

POWER GRID COMPANY OF BANGLADESH LIMITED



Tender Documents for Procurement of

Design, Supply, Installation, Testing & Commissioning of Patuakhali (Payra) - Gopalganj 400kV Transmission Line on Turnkey Basis

Contract No. PGCB/400kV/PAT-GOP/TL

Volume 3

Bid Prices and Schedules

Issued on: September 01, 2016
Invitation for Bids No. 01/PGCB/Sec/(TLD&QC)/2016/4867
Employer: Power Grid Company of Bangladesh Limited (PGCB)
Country: Peoples Republic of Bangladesh
Funded by: Government of Bangladesh and PGCB



Contents of the Tender Documents

Volume 1

- Section I. Instructions to Bidders (ITB)
- Section II. Bid Data Sheet (BDS)
- Section III. Evaluation and Qualification Criteria
- Section IV. Bidding Forms
- Section V. Eligible Countries
- Section VI. Employer's Requirements
- Section VII. General Conditions of Contract (GCC)
- Section VIII. Special Conditions of Contract (PCC)
- Section IX. Contract Forms

Volume 2

- Scope of Works
- Technical Specifications
- Drawings forming Part of the Specifications

Volume 3

- Schedule A: Introduction and Preamble to the Price and Technical Schedules
- Schedule B: Price Schedules
- Schedule C: Bar Chart Program of Key Activities
- Schedule D: Manufacturers, Places of Manufacture and Testing
- Schedule E: Technical Particulars and Guarantees
- Schedule F: Proposed Subcontractors
- Schedule G: Coefficient and Indices for Price Adjustment



1.	Schedule A: Introduction and Preamble to the Price and Technical Schedules	1
2.	Schedule B: Price Schedules	2
2.1	Schedule B1: Price Schedules for the New LILO 230 kV Jhenaidah to 230 kV Bheramara - Khulna OHL	Error! Bookmark not defined.
2.2	Schedule B2: Price Schedules for the New LILO 132 kV Jhenaidah to 132 kV Jhenaidah - Jessore OHL	Error! Bookmark not defined.
2.3	Schedule B3: Price Schedules for the New 132 kV Gallamari - Gopalganj OHL	Error! Book
2.4	Schedule B4: Price Schedules for the New LILO 132 kV Rajbari to 132 kV Bheramara-Faridpur OHL	Error! Bookmark not defined.
3.	Schedule C: Bar Chart Program of Key Activities - Delivery & Completion Time Schedule	3
4.	Schedule D: Manufacturers, Places of Manufacture and Testing	4
5.	Schedule E: Technical Particulars and Guarantees	5
5.1	Towers	5
5.1.1	230 kV Towers	5
5.1.2	132 kV Towers	7
5.2	Piled Foundation Details	8
5.2.1	230 kV Towers	8
5.2.2	132kV Towers	8
5.3	Conductor & Earthwire	9
5.3.1	230 kV Line	9
5.3.2	132 kV Line	11
5.4	OPGW & Fittings	12
5.4.1	230 kV Line	12
5.4.2	132 kV Line	14
5.5	Insulator Sets & Fittings	16
5.5.1	230 kV Line	16
5.5.2	132 kV Line	19
5.6	Spacers and Spacer Dampers	20
5.6.1	230 kV Line	20
5.6.2	132 kV Line (Not Used)	20
5.7	Vibration Dampers	21
5.7.1	230 kV Line	21
5.7.2	132 kV Line	22
6.	Schedule F: Proposed Subcontractors	23
7.	Schedule G: Coefficient and Indices for Price Adjustment	24
8.	Schedule H: Drawings and Documents to Be Submitted With Bid	Error! Book

1. Schedule A: Introduction and Preamble to the Price and Technical Schedules

Not used.



2. Schedule B: Price Schedules

Price Schedules are given hereafter. Bidders are requested to carefully go through the relevant ITB Clauses in Volume 1 to fill in the Price Schedules.

The Bidder shall fill the price schedules, sign and stamp them and attach them to the bid.



Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Aboard

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
A1	Towers					
	Supply of 400kV double circuit towers complete with all stubs, nuts, bolts, locking nuts, washers, phase conductor and earthwire swivels/shackles, step bolts, tower notice and identification plates, ACDs, protective coating, earthing etc.					
	Overland Portion					
A1.1	Tower type 4DL					
A1.1.1	Tower type 4DL Standard		each	21		
A1.1.2	Tower type 4DL E1.5		each	15		
A1.1.3	Tower type 4DL E3		each	25		
A1.1.4	Tower type 4DL E4.5		each	50		
A1.1.5	Tower type 4DL E6		each	80		
A1.1.6	Tower type 4DL E9		each	140		
A1.2	Tower type 4D1					
A1.2.1	Tower type 4D1 Standard		each	1		
A1.2.2	Tower type 4D1 E1.5		each	1		
A1.2.3	Tower type 4D1 E3		each	1		
A1.2.4	Tower type 4D1 E4.5		each	1		
A1.2.5	Tower type 4D1 E6		each	2		
A1.2.6	Tower type 4D1 E9		each	1		
A1.2.7	Tower type 4D1 E12		each	1		
A1.2.8	Tower type 4D1 E15		each	4		
A1.2.9	Tower type 4D1 E20		each	4		
A1.2.10	Tower type 4D1 E25		each	3		
A1.2.11	Tower type 4D1 E30		each	3		
A1.2.12	Tower type 4D1 E40		each	2		
A1.3	Tower type 4D25 (4DXP)					
A1.3.1	Tower type 4D25 Standard		each	1		
A1.3.2	Tower type 4D25 E1.5		each	1		
A1.3.3	Tower type 4D25 E3		each	7		
A1.3.4	Tower type 4D25 E4.5		each	1		
A1.3.5	Tower type 4D25 E6		each	6		
A1.3.6	Tower type 4D25 E9		each	12		
A1.3.7	Tower type 4D25(4DXP) E6		each	2		
A1.4	Tower Type 4D45					
A1.4.1	Tower type 4D45 Standard		each	1		
A1.4.2	Tower type 4D45 E1.5		each	1		
A1.4.3	Tower type 4D45 E3		each	4		
A1.4.4	Tower type 4D45 E4.5		each	1		
A1.4.5	Tower type 4D45 E6		each	14		
A1.4.6	Tower type 4D45 E9		each	6		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Aboard

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
A1.5	Tower Type 4DT6					
A1.5.1	Tower type 4DT6 Standard		each	1		
A1.5.2	Tower type 4DT6 E1.5		each	1		
A1.5.3	Tower type 4DT6 E3		each	1		
A1.5.4	Tower type 4DT6 E4.5		each	1		
A1.5.5	Tower type 4DT6 E6		each	1		
A1.5.6	Tower type 4DT6 E9		each	3		
	River Crossing Portion (Item A1.6 and A1.7)					
A1.6	Tower Type 4DR					
A1.6.1	Tower Type 4DR1 Standard		each	2		
A1.6.2	Tower Type 4DR1 E10		each	2		
A1.6.3	Tower Type 4DR1 E30		each	2		
A1.6.4	Tower Type 4DR2		each	2		
A1.7	Tower Type 4DAX					
A1.7.3	Tower Type 4DAX Standard		each	8		
A1.8	Auxiliary Crossarm for tower					
A1.8.1	Auxiliary crossarm for tower type 4DT6		per set of three	2		
A1.9	Air craft obstruction lights solar powered complete with lamps, solar panels, batteries, control equipment cables, support framework, tower work platform etc.		per tower	192		
A1.10	Tower Test					
A1.10.1	Tower load test to prove compliance with specification. Payment for successful test only. Tested Tower to be supplied to the Employer's store as per technical specification.					
	(a) Tower type 4DL E9.0		each	1		
	(b) Tower type 4D1 E15.0		each	1		
	(c) Tower type 2D25 E9.0		each	1		
	(d) Tower type 4D45 E9.0		each	1		
A2.	Supply of insulator and fittings:					
	Insulator sets complete with insulators and all hardware fittings including suspension clamps, tension dead ends, armour rods, arcing horn, Arcing ring etc					
A2.1	400kV Overland Portion					
A2.1.1	a) 210kN twin suspension Insulators set for Quadruple "ACCC 724/71 DHAKA" Conductor (Suspension) - disc only		set	1,986		
	b) 210kN twin suspension Insulators Fittings set for Quadruple"ACCC 724/71 DHAKA" Conductor (Suspension) - hardware fittings only		set	1,986		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Aboard

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
A2.1.2	a) 210kN twin suspension Insulators set for Quadruple "ACCC 724/71 DHAKA" Conductor (Heavy Suspension) - disc only		set	144		
	b) 210kN twin suspension Insulators Fittings Set for Quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	144		
A2.1.3	a) 210kN jumper suspension Insulators Set for Quadruple "ACCC 724/71 DHAKA" Conductor - disc only		set	486		
	b) 210kN jumper suspension Insulators Fittings Set for Quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	486		
A2.1.4	a) 400kN twin tension Insulators Set for Quadruple "ACCC 724/71 DHAKA" Conductor - disc only		set	816		
	b) 400kN twin tension Insulators Fittings Set for Quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	816		
A2.1.5	a) 210kN single upright low duty Insulators Set for quadruple "ACCC 724/71 DHAKA" Conductor - disc only		set	12		
	b) 210kN single upright low duty Insulators Fittings Set for quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	12		
A2.1.6	a) 210kN single inverted low duty Insulators Set for quadruple "ACCC 724/71 DHAKA" Conductor - disc only		set	12		
	b) 210kN single inverted low duty Insulators Fittings Set for quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	12		
A2.1.7	Spacer damper for Quadruple "ACCC 724/71 DHAKA" Conductor		span-phase	2,538		
	**Span-phase=No. of span x 6. Total quantities of spacer or spacer dampers shall be 'Span-phase x N', where N= Number of spacer dampers for each phase in each span which shall be determined by contractor based on the design of spacer or spacer dampers. The price quoted shall remain unchanged, even if the value of N increases during final design of the spacer or dampers and it's approval thereof.					
A2.1.8	Vibration Damper for Quadruple "ACCC 724/71 DHAKA" Conductor		span	423		
A2.1.9	Jumper Spacer for Quadruple "ACCC 724/71 DHAKA" Conductor		each	1182		
A2.1.10	Vibration damper for ACSR "Dorking" earthwire		span	423		
A2.1.11	Suspension set for ACSR "Dorking" earthwire		each	331		
A2.1.12	Tension set for ACSR "Dorking" earthwire		each	138		
A2.1.13	Vibration Damper for ACSR Dorking earthwire equivalent OPGW		span	423		
A2.1.14	Suspension set for ACSR Dorking earthwire equivalent OPGW, complete assembly		each	331		
A2.1.15	Tension set for ACSR Dorking earthwire equivalent OPGW, complete assembly		each	138		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Aboard

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
A2.1.16	Counterweights for 210kN suspension insulator sets complete with yoke plate attachment bolts to be used for 4D1 towers:					
(a)	- 40kg set		each	8		
(b)	- 80kg set		each	6		
(c)	- 120kg set		each	10		
A2.2	400kV River Crossing Portion					
A2.2.1	a) 300kN tripple suspension Insulators set for Quadruple "ACCC ULS 724/71 DHAKA" Conductor (Suspension) - disc only		set	48		
	b) 300kN tripple suspension Insulators Fittings set for Quadruple "ACCC ULS 724/71 DHAKA" Conductor (Suspension) - hardware fittings only		set	48		
A2.2.2	a) 400kN tripple tension Insulators Set for Quadruple "ACCC ULS 724/71 DHAKA" Conductor - disc only		set	48		
	b) 400kN tripple tension Insulators Fittings Set for Quadruple "ACCC ULS 724/71 DHAKA" Conductor - hardware fittings only		set	48		
A2.2.3	Spacer damper for Quadruple "ACCC ULS 724/71 DHAKA" Conductor		span-phase	72		
	**Span-phase=No. of span x 6. Total quantities of spacer or spacer dampers shall be 'Span-phase x N', where N= Number of spacer dampers for each phase in each span which shall be determined by contractor based on the design of spacer or spacer dampers. The price quoted shall remain unchanged, even if the value of N increases during final design of the spacer or dampers and it's approval thereof.					
A2.2.4	Vibration Damper for Quadruple "ACCC ULS 724/71 DHAKA" Conductor		span	12		
A2.2.5	Jumper Spacer for Quadruple "ACCC ULS 724/71 DHAKA" Conductor		each	144		
A2.2.6	Vibration damper for 19x3.67 20SA earthwire		span	12		
A2.2.7	Suspension set for 19x3.67 20SA earthwire		each	8		
A2.2.8	Tension set for 19x3.67 20SA earthwire		each	8		
A2.2.9	Vibration Damper for 19x3.67 20SA Earthwire equivalent OPGW		span	12		
A2.2.10	19x3.67 20SA Earthwire equivalent OPGW suspension set, complete assembly		each	8		
A2.2.11	19x3.67 20SA Earthwire equivalent OPGW tension set, complete assembly		each	8		
A3	Supply of Tower Paint, Warning spheres					
A3.1	Painting of tower having height more than 45meter in accordance with the requirements of the Technical Specification		per tower	25		
A3.2	Painting of tower (Reflecting Paint) upto 3 meter in submerge area in accordance with the requirements of the Technical Specification		per tower	20		
A3.3	Aircraft warning spheres for ACSR "Dorking" earthwire-Overland		each	160		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Aboard

