

## Annexure-B

### Indicative Break-up details for ERS Towers

**Name of Lines:**  
**•400 kV Single Circuit Lines – Parbati to Koldam 2X400Kv S/C with Quad Moose Conductor.**  
**•400 kV Double Circuit Lines – Koldam to Ludhiana 400KV D/C With triple snow bird conductor.**

Note: Item Description and Quantities provided herein below are indicative in nature and may vary according to the design of ERS towers. Bidders are advised to quote the prices accordingly considering supplies of complete set and if any items not mentioned in the schedule and are essential to be supplied with ERS for its successful operation, the same will be deemed included in Total Prices offered by the Bidder and no extra claim shall be entertained on this account

SI No.	Activity Description	Item Description	Unit	Per Configuration		Scenario 1			Scenario 2			Total Qty to be Supplied	Spares Qty to be Supplied	Total Qty including Spare to be Supplied
				400KV	400KV	400KV (Plain Terrain)			400KV (Hilly Terrain)					
				C1 (Quad Sus)	C2 (Quad Ten)	C1 (Quad Sus)	C2 (Quad Ten)	Total Qty	C1 (Quad Sus)	C2 (Quad Ten)	Total Qty			
		ERS QUANTITY			8	4		0	12					
1	ERS Tower	ERS Tower - 3 Phase (approx. 47m Height) Including Articulated Base (Gimbal), Mast Sections, Box Sections, GuyPlates/Swivels, Bolts & Nuts as per Requirement.	SET	1	1	8	4	12	0	12	12	12	Nuts & Bolt - 5% of Total Quantity.	12+Spare Bolts
2	Base Plate	Foundation Base Plates for ERS Tower Suitable for Low Bearing Capacity Soil for 400KV T/L Lines.	SET	1	1	8	4	12	0	12	12	12	Anchor Bolts - 5% of Total Quantity	12+Spare Bolts
3	GUYS/Hardware	High Strength Galvanised Steel Guy Wire (14.3 mm dia, min. 150 kN UTS,Standard Length 70 m)	SET	15	36	120	144	264	0	432	432	432	22	454
4	GUYS/Hardware	Guy Wire Thimble	EA	30	72	240	288	528	0	864	864	864	44	908
5	GUYS/Hardware	Preformed Guy Grip	EA	15	36	120	144	264	0	432	432	432	22	454
6	GUYS/Hardware	Guy Hardware Including Turnbuckle & Anchor Shackles, ExtensionLink/Plate as per Requirement	SET	15	36	120	144	264	0	432	432	432	22	454
7	Anchor Assembly	Cross Plate (2 nos. 600 mm x 300 mm)Anchor Assemblies (min. 150 kNUltimateStrength) including guy adaptor,extension rod & associated fittings asper requirement for Normal Soil (min.Anchor Rod Length WithExtension Rod4.5m)	SET	15	36	120	144	264	0	432	432	432	22	454
8	Anchor Assembly	Manta Ray MR-1 (177mmx368 mm) or Eqvt.Anchor Assembly (min. 150 kNUltimateStrength) including guy adaptor,extension rod & associated fittings asper requirement for Normal Soil (min.Anchor Rod Length WithExtension Rod4.5m)	SET	8	18	64	72	136	0	216	216	216	11	227
9	Anchor Assembly	Triple Helix (250mm-300mm-350mm) AnchorAssembly (min. 150 kN UltimateStrength) including guy adaptor,extension rod & associated fittings asper requirement for Loose/MarshySoils(min. Anchor Rod Length With ExtensionRod 4.5m)	SET	5	11	40	44	84	0	132	132	132	7	139
10	Anchor Assembly	Large Plate (3 sqm Bearing Area) AnchorAssembly (min. 150 kN UltimateStrength) including guy adaptor,extension rod & associated fittings asper requirement for Loose/MarshySoils(min. Anchor Rod Length With ExtensionRod 4.5m)	SET	5	11	40	44	84	0	132	132	132	7	139
11	Anchor Assembly	Rock Anchor (55mm Anchor dia) Assembly(min. 150 kN Ultimate Strength)including guy adaptor, extension rod &associated fittings as per requirement(min. Anchor Length 1.2 m)IncludingGrouting Material	SET	8	18	64	72	136	0	216	216	216	11	227
12	Insulator String	Composite Long Rod Insulator (3.5m Length, 160 kN Tensile Strength)	EA	3	15	24	60	84	0	180	180	180		180
13	Insulator String	Composite Long Rod Post Insulator (3.5m Length, min. 90mm Core dia,120kN Tensile Strength, 90 kN Compressive Strength)	EA	6	3	48	12	60	0	36	36	60		60
14	Insulator String	Composite Long Rod Suspension (Guy) Insulator / Insulating Rod (3.5 mLength, 160 kN Tensile Strength) Along With Suitable End Fittings ofGuy Insulators	EA	12	32	96	128	224	0	384	384	384		384
15	Hardware Fitting	Hardware Fittings Including End Attachment, Yoke Plates, SuspensionClamps, Extension Links, Turnbuckles, Corona/Grading Rings OtherFittings & Components as per Requirement of Horizontal V (SingleBrace, Double Post) Suspension Insulator String Assembly. (Yoke plate shall be suitable for connecting quad moose as well as triple snowbird conductors).	SET	3	3	24	12	36	0	36	36	36		36

