DEENDAYAL PORT AUTHORITY

An ISO 9001 : 2008 & ISO 14001 : 2004 Certified Port

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No.: EL/AC/ EOI

Date: 27/02/2023

EXPRESSION OF INTEREST [EOI] for

"Operation and maintenance of 66 KV substation & OH/UG transmission line both, Annual Rate Contract of HT/LT Electrical Installations of Residential &Non-Residential buildings within Kandla premises including TUNA and Appointment of Service Operator and Advisory Services for Distribution Business, Metering and Billing for a period of three years."

Executive Engineer (Electrical), DPA invites Expression of Interest for the work of "Operation and maintenance of 66 KV substation & OH/UG transmission line both, Annual Rate Contract of HT/LT Electrical Installations of Residential &Non-Residential buildings within Kandla premises including TUNA and Appointment of Service Operator and Advisory Services for Distribution Business, Metering and Billing for a period of three years." from the reputed firms from those who have executed similar work in Government/public sectors and other leading private organizations. The Expression of Interest (EOI) documents containing details of Scope of Work and technical specifications are enclosed herewith.

The interested firms are requested to submit budgetary quotation for the said work in format enclosed at Annexure I. The completed EOI (Expression of Interest) shall be submitted to the office of the undersigned on or before 10/03/2023.

Executive Engineer (E)
Deendayal Port Authority

Annexure I

Bill of Quantities

Name of Work: Operation and maintenance of 66 KV substation & OH/UG transmission line both, Annual Rate Contract of HT/LT Electrical Installations of Residential &Non-Residential buildings within Kandla premises including TUNA and Appointment of Service Operator and Advisory Services for Distribution Business, Metering and Billing for a period of three years.

SCHEDULE-A

Part- I - Operation and maintenance of 66 KV sub-station & OH/UG transmission line both for the period of three years.

S.no	Description	Unit	Qty.	Amount for the	
				in figures	in words
Operation maintenance of 66 KV substation & OH/UG transmission line both in line with the tender as well as in scope of work given in the tender.					
1	First Year	Year	1		
2	Second Year	Year	1		
3	Third Year	Year	1		
Total					

Part-II - Annual Rate Contract of HT/LT Electrical Installations of Residential & Non-Residential Buildings within Kandla premises including TUNA for period of three years.

Sr. No.	Description	Qty.	Unit	Rate		Amount
				In Figure	In Words	
PART - A - Manpower, House Keeping & Vehicle						
1	Deployment of minimum electrical staff with mobile for switchgear operation of HT/LT, maintaining logbook of 24 Hrs regarding breakdown, tripping etc. communication with DPA supervisors/EIC as per site requirement:					
(i)	Engineer-In-Charge. (1 X 1095 days = 1095)	1095	MD			
(ii)	Electrician cum board operator. (Old Kandla / Port Powerhouse / Colony) (12 X 1095 days = 13140)	13140	MD			
(iii)	Helper to electrician (Old Kandla / Port Powerhouse /colony) (12 X 1095 days = 13140)	13140	MD			

(iv)	Lift attendant cum helper (4 X 1095 days = 4380)	4380	MD			
2	Housekeeping of Electrical substations which includes sweeping of floors, Peripheral cleaning of HT/LT Panels, Transformers, DG set and its lightings as per schedule. (i) 3 Nos Substation at Old Kandla 719 Sq. Mtr (Appx.) (ii) 1 No Substations at colony 178 Sq Mtr (Appx.) (iii) 1 No at Port Power House 560 sq Mtr (Appx.) (iv) 1 No at Steel Dry Dock 350 sq Mtr (Appx.) (v) 2 Nos Substations at water tower 135 Sq.Mtr (Appx.) (1 Job per day X 1095 Day = 1095)	1095	Job			
3	Providing one pickup vehicle for 24 Hrs along with 3 Nos driver having valid license for three shifts, along with diesel, lubricants etc. for mobilization of staff, materials as per site requirement for oil jetty, New Kandla Colony, Tuna or any place as directed by EIC. The vehicle will run 3000KM approx. in a month same shall be new of 2022 RTO passing It shall be of make: Mahindra Utility or Imperio, TATA YODHA, ISUZUS, MAX. Insurance of vehicle & staff, repairing, accidental damage etc. is in the scope of contractor. (2 X 36 months = 72)	72	Per Month			
					Total Amount (Part-A) Rs.	
PART - B - ARC Work at Residential-Non Residential Building & Substations						
1	SITC) Supply, Installation testing & Commissioning of conventional plate earthing for residential & non-residential building within kandla premises as per Technical Specification No 1 of Part-B. (a) Supply (b) Installation, testing & commissioning	90 90	No. No.			
2	Supply & fixing of porcelain Kit-Kat rewireable, complete fuse of following rating, 415V-500V AC					