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
A3.4	Aircraft warning spheres for ACSR Dorking earthwire equivalent OPGW-overland		each	160		
A3.5	Aircraft warning spheres for 19x3.67 20SA earthwire-River Crossing Portion		each	53		
A3.6	Aircraft warning spheres for 19x3.67 20SA earthwire equivalent OPGW -River Crossing Portion		each	53		
A4	Supply of phase conductor, earthwire and OPGW					
A4.1	Overland Portion					
A4.1.1	a) "ACCC 724/71 DHAKA" Phase Conductor (3 Phase, Double Circuit, Quad Bundle per phase on the line) b) Necessary midspan joints and repair sleeves (3 Phase, Double Circuit, Quad Bundle per phase on the line)		route-km	155		
A4.1.2	a) ACSR "Dorking" earthwire. One earthwire on the line. b) Necessary midspan joints and repair sleeves, one ACSR "Dorking" earthwire on the line		route-km	155		
A4.1.3	ACSR Dorking equivalent OPGW inclusive of joint boxes, fixing clamps, fusion splices and connections to the joint boxes. One OPGW earthwire on the line.		route-km	155		
A4.2	River Crossing Portion					
A4.2.1	a) "ACCC ULS 724/71 DHAKA" Phase Conductor (3 Phase, Double Circuit, Quad Bundle per phase on the line) b) Necessary repair sleeves (3 Phase, Double Circuit, Quad Bundle per phase on the line)		route-km	6		
A4.2.2	a) 19x3.67 20SA earthwire. One earthwire on the line. b) Necessary repair sleeves, one 19x3.67 20SA earthwire on the line		route-km	6		
A4.2.3	19x3.67 earthwire equivalent OPGW inclusive of joint boxes, fixing clamps, fusion splices and connections to the joint boxes. One OPGW earthwire on the line.		route-km	6		
S.A1	SPARES					
S.A1.1	Towers					
	400kV double circuit towers complete with all stubs, nuts, bolts, phase conductor and earthwire swivels /shackles, step bolts, access, ladders, tower notice and identification plates, ACDs etc.					
S.A1.1.1	Tower type 4DL E9.0		each	17		
S.A1.1.2	Tower type 4D1 E12.0		each	2		
S.A1.1.3	Tower type 4D25 E9.0		each	2		
S.A1.1.4	Tower type 4D45 E9.0		each	2		
S.A1.1.5	Tower type 4DT60 E9.0		each	1		
S.A1.1.6	Galvanized tower steel					
(a)	Fabricated		ton	100		
(b)	Non-fabricated		ton	100		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Aboard

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
S.A1.2	Insulator and Fittings					
	Insulator sets complete with insulators and all hardware fittings including suspension clamps, tension dead ends, armour rods, arcing horn. Arcing ring etc					
	Overland Portion					
S.A1.2.1	210kN twin suspension Insulators set for quad "ACCC 724/71 DHAKA" - Complete Assembly		set	100		
S.A1.2.2	210kN jumper suspension set for quad "ACCC 724/71 DHAKA" - Complete Assembly		set	25		
S.A1.2.3	400kN twin tension set for quad "ACCC 724/71 DHAKA" - Complete Assembly		set	41		
	River Crossing Portion					
S.A1.2.1	300kN tripple suspension Insulators set for quad "ACCC ULS 724/71 DHAKA" - Complete Assembly		set	3		
S.A1.2.2	400kN tripple tension set for quad "ACCC ULS 724/71 DHAKA" - Complete Assembly		set	3		
S.A1.3	Phase conductor, earthwire, OPGW & Fittings					
S.A1.3.1	Overland Portion					
S.A1.3.1.1	Phase conductor "ACCC 724/71 DHAKA"		km	19		
S.A1.3.1.2	Midspan Joint for "ACCC 724/71 DHAKA" conductor		each	5		
S.A1.3.1.3	Repair sleeve for "ACCC 724/71 DHAKA" conductor		each	2		
S.A1.3.1.4	Spacer Damper for Quad Bundle "ACCC 724/71 DHAKA"		each	51		
S.A1.3.1.5	Jumper Spacer for Quad Bbundle "ACCC 724/71 DHAKA"		each	6		
S.A1.3.1.6	Earthwire ACSR "Dorking"		km	8		
S.A1.3.1.7	Midspan Joint for ACSR "Dorking" earthwire		each	3		
S.A1.3.1.8	Suspension set for ACSR "Dorking" earthwire		each	17		
S.A1.3.1.9	Tension set for ACSR "Dorking" earthwire		each	7		
S.A1.3.1.10	Vibration damper for ACSR "Dorking" earthwire		each	22		
S.A1.3.1.11	ACSR Dorking Equivalent OPGW		km	8		
S.A1.3.1.12	Suspension set for ACSR Dorking Equivalent OPGW		each	17		
S.A1.3.1.13	Tension set for ACSR Dorking Equivalent OPGW		each	7		
S.A1.3.1.14	Vibration damper for ACSR Dorking Equivalent OPGW		each	22		
S.A1.3.2	River Crossing Portion					
S.A1.3.2.1	River Crossing Phase conductor "ACCC ULS 724/71 DHAKA"		km	6		
S.A1.3.2.2	Repair sleeve for "ACCC ULS 724/71 DHAKA" conductor- River Crossing		each	8		
S.A1.3.2.3	Spacer Damper for Quad Bundle "ACCC ULS 724/71 DHAKA"		each	15		
S.A1.3.2.4	Vibration Damper for Quad Bundle "ACCC ULS 724/71 DHAKA"		each	29		
S.A1.3.2.5	19x3.67 20SA Earthwire		km	2		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Aboard

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
S.A1.3.2.6	Suspension set for 19x3.67 20SA earthwire		each	1		
S.A1.3.2.7	Tension set for 19x3.67 20SA earthwire		each	1		
S.A1.3.2.8	Vibration damper for 19x3.67 20SA earthwire		each	1		
S.A1.3.2.9	19x3.67 Earthwire Equivalent OPGW		km	2		
S.A1.3.2.10	Suspension set for 19x3.67 Earthwire Equivalent OPGW		each	1		
S.A1.3.2.11	Tension set for 19x3.67 Earthwire Equivalent OPGW		each	1		
S.A1.3.2.12	Vibration damper for 19x3.67 Earthwire Equivalent OPGW		each	1		
S.A1.4	Temporary earthing equipment		each	1		
S.A1.5	Elcometer		each	1		
S.A1.6	Motorised jointing compressor for conductor complete with dies suitable for conductors & earthwires to be used for this Contract		each	1		
TOTAL (Grand Summary)						

Name of Bidder

Signature of Bidder

¹ Bidders shall enter a code representing the country of origin of all imported plant and equipment.

² Specify currency as per provision of Instruction to Bidders. Create and use as many column for Unit Price and total Price as there are currencies.

Country of Origin Declaration Form

Item	Description	Code	Country

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

**BIDDING DOCUMENT
FOR**

**DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI
(PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS**

SECTION A: 400kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers Country

Item no.	Description of Works	Code1	Unit	Qty	Price in	
					Unit Price2 CIP	Total Price CIP
				1	2	3=1x2
A1	Towers					
	Supply of 400kV double circuit towers complete with all stubs, nuts, bolts, locking nuts, washers, phase conductor and earthwire swivels/shackles, step bolts, tower notice and identification plates, ACDs, protective coating, earthing etc.					
	Overland Portion					
A1.1	Tower type 4DL					
A1.1.1	Tower type 4DL Standard		each	21		
A1.1.2	Tower type 4DL E1.5		each	15		
A1.1.3	Tower type 4DL E3		each	25		
A1.1.4	Tower type 4DL E4.5		each	50		
A1.1.5	Tower type 4DL E6		each	80		
A1.1.6	Tower type 4DL E9		each	140		
A1.2	Tower type 4D1					
A1.2.1	Tower type 4D1 Standard		each	1		
A1.2.2	Tower type 4D1 E1.5		each	1		
A1.2.3	Tower type 4D1 E3		each	1		
A1.2.4	Tower type 4D1 E4.5		each	1		
A1.2.5	Tower type 4D1 E6		each	2		
A1.2.6	Tower type 4D1 E9		each	1		
A1.2.7	Tower type 4D1 E12		each	1		
A1.2.8	Tower type 4D1 E15		each	4		
A1.2.9	Tower type 4D1 E20		each	4		
A1.2.10	Tower type 4D1 E25		each	3		
A1.2.11	Tower type 4D1 E30		each	3		
A1.2.12	Tower type 4D1 E40		each	2		
A1.3	Tower type 4D25 (4DXP)					
A1.3.1	Tower type 4D25 Standard		each	1		
A1.3.2	Tower type 4D25 E1.5		each	1		
A1.3.3	Tower type 4D25 E3		each	7		
A1.3.4	Tower type 4D25 E4.5		each	1		
A1.3.5	Tower type 4D25 E6		each	6		
A1.3.6	Tower type 4D25 E9		each	12		
A1.3.7	Tower type 4D25(4DXP) E6		each	2		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers Country

Item no.	Description of Works	Code1	Unit	Qty	Price in	
					Unit Price2 CIP	Total Price CIP
				1	2	3=1x2
A1.4	Tower Type 4D45					
A1.4.1	Tower type 4D45 Standard		each	1		
A1.4.2	Tower type 4D45 E1.5		each	1		
A1.4.3	Tower type 4D45 E3		each	4		
A1.4.4	Tower type 4D45 E4.5		each	1		
A1.4.5	Tower type 4D45 E6		each	14		
A1.4.6	Tower type 4D45 E9		each	6		
A1.5	Tower Type 4DT6					
A1.5.1	Tower type 4DT6 Standard		each	1		
A1.5.2	Tower type 4DT6 E1.5		each	1		
A1.5.3	Tower type 4DT6 E3		each	1		
A1.5.4	Tower type 4DT6 E4.5		each	1		
A1.5.5	Tower type 4DT6 E6		each	1		
A1.5.6	Tower type 4DT6 E9		each	3		
	River Crossing Portion (Item A1.6 and A1.7)					
A1.6	Tower Type 4DR					
A1.6.1	Tower Type 4DR1 Standard		each	2		
A1.6.2	Tower Type 4DR1 E10		each	2		
A1.6.3	Tower Type 4DR1 E30		each	2		
A1.6.4	Tower Type 4DR2		each	2		
A1.7	Tower Type 4DAX					
A1.7.3	Tower Type 4DAX Standard		each	8		
A1.8	Auxiliary Crossarm for tower					
A1.8.1	Auxiliary crossarm for tower type 4DT6		per set of three	2		
A1.9	Air craft obstruction lights solar powered complete with lamps, solar, panels, batteries, control equipment cables, support framework, tower work platform etc.		per tower	192		
A1.10	Tower Test					
A1.10.1	Tower load test to prove compliance with specification. Payment for successful test only. Tested Tower to be supplied to the Employer's store as per technical specification.					
(a)	Tower type 4DL E9.0		each	1		
(b)	Tower type 4D1 E15.0		each	1		
(c)	Tower type 2D25 E9.0		each	1		
(d)	Tower type 4D45 E9.0		each	1		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers Country

Item no.	Description of Works	Code1	Unit	Qty	Price in	
					Unit Price2 CIP	Total Price CIP
				1	2	3=1x2
A2.	Supply of insulator and fittings:					
	Insulator sets complete with insulators and all hardware fittings including suspension clamps, tension dead ends, armour rods, arcing horn, Arcing ring etc					
A2.1	400kV Overland Portion					
A2.1.1	a) 210kN twin suspension Insulators set for Quadruple "ACCC 724/71 DHAKA" Conductor (Suspension) - disc only		set	1986		
	b) 210kN twin suspension Insulators Fittings set for Quadruple "ACCC 724/71 DHAKA" Conductor (Suspension) - hardware fittings only		set	1,986		
A2.1.2	a) 210kN twin suspension Insulators set for Quadruple "ACCC 724/71 DHAKA" Conductor (Heavy Suspension) - disc only		set	144		
	b) 210kN twin suspension Insulators Fittings Set for Quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	144		
A2.1.3	a) 210kN jumper suspension Insulators Set for Quadruple "ACCC 724/71 DHAKA" Conductor - disc only		set	486		
	b) 210kN jumper suspension Insulators Fittings Set for Quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	486		
A2.1.4	a) 400kN twin tension Insulators Set for Quadruple "ACCC 724/71 DHAKA" Conductor - disc only		set	816		
	b) 400kN twin tension Insulators Fittings Set for Quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	816		
A2.1.5	a) 210kN single upright low duty Insulators Set for quadruple "ACCC 724/71 DHAKA" Conductor - disc only		set	12		
	b) 210kN single upright low duty Insulators Fittings Set for quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	12		
A2.1.6	a) 210kN single inverted low duty Insulators Set for quadruple "ACCC 724/71 DHAKA" Conductor - disc only		set	12		
	b) 210kN single inverted low duty Insulators Fittings Set for quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	12		
A2.1.7	Spacer damper for Quadruple "ACCC 724/71 DHAKA" Conductor		span-phase	2538		
	**Span-phase=No. of span x 6. Total quantities of spacer or spacer dampers shall be "Span-phase x N", where N= Number of spacer dampers for each phase in each span which shall be determined by contractor based on the design of spacer or spacer dampers. The price quoted shall remain unchanged, even if the value of N increases during final design of the spacer or dampers and it's approval thereof.					