Indicative Break-up details for ERS Towers	
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		ERS QUANTITY				8	4		0	12				
16	Hardware Fitting	Hardware Fittings Including End Attachment, Yoke Plates, TensionClamps, Extension Links, Turnbuckles, Corona/Grading Rings OtherFittings & Components as per Requirement of Double Tension InsulatorStrings. (Yoke plate shall be suitable for connecting quad moose as well as triple snowbird conductors).	SET	0	6	0	24	24	0	72	72	72		72
17	Earthwire/ OPGW Hardware	Earth Wire/OPGW Suspension Assembly Including Clamp, Fittings &Components as Required	SET	1	1	8	4	12	0	12	12	12		12
18	Earthwire/ OPGW Hardware	Earth Wire/OPGW Tension/Dead-End Assembly Including Strain/Dead EndClamp, Fittings & Components as Required	SET	1	1	8	4	12	0	12	12	12		12
19	Erection Tools	Motorized Sliding Gin Pole Set Including Capstan Hoist With PowerPack, Rope and Other Accessories	SET									3		3
20	Erection Tools	Gin Pole/ Derrick (7.3 m Length)	SET									3		3
21	Erection Tools	6Ton Chain Hoist	EA									36		36
22	Erection Tools	Torque Wrench With Ratchet	EA									18		18
23	Erection Tools	Pulling Eye With Adopter Bushing, Bolts and Nuts	EA									36		36
24	Erection Tools	Automatic Guy Wire Grip/ Come Along Clamp	EA									36		36
25	Erection Tools	Nylon Sling (3 meter)	EA									12		12
26	Erection Tools	Conductor Lifting Hook 4T	EA									12		12
27	Erection Tools	15" Reversible Ratchet	EA									18		18
28	Erection Tools	Square Drive Deep Socket	EA									18		18
29	Erection Tools	Box Wrench for Structure Bolts	EA									18		18
30	Erection Tools	Triple Helix Anchor Installer Kit Including Bar Adapter for HelixAnchor, Torque Indicator, Portable Anchor Installer With HydraulicPower Unit & Accessories	SET									3		3
31	Erection Tools	Rock Anchor Installer Kit Including Pionjar or Eqvt Rock DrillingMachine, Rock Drilling Kits (4 per set), Extensions & Accessories	SET									3		3
32	Erection Tools	Manta Ray Anchor Installer Kit Including Load Locker, Extensions &Accessories	SET									3		3
33	Erection Tools	Temporary Anchor /Stake Plate Including Stake Plate Extension (3 perSet)	SET									8		8
34	Erection Tools	Steel Stake/Rods (For Temporary Anchors)	SET									90		90
35	Erection Tools	Stake/Rod Remover	SET									3		3
36	Erection Tools	Linesman Safety Clamp/ Tower Attachment	SET									6		6
37	Erection Tools	Tower Alignment Clamp/Tool	SET									6		6
38	Erection Tools	Tool Bucket	SET									3		3
39	Erection Tools	Sag Scope	SET									2		2
40	Erection Tools	Wire Rope Dynamometer/ (10 Ton Capacity)	SET									2		2
41	Erection Tools	Power Winch (Engine Driven) Capacity 2 Tons Wheel Mounted	SET									2		2
42	Erection Tools	Electronic Dvnanometer Shackles (10 Ton Capacity)	SET									2		2
43	Containers	Containers (20 Feet )	EA									13		13
44	Software	Relavent Software for ERS with Technical support, validation & Update for 5 years	EA									2		2