	which are to be replaced against burn out fuse complete with labour & materials as per Technical Specification No 2 of Part-B.					
(i)	32 Amp Fuse					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(ii)	100 Amp Fuse					
(a)	Supply	100	No.			
(b)	Fixing	100	No.			
(iii)	200 Amp fuse					
(a)	Supply	70	No.			
(b)	Fixing	70	No.			
3	Supply & fixing of flat aluminium conductor wire along with its bobbin and support wire complete with labour & materials as per Technical Specification No 3 of Part-B.					
(i)	2Core X 4 Sq.mm flat aluminium service line wire					
(a)	Supply	5000	Mtr.			
(b)	Fixing	5000	Mtr.			
(ii)	2Core X 6 Sq.mm flat aluminium service line wire					
(a)	Supply	6000	Mtr.			
(b)	Fixing	6000	Mtr.			
4	Supply of below LT, XLPE cable of 1.1 KV grade aluminium conductor flat armoured of following size as per IS: 7098 (Part I)1988 & as per Technical Specification No 4 of Part-B.					
(i)	4C X 16 sq.mm	5000	Mtr.			
(ii)	4C X 25 sq.mm	5000	Mtr.			
(iii)	4C X 70 sq.mm	5000	Mtr.			
(iv)	4C X 95 sq.mm	3000	Mtr.			
(v)	4C X 120 sq.mm	3000	Mtr.			
(vi)	4C X 150 sq.mm	2000	Mtr.			
(vii)	4C X 300 sq.mm	500	Mtr.			
5	Laying of LT cable by excavation in hard/soft soil as per tech specification No. 5 of Part-B.					
(i)	4C X 16 sq.mm	4100	Mtr.			
(ii)	4C X 25 sq.mm	4100	Mtr.			
(iii)	4C X 70 sq.mm	1000	Mtr.			
(iv)	4C X 95 sq.mm	2100	Mtr.			
(v)	4C X 120 sq.mm	2100	Mtr.			
(vi)	4C X 150 sq.mm	1100	Mtr.			

(vii)	4C X 300 sq.mm	300	Mtr.			
6	Laying of LT XLPE aluminium conductor cable at road crossing complete with labour & materials as per Technical Specification No 6 of Part-B.					
(i)	4C X 16 sq.mm	300	Mtr.			
(ii)	4C X 25 sq.mm	300	Mtr.			
(iii)	4C X 70 sq.mm	300	Mtr.			
(iv)	4C X 95 sq.mm	300	Mtr.			
(v)	4C X 120 sq.mm	300	Mtr.			
(vi)	4C X 150 sq.mm	300	Mtr.			
(vii)	4C X 300 sq.mm	50	Mtr.			
7	Laying of LT XLPE aluminium conductor cable at road / railway crossing by AUGAR method (Horizontal boring) complete with labour & materials as per Technical Specification No 7 of Part-B.					
(i)	4C X 16 sq.mm	500	Mtr.			
(ii)	4C X 25 sq.mm	500	Mtr.			
(iii)	4C X 70 sq.mm	500	Mtr.			
(iv)	4C X 95 sq.mm	500	Mtr.			
(v)	4C X 120 sq.mm	500	Mtr.			
(vi)	4C X 150 sq.mm	500	Mtr.			
(vii)	4C X 300 sq.mm	100	Mtr.			
8	Laying of LT XLPE aluminium conductor cable by MS clamp of 4mm thickness, width 25mm as per shape of cable, on wall/ RCC/ MS channel/ Beam/ complete with labour & materials as per Technical Specification No 8 of Part-B.					
(i)	4C X 16 sq.mm	100	Mtr.			
(ii)	4C X 25 sq.mm	100	Mtr.			
(iii)	4C X 70 sq.mm	100	Mtr.			
(iv)	4C X 95 sq.mm	100	Mtr.			
(v)	4C X 120 sq.mm	100	Mtr.			
(vi)	4C X 150 sq.mm	100	Mtr.			
(vii)	4C X 300 sq.mm	50	Mtr.			
9	Supply of Lug & Termination to various size of LT cables as shown below at both end by single compression gland and aluminium lugging to eight no's lugs (1 set = 4 Nos. lug) complete with labour & materials as per Technical Specification No 9 of Part-B.					
(i)	4C X 16 sq.mm					