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers Country

Item no.	Description of Works	Code1	Unit	Qty	Price in	
					Unit Price2 CIP	Total Price CIP
				1	2	3=1x2
A2.1.8	Vibration Damper for Quadruple "ACCC 724/71 DHAKA" Conductor		span	423		
A2.1.9	Jumper Spacer for Quadruple "ACCC 724/71 DHAKA" Conductor		each	1182		
A2.1.10	Vibration damper for ACSR "Dorking" earthwire		span	423		
A2.1.11	Suspension set for ACSR "Dorking" earthwire		each	331		
A2.1.12	Tension set for ACSR "Dorking" earthwire		each	138		
A2.1.13	Vibration Damper for ACSR Dorking earthwire equivalent OPGW		span	423		
A2.1.14	Suspension set for ACSR Dorking earthwire equivalent OPGW, complete assembly		each	331		
A2.1.15	Tension set for ACSR Dorking earthwire equivalent OPGW, complete assembly		each	138		
A2.1.16	Counterweights for 210kN suspension insulator sets complete with yoke plate attachment bolts to be used for 4D1 towers:					
(a)	- 40kg set		each	8		
(b)	- 80kg set		each	6		
(c)	- 120kg set		each	10		
A2.2	400kV River Crossing Portion					
A2.2.1	a) 300kN tripple suspension Insulators set for Quadruple "ACCC ULS 724/71 DHAKA" Conductor (Suspension) - disc only		set	48		
	b) 300kN tripple suspension Insulators Fittings set for Quadruple "ACCC ULS 724/71 DHAKA" Conductor (Suspension) - hardware fittings only		set	48		
A2.2.2	a) 400kN tripple tension Insulators Set for Quadruple "ACCC ULS 724/71 DHAKA" Conductor - disc only		set	48		
	b) 400kN tripple tension Insulators Fittings Set for Quadruple "ACCC ULS 724/71 DHAKA" Conductor - hardware fittings only		set	48		
A2.2.3	Spacer damper for Quadruple "ACCC ULS 724/71 DHAKA" Conductor		span-phase	72		
	**Span-phase=No. of span x 6. Total quantities of spacer or spacer dampers shall be 'Span-phase x N', where N= Number of spacer dampers for each phase in each span which shall be determined by contractor based on the design of spacer or spacer dampers. The price quoted shall remain unchanged, even if the value of N increases during final design of the spacer or dampers and it's approval thereof.					

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers Country

Item no.	Description of Works	Code1	Unit	Qty	Price in	
					Unit Price2 CIP	Total Price CIP
				1	2	3=1x2
A2.2.4	Vibration Damper for Quadruple "ACCC ULS 724/71 DHAKA" Conductor		span	12		
A2.2.5	Jumper Spacer for Quadruple "ACCC ULS 724/71 DHAKA" Conductor		each	144		
A2.2.6	Vibration damper for 19x3.67 20SA earthwire		span	12		
A2.2.7	Suspension set for 19x3.67 20SA earthwire		each	8		
A2.2.8	Tension set for 19x3.67 20SA earthwire		each	8		
A2.2.9	Vibration Damper for 19x3.67 20SA Earthwire equivalent OPGW		span	12		
A2.2.10	19x3.67 20SA Earthwire equivalent OPGW suspension set, complete assembly		each	8		
A2.2.11	19x3.67 20SA Earthwire equivalent OPGW tension set, complete assembly		each	8		
A3	Supply of Tower Paint, Warning spheres					
A3.1	Painting of tower having height more than 45meter in accordance with the requirements of the Technical Specification		per tower	25		
A3.2	Painting of tower (Reflecting Paint) upto 3 meter in submerge area in accordance with the requirements of the Technical Specification		per tower	20		
A3.3	Aircraft warning spheres for ACSR "Dorking" earthwire-Overland		each	160		
A3.4	Aircraft warning spheres for ACSR Dorking earthwire equivalent OPGW-overland		each	160		
A3.5	Aircraft warning spheres for 19x3.67 20SA earthwire-River Crossing Portion		each	53		
A3.6	Aircraft warning spheres for 19x3.67 20SA earthwire equivalent OPGW -River Crossing Portion		each	53		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers Country

Item no.	Description of Works	Code1	Unit	Qty	Price in	
					Unit Price2 CIP	Total Price CIP
				1	2	3=1x2
A4	Supply of phase conductor, earthwire and OPGW					
A4.1	Overland Portion					
A4.1.1	a) "ACCC 724/71 DHAKA" Phase Conductor (3 Phase, Double Circuit, Quad Bundle per phase on the line)		route-km	155		
	b) Necessary midspan joints and repair sleeves (3 Phase, Double Circuit, Quad Bundle per phase on the line)		route-km	155		
A4.1.2	a) ACSR "Dorking" earthwire. One earthwire on the line.		route-km	155		
	b) Necessary midspan joints and repair sleeves, one ACSR "Dorking" earthwire on the line		route-km	155		
A4.1.3	ACSR Dorking equivalent OPGW inclusive of joint boxes, fixing clamps, fusion splices and connections to the joint boxes. One OPGW earthwire on the line.		route-km	155		
A4.2	River Crossing Portion					
A4.2.1	a) "ACCC ULS 724/71 DHAKA" Phase Conductor (3 Phase, Double Circuit, Quad Bundle per phase on the line)		route-km	6		
	b) Necessary repair sleeves (3 Phase, Double Circuit, Quad Bundle per phase on the line)		route-km	6		
A4.2.2	a) 19x3.67 20SA earthwire. One earthwire on the line.		route-km	6		
	b) Necessary repair sleeves, one 19x3.67 20SA earthwire on the line		route-km	6		
A4.2.3	19x3.67 earthwire equivalent OPGW inclusive of joint boxes, fixing clamps, fusion splices and connections to the joint boxes. One OPGW earthwire on the line.		route-km	6		
S.A1	SPARES					
S.A1.1	Towers					
	400kV double circuit towers complete with all stubs, nuts, bolts, phase conductor and earthwire swivels /shackles, step bolts, access, ladders, tower notice and identification plates, ACDs etc.					
S.A1.1.1	Tower type 4DL E9.0		each	17		
S.A1.1.2	Tower type 4D1 E12.0		each	2		
S.A1.1.3	Tower type 4D25 E9.0		each	2		
S.A1.1.4	Tower type 4D45 E9.0		each	2		
S.A1.1.5	Tower type 4DT60 E9.0		each	1		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers Country

Item no.	Description of Works	Code1	Unit	Qty	Price in	
					Unit Price2 CIP	Total Price CIP
				1	2	3=1x2
S.A1.1.6	Galvanized tower steel					
(a)	Fabricated		ton	100		
(b)	Non-fabricated		ton	100		
S.A1.2	Insulator and Fittings					
	Insulator sets complete with insulators and all hardware fittings including suspension clamps, tension dead ends, armour rods, arcing horn. Arcing ring etc					
	Overland Portion					
S.A1.2.1	210kN twin suspension Insulators set for quad "ACCC 724/71 DHAKA" - Complete Assembly		set	100		
S.A1.2.2	210kN jumper suspension set for quad "ACCC 724/71 DHAKA" - Complete Assembly		set	25		
S.A1.2.3	400kN twin tension set for quad "ACCC 724/71 DHAKA" - Complete Assembly		set	41		
	River Crossing Portion					
S.A1.2.1	300kN triple suspension Insulators set for quad "ACCC ULS 724/71 DHAKA" - Complete Assembly		set	3		
S.A1.2.2	400kN triple tension set for quad "ACCC ULS 724/71 DHAKA" - Complete Assembly		set	3		
S.A1.3	Phase conductor, earthwire, OPGW & Fittings					
S.A1.3.1	Overland Portion					
S.A1.3.1.1	Phase conductor "ACCC 724/71 DHAKA"		km	19		
S.A1.3.1.2	Midspan Joint for "ACCC 724/71 DHAKA" conductor		each	5		
S.A1.3.1.3	Repair sleeve for "ACCC 724/71 DHAKA" conductor		each	2		
S.A1.3.1.4	Spacer Damper for Quad Bundle "ACCC 724/71 DHAKA"		each	51		
S.A1.3.1.5	Jumper Spacer for Quad Bbundle "ACCC 724/71 DHAKA"		each	6		
S.A1.3.1.6	Earthwire ACSR "Dorking"		km	8		
S.A1.3.1.7	Midspan Joint for ACSR "Dorking" earthwire		each	3		
S.A1.3.1.8	Suspension set for ACSR "Dorking" earthwire		each	17		
S.A1.3.1.9	Tension set for ACSR "Dorking" earthwire		each	7		
S.A1.3.1.10	Vibration damper for ACSR "Dorking" earthwire		each	22		
S.A1.3.1.11	ACSR Dorking Equivalent OPGW		km	8		
S.A1.3.1.12	Suspension set for ACSR Dorking Equivalent OPGW		each	17		
S.A1.3.1.13	Tension set for ACSR Dorking Equivalent OPGW		each	7		
S.A1.3.1.14	Vibration damper for ACSR Dorking Equivalent OPGW		each	22		
S.A1.3.2	River Crossing Portion					
S.A1.3.2.1	River Crossing Phase conductor "ACCC ULS 724/71 DHAKA"		km	6		
S.A1.3.2.2	Repair sleeve for "ACCC ULS 724/71 DHAKA" conductor- River Crossing		each	8		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

**BIDDING DOCUMENT
FOR**

**DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI
(PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS**

SECTION A: 400kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers Country

Item no.	Description of Works	Code1	Unit	Qty	Price in	
					Unit Price2 CIP	Total Price CIP
				1	2	3=1x2
S.A1.3.2.3	Spacer Damper for Quad Bundle "ACCC ULS 724/71 DHAKA"		each	15		
S.A1.3.2.4	Vibration Damper for Quad Bundle "ACCC ULS 724/71 DHAKA"		each	29		
S.A1.3.2.5	19x3.67 20SA Earthwire		km	2		
S.A1.3.2.6	Suspension set for 19x3.67 20SA earthwire		each	1		
S.A1.3.2.7	Tension set for 19x3.67 20SA earthwire		each	1		
S.A1.3.2.8	Vibration damper for 19x3.67 20SA earthwire		each	1		
S.A1.3.2.9	19x3.67 Earthwire Equivalent OPGW		km	2		
S.A1.3.2.10	Suspension set for 19x3.67 Earthwire Equivalent OPGW		each	1		
S.A1.3.2.11	Tension set for 19x3.67 Earthwire Equivalent OPGW		each	1		
S.A1.3.2.12	Vibration damper for 19x3.67 Earthwire Equivalent OPGW		each	1		
S.A1.4	Temporary earthing equipment		each	1		
S.A1.5	Elcometer		each	1		
S.A1.6	Motorised jointing compressor for conductor complete with dies suitable for conductors & earthwires to be used for this Contract		each	1		
TOTAL (Grand Summary)						

Name of Bidder

Signature of Bidder

- Bidders shall enter a code representing the country of origin of all imported plant and equipment.
- Specify currency as per provision of Instruction to Bidders. Create and use as many column for Unit Price and total Price as there are currencies.

Country of Origin Declaration Form

Item	Description	Code	Country

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

**BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT
PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS**

SECTION A: 400kV Line

Schedule No. 3. Design Services

Item no.	Description	Unit	Qty. (1)	Unit Price ¹		Total Price ¹	
				Foreign Currency Portion (in USD) (2)	Local Currency Portion (in BDT) (3)	Foreign (in USD) 4='(1) x (2)	Local (in BDT) 5='(1)x(3)
1	Towers						
1.1	4DL	Lot	1				
1.2	4D1	Lot	1				
1.3	4D25(4DXP)	Lot	1				
1.4	4D45	Lot	1				
1.5	4DT6	Lot	1				
1.6	4DR1 & 4DR2	Lot	1				
1.7	4DAX	Lot	1				
2	Insulator and fittings	Lot	1				
3	Conductors, earthwires & accessories	Lot	1				
4	OPGW, Optical fibre cables & accessories	Lot	1				
5	Foundations & other civil engineering related to overhead transmission line	Lot	1				
TOTAL (to Schedule of Grand Summary)							

All the costs, require for design purpose to complete the Contractual obligation, shall deem to be included in the above design costs.

Name of Bidder _____

Signature of Bidder _____

¹ Specify currency in accordance with specifications in Bid Data Sheet under ITB 18.1 in Single-stage Bid.

