Cu flat) complete in all respect. Grounding Material will be supplied by GIS Supplier /BHEL.		14	bays	5,607.78	78,508.94
58	GIS (220kV- 40kA for 3 sec) Cabling between LCC and GIS including including termination, ferruling , laying, dressing, tagging etc. including arrangement of consumables etc. Cable shall be provided by GIS supplier / BHEL.		14	modules	10,266.35	1,43,728.87
59	220kV , 1 Ph, CVT complete with terminal connector without support structure		12	Nos.	6,258.10	75,097.24
60	216/198 kV, 1 Phase, Gapless type Metal Oxide Surge Arrester complete with surge counter, leakage current meter, insulating base, connecting cable and terminal connectors. - Low level (upto 6 m height from plinth)		12	Nos.	2,625.00	31,500.00
61	216/198 kV, 1 Phase, Gapless type Metal Oxide Surge Arrester complete with surge counter, leakage current meter, insulating base, connecting cable and terminal connectors. - High level (above 6 m to 9 m height from plinth)		12	Nos.	3,150.00	37,800.00
62	220kV, 1 phase, Pedestal type Wave Trap complete with 3 nos. post insulators per WT with terminal connectors without support structure.		8	Nos.	8,400.00	67,200.00
63	220kV Post Insulators complete with terminal connectors without support structure low level (upto 4.6 m height from plinth)		12	Nos.	1,260.00	15,120.00
64	220kV Post Insulators complete with terminal connectors without support structure - High level (above 4.6 m to 9 m height from plinth)		12	Nos.	1,575.00	18,900.00
65	<p>1A1- Transformer (LV side of 160MVA, 220/132kV) Bay Module: GIS (132kV- 40kA for 3 sec)</p> <p>Work shall include erection / installation, testing and commissioning of 132kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per annexure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		2	Set	38,126.06	76,252.11

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
66	<p>1A2- 132kV Line Feeder Bay Module: GIS (132kV- 40kA for 3 sec)</p> <p>Work shall include erection / installation, testing and commissioning of 132kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		9	Set	38,126.06	3,43,134.50
67	<p>1A3- Bus Bars: GIS (132kV- 40kA for 3 sec)</p> <p>Work shall include erection / installation, testing and commissioning of 132kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		2	Set	21,000.00	42,000.00
68	<p>1A4- 132kV Voltage Transformer module (for Busbars)</p> <p>Work shall include erection / installation, testing and commissioning of 132kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		2	Set	10,166.95	20,333.90

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
69	<p>1A5- 132kV Bus Coupler Bay Module:</p> <p>Work shall include erection / installation, testing and commissioning of 132kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		1	Set	33,889.83	33,889.83
70	<p>1A6- 132kV Cable termination for line bay GIS (132kV- 40kA for 3 sec)</p> <p>Work shall include erection / installation, testing and commissioning of 132kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		9	set	9,077.63	81,698.69
71	<p>1A7- 132kV Cable termination for ICT bay- GIS (132kV- 40kA for 3 sec)</p> <p>Work shall include erection / installation, testing and commissioning of 132kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		2	set	9,077.63	18,155.26

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
72	<p>1A8- LCC for 132kV GIS</p> <p>Work shall include erection / installation, testing and commissioning of 132kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		12	nos.	5,250.00	63,000.00
73	<p>GIS (132kV- 40kA for 3 sec) - Structure work for Installation of GIS including (excluding bus duct) support structure, fixing of foundation bolts/ base frame, aligning, jointing, welding , fixing of embedded parts / support plates in floors etc., which are required for installation of GIS as per the specification.</p> <p>Work shall include erection / installation, testing and commissioning of 132kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		1	lot	76,252.11	76,252.11
74	<p>GIS (132kV- 40kA for 3 sec) -HV Test for GIS - HV test kit shall be arranged by GIS Supplier. Test shall also be conducted by GIS supplier. All necessary support i.e. unloading, shifting, minor assembling of HV test kit, support for complete HV Test, dismantling & loading on carrier. Complete in all respect.</p> <p>Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		1	lot	76,252.11	76,252.11

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
75	<p>GIS (132kV- 40kA for 3 sec) - Grounding/ Earthing for GIS complete including Gas Insulated Bus duct, LCC, SF6 to air bushing, using braided Cu wire (insulated/ non-insulated)/ earth strip (Cu/Al/GI flat). Work includes cutting, lug crimping , bolting , fixing etc. and connecting with riser/earth strip (GI/AL /Cu flat) complete in all respect. Grounding Material will be supplied by GIS Supplier /BHEL.</p> <p>Work shall include erection / installation, testing and commissioning of 132kV GIS including LCC panels. The supervision for ETC works shall be provided by OEM/ GIS manufacturer.</p> <p>Arrangement of special tools & tackles/ plants, and testing instrument shall be done by OEM/ BHEL on returnable basis, however, general tools & tackles/ plants, and testing instrument as per anenxure-A&B shall be under contractor's scope.</p> <p>The scope includes complete installation of GIS bays, including Surge Arrester, Cable Connection Module/(s), associated Local Control Cabinet (LCC) and any other module, if applicable. Any other services required for ETC of complete GIS, walkways/ support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up etc complete in all respect. Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		13	bays	6,051.75	78,672.81
76	<p>GIS (132kV- 40kA for 3 sec) - Cabling between LCC and GIS including including termination, ferruling , laying, dressing, tagging etc. including arrangement of consumables etc. Cable shall be provided by GIS supplier / BHEL.</p> <p>Any dismantling/ rework before commissioning shall be in also be in contractor's scope.</p> <p>Please refer notes and relevant technical specification/ drawings for additional details.</p>		13	modules	6,300.00	81,900.00
77	120kV , 1 Phase, Gapless type Metal Oxide Surge Arrester complete with surge counter, leakage current meter, insulating base, connecting cable and terminal connectors. Low level (upto 5 m height from plinth) - Work includes unloading, receipt of material at site, storage, safety & security of material, verification, upkeeping, handing, material shifting, erection, testing & commissioning & handing over		15	Nos.	2,100.00	31,500.00
78	120kV , 1 Phase, Gapless type Metal Oxide Surge Arrester complete with surge counter, leakage current meter, insulating base, connecting cable and terminal connectors. - High level (above 5 m to 9 m height from plinth)		6	Nos.	2,625.00	15,750.00
79	132kV Post Insulators complete with terminal connectors without support structure - low level (upto 5 m height from plinth)		15	Nos.	1,050.00	15,750.00
80	132kV Post Insulators complete with terminal connectors without support structure - High level (above 5 m to 9 m height from plinth)		6	Nos.	1,260.00	7,560.00
81	630kVA , 33/0.433kV LT Auxilairy Transformers Work includes unloading, dragging upto plinth, erection of all auxiliaries, viz bushings, terminal connectors, ,filtration of oil (if required), testing & Commissioning etc.		2	Nos.	11,190.92	22,381.85
82	72.5kV Upto 2000 A SF6 Circuit Breaker (3-ph) with support structure and other accessories complete in all respects		1	Nos.	5,297.22	5,297.22
83	72.5kV, 630A, 3-Ph HDB Isolator with one Earth Switch, Horizontal Double Break, motor operated, mechanically ganged including insulator & MOM box and accessories but without support structure		1	Nos.	4,414.35	4,414.35
84	66kV, 1 Ph, Current Transformer (2000 A),Upto 2000 A live tank complete with terminal connectors without support structure.		3	Nos.	2,692.75	8,078.26
85	66kV,1 Ph, PT complete with terminal connector without support structure.- Work includes unloading, receipt of material at site, storage, safety & security of material, verification, upkeeping, handing, material shifting, erection, testing & commissioning & handing over		3	Nos.	2,427.89	7,283.67
86	52kV, 1 Phase, Gapless type Metal Oxide Surge Arrester complete with surge counter, leakage current meter, insulating base, connecting cable and terminal connectors. Low level (upto 5 m height from plinth)		3	Nos.	1,050.00	3,150.00
87	66kV , Post Insulators complete with terminal connectors without support structure -low level (upto 5 m height from plinth)		3	Nos.	1,050.00	3,150.00