(a)	Supply	20	Set			
(b)	Lugging	20	Set			
(ii)	4C X 25 sq.mm					
(a)	Supply	20	Set			
(b)	Lugging	20	Set			
(iii)	4C X 70 sq.mm					
(a)	Supply	20	Set			
(b)	Lugging	20	Set			
(iv)	4C X 95 sq.mm					
(a)	Supply	20	Set			
(b)	Lugging	20	Set			
(v)	4C X 120 sq.mm					
(a)	Supply	20	Set			
(b)	Lugging	20	Set			
(vi)	4C X 150 sq.mm					
(a)	Supply	20	Set			
(b)	Lugging	20	Set			
(vii)	4C X 300 sq.mm					
(a)	Supply	20	Set			
(b)	Lugging	20	Set			
10	Supply & fixing of 6 to 10 mm ebonite sheet in electrical panel as per site requirement complete with labour & materials as per Technical Specification No 10 of Part-B.					
(a)	Supply	200	Kg.			
(b)	Fixing	200	Kg.			
11	Supply & fixing of 10 mm and above shock proof sheet as per IS 15652 :2006 to be laid in electrical substation for HV & LV voltage application as per site requirement complete with labour & materials and as per Technical Specification No 11 of Part-B.					
(i)	For HV application		Sq.			
(a)	Supply	50	Mtr			
(b)	Fixing	50	Sq. Mtr			
(ii)	For LV application					
(a)	Supply	50	Sq.			
(b)	Fixing	50	Mtr Sq. Mtr			
12	Supply and fixing of following MCCB as per IS/ IEC 60947-2 of four pole C curve, 415V, 50HZ AC in existing panel complete with labour & materials as per Technical Specification No 12 of Part-B.					

(i)	100 Amp 4 Pole MCCB 25KA with extended terminals					
(a)	Supply	25	No.			
(b)	Fixing	25	No.			
(ii)	200 Amp 4 Pole MCCB 50KA with extended terminals					
(a)	Supply	25	No.			
(b)	Fixing	25	No.			
(iii)	400 Amp 4 Pole MCCB 50KA with extended terminal					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
(iv)	600 Amp 4 Pole MCCB 50KA with extended terminal					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
(v)	800 Amp 4 Pole MCCB 50KA with extended terminal					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
13	Supply and fixing of following MCB Conforms IS /IEC 60898-1-2002 for existing panel/ new installation complete with labour & materials as per Technical Specification No 13 of Part-B.					
(i)	Single Pole DIN Rail type upto 16 Amp, 240V, AC "C" Curve					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(ii)	Two Pole DIN Rail type upto 32 Amp, 240V AC "C" Curve					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(iii)	Three Pole DIN Rail type upto 63 Amp, 415V AC "C" Curve					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(iv)	Four Pole DIN Rail type upto 63 Amp, 415V AC "C" Curve					
(a)	Supply	100	No.			
(b)	Fixing	100	No.			
14	Supply and fixing of following RCCB DIN Rail type Conforms					

	IS/IEC 60898-1-2002 for existing panel/new installation complete with labour & materials as per Technical Specification No 14 of Part-B.					
(i)	1Pole RCCB 30mA,10KA 16Amp rating					
(a)	Supply	100	No.			
(b)	Fixing	100	No.			
(ii)	2Pole RCCB 30mA,10KA 32Amp rating					
(a)	Supply	100	No.			
(b)	Fixing	100	No.			
(iii)	2Pole RCCB 100mA,10KA 16Amp rating					
(a)	Supply	100	No.			
(b)	Fixing	100	No.			
(iv)	3Pole RCCB 100mA, 10KA 32Amp rating					
(a)	Supply	100	No.			
(b)	Fixing	100	No.			
(v)	3Pole RCCB 100mA, 10KA 63Amp rating					
(a)	Supply	100	No.			
(b)	Fixing	100	No.			
(vi)	4 Pole RCCB 100mA, 10KA 63Amp rating					
(a)	Supply	50	No.			
(b)	Fixing	50	No.			
15	Supply & fixing of DP/ three phase sheet metal switch of following rating and as per Technical Specification No 15 of Part-B.					
(i)	16Amp Sheet metal DP switch 215V AC					
(a)	Supply	25	No.			
(b)	Fixing	25	No.			
(ii)	32Amp Sheet metal DP switch 215V AC					
(a)	Supply	50	No.			
(b)	Fixing	50	No.			
(iii)	32Amp Sheet metal TP switch 415V AC					
(a)	Supply	50	No.			