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A1	Towers							
	Erection of 400kV double circuit towers complete with all stubs, nuts, bolts, locking nuts, washers, phase conductor and earthwire swivels/shackles, step bolts, tower notice and identification plates, ACDs, protective coating, earthing etc.							
	Overland Portion							
A1.1	Tower type 4DL							
A1.1.1	Tower type 4DL Standard		each	21				
A1.1.2	Tower type 4DL E1.5		each	15				
A1.1.3	Tower type 4DL E3		each	25				
A1.1.4	Tower type 4DL E4.5		each	50				
A1.1.5	Tower type 4DL E6		each	80				
A1.1.6	Tower type 4DL E9		each	140				
A1.2	Tower type 4D1							
A1.2.1	Tower type 4D1 Standard		each	1				
A1.2.2	Tower type 4D1 E1.5		each	1				
A1.2.3	Tower type 4D1 E3		each	1				
A1.2.4	Tower type 4D1 E4.5		each	1				
A1.2.5	Tower type 4D1 E6		each	2				
A1.2.6	Tower type 4D1 E9		each	1				
A1.2.7	Tower type 4D1 E12		each	1				
A1.2.8	Tower type 4D1 E15		each	4				
A1.2.9	Tower type 4D1 E20		each	4				
A1.2.10	Tower type 4D1 E25		each	3				
A1.2.11	Tower type 4D1 E30		each	3				
A1.2.12	Tower type 4D1 E40		each	2				
A1.3	Tower type 4D25 (4DXP)							
A1.3.1	Tower type 4D25 Standard		each	1				
A1.3.2	Tower type 4D25 E1.5		each	1				
A1.3.3	Tower type 4D25 E3		each	7				
A1.3.4	Tower type 4D25 E4.5		each	1				
A1.3.5	Tower type 4D25 E6		each	6				
A1.3.6	Tower type 4D25 E9		each	12				
A1.3.7	Tower type 4D25(4DXP) E6		each	2				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A1.4	Tower Type 4D45							
A1.4.1	Tower type 4D45 Standard		each	1				
A1.4.2	Tower type 4D45 E1.5		each	1				
A1.4.3	Tower type 4D45 E3		each	4				
A1.4.4	Tower type 4D45 E4.5		each	1				
A1.4.5	Tower type 4D45 E6		each	14				
A1.4.6	Tower type 4D45 E9		each	6				
A1.5	Tower Type 4DT6							
A1.5.1	Tower type 4DT6 Standard		each	1				
A1.5.2	Tower type 4DT6 E1.5		each	1				
A1.5.3	Tower type 4DT6 E3		each	1				
A1.5.4	Tower type 4DT6 E4.5		each	1				
A1.5.5	Tower type 4DT6 E6		each	1				
A1.5.6	Tower type 4DT6 E9		each	3				
	River Crossing Portion (Item A1.6 and A1.7)							
A1.6	Tower Type 4DR							
A1.6.1	Tower Type 4DR1 Standard		each	2				
A1.6.2	Tower Type 4DR1 E10		each	2				
A1.6.3	Tower Type 4DR1 E30		each	2				
A1.6.4	Tower Type 4DR2		each	2				
A1.7	Tower Type 4DAX							
A1.7.3	Tower Type 4DAX Standard		each	8				
A1.8	Auxiliary Crossarm for tower							
A1.8.1	Auxiliary crossarm for tower type 4DT6		per set of three	2				
A1.9	Air craft obstruction lights solar powered complete with lamps, solar, panels, batteries, control equipment cables, support framework, tower work platform etc.		per tower	192				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A1.10	Tower Paint, Warning spheres							
A1.10.1	Painting of tower having height more than 45meter in accordance with the requirements of the Technical Specification		per tower	25				
A1.10.2	Painting of tower (Reflecting Paint) upto 3 meter in submerge area in accordance with the requirements of the Technical Specification		per tower	20				
A1.10.3	Aircraft warning spheres for ACSR "Dorking" earthwire-Overland		each	160				
A1.10.4	Aircraft warning spheres for ACSR Dorking earthwire equivalent OPGW-overland		each	160				
A1.10.5	Aircraft warning spheres for 19x3.67 20SA earthwire-River Crossing Portion		each	53				
A1.10.6	Aircraft warning spheres for 19x3.67 20SA earthwire equivalent OPGW -River Crossing Portion		each	53				
A1.11	Tower Test							
A1.11.1	Proto assembly of all type towers with all extensions to prove compliance with specification. Payment for successful test only.							
(a)	Tower type 4DL		each	1				
(b)	Tower type 4D1		each	1				
(c)	Tower type 4D25		each	1				
(d)	Tower type 4D45		each	1				
(e)	Tower type 4DT6		each	1				
(f)	Tower Type 4DR1		each	1				
(g)	Tower Type 4DR2		each	1				
(h)	Tower Type 4DAX		each	1				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A2	Route Survey & Clearance							
A2.1	Check Survey in accordance with the requirements of the technical specification, incl. full ground survey with change of route, if any, tower plotting and preparation and submission of route maps, profile drawings, SIMM document, etc.		km	160				
A2.2	Route clearance in accordance with requirements of the technical specification including payment of damage compensation		km	160				
A3	Foundations							
	Foundations for towers including all setting out, Concrete, Reinforcement, Excavation, Pumping, Stub-cutting, Geotechnical Investigation (Level 2), Shuttering, Leveling, Timbering, supply & Installation of foundation steelwork, Earthing Materials, Backfilling, approved Protective Coating & site clearing							
A3.1	Tower Type 4DL							
A3.1.1	Deep Foundation for Soil Category-2		Per tower	17				
A3.1.2	Deep Foundation for Soil Category-3		Per tower	66				
A3.1.3	Deep Foundation for Soil Category-4		Per tower	83				
A3.1.4	Deep Foundation (1 meter raised chimney) for soil category-2		Per tower	3				
A3.1.5	Deep Foundation (2 meter raised chimney) for soil category-2		Per tower	13				
A3.1.6	Deep Foundation (1 meter raised chimney) for soil category-3		Per tower	13				
A3.1.7	Deep Foundation (2 meter raised chimney) for soil category-3		Per tower	52				
A3.1.8	Deep Foundation (1 meter raised chimney) for soil category-4		Per tower	17				
A3.1.9	Deep Foundation (2 meter raised chimney) for soil category-4		Per tower	67				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A3.2	Tower Type 4D1							
A3.2.1	Deep Foundation for Soil Category-2		Per tower	1				
A3.2.2	Deep Foundation for Soil Category-3		Per tower	5				
A3.2.3	Deep Foundation for Soil Category-4		Per tower	6				
A3.2.4	Deep Foundation (1 meter raised chimney) for soil category-2		Per tower	1				
A3.2.5	Deep Foundation (2 meter raised chimney) for soil category-2		Per tower	1				
A3.2.6	Deep Foundation (1 meter raised chimney) for soil category-3		Per tower	1				
A3.2.7	Deep Foundation (2 meter raised chimney) for soil category-3		Per tower	3				
A3.2.8	Deep Foundation (1 meter raised chimney) for soil category-4		Per tower	1				
A3.2.9	Deep Foundation (2 meter raised chimney) for soil category-4		Per tower	5				
A3.3	Tower type 4D25 (4DXP)							
A3.3.1	Deep Foundation for Soil Category-2		Per tower	2				
A3.3.2	Deep Foundation for Soil Category-3		Per tower	6				
A3.3.3	Deep Foundation for Soil Category-4		Per tower	8				
A3.3.4	Deep Foundation (1 meter raised chimney) for soil category-2		Per tower	1				
A3.3.5	Deep Foundation (2 meter raised chimney) for soil category-2		Per tower	1				
A3.3.6	Deep Foundation (1 meter raised chimney) for soil category-3		Per tower	1				
A3.3.7	Deep Foundation (2 meter raised chimney) for soil category-3		Per tower	4				
A3.3.8	Deep Foundation (1 meter raised chimney) for soil category-4		Per tower	2				
A3.3.9	Deep Foundation (2 meter raised chimney) for soil category-4		Per tower	5				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A3.4	Tower Type 4D45							
A3.4.1	Deep Foundation for Soil Category-2		Per tower	1				
A3.4.2	Deep Foundation for Soil Category-3		Per tower	5				
A3.4.3	Deep Foundation for Soil Category-4		Per tower	7				
A3.4.4	Deep Foundation (1 meter raised chimney) for soil category-2		Per tower	1				
A3.4.5	Deep Foundation (2 meter raised chimney) for soil category-2		Per tower	1				
A3.4.6	Deep Foundation (1 meter raised chimney) for soil category-3		Per tower	1				
A3.4.7	Deep Foundation (2 meter raised chimney) for soil category-3		Per tower	4				
A3.4.8	Deep Foundation (1 meter raised chimney) for soil category-4		Per tower	1				
A3.4.9	Deep Foundation (2 meter raised chimney) for soil category-4		Per tower	6				
A3.5	Tower Type 4DT60							
A3.5.1	Deep Foundation for Soil Category-2		Per tower	0				
A3.5.2	Deep Foundation for Soil Category-3		Per tower	1				
A3.5.3	Deep Foundation for Soil Category-4		Per tower	1				
A3.5.4	Deep Foundation (1 meter raised chimney) for soil category-2		Per tower	1				
A3.5.5	Deep Foundation (2 meter raised chimney) for soil category-2		Per tower	1				
A3.5.6	Deep Foundation (1 meter raised chimney) for soil category-3		Per tower	1				
A3.5.7	Deep Foundation (2 meter raised chimney) for soil category-3		Per tower	1				
A3.5.8	Deep Foundation (1 meter raised chimney) for soil category-4		Per tower	1				
A3.5.9	Deep Foundation (2 meter raised chimney) for soil category-4		Per tower	1				
A3.6	Tower Type 4DR (River Crossing Towers)							
A3.6.1	4DR1		Per tower	6				
A3.6.2	4DR2		Per tower	2				
A3.7	Tower Type 4DAX (Anchor Towers)							
A3.7.1	4DAX		Per tower	8				
A4.1	Geotechnical investigation in accordance with the requirements of the Technical Specification							
A4.1.1	Level 2		borehole	420				
A4.1.3	Level 4		borehole	16				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A5.	Testing of Foundations							
	Overland Portion							
A5.2	Individual Pile test including supply,install and test to prove compliance with technical specification, payment for successful test only (applicable for all tower types selected by the Employer's Engineer):							
(a)	Compression test		per test	5				
(b)	Uplift test		per test	5				
(c)	Pile Integrity test		per test	1680				
	River Crossing Portion							
A5.2	Individual Pile test including supply,install and test to prove compliance with technical specification, payment for successful test only (applicable for all tower types selected by the Employer's Engineer):							
(a)	Compression test - 4DR1		per test	1				
	Compression test - 4DR2		per test	1				
(b)	Uplift test- 4DAX		per test	2				
(c)	Pile Integrity test		per test	64				
A6.	Erection of insulator and fittings							
	Insulator sets complete with insulators and all hardware fittings including suspension clamps, tension dead ends, armour rods, arcing horn, Arcing ring etc							

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A6.1	400kV Overland Portion							
A6.1.1	a) 210kN twin suspension Insulators set for Quadruple "ACCC 724/71 DHAKA" Conductor (Suspension) - disc only		set	1986				
	b) 210kN twin suspension Insulators Fittings set for Quadruple "ACCC 724/71 DHAKA" Conductor (Suspension) - hardware fittings		set	1986				
A6.1.2	a) 210kN twin suspension Insulators set for Quadruple "ACCC 724/71 DHAKA" Conductor (Heavy Suspension) - disc only		set	144				
	b) 210kN twin suspension Insulators Fittings Set for Quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	144				
A6.1.3	a) 210kN jumper suspension Insulators Set for Quadruple "ACCC 724/71 DHAKA" Conductor - disc only		set	486				
	b) 210kN jumper suspension Insulators Fittings Set for Quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	486				
A6.1.4	a) 400kN twin tension Insulators Set for Quadruple "ACCC 724/71 DHAKA" Conductor - disc only		set	816				
	b) 400kN twin tension Insulators Fittings Set for Quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	816				
A6.1.5	a) 210kN single upright low duty Insulators Set for quadruple "ACCC 724/71 DHAKA" Conductor - disc only		set	12				
	b) 210kN single upright low duty Insulators Fittings Set for quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	12				
A6.1.6	a) 210kN single inverted low duty Insulators Set for quadruple "ACCC 724/71 DHAKA" Conductor - disc only		set	12				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
	b) 210kN single inverted low duty Insulators Fittings Set for quadruple "ACCC 724/71 DHAKA" Conductor - hardware fittings only		set	12				
A6.1.7	Spacer damper for Quadruple "ACCC 724/71 DHAKA" Conductor		span-phase	2538				
	**Span-phase=No. of span x 6. Total quantities of spacer or spacer dampers shall be 'Span-phase x N', where N= Number of spacer dampers for each phase in each span which shall be determined by contractor based on the design of spacer or spacer dampers. The price quoted shall remain unchanged, even if the value of N increases during final design of the spacer or dampers and it's approval							
A6.1.8	Vibration Damper for Quadruple "ACCC 724/71 DHAKA" Conductor		span	423				
A6.1.9	Jumper Spacer for Quadruple "ACCC 724/71 DHAKA" Conductor		each	1182				
A6.1.10	Vibration damper for ACSR "Dorking" earthwire		span	423				
A6.1.11	Suspension set for ACSR "Dorking" earthwire		each	331				
A6.1.12	Tension set for ACSR "Dorking" earthwire		each	138				
A6.1.13	Vibration Damper for ACSR Dorking earthwire equivalent OPGW		span	423				
A6.1.14	Suspension set for ACSR Dorking earthwire equivalent OPGW, complete assembly		each	331				
A6.1.15	Tension set for ACSR Dorking earthwire equivalent OPGW, complete assembly		each	138				
A6.1.16	Counterweights for 210kN suspension insulator sets complete with yoke plate attachment bolts to be used for 4D1 towers:							
(a)	- 40kg set		each	8				
(b)	- 80kg set		each	6				
(c)	- 120kg set		each	10				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A6.2	400kV River Crossing Portion							
A6.2.1	a) 300kN tripple suspension Insulators set for Quadruple "ACCC ULS 724/71 DHAKA" Conductor (Suspension) - disc only		set	48				
	b) 300kN tripple suspension Insulators Fittings set for Quadruple "ACCC ULS 724/71 DHAKA" Conductor (Suspension) - hardware fittings		set	48				
A6.2.2	a) 400kN tripple tension Insulators Set for Quadruple "ACCC ULS 724/71 DHAKA" Conductor - disc only		set	48				
	b) 400kN tripple tension Insulators Fittings Set for Quadruple "ACCC ULS 724/71 DHAKA" Conductor - hardware fittings only		set	48				
A6.2.3	Spacer damper for Quadruple "ACCC ULS 724/71 DHAKA" Conductor		span-phase	72				
	**Span-phase=No. of span x 6. Total quantities of spacer or spacer dampers shall be 'Span-phase x N', where N= Number of spacer dampers for each phase in each span which shall be determined by contractor based on the design of spacer or spacer dampers. The price quoted shall remain unchanged, even if the value of N increases during final design of the spacer or dampers and it's approval							
A6.2.4	Vibration Damper for Quadruple "ACCC ULS 724/71 DHAKA" Conductor		span	12				
A6.2.5	Jumper Spacer for Quadruple "ACCC ULS 724/71 DHAKA" Conductor		each	144				
A6.2.6	Vibration damper for 19x3.67 20SA earthwire		span	12				
A6.2.7	Suspension set for 19x3.67 20SA earthwire		each	8				
A6.2.8	Tension set for 19x3.67 20SA earthwire		each	8				
A6.2.9	Vibration Damper for 19x3.67 20SA Earthwire equivalent OPGW		span	12				
A6.2.10	19x3.67 20SA Earthwire equivalent OPGW suspension set, complete assembly		each	8				
A6.2.11	19x3.67 20SA Earthwire equivalent OPGW tension set, complete assembly		each	8				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A7	Erection of phase conductor, earthwire and OPGW							
A7.1	Overland Portion							
A7.1.1	a) "ACCC 724/71 DHAKA" Phase Conductor (3 Phase, Double Circuit, Quad Bundle per phase on the line)		route-km	155				
	b) Necessary midspan joints and repair sleeves (3 Phase, Double Circuit, Quad Bundle per phase on the line)		route-km	155				
A7.1.2	a) ACSR "Dorking" earthwire. One earthwire on the line.		route-km	155				
	b) Necessary midspan joints and repair sleeves, one ACSR "Dorking" earthwire on the line		route-km	155				
A7.1.3	ACSR Dorking equivalent OPGW inclusive of joint boxes, fixing clamps, fusion splices and connections to the joint boxes. One OPGW earthwire on the line.		route-km	155				
A7.2	River Crossing Portion							
A7.2.1	a) "ACCC ULS 724/71 DHAKA" Phase Conductor (3 Phase, Double Circuit, Quad Bundle per phase on the line)		route-km	6				
	b) Necessary repair sleeves (3 Phase, Double Circuit, Quad Bundle per phase on the line)		route-km	6				
A7.2.2	a) 19x3.67 20SA earthwire. One earthwire on the line.		route-km	6				
	b) Necessary repair sleeves, one 19x3.67 20SA earthwire on the line		route-km	6				
A7.2.3	19x3.67 earthwire equivalent OPGW inclusive of joint boxes, fixing clamps, fusion splices and connections to the joint boxes. One OPGW earthwire on the line.		route-km	6				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION A: 400kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A8	MISCELLANEOUS							
A8.1	Erection of earthwire connection from terminal tower to substation gantry		per wire	2				
A8.2	Erection of OPGW connection from terminal tower to substation Gantry/Mast		per wire	2				
A8.3	Additional counterpoise earthing in accordance with requirement of the Technical specification		per meter	50				
A8.4	Miscellaneous Rates for works certified by the Engineer in accordance with method of							
(a)	Additional Excavation		cu.m	500				
(b)	Additional Concrete		cu.m	100				
(c)	Additional Reinforcement		kg	1000				
(d)	Extra for surface resisting cement per cu.m of concrete		cu.m	100				
(e)	Additional Boring (500mm diameter)		rm	50				
(f)	Additional Boring (600mm diameter)		rm	50				
(g)	Additional Boring (750mm diameter)		rm	50				
(h)	Sand Filling		cu.m	500				
TOTAL (Grand Summary)								
					Name of Bidder			