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
88	33kV, 630A, 3-phase VCB alongwith terminal connectors and support structure -		1	Nos.	5,250.00	5,250.00
89	36kV, 630A, 3-Ph HDB Isolator with one Earth Switch, Horizontal Double Break, manually operated, mechanically ganged with insulator & MOM box and accessories but without structure		1	Nos.	4,915.75	4,915.75
90	33kV, 1 Ph, Current Transformer Upto 2000 A , live tank complete with terminal connectors without support structure.		3	Nos.	1,075.82	3,227.46
91	33kV , 1 Ph, PT complete with terminal connector without support structure. - Work includes unloading, receipt of material at site, storage, safety & security of material, verification, upkeeping, handing, material shifting, erection, testing & commissioning & handing over		3	Nos.	1,075.82	3,227.46
92	30kV, 1 Phase, Gapless type Metal Oxide Surge Arrester complete with surge counter, leakage current meter, insulating base, connecting cable and terminal connectors. - Low level (upto 5 m height from plinth)		6	Nos.	787.50	4,725.00
93	33kV, Post Insulators complete with terminal connectors without support structure low level (upto 5 m height from plinth)		30	Nos.	537.92	16,137.45
94	400 kV Single Suspension string insulator (120 kN) assembly with 1x25 nos antifog disc with all hardware accessories including Corona Ring with Drop clamp set suitable for Twin Moose with 450 mm sub conductor spacing		3	Sets	1,890.00	5,670.00
95	220 kV Double Tension string insulator (120 kN per string) with double anchoring points with 2X15 nos antifog disc with all hardware accessories including grading Ring and tension clamp suitable for Twin Moose with 250mm sub conductor spacing with turn buckle		13	Sets	1,785.00	23,205.00
96	220 kV Double Tension string insulator (120 kN per string) with double anchoring points with 2X15 nos antifog disc with all hardware accessories including grading Ring and tension clamp suitable for Twin Moose with 250mm sub conductor spacing without turn buckle		13	Sets	1,785.00	23,205.00
97	220 kV Single Suspension string insulator (90 kN) assembly with 1x15 nos antifog disc with all hardware accessories including grading Ring with Drop clamp set suitable for Twin Moose with 250 mm sub conductor spacing		13	Sets	1,575.00	20,475.00
98	220 kV Single Suspension string insulator (90 kN) assembly with 1x15 nos antifog disc with all hardware accessories including grading Ring with Drop clamp set suitable for single Moose ACSR		5	Sets	1,575.00	7,875.00
99	132 kV Single suspension string insulator assembly with 1X10 Nos.90 kN antifog type disc insulator per string with all hardwares accessories including Grading Ring for suitable for drop type clamp for " single Moose " ACSR		16	Sets	1,260.00	20,160.00
100	GI Stranded Shield wire including tension clamp, PG clamp and clamping on structure for down conductor, fixing/bolting with earth strip etc to complete.		1.5	Km	27,143.74	40,715.60
101	Conductor complete with Tee connectors for droppers to equipment connections, PG clamps for busbar jumpering, Twin/Quad bundle spacers etc to complete.		5	Km	53,411.87	2,67,059.35
102	Al Tube 4.0" (ETC of Al.Tube includes Aluminium welding and bending to be included. Welding sleeve tube will be supplied by BHEL.)		300	m	311.04	93,311.69
103	415V, 3Ph 4 wire ,1250A, 25kA for 1 sec MAIN SWITCHBOARD		1	Set	21,000.00	21,000.00
104	415V, 3Ph, 4 wire, 800A, 20kA for 1s AC DISTRIBUTION BOARD		1	Set	31,500.00	31,500.00
105	415V,3ph 4 wire, 500A, MAIN LIGHTING DISTRIBUTION BOARD (including 2 nos. 150 kVA, 415/415V Lighting transformer)		1	Set	36,750.00	36,750.00
106	415V,3ph 4 wire, 400A, COLONY LIGHTING DISTRIBUTION BOARD (including 2 nos. 150 kVA, 415/415V Lighting transformer)		1	Set	31,500.00	31,500.00
107	415V, 3ph 4 wire , 200A, EMERGENCY LIGHTING DISTRIBUTION BOARD (including 1 nos. 50 kVA, 415/415V Lighting transformer)		1	Set	21,000.00	21,000.00
108	220V, 400A, 20kA (DC) for 1s DC DISTRIBUTION BOARD		2	Set	10,500.00	21,000.00
109	48V, 400A, 20kA (DC) for 1s DC DISTRIBUTION BOARD		2	Set	10,500.00	21,000.00
110	220V, 900AH VRLA Battery Bank with all accessories		2	Nos.	36,750.00	73,500.00
111	48V, 800 AH VRLA Battery Bank with all accessories		2	Nos.	26,250.00	52,500.00
112	220V, Float cum boost battery charger		2	Nos.	10,500.00	21,000.00
113	48V, Float cum boost battery charger		2	Nos.	10,500.00	21,000.00
114	Bay Marshalling Kiosks (Outdoor, Floor mounted on cable trench)		1	Nos.	3,764.44	3,764.44
115	CT Junction Box (on foundation/structure)		2	Nos.	2,220.06	4,440.12
116	VT Junction Box (on foundation/structure)		8	Nos.	2,220.05	17,760.39