(b)	Fixing	50	No.			
(iv)	100 Amp Sheet metal TP switch 415V AC					
(a)	Supply	25	No.			
(b)	Fixing	25	No.			
(v)	200 Amp Sheet metal TP switch 415V AC					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
16	Supply and fixing of surface wiring for sub circuit wiring from mains to switch board in any residential quarters/non-residential building area by heavy duty PVC casing capping / Oval shape PVC conduit/round PVC pipe (MMS) along with its accessories and by providing FRLS 2.5 sq.mm stranded copper wire of three run i.e. phase red colour, neutral black colour & earth green colour colour complete with labour and materials as per Technical Specification No 16 of Part-B.					
(a)	Supply	4000	Mtr.			
(b)	Fixing	4000	Mtr.			
17	Supply and fixing of surface point wiring from board to light/fan point in any residential/non-residential quarters by PVC casing capping oval shaped conduit /MMS PVC pipe along with its accessories and by providing FRLS 1.5 sq.mm stranded copper wire of three run i.e. phase red colour, neutral black colour & earth green colour complete with labour and materials, as per Technical Specification No. 17 of Part-B.					
(i)	Light/Bell Point					
(a)	Supply	4000	No.			
(b)	Fixing	4000	No.			
(ii)	Fan Point					
(a)	Supply	2000	No.			
(b)	Fixing	2000	No.			
18	Supply and fixing of surface wiring for sub circuit wiring from					

	mains to any point in residential quarters by casing capping /MMS round pipe along with its accessories, as per IS 14927 P-2 2001 and by providing FRLS 4 sq.mm stranded copper wire of three run i.e. phase red colour, neutral black colour & earth green colour complete with labour and materials as per Technical Specification No. 18 of Part-B.					
(a)	Supply	2500	Mtr.			
(b)	Fixing	2500	Mtr.			
19	Dressing with removal of existing batten/pipe wiring in new casing capping/MMS round PVC pipe of suitable size , Casing capping shall be as per IS 14927 P-2001 complete with labour & materials and as per Technical Specification No. 19 of Part-B	4000	Mtr.			
20	Supply and fixing of 2C X 0.5 Sq.mm twin core twisted cable for connection of various electrical accessories as per site requirement and as per Technical Specification No. 20 of Part-B.					
(a)	Supply	2000	Mtr.			
(b)	Fixing	2000	Mtr.			
21	Supply and fixing of 3C X 2.5sqmm stranded copper conductor flexible cable for connection various electrical accessories as per site and as per Technical Specification No. 21 of Part-B.					
(a)	Supply	3000	Mtr.			
(b)	Fixing	3000	Mtr.			
22	Supply and fixing of LT heat shrink straight through jointing kit for 4 or 3.5 core aluminium conductor, armoured 1.1KV LT armoured cable complete with labour & materials as per Technical Specification No. 22 of Part-B.					
(i)	16 to 50 Sq.mm Armoured, LT 3.5/4 Core aluminium conductor cable					
(a)	Supply	50	No.			
(b)	Fixing	50	No.			
(ii)	70 to 150 Sq.mm Armoured, LT					