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Aboard

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
A1	Towers					
	Supply of 132kV double circuit towers complete with all stubs nuts, bolts, locking nuts, washers, phase conductor and earthwire swivels/shackles, step bolts, tower notice and identification plates, ACDs, protective coating, earthing etc.					
A1.1	Tower type 1QL					
A1.1.1	Tower type 1QL Standard		each	1		
A1.1.2	Tower type 1QL E1.5		each	1		
A1.1.3	Tower type 1QL E3		each	1		
A1.1.4	Tower type 1QL E4.5		each	1		
A1.1.5	Tower type 1QL E6		each	2		
A1.1.6	Tower type 1QL E9		each	2		
A1.2	Tower type 1Q15					
A1.2.1	Tower type 1Q15 Standard		each	1		
A1.2.2	Tower type 1Q15 E1.5		each	1		
A1.2.3	Tower type 1Q15 E3		each	1		
A1.2.4	Tower type 1Q15 E4.5		each	1		
A1.2.5	Tower type 1Q15 E6		each	1		
A1.2.6	Tower type 1Q15 E9		each	1		
A1.3	Tower type 1Q30					
A1.3.1	Tower type 1Q30 Standard		each	1		
A1.3.2	Tower type 1Q30 E1.5		each	1		
A1.3.3	Tower type 1Q30 E3		each	1		
A1.3.4	Tower type 1Q30 E4.5		each	1		
A1.3.5	Tower type 1Q30 E6		each	1		
A1.3.6	Tower type 1Q30 E9		each	1		
A1.4	Tower Type 1QT6					
A1.4.1	Tower type 1QT6 Standard		each	1		
A1.4.2	Tower type 1QT6 E1.5		each	1		
A1.4.3	Tower type 1QT6 E3		each	1		
A1.4.4	Tower type 1QT6 E4.5		each	1		
A1.4.5	Tower type 1QT6 E6		each	2		
A1.4.6	Tower type 1QT6 E9		each	3		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Aboard

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
A1.5	Tower Type 1DT6					
A1.5.1	Tower type 1DT6 Standard		each	1		
A1.5.2	Tower type 1DT6 E1.5		each	1		
A1.5.3	Tower type 1DT6 E3		each	1		
A1.5.4	Tower type 1DT6 E4.5		each	1		
A1.5.5	Tower type 1DT6 E6		each	1		
A1.5.6	Tower type 1DT6 E9		each	1		
A1.6	Auxiliary Crossarm for tower					
A1.6.1	Auxiliary crossarm for tower type 1QT6		per set of six	4		
A1.6.2	Auxiliary crossarm for tower type 1DT6		per set of three	6		
A2.	Supply of insulator and fittings:					
	Insulator sets complete with insulators and all hardware fittings including suspension clamps, tension dead ends, armour rods, arcing horn, Arcing ring etc					
A2.1	a) 70kN Single suspension Insulators set for "ACSR Grosbeak" Conductor (Suspension) - disc only		set	96		
	b) 70kN Single suspension Insulator Fittings set for "ACSR Grosbeak" Conductor (Suspension) - hardware fittings only		set	96		
A2.2	a) 120kN Single suspension Insulators set for "ACSR Grosbeak" Conductor (Heavy Suspension) - disc only		set	72		
	b) 120kN Single suspension Insulator Fittings set for "ACSR Grosbeak" Conductor - hardware fittings only		set	72		
A2.3	a) 70kN Single Jumper suspension Insulators set for "ACSR Grosbeak" Conductor - disc only		set	138		
	b) 70kN Single Jumper suspension Insulator Fittings set for "ACSR Grosbeak" Conductor - hardware fittings only		set	138		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Aboard

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
A2.4	a) 120kN Single tension Insulators set for "ACSR Grosbeak" Conductor - disc only		set	456		
	b) 120kN Single tension Insulator Fittings set for "ACSR Grosbeak" Conductor - hardware fittings only		set	456		
A2.5	a) 70kN single upright low duty Insulators Set for "ACSR Grosbeak" Conductor - disc only		set	24		
	b) 70kN single upright low duty Insulator Fittings Set for "ACSR Grosbeak" Conductor - hardware fittings only		set	24		
A2.6	a) 70kN single inverted low duty Insulators Set for "ACSR Grosbeak" Conductor - disc only		set	24		
	b) 70kN single inverted low duty Insulators Fittings Set for "ACSR Grosbeak" Conductor - disc only - hardware fittings only		set	24		
A2.7	Vibration Damper for Single "ACSR Grosbeak" Conductor		span	34		
A2.8	Vibration Damper for 7x3.25 GS equivalent OPGW		span	34		
A2.9	Suspension set for 7x3.25 GS equivalent OPGW, complete assembly		each	8		
A2.10	Tension set for 7x3.25 GS equivalent OPGW, complete assembly		each	76		
A2.11	Counterweights for 120kN suspension insulator sets complete with yoke plate attachment bolts to be used for 1Q15 towers:					
(a)	- 40kg set		each	2		
(b)	- 80kg set		each	4		
(c)	- 120kg set		each	6		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Aboard

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
A3	Supply of Tower Paint, Warning spheres					
A3.1	Painting of tower having height more than 45meter in accordance with the requirements of the Technical Specification		per tower	7		
A3.2	Painting of tower (Reflecting Paint) upto 3 meter in submerge area in accordance with the requirements of the Technical Specification		per tower	2		
A4	Supply of phase conductor, earthwire and OPGW					
A4.1.1	a) "ACSR Grosbeak" Phase Conductor (3 Phase, Four Circuit, Single Conductor per phase on the line)		route-km	9		
	b) Necessary midspan joints and repair sleeves (3 Phase, Four Circuit, Single Conductor per phase on the line)		route-km	9		
A4.1.3	7x3.25 GS equivalent OPGW inclusive of joint boxes, fixing clamps, fusion splices and connections to the joint boxes. Two OPGW on the line.		route-km	9		
S.A1	SPARES					
S.A1.1	Towers					
	132kV double circuit towers complete with all stubs, nuts, bolts, phase conductor and earthwire swivels /shackles, step bolts, access, ladders, tower notice and identification plates, ACDs etc.					
S.A1.1.1	Tower type 1QL E9		each	1		
S.A1.1.2	Tower type 1Q15 E9		each	1		
S.A1.1.3	Tower type 1Q30 E9		each	1		
S.A1.1.4	Tower type 1QT6 E9		each	1		
S.A1.1.5	Tower type 1DT6 E9		each	1		
S.A1.2	Insulator and Fittings					
	Insulator sets complete with insulators and all hardware fittings including suspension clamps, tension dead ends, armour rods, arcing horn. Arcing ring etc					
S.A1.2.1	70kN Single suspension set for "ACSR Grosbeak" Conductor Complete Assembly		set	5		
S.A1.2.2	70kN Single Jumper suspension set for "ACSR Grosbeak" Conductor - Complete Assembly		set	7		
S.A1.2.3	120kN Single tension set for "ACSR Grosbeak" Conductor - Complete Assembly		set	23		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Aboard

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
S.A1.3	Phase conductor, earthwire, OPGW & Fittings					
S.A1.3.1.1	Phase conductor "ACSR Grosbeak"		km	1		
S.A1.3.1.2	Midspan Joint for "ACSR Grosbeak" conductor		each	1		
S.A1.3.1.3	Repair sleeve for "ACSR Grosbeak" conductor		each	1		
S.A1.3.1.11	7x3.25 GS Equivalent OPGW		km	1		
S.A1.3.1.12	Suspension set for 7x3.25 GS Equivalent OPGW		each	1		
S.A1.3.1.13	Tension set for 7x3.25 GS Equivalent OPGW		each	4		
S.A1.3.1.14	Vibration damper for 7x3.25 GS Equivalent OPGW		each	2		
S.A1.4	Motorised jointing compressor for conductor complete with dies suitable for conductors & earthwires to be used for this Contract		each	1		
TOTAL (Grand Summary)						

Name of Bidder

Signature of Bidder

¹ Bidders shall enter a code representing the country of origin of all imported plant and equipment.

² Specify currency as per provision of Instruction to Bidders. Create and use as many column for Unit Price and total Price as there are currencies.

Country of Origin Declaration Form

Item	Description	Code	Country

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers

Item no.	Description of Works	Code1	Unit	Qty	Price in	
					Unit Price2 CIP	Total Price CIP
				1	2	3=1x2
A1	Towers					
	Supply of 132kV double circuit towers complete with all stubs, nuts, bolts, locking nuts, washers, phase conductor and earthwire swivels/shackles, step bolts, tower notice and identification plates, ACDs, protective coating, earthing etc.					
A1.1	Tower type 1QL					
A1.1.1	Tower type 1QL Standard		each	1		
A1.1.2	Tower type 1QL E1.5		each	1		
A1.1.3	Tower type 1QL E3		each	1		
A1.1.4	Tower type 1QL E4.5		each	1		
A1.1.5	Tower type 1QL E6		each	2		
A1.1.6	Tower type 1QL E9		each	2		
A1.2	Tower type 1Q15					
A1.2.1	Tower type 1Q15 Standard		each	1		
A1.2.2	Tower type 1Q15 E1.5		each	1		
A1.2.3	Tower type 1Q15 E3		each	1		
A1.2.4	Tower type 1Q15 E4.5		each	1		
A1.2.5	Tower type 1Q15 E6		each	1		
A1.2.6	Tower type 1Q15 E9		each	1		
A1.3	Tower type 1Q30					
A1.3.1	Tower type 1Q30 Standard		each	1		
A1.3.2	Tower type 1Q30 E1.5		each	1		
A1.3.3	Tower type 1Q30 E3		each	1		
A1.3.4	Tower type 1Q30 E4.5		each	1		
A1.3.5	Tower type 1Q30 E6		each	1		
A1.3.6	Tower type 1Q30 E9		each	1		
A1.4	Tower Type 1QT6					
A1.4.1	Tower type 1QT6 Standard		each	1		
A1.4.2	Tower type 1QT6 E1.5		each	1		
A1.4.3	Tower type 1QT6 E3		each	1		
A1.4.4	Tower type 1QT6 E4.5		each	1		
A1.4.5	Tower type 1QT6 E6		each	2		
A1.4.6	Tower type 1QT6 E9		each	3		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers

Item no.	Description of Works	Code1	Unit	Qty	Price in	
					Unit Price2 CIP	Total Price CIP
				1	2	3=1x2
A1.5	Tower Type 1DT6					
A1.5.1	Tower type 1DT6 Standard		each	1		
A1.5.2	Tower type 1DT6 E1.5		each	1		
A1.5.3	Tower type 1DT6 E3		each	1		
A1.5.4	Tower type 1DT6 E4.5		each	1		
A1.5.5	Tower type 1DT6 E6		each	1		
A1.5.6	Tower type 1DT6 E9		each	1		
A1.6	Auxiliary Crossarm for tower					
A1.6.1	Auxiliary crossarm for tower type 1QT6		per set of six	4		
A1.6.2	Auxiliary crossarm for tower type 1DT6		per set of three	6		
A2.	Supply of insulator and fittings:					
	Insulator sets complete with insulators and all hardware fittings including suspension clamps, tension dead ends, armour rods, arcing horn, Arcing ring etc					
A2.1	a) 70kN Single suspension Insulators set for "ACSR Grosbeak" Conductor (Suspension) - disc only		set	96		
	b) 70kN Single suspension Insulator Fittings set for "ACSR Grosbeak" Conductor (Suspension) - hardware fittings only		set	96		
A2.2	a) 120kN Single suspension Insulators set for "ACSR Grosbeak" Conductor (Heavy Suspension) - disc only		set	72		
	b) 120kN Single suspension Insulator Fittings set for "ACSR Grosbeak" Conductor - hardware fittings only		set	72		
A2.3	a) 70kN Single Jumper suspension Insulators set for "ACSR Grosbeak" Conductor - disc only		set	138		
	b) 70kN Single Jumper suspension Insulator Fittings set for "ACSR Grosbeak" Conductor - hardware fittings only		set	138		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers