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
117	Control and Relay Panels and SAS (At Local End) - 400kV Line Relay & BCU Panel (Approx 800mm Wide) {1Set = 2 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		4	Set	10,500.00	42,000.00
118	Control and Relay Panels and SAS (At Local End) - 400kV ICT (500MVA) Relay & BCU Panel (Approx 800mm Wide) {1Set = 2 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		2	Set	10,500.00	21,000.00
119	Control and Relay Panels and SAS (At Local End) -400kV Bus Reactor Relay & BCU Panel (Approx 800mm Wide) {1Set = 2 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		1	Set	10,500.00	10,500.00
120	Control and Relay Panels and SAS (At Local End) - 400kV Bus Coupler Relay & BCU Panel (Approx 800mm Wide) {1Set = 1 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		1	Set	5,250.00	5,250.00
121	Control and Relay Panels and SAS (At Local End) - 400kV Common Control Panel (Approx 800mm Wide) {1Set = 1 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		1	Set	5,250.00	5,250.00
122	Control and Relay Panels and SAS (At Local End) - 400kV Busbar Relay Panel (Approx 800mm Wide) (1 Set=1 Panels) - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		2	Set	5,250.00	10,500.00
123	Control and Relay Panels and SAS (At Local End) - 220kV Line Relay & BCU Panel (Approx 800mm Wide) {1Set = 2 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		8	Set	10,500.00	84,000.00
124	Control and Relay Panels and SAS (At Local End) - 220kV ICT (500MVA) Relay & BCU Panel (Approx 800mm Wide) {1Set = 1 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		2	Set	5,250.00	10,500.00
125	Control and Relay Panels and SAS (At Local End) - 220kV ICT (160MVA) Relay & BCU Panel (Approx 800mm Wide) {1Set = 2 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		2	Set	10,500.00	21,000.00

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
126	Control and Relay Panels and SAS (At Local End) - 220kV Bus Coupler Relay & BCU Panel (Approx 800mm Wide) {1Set = 1 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		1	Set	5,250.00	5,250.00
127	220kV Common Control Panel (Approx 800mm Wide) {1Set = 1 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		1	Set	5,250.00	5,250.00
128	Control and Relay Panels and SAS (At Local End) - 220kV Busbar Relay Panel (Approx 800mm Wide) (1 Set=1 Panels) - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		1	Set	5,250.00	5,250.00

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
129	Control and Relay Panels and SAS (At Local End) - 132kV Line Relay & BCU Panel (Approx 800mm Wide) {1Set = 2 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		9	Set	10,500.00	94,500.00
130	Control and Relay Panels and SAS (At Local End) - 132kV ICT (160MVA) Relay & BCU Panel (Approx 800mm Wide) {1Set = 1 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		2	Set	5,250.00	10,500.00
131	Control and Relay Panels and SAS (At Local End) - 132kV Bus Coupler Relay & BCU Panel (Approx 800mm Wide) {1Set = 1 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		1	Set	5,250.00	5,250.00
132	Control and Relay Panels and SAS (At Local End) - 132kV Common Control Panel (Approx 800mm Wide) {1Set = 1 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		1	Set	5,250.00	5,250.00
133	Control and Relay Panels and SAS (At Local End) - 132kV Busbar Relay Panel (Approx 800mm Wide) (1 Set=1 Panels) - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		1	Set	5,250.00	5,250.00
134	Control and Relay Panels and SAS (At Local End) - 33kV feeder Relay & BCU Panel (Approx 800mm Wide) {1Set = 1 Nos. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		2	Set	5,250.00	10,500.00
135	Control and Relay Panels and SAS (At Local End) - SAS Network Panel (Approx 800mm Wide) {1 Set = 1No. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		1	Set	5,250.00	5,250.00
136	Control and Relay Panels and SAS (At Local End) - SAS Auxiliary BCU Panel (Approx 800mm Wide) (1 Set = 1No. Panel) - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		1	Set	5,250.00	5,250.00
137	Control and Relay Panels and SAS (At Local End) - Synchronizing Trolley (Approx. 600mm wide) - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		1	Nos.	525.00	525.00

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
138	Control and Relay Panels and SAS (At Local End) - Metering Panel comprising of main and check meters (Approx 800mm Wide) {1 Set = 1 No. Panel} - Relay & BCU Panels & 61850 Based Sub station Automation system complete with all accessories (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords to be in scope of ETC contractor).		4	Set	5,250.00	21,000.00
139	Control and Relay Panels and SAS (At Local End) - Secondary injection test kit		1	Nos.	525.00	525.00
140	Control and Relay Panels and SAS (At Local End) - SAS: Armoured Fibre Optic Cable for SAS and Busbar protection (to be laid in GI/ HDPE Pipe) (Scope - Laying of the cables in the 40mm GI/HDPE PIPE)		5000	m	14.04	70,195.03
141	Control and Relay Panels and SAS (At Local End) - Operator Work Station		3	Nos.	622.08	1,866.23
142	Control and Relay Panels and SAS (At Local End) - Engineering Work Station		1	Nos.	622.08	622.08
143	Control and Relay Panels and SAS (At Local End) - Colour Laser Jet Printer (A3 SIZE)		1	Nos.	311.04	311.04
144	Control and Relay Panels and SAS (At Local End) - Colour Laser Jet Printer (A4 SIZE)		1	Nos.	311.04	311.04
145	Control and Relay Panels and SAS (At Local End) - Dot Matrix printer		1	Nos.	476.72	476.72
146	Control and Relay Panels and SAS (At Local End) - Inverter with Battery Backup		2	Nos.	1,050.00	2,100.00
147	Control and Relay Panels and SAS (At Local End) - 67 inch Large Video Screen with all accessories		1	Nos.	7,525.22	7,525.22
148	Control and Relay Panels and SAS (At Local End) - Laptop with relay parameterisation software		1	Nos.	777.76	777.76
149	Control and Relay Panels and SAS (At Local End) - GPS receiver with 100mm TDU complete in all respects including antenna, all cables, processing equipment etc.		1	Nos.	5,444.28	5,444.28
150	Control and Relay Panels and SAS (At Local End) - Handling & installation of furniture required for OWS, printer, chairs etc.		1	Lot	1,866.23	1,866.23
151	Control and Relay Panels and SAS (At SLDC End)- Gateway Panel (Approx 800mm Wide) {1 Set = 1No. Panel } at Remote End - Testing and commissioning of SAS items in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords and including shifting/ loading/ unloading of equipments to SLDC end to be in scope of ETC contractor.		1	Set	10,500.00	10,500.00
152	Control and Relay Panels and SAS (At SLDC End)- Operator Work Station at Remote End - Testing and commissioning of SAS items in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords and including shifting/ loading/ unloading of equipments to SLDC end to be in scope of ETC contractor.		1	Nos.	1,050.00	1,050.00
153	Control and Relay Panels and SAS (At SLDC End)- Colour Laser Jet Printer (A3 SIZE) at Remote End - Testing and commissioning of SAS items in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords and including shifting/ loading/ unloading of equipments to SLDC end to be in scope of ETC contractor.		1	Nos.	1,050.00	1,050.00
154	PLCC Equipments (at both Local End and Remote End Stations) - Coupling device (Phase to Phase; 1 set = 1 No. LMU Box)- (Testing and commissioning of PLCC Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		20	Set	10,714.99	2,14,299.79
155	PLCC Equipments (at both Local End and Remote End Stations) - HF Cable - (Testing and commissioning of PLCC Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		4500	m	10.37	46,648.59

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
156	PLCC Equipments (at both Local End and Remote End Stations) - Digital PLCC Panels - (Testing and commissioning of PLCC Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		6	Nos.	10,714.99	64,289.94
157	PLCC Equipments (at both Local End and Remote End Stations) - Analog PLCC Panels - (Testing and commissioning of PLCC Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		22	Nos.	10,714.99	2,35,729.77
158	PLCC Equipments (at both Local End and Remote End Stations) - 4 Wire telephone instrument along with telephone with wires - (Testing and commissioning of PLCC Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		2	Nos.	103.66	207.33
159	PLCC Equipments (at both Local End and Remote End Stations) - 5 Pair telephone cable, armoured,0.5 mm dia, annealed copper conductor and petroleum jelly filled with polyethene outer jackets- (Testing and commissioning of PLCC Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		2000	m	10.37	20,732.71

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
160	PLCC Equipments (at both Local End and Remote End Stations) - Single Pair telephone cable, armoured, 0.5 mm dia, annealed copper conductor and petroleum jelly filled with polyethene outer jackets - (Testing and commissioning of PLCC Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		1000	m	10.37	10,366.35
161	PLCC Equipments (at both Local End and Remote End Stations) - EPAX (24/8) with 2 wire Telephone sets, Cables and accessories - (Testing and commissioning of PLCC Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		1	Set	5,183.18	5,183.18
162	FOTE Equipments (at both Local End and Remote End Stations)- FOTE (4 Directions with redundancy) Equipments & PDH Equipment complete with all accessories {1 Set = 1No. Panel } - (Testing and commissioning of FOTE Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		3	Set	6,219.81	18,659.44
163	FOTE Equipments (at both Local End and Remote End Stations)- Digital Tele-Protection Coupler (4 Commands) {1 Set = 1No. Panel } - (Testing and commissioning of FOTE Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		4	Set	6,012.30	24,049.19
164	FOTE Equipments (at both Local End and Remote End Stations)-FODP (for 48 fibres) - (Testing and commissioning of FOTE Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		12	Nos.	3,442.63	41,311.52
165	FOTE Equipments (at both Local End and Remote End Stations)-Optical Fibre approach cable Armoured OFAC (DWDM) of 24 Fibre capacity (to be laid in GI/ HDPE Pipe) (Scope - Laying of the cables in the 40mm GI/HDPE PIPE) - (Testing and commissioning of FOTE Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		4000	m	18.39	73,571.50
166	FOTE Equipments (at both Local End and Remote End Stations)-Optical Fibre approach cable Armoured OFAC (Multi-mode) of 6 Fibre capacity (to be laid in GI/ HDPE Pipe) (Scope - Laying of the cables in the 40mm GI/HDPE PIPE) - (Testing and commissioning of FOTE Equipments in scope of panel supplier. Necessary manpower support, tools, tackles and testing equipment including laying & termination of patch cords and including shifting/ loading/ unloading of equipments to remote end to be in scope of ETC contractor).		2000	m	18.39	36,785.75
167	LT Cabling 4C x 4 sq mm PVC/Copper, Armoured Control Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted separately.		17500	m	13.52	2,36,579.55

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
168	LT Cabling 4C x 10 sq mm PVC/Copper, Armoured Control Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted seprately.		21500	m	13.52	2,90,654.88
169	LT Cabling 2C x 2.5 sq mm PVC/Copper, Armoured Control Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted seprately.		4500	m	12.26	55,178.62
170	LT Cabling 4C x 2.5 sq mm PVC/Copper, Armoured Control Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted seprately.		18500	m	12.26	2,26,845.45
171	LT Cabling 6C x 2.5 sq mm PVC/Copper, Armoured Control Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted seprately.		11000	m	13.13	1,44,437.87
172	LT Cabling10C x 2.5 sq mm PVC/Copper, Armoured Control Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted seprately.		26500	m	13.13	3,47,963.96
173	LT Cabling14C x 2.5 sq mm PVC/Copper, Armoured Control Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted seprately.		38000	m	17.51	6,65,539.69
174	LT Cabling 1C x 150 sq mm PVC/Aluminium, Armoured Auxiliary Power Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted seprately.		1000	m	44.11	44,111.31
175	LT Cabling 3.5C x 70 sq mm PVC/Aluminium, Armoured Auxiliary Power Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted seprately.		9000	m	25.39	2,28,533.68

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
176	LT Cabling 3.5C x 35 sq mm PVC/Aluminium, Armoured Auxiliary Power Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted seprately.		2500	m	17.51	43,785.51
177	LT Cabling 4C x 16 sq mm PVC/Aluminium, Armoured Auxiliary Power Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted seprately.		26500	m	13.52	3,58,249.04
178	LT Cabling 4C x 6 sq mm PVC/Aluminium, Armoured Auxiliary Power Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted seprately.		8500	m	13.52	1,14,910.07
179	LT Cabling 2C x 6 sq mm PVC/Aluminium, Armoured Auxiliary Power Cables including laying, tagging , dressing, ferruling, Glanding, lugging ,soldering, tapping, jointing, crimping, termination, and drilling/ cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC/HDPE pipe over / under ground, through wall , on structure/LM etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Glands shall be quoted seprately.		1000	m	13.52	13,518.83
180	1Cx630 sqmm XLPE Cables- Laying of buried cables as per IS / Buried cable trench section along with supply of trefoil clamps as required		2500	m	155.50	3,88,738.28
181	3.5Cx300 sqmm XLPE Cables - Laying of buried cables as per IS / Buried cable trench section along with supply of trefoil clamps as required		1500	m	57.22	85,833.41
182	4C X 16 sq mm - Directly buried cable - cables to be laid in directly burried trench , all civil activities such as excavation, backfilling, compaction & supply and laying of sand, bricks etc shall be in contractor's scope. excluding supply of Cable Gland & Cable Lug which are covered separately (as separate BOQ item / free supply by BHEL).		800	m	330.75	2,64,600.00
183	3.5C x 35 sqmm - Directly buried cable - cables to be laid in directly burried trench , all civil activities such as excavation, backfilling, compaction & supply and laying of sand, bricks etc shall be in contractor's scope. excluding supply of Cable Gland & Cable Lug which are covered separately (as separate BOQ item / free supply by BHEL).		100	m	367.50	36,750.00
184	3.5C x 70 sqmm - Directly buried cable - cables to be laid in directly burried trench , all civil activities such as excavation, backfilling, compaction & supply and laying of sand, bricks etc shall be in contractor's scope. excluding supply of Cable Gland & Cable Lug which are covered separately (as separate BOQ item / free supply by BHEL).		100	m	367.50	36,750.00
185	Minor civil work required for termination of 220/132kV XLPE cable/ loop formation i.e. excavation, sand bedding, RCC Slab & sand filling, placing the warning tape & back filling etc. for laying the cable out of trench , in ground near termination.		30	M	1,050.00	31,500.00
186	Supply of CABLE GLANDS - Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make.- 4C x 4 sq mm PVC/Copper, Armoured Control Cables		600	Nos.	262.50	1,57,500.00