Item no.	Description of Works	Code1	Unit	Qty	Price in	
					Unit Price2 CIP	Total Price CIP
				1	2	3=1x2
A2.4	a) 120kN Single tension Insulators set for "ACSR Grosbeak" Conductor - disc only		set	456		
	b) 120kN Single tension Insulator Fittings set for "ACSR Grosbeak" Conductor - hardware fittings only		set	456		
A2.5	a) 70kN single upright low duty Insulators Set for "ACSR Grosbeak" Conductor - disc only		set	24		
	b) 70kN single upright low duty Insulator Fittings Set for "ACSR Grosbeak" Conductor - hardware fittings only		set	24		
A2.6	a) 70kN single inverted low duty Insulators Set for "ACSR Grosbeak" Conductor - disc only		set	24		
	b) 70kN single inverted low duty Insulators Fittings Set for "ACSR Grosbeak" Conductor - disc only - hardware fittings only		set	24		
A2.7	Vibration Damper for Single "ACSR Grosbeak" Conductor		span	34		
A2.8	Vibration Damper for 7x3.25 GS equivalent OPGW		span	34		
A2.9	Suspension set for 7x3.25 GS equivalent OPGW, complete assembly		each	8		
A2.10	Tension set for 7x3.25 GS equivalent OPGW, complete assembly		each	76		
A2.11	Counterweights for 120kN suspension insulator sets complete with yoke plate attachment bolts to be used for 1Q15 towers:					
(a)	- 40kg set		each	2		
(b)	- 80kg set		each	4		
(c)	- 120kg set		each	6		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers

Item no.	Description of Works	Code1	Unit	Qty	Price in	
					Unit Price2 CIP	Total Price CIP
				1	2	3=1x2
A3	Supply of Tower Paint, Warning spheres					
A3.1	Painting of tower having height more than 45meter in accordance with the requirements of the Technical Specification		per tower	7		
A3.2	Painting of tower (Reflecting Paint) upto 3 meter in submerge area in accordance with the requirements of the Technical Specification		per tower	2		
A4	Supply of phase conductor, earthwire and OPGW					
A4.1.1	a) "ACSR Grosbeak" Phase Conductor (3 Phase, Four Circuit, Single Conductor per phase on the line)		route-km	9		
	b) Necessary midspan joints and repair sleeves (3 Phase, Four Circuit, Single Conductor per phase on the line)		route-km	9		
A4.1.3	7x3.25 GS equivalent OPGW inclusive of joint boxes, fixing clamps, fusion splices and connections to the joint boxes. Two OPGW on the line.		route-km	9		
S.A1	SPARES					
S.A1.1	Towers					
	132kV double circuit towers complete with all stubs, nuts, bolts, phase conductor and earthwire swivels /shackles, step bolts, access, ladders, tower notice and identification plates, ACDs etc.					
S.A1.1.1	Tower type 1QL E9		each	1		
S.A1.1.2	Tower type 1Q15 E9		each	1		
S.A1.1.3	Tower type 1Q30 E9		each	1		
S.A1.1.4	Tower type 1QT6 E9		each	1		
S.A1.1.5	Tower type 1DT6 E9		each	1		
S.A1.2	Insulator and Fittings					
	Insulator sets complete with insulators and all hardware fittings including suspension clamps, tension dead ends, armour rods, arcing horn. Arcing ring etc					
S.A1.2.1	70kN Single suspension set for "ACSR Grosbeak" Conductor - Complete Asssembly		set	5		
S.A1.2.2	70kN Single Jumper suspension set for "ACSR Grosbeak" Conductor - Complete Asssembly		set	7		
S.A1.2.3	120kN Single tension set for "ACSR Grosbeak" Conductor - Complete Asssembly		set	23		

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT

FOR

DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from within Employers

Item no.	Description of Works	Code ¹	Unit	Qty	Price in	
					Unit Price ² CIP	Total Price CIP
				1	2	3=1x2
S.A1.3	Phase conductor, earthwire, OPGW & Fittings					
S.A1.3.1.1	Phase conductor "ACSR Grosbeak"		km	1		
S.A1.3.1.2	Midspan Joint for "ACSR Grosbeak" conductor		each	1		
S.A1.3.1.3	Repair sleeve for "ACSR Grosbeak" conductor		each	1		
S.A1.3.1.11	7x3.25 GS Equivalent OPGW		km	1		
S.A1.3.1.12	Suspension set for 7x3.25 GS Equivalent OPGW		each	1		
S.A1.3.1.13	Tension set for 7x3.25 GS Equivalent OPGW		each	4		
S.A1.3.1.14	Vibration damper for 7x3.25 GS Equivalent OPGW		each	2		
S.A1.4	Motorised jointing compressor for conductor complete with dies suitable for conductors & earthwires to be used for this Contract		each	1		
TOTAL (Grand Summary)						

Name of Bidder

Signature of Bidder

¹ Bidders shall enter a code representing the country of origin of all imported plant and equipment.

² Specify currency as per provision of Instruction to Bidders. Create and use as many column for Unit Price and total Price as there are currencies.

Country of Origin Declaration Form

Item	Description	Code	Country

Schedules of Rates and Prices

POWER GRID COMPANY OF BANGLADESH LIMITED

**BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT
PATUAKHALI (PAYRA) - GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS**

SECTION B: 132kV Line

Schedule No. 3. Design Services

Item no.	Description	Unit	Qty. (1)	Unit Price ¹		Total Price ¹	
				Foreign Currency Portion (in USD) (2)	Local Currency Portion (in BDT) (3)	Foreign (in USD) 4='(1) x (2)	Local (in BDT) 5='(1)x(3)
				1	Insulator and fittings	Lot	1
2	Conductors, earthwires & accessories	Lot	1				
3	OPGW, Optical fibre cables & accessories	Lot	1				
4	Foundations & other civil engineering related to overhead transmission line	Lot	1				
TOTAL (to Schedule of Grand Summary)							

All the costs, require for design purpose to complete the Contractual obligation, shall deem to be included in the above design costs.

Name of Bidder _____

Signature of Bidder _____

¹ Specify currency in accordance with specifications in Bid Data Sheet under ITB 18.1 in Single-stage Bid.

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A1	Towers							
	Erection of 132kV double circuit towers complete with all stubs, nuts, bolts, locking nuts, washers, phase conductor and earthwire swivels/shackles, step bolts, tower notice and identification plates, ACDs, protective coating, earthing etc.							
A1.1	Tower type 1QL							
A1.1.1	Tower type 1QL Standard		each	1				
A1.1.2	Tower type 1QL E1.5		each	1				
A1.1.3	Tower type 1QL E3		each	1				
A1.1.4	Tower type 1QL E4.5		each	1				
A1.1.5	Tower type 1QL E6		each	2				
A1.1.6	Tower type 1QL E9		each	2				
A1.2	Tower type 1Q15							
A1.2.1	Tower type 1Q15 Standard		each	1				
A1.2.2	Tower type 1Q15 E1.5		each	1				
A1.2.3	Tower type 1Q15 E3		each	1				
A1.2.4	Tower type 1Q15 E4.5		each	1				
A1.2.5	Tower type 1Q15 E6		each	1				
A1.2.6	Tower type 1Q15 E9		each	1				
A1.3	Tower type 1Q30							
A1.3.1	Tower type 1Q30 Standard		each	1				
A1.3.2	Tower type 1Q30 E1.5		each	1				
A1.3.3	Tower type 1Q30 E3		each	1				
A1.3.4	Tower type 1Q30 E4.5		each	1				
A1.3.5	Tower type 1Q30 E6		each	1				
A1.3.6	Tower type 1Q30 E9		each	1				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A1.4	Tower Type 1QT6							
A1.4.1	Tower type 1QT6 Standard		each	1				
A1.4.2	Tower type 1QT6 E1.5		each	1				
A1.4.3	Tower type 1QT6 E3		each	1				
A1.4.4	Tower type 1QT6 E4.5		each	1				
A1.4.5	Tower type 1QT6 E6		each	2				
A1.4.6	Tower type 1QT6 E9		each	3				
A1.5	Tower Type 1DT6							
A1.5.1	Tower type 1DT6 Standard		each	1				
A1.5.2	Tower type 1DT6 E1.5		each	1				
A1.5.3	Tower type 1DT6 E3		each	1				
A1.5.4	Tower type 1DT6 E4.5		each	1				
A1.5.5	Tower type 1DT6 E6		each	1				
A1.5.6	Tower type 1DT6 E9		each	1				
A1.6	Auxiliary Crossarm for tower							
A1.6.1	Auxiliary crossarm for tower type 1QT6		per set of six	4				
A1.6.2	Auxiliary crossarm for tower type 1DT6		per set of three	6				
A1.10	Tower Paint, Warning spheres							
A1.10.1	Painting of tower having height more than 45meter in accordance with the requirements of the Technical Specification		per tower	7				
A1.10.2	Painting of tower (Reflecting Paint) upto 3 meter in submerge area in accordance with the requirements of the Technical Specification		per tower	2				
A1.11	Tower Test							
A1.11.1	Proto assembly of all type towers with all extensions to prove compliance with specification. Payment for successful test only.							
(a)	Tower type 1QL		each	1				
(b)	Tower type 1Q15		each	1				
(c)	Tower type 1Q30		each	1				
(d)	Tower type 1QT6		each	1				
(e)	Tower type 1DT6		each	1				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A2	Route Survey & Clearance							
A2.1	Check Survey in accordance with the requirements of the technical specification, incl. full ground survey with change of route, if any, tower plotting and preparation and submission of route maps, profile drawings, SIMM document, etc.		km	9				
A2.2	Route clearance in accordance with requirements of the technical specification including payment of damage compensation		km	9				
A3	Foundations							
	Foundations for towers including all setting out, Concrete, Reinforcement, Excavation, Pumping, Stub-cutting, Geotechnical Investigation (Level 2), Shuttering, Leveling, Timbering, supply & Installation of foundation steelwork, Earthing Materials, Backfilling, approved Protective Coating & site clearing etc.							
A3.1	Tower Type 1QL							
A3.1.1	Deep Foundation for Soil Category-3		Per tower	1				
A3.1.2	Deep Foundation for Soil Category-4		Per tower	1				
A3.1.3	Deep Foundation (1 meter raised chimney) for soil category-3		Per tower	1				
A3.1.4	Deep Foundation (2 meter raised chimney) for soil category-3		Per tower	1				
A3.1.5	Deep Foundation (1 meter raised chimney) for soil category-4		Per tower	2				
A3.1.6	Deep Foundation (2 meter raised chimney) for soil category-4		Per tower	2				
A3.2	Tower Type 1Q15							
A3.2.1	Deep Foundation for Soil Category-3		Per tower	1				
A3.2.2	Deep Foundation for Soil Category-4		Per tower	1				
A3.2.3	Deep Foundation (1 meter raised chimney) for soil category-3		Per tower	1				
A3.2.4	Deep Foundation (2 meter raised chimney) for soil category-3		Per tower	1				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A3.2.5	Deep Foundation (1 meter raised chimney) for soil category-4		Per tower	1				
A3.2.6	Deep Foundation (2 meter raised chimney) for soil category-4		Per tower	1				
A3.3	Tower type1Q30							
A3.3.2	Deep Foundation for Soil Category-3		Per tower	1				
A3.3.3	Deep Foundation for Soil Category-4		Per tower	1				
A3.3.6	Deep Foundation (1 meter raised chimney) for soil category-3		Per tower	1				
A3.3.7	Deep Foundation (2 meter raised chimney) for soil category-3		Per tower	1				
A3.3.8	Deep Foundation (1 meter raised chimney) for soil category-4		Per tower	1				
A3.3.9	Deep Foundation (2 meter raised chimney) for soil category-4		Per tower	1				
A3.4	Tower Type 1QT6							
A3.4.1	Deep Foundation for Soil Category-2		Per tower	1				
A3.4.2	Deep Foundation for Soil Category-3		Per tower	1				
A3.4.3	Deep Foundation for Soil Category-4		Per tower	1				
A3.4.4	Deep Foundation (1 meter raised chimney) for soil category-2		Per tower	1				
A3.4.5	Deep Foundation (2 meter raised chimney) for soil category-2		Per tower	1				
A3.4.6	Deep Foundation (1 meter raised chimney) for soil category-3		Per tower	1				
A3.4.7	Deep Foundation (2 meter raised chimney) for soil category-3		Per tower	1				
A3.4.8	Deep Foundation (1 meter raised chimney) for soil category-4		Per tower	1				
A3.4.9	Deep Foundation (2 meter raised chimney) for soil category-4		Per tower	1				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
A3.5	Tower Type 1DT6							
A3.5.2	Deep Foundation for Soil Category-3		Per tower	1				
A3.5.3	Deep Foundation for Soil Category-4		Per tower	1				
A3.5.6	Deep Foundation (1 meter raised chimney) for soil category-3		Per tower	1				
A3.5.7	Deep Foundation (2 meter raised chimney) for soil category-3		Per tower	1				
A3.5.8	Deep Foundation (1 meter raised chimney) for soil category-4		Per tower	1				
A3.5.9	Deep Foundation (2 meter raised chimney) for soil category-4		Per tower	1				
A4.1	Geotechnical investigation in accordance with the requirements of the Technical Specification							
A4.1.1	Level 2		borehole	1				
A4.1.3	Level 4		borehole	34				
A5.	Testing of Foundations							
A5.2	Individual Pile test including supply,install and test to prove compliance with technical specification, payment for successful test only (applicable for all tower types selected by the Employer's Engineer):							
(a)	Compression test		per test	1				
(b)	Uplift test		per test	1				
(c)	Pile Integrity test		per test	140				
A6.	Erection of insulator and fittings							
	Insulator sets complete with insulators and all hardware fittings including suspension clamps, tension dead ends, armour rods, arcing horn, Arcing ring etc							
A6.1	a) 70kN Single suspension Insulators set for "ACSR Grosbeak" Conductor (Suspension) - disc only		set	96				
	b) 70kN Single suspension Insulator Fittings set for "ACSR Grosbeak" Conductor (Suspension) - hardware fittings only		set	96				
A6.2	a) 120kN Single suspension Insulators set for "ACSR Grosbeak" Conductor (Heavy Suspension) - disc only		set	72				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
	b) 120kN Single suspension Insulator Fittings set for "ACSR Grosbeak" Conductor - hardware fittings only		set	72				
A6.3	a) 70kN Single Jumper suspension Insulators set for "ACSR Grosbeak" Conductor - disc only		set	138				
	b) 70kN Single Jumper suspension Insulator Fittings set for "ACSR Grosbeak" Conductor - hardware fittings only		set	138				
A6.4	a) 120kN Single tension Insulators set for "ACSR Grosbeak" Conductor - disc only		set	456				
	b) 120kN Single tension Insulator Fittings set for "ACSR Grosbeak" Conductor - hardware fittings only		set	456				
A6.5	a) 70kN single upright low duty Insulators Set for "ACSR Grosbeak" Conductor - disc only		set	24				
	b) 70kN single upright low duty Insulator Fittings Set for "ACSR Grosbeak" Conductor - hardware fittings only		set	24				
A6.6	a) 70kN single inverted low duty Insulators Set for "ACSR Grosbeak" Conductor - disc only		set	24				
	b) 70kN single inverted low duty Insulators Fittings Set for "ACSR Grosbeak" Conductor - disc only - hardware fittings only		set	24				
A6.7	Vibration Damper for Single "ACSR Grosbeak" Conductor		span	34				
A6.8	Vibration Damper for 7x3.25 GS equivalent OPGW		span	34				
A6.9	Suspension set for 7x3.25 GS equivalent OPGW, complete assembly		each	8				
A6.10	Tension set for 7x3.25 GS equivalent OPGW, complete assembly		each	76				
A7	Erection of phase conductor, earthwire and OPGW							
A7.1	a) "ACSR Grosbeak" Phase Conductor (3 Phase, Four Circuit, Single Conductor per phase on the line)		route-km	9				