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
187	Supply of CABLE GLANDS - Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make. 4C x 10 sq mm PVC/Copper, Armoured Control Cables		650	Nos.	262.50	1,70,625.00
188	Supply of CABLE GLANDS - Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make. - 2C x 2.5 sq mm PVC/Copper, Armoured Control Cables		250	Nos.	175.12	43,780.57
189	Supply of CABLE GLANDS - Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make. - 4C x 2.5 sq mm PVC/Copper, Armoured Control Cables		700	Nos.	175.12	1,22,585.59
190	Supply of CABLE GLANDS - Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make. - 6C x 2.5 sq mm PVC/Copper, Armoured Control Cables		350	Nos.	210.15	73,552.74
191	Supply of CABLE GLANDS - Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make. - 10C x 2.5 sq mm PVC/Copper, Armoured Control Cables		1000	Nos.	236.41	2,36,412.11
192	Supply of CABLE GLANDS - - 14C x 2.5 sq mm PVC/Copper, Armoured Control Cables - Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make.		1450	Nos.	262.68	3,80,890.95

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
193	Supply of CABLE GLANDS - 1C x 150 sq mm PVC/Aluminium, Armoured Auxiliary Power Cables- Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make.-		50	Nos.	315.00	15,750.00
194	Supply of CABLE GLANDS -- 3.5C x 70 sq mm PVC/Aluminium, Armoured Auxiliary Power Cables- Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make.		150	Nos.	350.23	52,535.20
195	Supply of CABLE GLANDS - - 3.5C x 35 sq mm PVC/Aluminium, Armoured Auxiliary Power Cables - Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make.		50	Nos.	306.46	15,322.95
196	Supply of CABLE GLANDS - - 4C x 16 sq mm PVC/Aluminium, Armoured Auxiliary Power Cables - Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make.		300	Nos.	262.68	78,805.02
197	Supply of CABLE GLANDS - - 4C x 6 sq mm PVC/Aluminium, Armoured Auxiliary Power Cables - Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make.		350	Nos.	262.68	91,939.20

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
198	Supply of CABLE GLANDS - 2C x 6 sq mm PVC/Aluminium, Armoured Auxiliary Power Cables - Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make.		50	Nos.	193.05	9,652.56
199	Supply of CABLE GLANDS - 1Cx630 sqmm -Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make.		50	Nos.	546.00	27,300.00
200	Supply of CABLE GLANDS - - 3.5Cx300 sqmm - Cable glands shall be double compression type nickel plated (coating thickness not less than 10 microns) brass cable glands complete with necessary armour clamp and tapered washer, etc. for all power and control cables to provide dust and weather proof terminations. Cable glands shall match with the sizes of different HT/LT/Control cables. The cable glands shall conform to BIS: 6121. They shall comprise of heavy duty brass casting, machine finished and nickel plated, to avoid corrosion and oxidation. Rubber components used in cable glands shall be neoprene and of tested quality. Cable glands shall be of approved make.		50	Nos.	630.00	31,500.00
201	33kV,1CX630 SQMM Cu, XLPE Cable including joints, lugs, glands, ferrules, route markers etc to complete WORK INCLUDES laying in buried cable trench (buried cable section as per CABLE TRENCH LAYOUT DRG), on cable racks		500	m	181.41	90,705.60
202	33kV Cable termination kits - Installation , testing & commissioning		12	set	2,073.27	24,879.25
203	Laying of Cable trays: including bends, tees, elbow, reducers, stiffeners coupler plates, bolting to racks, structure etc. to complete. Scope of minor fabrication is also involved. 100 to 150 mm wide, 2.5 M long Perforated type		100	Meter	50.67	5,066.68
204	Laying of Cable trays: including bends, tees, elbow, reducers, stiffeners coupler plates, bolting to racks, structure etc. to complete. Scope of minor fabrication is also involved. 100 to 750 mm wide, 2.5 M long Ladder type		100	Meter	41.02	4,102.11
205	Cable Rack work includes welding of galvanised steel racks on inserts of trench walls in trenches/ceiling/ floor in switchyard / control room/ GIS Building. Cable rack assembly will be of 2/3/4 tier.		30	MT	24,883.12	7,46,493.49
206	Laying of GI conduits at a depth of 300mm including excavation, backfilling, making and repairing of walls in trenches, cutting, threading, fixing of sockets/ bends where required etc. complete. Both ends of GI conduits shall be closed by plastering. (Payment will be made for the as erected pipe length) GI pipe, 50 NB		100	m	67.57	6,756.89
207	Laying of GI conduits at a depth of 300mm including excavation, backfilling, making and repairing of walls in trenches, cutting, threading, fixing of sockets/ bends where required etc. complete. Both ends of GI conduits shall be closed by plastering. (Payment will be made for the as erected pipe length) GI Pipe, 100 NB		100	m	80.73	8,072.92
208	Laying of PVC pipes/ conduits at a depth of 300mm including excavation, backfilling, making and repairing of walls in trenches, cutting, threading, fixing of sockets/ bends where required etc. complete. Both ends of PVC conduits shall be closed by plastering. (Payment will be made for the as erected pipe length) PVC pipe, 50 NB		500	m	67.57	33,784.44
209	Laying of PVC pipes/ conduits at a depth of 300mm including excavation, backfilling, making and repairing of walls in trenches, cutting, threading, fixing of sockets/ bends where required etc. complete. Both ends of PVC conduits shall be closed by plastering. (Payment will be made for the as erected pipe length) PVC Pipe, 100 NB		500	m	80.73	40,364.61
210	Supply and Laying of HDPE pipe -40mm		1000	m	254.88	2,54,877.00
211	Supply and Laying of HDPE pipe -25mm		1000	m	144.63	1,44,627.00

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
212	Fixing of GI Pipes 50 mm dia on Lattice/ Pipe Structure including clamping, fixing of sockets/ bends as required etc. complete. Both ends of GI Pipes shall be closed by plastering. (Payment will be made for the as erected pipe length).		50	m	67.57	3,378.44
213	Fixing of GI Pipes 100 mm dia on Lattice/ Pipe Structure including clamping, fixing of sockets/ bends as required etc. complete. Both ends of GI Pipes shall be closed by plastering. (Payment will be made for the as erected pipe length).		50	m	80.73	4,036.46
214	The Fire proof sealing / fire stop system / fire protection coating system required to prevent spreading of fire from one place to other place (or one zone to other zone) through the openings in wall / floor, cables laid in trays / racks and openings below Electrical Switchgear / MCC / Distribution boards /Cabinets / Panels, etc. Customer approval to be taken for vendor		20	sq.m	622.08	12,441.56
215	Supply & fixing of Panel Supporting Angles / Channel etc on cable trench in Control Room / GIS buidings(400/220/132kV)		5	MT	63,179.50	3,15,897.52
216	Structural Steel Work welded in built up sections like angles, channels & framed work etc including providing , cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete - Galvanised steel Lattice Structures including hardwares for Towers, beams & equipment support		170	MT	3,940.22	6,69,837.68
217	Structural Steel Work welded in built up sections like angles, channels & framed work etc including providing , cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete - Galvanised steel Pipe Structures including hardwares for equipment support		30	MT	3,327.30	99,819.11
218	Providing holes of following dia. In GI Structural Member like Angle & Plate (Irrespective of size and thickness) for Erection of Tower, Beam & Equipment Support Structure: 13.5mm Dia hole for fixing of M12 Bolt- Quantity		10	Nos.	49.03	490.28
219	Providing holes of following dia. In GI Structural Member like Angle & Plate (Irrespective of size and thickness) for Erection of Tower, Beam & Equipment Support Structure:17.5mm Dia hole for fixing of M16 Bolt- Quantity		50	Nos.	49.03	2,451.40
220	Providing holes of following dia. In GI Structural Member like Angle & Plate (Irrespective of size and thickness) for Erection of Tower, Beam & Equipment Support Structure: 22mm dia hole for fixing of Stringing Hardware		10	Nos.	49.03	490.28
221	Providing holes of following dia. In GI Structural Member like Angle & Plate (Irrespective of size and thickness) for Erection of Tower, Beam & Equipment Support Structure:28mm dia hole for fixing of Stringing Hardware		10	Nos.	49.03	490.28
222	Earthing works- 75 x 12 mm GI Flat - The earthing includes earthing of all switchyard equipment, towers, pipe structure, cable trenches, fence, pipe electrode for LA, CVT, neutral of transformer & at interconnections of other grids, Control room equipments using necessary connectors for earthing flats. Earthing clamping shall be carried out by ETC contractor. GS strip including cutting, bending, welding with 40 mm dia MS rod riser/earth strip, applying zinc rich paint, clamping to structure/building wall etc. to complete. Hardware required for connecting flat on pads of structure & equipment included in scope. The Earthing of equipments shall be carried out as per equipment earthing drg		19	MT	8,759.75	1,66,435.19
223	Earthing works - 50 x 6 mm GI Flat- The earthing includes earthing of all switchyard equipment, towers, pipe structure, cable trenches, fence, pipe electrode for LA, CVT, neutral of transformer & at interconnections of other grids, Control room equipments using necessary connectors for earthing flats. Earthing clamping shall be carried out by ETC contractor. GS strip including cutting, bending, welding with 40 mm dia MS rod riser/earth strip, applying zinc rich paint, clamping to structure/building wall etc. to complete. Hardware required for connecting flat on pads of structure & equipment included in scope. The Earthing of equipments shall be carried out as per equipment earthing drg		3	MT	20,447.81	61,343.43

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
224	Laying of 40 mm dia MS Rods at a depth of 600 mm measured from the top of Finished Ground Level and bringing out risers just below gravel level near the equipment foundations as per requirement including following works: - excavation of trenches - laying of MS rod - welding of rods (refer Drg No. C/ENG/STD/EARTHINGS/09, SH-2&3 Rev 00 for Welding details of rods) - backfilling of soil for bringing out pig tail risers of 40 dia MS rod (approximately 1000) for equipments. Risers shall be raised from the earthmat (at 600 mm depth) to 150 mm above ground level to the nearest point of the equipment. This shall include all cutting, bending, welding, fixing, application of zinc rich paint on cutting surface, etc to the main earthmesh. - any other work necessary to complete the laying of earthmat (40 mm dia MS rod will be supplied by BHEL)		1	MT	10,769.94	10,769.94
225	Earthing works 50 x 6 mm MS Flat- The earthing includes earthing of all switchyard equipment, towers, pipe structure, cable trenches, fence, pipe electrode for LA, CVT, neutral of transformer & at interconnections of other grids, Control room equipments using necessary connectors for earthing flats. Earthing clamping shall be carried out by ETC contractor. GS strip including cutting, bending, welding with 40 mm dia MS rod riser/earth strip, applying zinc rich paint, clamping to structure/building wall etc. to complete. Hardware required for connecting flat on pads of structure & equipment included in scope. The Earthing of equipments shall be carried out as per equipment earthing drg -		3	MT	20,447.81	61,343.43
226	Earthing works- - 25 x 6 mm MS Flat- The earthing includes earthing of all switchyard equipment, towers, pipe structure, cable trenches, fence, pipe electrode for LA, CVT, neutral of transformer & at interconnections of other grids, Control room equipments using necessary connectors for earthing flats. Earthing clamping shall be carried out by ETC contractor. GS strip including cutting, bending, welding with 40 mm dia MS rod riser/earth strip, applying zinc rich paint, clamping to structure/building wall etc. to complete. Hardware required for connecting flat on pads of structure & equipment included in scope. The Earthing of equipments shall be carried out as per equipment earthing drg		3.5	MT	20,447.81	71,567.34
227	Earthing works- - 25x3 mm GI flat- The earthing includes earthing of all switchyard equipment, towers, pipe structure, cable trenches, fence, pipe electrode for LA, CVT, neutral of transformer & at interconnections of other grids, Control room equipments using necessary connectors for earthing flats. Earthing clamping shall be carried out by ETC contractor. GS strip including cutting, bending, welding with 40 mm dia MS rod riser/earth strip, applying zinc rich paint, clamping to structure/building wall etc. to complete. Hardware required for connecting flat on pads of structure & equipment included in scope. The Earthing of equipments shall be carried out as per equipment earthing drg		2	MT	20,447.81	40,895.62
228	Lighting Panel (Outdoor) Type ACP-2 as per technical specification. Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		6	Nos.	4,200.00	25,200.00
229	Lighting Panel (Outdoor) Type ACP-3 as per technical specification Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		2	Nos.	4,200.00	8,400.00

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
230	Sub-lighting panel (outdoor) Type SLP as per technical specification Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		4	Nos.	1,050.00	4,200.00
231	LED flood lighting fixtures- type " FL2" as per technical specification Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		160	Nos.	1,260.00	2,01,600.00
232	LED flood lighting fixtures- type " FL1" as per technical specification Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		36	Nos.	1,260.00	45,360.00
233	63A, 415V : Interlocked switch socket outdoor Receptacle (Type RP) complete in all aspect except cable. Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		3	Nos.	4,200.00	12,600.00
234	15A, 240V: Outdoor Receptacle 2 pole, 3-pin type (Type RO) complete in all aspect except cable.Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		3	Nos.	1,050.00	3,150.00
235	Type L1 Street Lighting Pole of 6 meter - for SL-L1 type fixture including civil works as per BHEL provided drawing Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		60	Nos.	7,875.00	4,72,500.00
236	Type D1 Post top lantern pole of 4 meter - for SL-D1 type fixture including civil works as per BHEL provided drawing Details of scope of work as per Annexure -Illumination		4	Nos.	6,300.00	25,200.00