Schedules of Rates and Prices
POWER GRID COMPANY OF BANGLADESH LIMITED

BIDDING DOCUMENT
FOR
DESIGN, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400kV DOUBLE CIRCUIT PATUAKHALI (PAYRA) -
GOPALGANJ TRANSMISSION LINE ON TURNKEY BASIS

SECTION B: 132kV Line

Schedule No. 4: Installation and other Services

Item no.	Description of Works	Code ¹	Unit	Qty	Unit Price		Total Price	
					Foreign Currency (in USD)	Local Currency (in BDT)	Foreign (in USD)	Local Currency (in BDT)
				1	2	3	4=1x2	5=1x3
	b) Necessary midspan joints and repair sleeves (3 Phase, Four Circuit, Single Conductor per phase on the line)		route-km	9				
A7.2	7x3.25 GS equivalent OPGW inclusive of joint boxes, fixing clamps, fusion splices and connections to the joint boxes. Two OPGW on the line.		route-km	9				
A8	MISCELLANEOUS							
A8.1	Erection of OPGW connection from terminal tower to substation Gantry/Mast		per wire	2				
A8.2	Additional counterpoise earthing in accordance with requirement of the Technical specification		per meter	50				
A8.3	Miscellaneous Rates for works certified by the Engineer in accordance with method of							
(a)	Additional Excavation		cu.m	200				
(b)	Additional Concrete		cu.m	100				
(c)	Additional Reinforcement		kg	500				
(d)	Extra for surface resisting cement per cu.m of concrete		cu.m	100				
(e)	Additional Boring (500mm diameter)		rm	50				
(f)	Additional Boring (600mm diameter)		rm	50				
(g)	Additional Boring (750mm diameter)		rm	50				
(h)	Sand Filling		cu.m	300				
TOTAL (Grand Summary)								
					Name of Bidder			

3. Schedule C: Bar Chart Program of Key Activities - Delivery & Completion Time Schedule

4. Schedule D: Manufacturers, Places of Manufacture and Testing

The following form shall be filled and attached to the bid. Bidders are free to propose more than one Manufacturer for each item.

Item	Description	Manufacturer	Place of Manufacture	Place of Testing and Inspection
1.	Towers			
	Tower			
	Nuts, bolts, washers etc.			
2.	Conductor & Fittings			
	Conductor			
	Conductor fittings			
3.	Earthwire & Fittings			
	Earthwire			
	Earthwire fittings			
4.	OPGW & Fittings			
	OPGW			
	OPGW fittings			
	Joint/Splice Boxes			
5.	Insulator & Fittings			
	Insulator units			
	Insulator fittings			

5. Schedule E: Technical Particulars and Guarantees

5.1 Towers

5.1.1 400kV Towers

Parameters	Unit	Tower Type								
		4DL	4D1	4D25	4DXP	4D45	4DT6	4DAX	4DR1	4DR2
Total height of tower (standard)	(mm)									
Vertical spacing between conductor-earthwire	(mm)									
Horizontal phase separation	(mm)									
Vertical phase separation	(mm)									
Total approx. mass of standard height tower without stub & cleat*	(kg)									
Total approx. mass of E1.5 tower*	(kg)									
Total approx. mass of E3.0 tower*	(kg)									
Total approx. mass of E4.5 tower*	(kg)									
Total approx. mass of E6.0 tower*	(kg)									
Total approx. mass of E9.0 tower*	(kg)									
Total approx. mass of E12.0 tower*	(kg)									
Total approx. mass of E15.0 Tower*	(kg)									
Total approx. mass of E20.0 Tower*	(kg)									
Total approx. mass of E25.0 Tower*	(kg)									
Total approx. mass of E30.0 Tower*	(kg)									
Total approx. mass of E40.0 Tower*	(kg)									
Total approx. mass of stub & cleat*	(kg)									
Approximate ultimate compression load/leg (highest extension)*	(kN)									
Approximate ultimate uplift load/leg (highest extension)*	(kN)									

* The final figures will be obtained during detailed design of towers and the approval thereof after award of contract, and the towers shall be supplied accordingly within the contract price.

	Mild Steel			High Yield Steel		
	Standard	Grade	Yield Stress	Standard	Grade	Yield Stress
Steel standard and grades						
Bolt standard and grades						



5.1.2 230kV Towers – Not applicable

Parameters	Unit	Tower Type			
		2DL	2D10	2D25	2DT6
Total height of tower (standard)	(mm)				
Vertical spacing between conductor- earthwire	(mm)				
Horizontal phase separation	(mm)				
Vertical phase separation	(mm)				
Total approx. mass of standard height tower without stub & cleat*	(kg)				
Total approx. mass of E1.5 tower*	(kg)				
Total approx. mass of E3.0 tower**	(kg)				
Total approx. mass of E4.5 tower**	(kg)				
Total approx. mass of E6.0 tower**	(kg)				
Total approx. mass of E9.0 tower**	(kg)				
Total approx. mass of E12.0 tower**	(kg)				
Total approx. mass of E15.0 Tower**	(kg)				
Total approx. mass of stub & cleat*	(kg)				
Approximate ultimate compression load/leg (E9.0 & E15)*	(kN)				
Approximate ultimate uplift load/leg (E9.0 & E15)*	(kN)				

* The final figures will be obtained during detailed design of towers and the approval thereof after award of contract, and the towers shall be supplied accordingly within the contract price.

	Mild Steel			High Yield Steel		
	Standard	Grade	Yield Stress	Standard	Grade	Yield Stress
Steel standard and grades						
Bolt standard and grades						



5.1.3 132kV Towers (No need to fill if tower design is provided by the Employer)

Parameter	Tower Type				
	1DL	1D1	1D25	1DT6	1DT9
Tower dimensions:					
Total height of tower (standard)					
Vertical spacing between conductor-earthwire					
Horizontal phase separation					
Vertical phase separation					
Base width (standard height tower)					
Mass of tower excluding stubs*:					
Total mass of Standard height tower*					
Total mass of E1.5 tower*					
Total mass of E3.0 tower*					
Total mass of E4.5 tower*					
Total mass of E6.0 tower*					
Total mass of E9.0 tower*					
Total mass of E12.0 tower*					
Total mass of E15.0 Tower*					
Approximate ultimate compression load/leg (highest extension)*					
Approximate ultimate uplift load/leg (highest extension)*					

* The final figures will be obtained during detailed design of towers and the approval thereof after award of contract, and the towers shall be supplied accordingly within the contract price.

	Mild Steel			High Yield Steel		
	Standard	Grade	Yield Stress	Standard	Grade	Yield Stress
Steel standard and grades						
Bolt standard and grades						



5.2 Piled Foundation Details

5.2.1 400kV Towers

Tower Type Particulars	4DL (Highest extension)	4D1 (Highest extension)	4D25 (Highest extension)	4D45 (Highest extension)	4DT6 (Highest extension)	4DR1 (Highest extension)	4DR2 (Highest extension)	4DAX
Type of piled foundation								
Number of piles per leg*								
Length of pile* (mm)								
Diameter of pile* (mm)								

* The final figures will be obtained during detailed design of tower foundations and the approval thereof after award of contract, and the foundations shall be supplied accordingly within the contract price.

5.2.2 230kV Towers – Not applicable

Tower Type Particulars	2DL (Standard)	2D10 (Standard)	2D25 (Standard)	2DT6 (Standard)
Type of piled foundation				
Number of piles per leg*				
Length of pile* (mm)				
Diameter of pile* (mm)				

* The final figures will be obtained during detailed design of tower foundations and the approval thereof after award of contract, and the foundations shall be supplied accordingly within the contract price.

5.2.3 132kV Towers

Tower Type Particulars	1DL (Highest Extension)	1D1 (Highest Extension)	1D25 (Highest Extension)	1DT6 (Highest Extension)	1DT9 (Highest Extension)	1QL (Highest Extension)	1Q15 (Highest Extension)	1Q30 (Highest Extension)	1QT6 (Highest Extension)
Type of piled foundation	Not applicable	Not applicable	Not applicable		Not applicable				
Number of piles per leg*	Not applicable	Not applicable	Not applicable		Not applicable				
Length of pile* (mm)	Not applicable	Not applicable	Not applicable		Not applicable				
Diameter of pile* (mm)	Not applicable	Not applicable	Not applicable		Not applicable				

* The final figures will be obtained during detailed design of tower foundations and the approval thereof after award of contract, and the foundations shall be supplied accordingly within the contract price.

5.3 Conductor & Earthwire

5.3.1 400kV Line – Overland Portion

Conductor	Phase		Earthwire	
	As per Bid requirement	As per Bid Proposal	As per Bid requirement	As per Bid Proposal
Designation (Code Name)				
Type				
Reference standards				
Aluminium/ Aluminium alloy grade				
Steel grade				
Galvanising Thickness				
Aluminium class (AS wire)				
Aluminium type (AS wire)				
Conductor max. continuous operating temperature (°C)				
Minimum mass of grease (kg/km)				
Creep period of conductor to be considered (years)				
No. and diameter of aluminium wire (No./mm)				
No. and diameter of steel wire (No./mm)				
Overall diameter of conductor (mm)				
Overall sectional area of conductor (mm ²)				
Rated tensile strength of conductor (kN)				
Weight (kg/km)				
Direction of external lay				
Cross Sectional Area of Al (mm ²)				
Cross Sectional Area of Composite Core (mm ²)				
No. of Composite Core (mm)				
Shape of wires				
Diameter of Composite Core (mm)				
Rated tensile strength of core (kN)				
Current carrying capacity at 180 Deg C (amp)				
Max. allowable emergency operating temp. (Deg C)				
Maximum DC Resistance at 20 Deg C (ohm/km)				

5.3.2 400kV Line – River Crossing Portion

Conductor	Phase		Earthwire	
	As per Bid requirement	As per Bid Proposal	As per Bid requirement	As per Bid Proposal
Designation (Code Name)				
Type				
Reference standards				
Aluminium/ Aluminium alloy grade				
Steel grade				
Galvanising Thickness				
Aluminium class (AS wire)				
Aluminium type (AS wire)				
Conductor max. continuous operating temperature (°C)				
Minimum mass of grease (kg/km)				
Creep period of conductor to be considered (years)				
No. and diameter of aluminium wire (No./mm)				
No. and diameter of steel wire (No./mm)				
Overall diameter of conductor (mm)				
Overall sectional area of conductor (mm ²)				
Rated tensile strength of conductor (kN)				
Weight (kg/km)				
Direction of external lay				
Cross Sectional Area of Al (mm ²)				
Cross Sectional Area of Composite Core (mm ²)				
No. of Composite Core (mm)				
Shape of wires				
Diameter of Composite Core (mm)				
Rated tensile strength of core (kN)				
Current carrying capacity at 180 Deg C (amp)				
Max. allowable emergency operating temp. (Deg C)				
Maximum DC Resistance at 20 Deg C (ohm/km)				



5.3.3 230kV Line – Not applicable

Parameter	Unit	Conductor	Earthwire
Conductor designation & type		ACSR Mallard	7/4.0 Steel
Reference standard		ASTM B232	
Number & diameter of strands	no. x mm		
Overall diameter	mm		
Guaranteed ultimate tensile strength	kN		
Final modulus of elasticity	N/mm ²		
Coefficient of linear expansion	1/degree		
D.C. resistance at 20°C	ohm/km		
Standard weight	kg/km		
Weight of grease	kg/km		
Drop point of grease	°C		
Standard length on drum	m		
Lay direction			
Weight of complete drum	kg		
Percentage of random short drum lengths (not more than 4 percent)	%		

5.3.4 132kV Line

Parameter	Unit	Conductor	
		As per Bid requirement	As per Bid Proposal
Conductor designation & type			
Reference standard			
Number & diameter of strands	No. x mm		
Overall diameter	mm		
Guaranteed ultimate tensile strength	kN		
Final modulus of elasticity	N/mm ²		
Coefficient of linear expansion	1/degree		
D.C. resistance at 20°C	ohm/km		
Standard weight	kg/km		
Weight of grease	kg/km		
Drop point of grease	°C		
Standard length on drum	m		
Lay direction			
Weight of complete drum	Kg		
Percentage of random short drum lengths (not more than 4 percent)	%		



5.4 OPGW & Fittings

5.4.1 400kV Line

Parameter	Unit	Overland Portion		River Crossing Portion	
		As per Bid requirement	As per Bid Proposal	As per Bid requirement	As per Bid Proposal
OPGW designation & type					
Number of fibres					
Reference standard					
Number and diameter of aluminium strands	mm				
Number and diameter of steel strands	mm				
Corrosion protection of steel strands					
Internal fibre tube diameter	mm				
Overall diameter	mm				
Guaranteed ultimate tensile strength	kN				
Final modulus of elasticity	N/mm ²				
Coefficient of linear expansion	1/degree				
DC resistance at 20°C	ohms/m				
Maximum short circuit current capacity	kA ² sec				
Assumed temperature rise	°C				
Standard weight	kg/m				
Weight of grease	kg/m				
Standard length on drum*	m				
Weight of complete drum	kg				
Maximum drum length	m				
Installation minimum bending radius	m				
Optical Characteristics:					
Cut-off wave length	nm				
Attenuation at Nm	dB/km				
Zero dispersion wave length	nm				
Chromatic dispersion at nm	ps/km				
Individual splice loss	dB				
Bit error rate					
OPGW Fittings:					
Guaranteed ultimate tensile strength					
• Suspension set	kN				
• Tension set	kN				
Overall length of set					
• Suspension set	mm				
• Tension set	mm				
Mass of set					
• Suspension set	kg				
• Tension set	kg				
Drawing numbers					



Parameter	Unit	Overland Portion		River Crossing Portion	
		As per Bid requirement	As per Bid Proposal	As per Bid requirement	As per Bid Proposal
Cross section of OPGW					
Cross section of non-metallic cable					
Joint box					
Fixing clamps					
OPGW suspension set					
OPGW tension set					
OPGW vibration damper					

* Drum length to be finalized after finalization of tower locations as per check survey.

5.4.2 230kV Line – Not applicable

Parameter	Unit	As per Bid requirement	As per Bid Proposal
OPGW designation & type			
Number of fibres			
Reference standard			
Number and diameter of aluminium strands	mm		
Number and diameter of steel strands	mm		
Corrosion protection of steel strands			
Internal fibre tube diameter	mm		
Overall diameter	mm		
Guaranteed ultimate tensile strength	kN		
Final modulus of elasticity	N/mm ²		
Coefficient of linear expansion	1/degree		
DC resistance at 20°C	ohms/m		
Maximum short circuit current capacity	kA ² sec		
Assumed temperature rise	°C		
Standard weight	kg/m		
Weight of grease	kg/m		
Standard length on drum*	m		
Weight of complete drum	kg		
Maximum drum length	m		
Installation minimum bending radius	m		
Optical Characteristics:			
Cut-off wave length	nm		
Attenuation at Nm	dB/km		
Zero dispersion wave length	nm		
Chromatic dispersion at nm	ps/km		
Individual splice loss	dB		
Bit error rate			
OPGW Fittings:			
Guaranteed ultimate tensile strength			
• Suspension set	kN		



Parameter	Unit	As per Bid requirement	As per Bid Proposal
• Tension set	kN		
Overall length of set			
• Suspension set	mm		
• Tension set	mm		
Mass of set			
• Suspension set	kg		
• Tension set	kg		
Drawing numbers			
Cross section of OPGW			
Cross section of non-metallic cable			
Joint box			
Fixing clamps			
OPGW suspension set			
OPGW tension set			
OPGW vibration damper			

* Drum length to be finalized after finalization of tower locations as per check survey.

5.4.3 132kV Line

Parameter	Unit	As per Bid requirement	As per Bid Proposal
OPGW designation & type			
Number of fibres			
Reference standard			
Number and diameter of aluminium strands	mm		
Number and diameter of steel strands	mm		
Corrosion protection of steel strands			
Internal fibre tube diameter	mm		
Overall diameter	mm		
Guaranteed ultimate tensile strength	kN		
Final modulus of elasticity	N/mm ²		
Co-efficient of linear expansion	1/degree		
DC resistance at 20°C	ohms/m		
Maximum short circuit current capacity	kA ² sec	25	
Assumed temperature rise	°C		
Standard weight	kg/m		
Weight of grease	kg/m		
Standard length on drum *	m		
Weight of complete drum	kg		
Maximum drum length	m		
Installation minimum bending radius	m		
Optical Characteristics:			
Cut-off wave length	nm		
Attenuation at Nm	dB/km		
Zero dispersion wave length	nm		



Parameter	Unit	As per Bid requirement	As per Bid Proposal
Chromatic dispersion at nm	ps/km		
Individual splice loss	dB		
Bit error rate			
OPGW Fittings:			
Guaranteed ultimate tensile strength			
• Suspension set	kN		
• Tension set	kN		
Overall length of set			
• Suspension set	mm		
• Tension set	mm		
Mass of set			
• Suspension set	kg		
• Tension set	kg		
Drawing numbers			
Cross section of OPGW			
Cross section of non-metallic cable			
Joint box			
Fixing clamps			
OPGW suspension set			
OPGW tension set			
OPGW vibration damper			

* Drum length to be finalized after finalization of tower locations as per check survey.



5.5 Insulator Sets & Fittings

5.5.1 400kV Line (Overland Portion)

Parameter	Unit	As per Bid requirement				As per Bid Proposal			
		Insulator Set Type							
		Suspension/ Heavy Suspension	Tension	Low Duty Tension	Jumper Suspension	Suspension/ Heavy Suspension	Tension	Low Duty Tension	Jumper Suspension
Insulator unit type no.									
Dielectric material									
Total creepage per unit	mm								
Spacing	mm								
Overall shed diameter	mm								
Puncture voltage	kV								
Electro-mechanical failing load of unit	kN								
Drawing no. of unit									
Type test certificate no.									
Number of units per string	pcs.								
Total creepage of string	mm								
Overall length of set	mm								
Sag adjuster type and step	mm								
Ultimate strength of set	kN								
Mass of set	kg								
Anticipated									
• lightning impulse withstand voltage	kV								
• Power frequency withstand voltage	kV								
• Corona extinction level	kV								

5.5.2 400kV Line (River Crossing Portion)

Parameter	Unit	As per Bid requirement		As per Bid Proposal	
		Insulator Set Type			
		Suspension	Tension	Suspension	Tension
Insulator unit type no.					
Dielectric material					
Total creepage per unit	mm				
Spacing	mm				
Overall shed diameter	mm				
Puncture voltage	kV				
Electro-mechanical failing load of unit	kN				
Drawing no. of unit					
Type test certificate no.					
Number of units per string	pcs.				
Total creepage of string	mm				
Overall length of set	mm				
Sag adjuster type and step	mm				
Ultimate strength of set	kN				
Mass of set	kg				
Anticipated					
• lightning impulse withstand voltage	kV				
• Power frequency withstand voltage	kV				
• Corona extinction level	kV				



5.5.3 230kV Line

Parameter	Unit	As per Bid requirement				As per Bid Proposal			
		Insulator Set Type							
		Suspension/ Heavy Suspension	Tension	Low Duty Tension	Jumper Suspension	Suspension/ Heavy Suspension	Tension	Low Duty Tension	Jumper Suspension
Insulator unit type no.									
Dielectric material									
Total creepage per unit	mm								
Spacing	mm								
Overall shed diameter	mm								
Puncture voltage	kV								
Electro-mechanical failing load of unit	kN								
Drawing no. of unit									
Type test certificate no.									
Number of units per string	pcs.								
Total creepage of string	mm								
Overall length of set	mm								
Sag adjuster type and step	mm								
Ultimate strength of set	kN								
Mass of set	kg								
Anticipated									
• lightning impulse withstand voltage	kV								
• Power frequency withstand voltage	kV								
• Corona extinction level	kV								



5.5.4 132kV Line

Parameter	Unit	As per Bid requirement				As per Bid Proposal			
		Insulator Set Type							
		Suspension/ Heavy Suspension	Tension	Low Duty Tension	Jumper Suspension	Suspension/ Heavy Suspension	Tension	Low Duty Tension	Jumper Suspension
Insulator unit type no.									
Dielectric material									
Total creepage per unit	mm								
Spacing	mm								
Overall shed diameter	mm								
Puncture voltage	kV								
Electro-mechanical failing load of unit	kN								
Drawing no. of unit									
Type test certificate no.									
Number of units per string	pcs.								
Total creepage of string	mm								
Overall length of set	mm								
Sag adjuster type and step	mm								
Ultimate strength of set	kN								
Mass of set	kg								
Anticipated									
• lightning impulse withstand voltage	kV								
• Power frequency withstand voltage	kV								
• Corona extinction level	kV								

5.6 Spacers and Spacer Dampers

5.6.1 400kV Line

Parameter	Unit	As per Bid requirement	As per Bid Proposal	As per Bid requirement	As per Bid Proposal
		Overland		River Crossing	
Unit weight	kg				
Material	-				
Number of spacer dampers to be used for each phase per span*	pcs.				
Total quantity of spacer dampers for one basic span*	pcs.				

* These quantities shall be based on the design of the proposed spacer dampers. The quantities mentioned above may increase at the contractor's cost, if during design approval such increase is necessary.

5.6.2 230kV Line – Not applicable

Parameter	Unit	As per Bid requirement	As per Bid Proposal
Unit weight	kg		
Material	-		
Number of spacer dampers to be used for each phase per span*	pcs.		
Total quantity of spacer dampers for one basic span*	pcs.		

* These quantities shall be based on the design of the proposed spacer dampers. The quantities mentioned above may increase at the contractor's cost, if during design approval such increase is necessary.

5.6.3 132kV Line

Parameter	Unit	As per Bid requirement	As per Bid Proposal
Unit weight	kg		
Material	-		
Number of spacer dampers to be used for each phase per span*	pcs.		
Total quantity of spacer dampers for one basic span*	pcs.		

* These quantities shall be based on the design of the proposed spacer dampers. The quantities mentioned above may increase at the contractor's cost, if during design approval such increase is necessary.

5.7 Vibration Dampers

5.7.1 400kV Line

Parameter	Unit	As per Bid requirement	As per Bid Proposal	As per Bid requirement	As per Bid Proposal
		Overland		River Crossing	
Unit weight of vibration dampers • for phase conductor • for earthwire • for OPGW	kg kg kg				
Number of vibration dampers to be used for phase conductor per standard span	pcs.				
Number of vibration dampers to be used for earthwire per standard span	pcs.				
Number of vibration dampers to be used for OPGW per standard span	pcs.				

These quantities shall be based on the design of the proposed vibration dampers. Actual number of vibration damper will be decided according to the Manufacturer's recommendation for each span.

5.7.2 230kV Line

Parameter	Unit	As per Bid requirement	As per Bid Proposal
Unit weight of vibration dampers • for phase conductor • for earthwire • for OPGW	kg kg kg		
Number of vibration dampers to be used for phase conductor per standard span	pcs.		
Number of vibration dampers to be used for earthwire per standard span	pcs.		
Number of vibration dampers to be used for OPGW per standard span	pcs.		

These quantities shall be based on the design of the proposed vibration dampers. Actual number of vibration damper will be decided according to the Manufacturer's recommendation for each span.

5.7.3 132kV Line

Parameter	Unit	As per Bid requirement	As per Bid Proposal
Unit weight of vibration dampers <ul style="list-style-type: none">• for phase conductor• for earthwire• for OPGW	kg kg kg		
Number of vibration dampers to be used for phase conductor per standard span	pcs.		
Number of vibration dampers to be used for earthwire per standard span	pcs.		
Number of vibration dampers to be used for OPGW per standard span	pcs.		

These quantities shall be based on the design of the proposed vibration dampers. Actual number of vibration damper will be decided according to the Manufacturer's recommendation for each span.

6. Schedule F: Proposed Subcontractors

The following form shall be filled and attached to the bid. Bidders are free to propose more than one Subcontractor for each item.

Subcontractors

The following Subcontractors are proposed for carrying out the facilities:

Item	Service	Subcontractor's Name and Address	Nationality
1	Design		
2	Civil works		
3	Electrical works / installation, testing and commissioning		
Name of Bidder:			
Signature of Bidder:			



7. Schedule G: Coefficient and Indices for Price Adjustment

Refer to Appendix 2 of Volume 1, Section 9 - Contract Forms