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
237	3m , 20mm dia ms rod electrode including civil works - Details of scope of work as per Annexure -Illumination		65	Nos.	105.00	6,825.00
238	Street lighting Fixture type " SL-L1" including junction box and wire as per BHEL provided drawing - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		60	Nos.	525.00	31,500.00
239	Street lighting Fixture type " SL-D1" including junction box and wire as per BHEL provided drawing - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		4	Nos.	525.00	2,100.00
240	3 m high including junction box and wire including civil works as per BHEL provided drawing - Details of scope of work as per Annexure -Illumination Street lighting pole, 1		2	Nos.	7,875.00	15,750.00
241	High beam fixtures on swivel support - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		3	Nos.	1,575.00	4,725.00
242	Outdoor Power Receptacle for Oil Filtration Unit (250A) - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		2	Nos.	4,200.00	8,400.00
243	30 m high lighting mast with lantern carriage (double drum winch type) including junction box , suitable for mounting 12 luminaires including civil works as per BHEL provided drawing		3	Nos.	1,28,625.00	3,85,875.00
244	Junction boxes for outdoor - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying etc. including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		6	Nos.	1,575.00	9,450.00
245	Lighting Panel (Indoor) Type ACP-1 as per technical specification - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		8	Nos.	2,625.00	21,000.00
246	Lighting Panel (Indoor) Type DCLP as per technical specification - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		4	Nos.	2,625.00	10,500.00
247	Recess mounted 2X2 LED Luminaire - Type 'RSQ-1' - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		250	Nos.	367.50	91,875.00

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
248	Recessed mounted , circular LED downlight luminaire, Type RC-I - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		5	Nos.	367.50	1,837.50
249	Surface mounted , circular LED downlight luminaire, Type SC-I - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		20	Nos.	367.50	7,350.00
250	Surface mounted 2X2 LED Luminaire - Type 'SSQ-1' - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		10	Nos.	367.50	3,675.00
251	Recess mounted 4x1 feet LED panel , Type RL-I - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		4	nos.	367.50	1,470.00
252	Surface mounted linear LED Tube with box, type SL-I - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		220	nos.	367.50	80,850.00
253	LED Indoor high bay fittings Type IHB - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		55	Nos.	525.00	28,875.00
254	Portable emergency lights - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		4	Nos.	210.00	840.00
255	Fitting type -IB - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		20	Nos.	367.50	7,350.00
256	Fitting type -IF - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		20	Nos.	367.50	7,350.00

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
257	Fitting Type - BL - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		5	Nos.	367.50	1,837.50
258	Exit Sign Board - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		10	Nos.	367.50	3,675.00
259	DPMCB receptacles with 32A MCB for split AC supply - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		40	Nos.	525.00	21,000.00
260	Air Conditioning Supply Panel with 160A TP MCCB incommer & 12 Nos 32A DP MCB outgoing feeders - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		5	Nos.	6,300.00	31,500.00
261	Occupancy sensors and other accessories as required for control of lighting in the stairs area and corridors of control room cum administrative building as per specification - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		16	Nos.	525.00	8,400.00
262	Light level sensors and other accessories as required for control of lighting in the stairs area and corridors of control room cum administrative building as per specification - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		18	Nos.	525.00	9,450.00
263	32 A TP receptacles with MCB (3 phase) - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		4	Nos.	525.00	2,100.00
264	Temperature Transducer - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		10	Nos.	525.00	5,250.00

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
265	5A/15A receptacle Type RI - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		15	nos.	472.50	7,087.50
266	15A/240V Receptacle type RO (Industrial type) - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		15	nos.	787.50	11,812.50
267	63A/415V Receptacle type RP (industrial type) - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		2	nos.	4,200.00	8,400.00
268	Telephone points- single outlet telephone socket including cable/wire and accessories - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		10	nos.	105.00	1,050.00
269	Telephone JB - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		1	Nos.	367.50	367.50
270	LAN points incuding accessories - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		5	Nos.	525.00	2,625.00
271	LAN Cable - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		300	metres	15.75	4,725.00
272	Switchboards as per Technical specification - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		40	nos.	525.00	21,000.00
273	1400mm sweep Ceiling fan with electronic Step regulator - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		15	nos.	367.50	5,512.50

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
274	300 mm sweep Exhaust fans - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		6	nos.	367.50	2,205.00
275	400mm sweep wall mounted fan - Scope of work shall include unloading, storage, erection, testing, commissioning & handing over, point wiring , conduit laying and fixing of lights, switches, fans, call bell, exit sign boards, receptacles, switchboards including minor civil works etc to complete as per instruction of engineer-in-charge under the supervision of Illumination system supplier . Details of scope of work as per Annexure -Illumination		5	nos.	367.50	1,837.50
276	Supply items- to be supplied after clearance from site inahрге as per requirement - 25mm Conduits, PVC rigid		500	m	118.92	59,459.40
277	Supply items- to be supplied after clearance from site inahрге as per requirement - 20mm Conduits, PVC rigid		500	m	93.97	46,985.40
278	Supply items- to be supplied after clearance from site inahрге as per requirement -PVC accessories for Conduiting - All the accessories required for successful installation of work i.e. 3 / 4 way JB, Spacer, Inspection bend, Solid bend, Circular boxes (with gasket as applicable), bends, closer, socket, saddle, Fan box, mounting hardwares, nut, bolt, washer, screw, reducer, U clamp, etc complete material required for complete installation of conduit system (As applicable)		50	Kg	168.00	8,400.00
279	Supply items- to be supplied after clearance from site inahрге as per requirement -GI accessories for Conduiting - Hot dip galvanized. all the accessories required for successful installation of work i.e. 3 / 4 way JB, Spacer, Inspection bend, Solid bend, Circular boxes (with gasket as applicable), bends, closer, socket, saddle, Fan box, mounting hardwares, nut, bolt, washer, screw, reducer, U clamp, etc complete material required for complete installation of conduit system. Bidder to submit detailed BOM with weight conversion during detailed engineering. (As applicable)		250	Kg	63.00	15,750.00
280	Supply items- to be supplied after clearance from site inahрге as per requirement -Accessories for Conduiting work, as above but without Hot dip galvanization. (As applicable)		150	Kg	504.00	75,600.00
281	Supply items- to be supplied after clearance from site inahрге as per requirement -Supply of GI wire for Earthing of size 8 SWG to 16 SWG as per technical requirement.		50	kg	105.00	5,250.00
282	Supply items- to be supplied after clearance from site inahрге as per requirement -Supply of 4 Sq mm Cu PVC Wire Red/Yellow/Blue/Black/Grey (ISI marked with valid CML number). Colour coded		1000	m	27.72	27,720.00
283	Supply items- to be supplied after clearance from site inahрге as per requirement - Supply of 2 Sq mm Cu PVC Wire Red/Yellow/Blue/Black/Grey (ISI marked with valid CML number). Colour coded.		2000	m	12.60	25,200.00
284	Supply items- to be supplied after clearance from site inahрге as per requirement - Supply of 1.5 Sq mm Cu PVC Wire [Green/Red/Yellow/Blue/Black/Grey (ISI marked with valid CML number).		1000	m	7.56	7,560.00
285	Supply items- to be supplied after clearance from site inahрге as per requirement - Supply of 2 wire telephone cable. (ISI marked).		200	m	16.80	3,360.00
286	Unloading, storage & handing over of Essential/ Mandatory spares to Customer as per Annexure-spares		1	Lot	62,504.08	62,504.08
287	Supply & ETC of UPPTCL approved make 2 HP Automatic Start/ Stop type Centrifugal pump and accessories for sump pit		1	nos.	11,901.75	11,901.75
288	Supply & ETC of UPPTCL approved make 1 HP Automatic Start/ Stop type Centrifugal pump and accessories for sump pit		1	nos.	11,025.00	11,025.00
289	Supply & ETC of UPPTCL approved make 0.5 HP Automatic Start/ Stop type Centrifugal pump and accessories for sump pit		1	nos.	7,141.18	7,141.18
290	Supply & Mounting of Phase Color Discs, Danger Plate and Identification Plates for bays & Equipments as per IS:2551; 1982 & IS:5; 1978.		1	Lot	1,19,019.62	1,19,019.62
291	Supply of Equipment Fixing Hardware as per specification TB-XXX-618-002a - M20 x 80 LG Bolts (Full Threaded) with nut		20	kg	82.93	1,658.62
292	Supply of equipment fixing hardware as per specification TB-XXX-618-002a - M30 x 150 LG Bolts (Full Threaded) with nut		20	kg	82.93	1,658.62

Annexure-I						
BOQ for Erection Testing & Commissioning (ETC) Works						
Project : 400/220/132 kV GIS SUBSTATION , Rasra, Ballia						
Customer : UPPTCL						
Sr. No.	Description Of Item	SAC_Code	Quantity	UOM	Unit Rate (Rs.)	AMOUNT (Rs.)
293	Supply of equipment fixing hardware as per specification TB-XXX-618-002a - Plain washer suitable for M20 Bolts		20	kg	82.93	1,658.62
294	Supply of equipment fixing hardware as per specification TB-XXX-618-002a - Plain washer suitable for M30 Bolts		20	kg	82.93	1,658.62
295	Supply of equipment fixing hardware as per specification TB-XXX-618-002a - Spring washer suitable for M20 Bolts		10	kg	82.93	829.31
296	Supply of equipment fixing hardware as per specification TB-XXX-618-002a - Spring washer suitable for M30 Bolts		10	kg	82.93	829.31
297	INSULATION MAT: The scope covers supply and laying of insulating mats of "class A" conforming to IS: 15652-2006. These insulating mats shall be laid in front of all floor mounted AC and DC switchboards and control & relay panels located in control room building/ Switchyard panel room / GIS LCC Panel e.t.c.refer scope note for details		100	Sq Meter	1,432.56	1,43,255.70
298	Watch & ward of stored / erected material at project site and storage area or any other locations as per instruction of site in charge. (round the clock security by authorised service agency consisting of armed guard)		24	months	46,648.59	11,19,566.26
299	250 KVA DG SET ALONGWITH ACCESSORIES, 990 LTR. DAY TANK AND SPARES - Scope of work : Unloading, storage & safety at site and shifting from storage to DG foundation.		1	Set	1,613.73	1,613.73
300	Air conditioning system for CRB - High wall type split unit of 2 TR capacity (Indoor, Outdoor and stabiliser etc.) : Scope of work : Unloading, storage & safety of below items		50	Set	430.33	21,516.60
301	Air conditioning system for CRB - Copper refrigerant piping : Scope of work : Unloading, storage & safety of below items		500	Meter	0.99	493.64
302	Air conditioning system for CRB - Controllers :Scope of work : Unloading, storage & safety of below items		12	Nos.	39.49	473.89
303	CCTV System- Laying of cable in conduit		1000	m	21.00	21,000.00
304	Double Girder EOT Crane in GIS halls - 10 T EOT crane including girder, hook, motor, festoon cables etc Scope of work : Unloading, storage & safety of below items:		2	Set	2,100.00	4,200.00
305	Double Girder EOT Crane in GIS halls - 6 T EOT crane including girder, hook, motor, festoon cables etc Scope of work : Unloading, storage & safety of below items:		1	Set	1,575.00	1,575.00
Total Amount (in Rs.) Excluding GST						274,22,085.00
Note:-						
1) This BOQ covers unloading, receipt of material at site, storage, safety & security of material, verification, upkeeping, handing, material shifting, erection, testing & commissioning & handing over of 400/220/132 kV Switchyard associated equipment/ material/ system. Work includes up-keeping of records & issuing of material to other contractors as if required. Final material reconciliation and handing over of spares to customer.						
2) Refer SCOPE NOTE-01 (Doc. no. ETC-BOQ/GIS/Note-1, Rev-0) attached alongwith Tender Document for "Standard scope of work for ETC works".						
3) Refer SCOPE NOTE-2 (Doc. no. ETC-BOQ/GIS/NOTE-2, Rev 0) attached alongwith tender documents for "Project Specific Scope of work for ETC Works"						

ANNEXURE-II

TRANSMISSION BUSINESS GROUP (SUB- CONTRACTS MANAGEMENT) TBG - NOIDA

PRICE SCHEDULE FORMAT

SUB: TENDER FOR "RECEIPT OF EQUIPMENT/MATERIAL AT SITE, UNLOADING, RECONCILIATION, INSPECTION, VERIFICATION, STORAGE, UP-KEEPING DURING STORAGE, ERECTION, TESTING, COMMISSIONING AND HANDING OVER OF 400/220/132KV GIS SUBSTATION AT RASRA, BALLIA IN UTTAR PRADESH".

TENDER SPEC. NO.:- TBSM/ RASRA-BALLIA /ETC /TENDER /19-20/01

DATE 14.11.2019

(a) I/ We hereby agree to execute the above work at ----- % (in figure).....
----- (in words) Above / Below/ At Par the rates of items given in BOQ
(Annexure-I) of subject tender.

NOTE:

1. In this annexure the tenderer shall quote a percentage above/ below/At Par the rates shown in the Bill of Quantities (Annexure-I) of subject tender. The percentage quoted shall be clearly written both in words and figures In case of discrepancy in rates in figure and words, the minimum will be taken into account by BHEL.
2. The quoted percentage will apply to the individual items uniformly.

Date:

Place

Signature of tenderer
Name & Designation of authorized person(s) with seal

ANNEXURE-III
(Summary Of Prices)

NAME OF WORK :- "RECEIPT OF EQUIPMENT/MATERIAL AT SITE, UNLOADING, RECONCILIATION, INSPECTION, VERIFICATION, STORAGE, UP-KEEPING DURING STORAGE, ERECTION, TESTING, COMMISSIONING AND HANDING OVER OF 400/220/132KV GIS SUBSTATION AT RASRA, BALLIA IN UTTAR PRADESH"

Sl No.	Description	Amount (Rs.)
1	Total Amount as per rates in BOQ for "Receipt of equipment/ material at site, unloading, reconciliation, inspection, verification, storage, up-keeping during storage, erection, testing, commissioning and handing over of 400/220/132kV GIS substation at Rasra, Ballia in Uttar Pradesh" (Annexure-I)	274,22,085.00
2	Value of percentage above/below/at par (As indicated in Price Schedule Format, Annexure-II) applicable to the total amount of ETC work (at Sl. no. 1 above)% above/below/ at par
3	Total amount after consideration of percentage above/below/ at par.	