	3.5/4 Core aluminium conductor cable					
(a)	Supply	50	No.			
(b)	Fixing	50	No.			
(iii)	185 to 300 Sq.mm Armoured, LT 3.5/4 Core aluminium conductor cable					
(a)	Supply	30	No.			
(b)	Fixing	30	No.			
23	Minor fabrication work to existing panel board such as fixing of new hinge, door lock, removal of dent, angle base fabrication and their after applying metal primer and two coat of grey enamel paint. Complete with labour & materials & as per Technical Specification No. 23 of Part-B.	2000	Kg.			
24	Supply & fixing of readymade Feeder pillar of CRCA sheet of 2mm thickness of size 600mm length X 900mm height X 300mm deep approximately, duly painted with grey colour, single door , with padlock and hinge arrangement, cable entry from downside with cable connector, MCCB of 200amp 1No and outgoing MCCB of 100amp 2Nos, this also include M.S angle frame of 25X 25X 6mm having 1000mm length, 300mm in ground & the feeder pillar shall be 600mm above ground level with complete installation at site inclusive civil work with labour & materials as per Technical Specification No. 24 of Part-B.					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
25	Supply and fixing of electrical accessories on existing board as mentioned below against burn out, defective one complete with labour & materials & as per Technical Specification No. 25 of Part-B.					
(1)	Piano switch 5/6 amp 215 to 240 V AC					
(a)	Supply	1000	No.			
(b)	Fixing	1000	No.			

(2)	Ceiling rose three terminal type					
(a)	Supply	500	No.			
(b)	Fixing	500	No.			
(3)	Angle Holder 215 to 240 V AC.					
(a)	Supply	500	No.			
(b)	Fixing	500	No.			
(4)	Pendent Holder AC					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(5)	Two pin socket 6 Amp 215 to 240V AC.					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(6)	2 in One Socket 6 Amp 215 to 240V AC.					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(7)	16 Amp switch socket unit 215 to 240V AC					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(8)	16 Amp switch socket with fuse & Indicator 215 to240V AC.					
(a)	Supply	300	No.			
(b)	Fixing	300	No.			
(9)	5Amp top 215 to 240V AC					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(10)	16Amp top 215 to 240V AC.					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(11)	Resistance type fan regulator 215 to 240V AC					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(12)	Electronic fan regulator switch type 215 to 240V AC					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(13)	Electronic fan regulator socket type 215 to 240V AC (Step cut)					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(14)	Bell Buzzer to operate on 215 to 240v AC					
(a)	Supply	50	No.			
(b)	Fixing	50	No.			
(15)	Bell Ding dong to operate on 215 to 240V AC					
(a)	Supply	25	No.			
(b)	Fixing	25	No.			
(16)	Musical bell to operate on 215 to 240V AC					

(a)	Supply	25	No.			
(b)	Fixing	25	No.			
(17)	4 feet LED white tube light 20 to 30 W, 240V AC					
(a)	Supply	2000	No.			
(b)	Fixing	2000	No.			
(18)	1200mm Ceiling fan with three metallic blade white glossy, double ball bearing complete with canopy and down rod, copper winding 230 V to 240V AC, 50HZ, Single phase, 5star Rating.					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(19)	Wall mounting fan 400mm, plastic/ fibre three blade 230V AC					
(a)	Supply	30	No.			
(b)	Fixing	30	No.			
(20)	Exhaust fan 200mm with louvers, plastic body, 230 to 240V AC					
(a)	Supply	30	No.			
(b)	Fixing	30	No.			
(21)	Exhaust fan 225 mm metallic 230 to 240 V AC					
(a)	Supply	30	No.			
(b)	Fixing	30	No.			
(22)	Bell switch 5/6 amp 230V to 240 AC					
(a)	Supply	100	No.			
(b)	Fixing	100	No.			
(23)	LED street light IP65, 30 to 55W, 230V, 50HZ AC with bracket					
(a)	Supply	30	No.			
(b)	Fixing	30	No.			
(24)	Fan capacitor 2.5mfd, 440V,50HZ AC					
(a)	Supply	200	No.			
(b)	Fixing	200	No.			
(25)	Electric wooden switch board with Formica sheet 10"X12"					
(a)	Supply	50	No.			
(b)	Fixing	50	No.			
(26)	Electric wooden switch board with Formica sheet 10"X 8"					
(a)	Supply	50	No.			
(b)	Fixing	50	No.			
(27)	Electric wooden switch board with Formica sheet 6"X 6"					
(a)	Supply	80	No.			
(b)	Fixing	80	No.			

(28)	Electric wooden switch board with Formica sheet 4"X 4"					
(a)	Supply	80	No.			
(b)	Fixing	80	No.			
(29)	Stainless steel screw, nut-bolts with washers, anchor bolts of assorted size.					
(a)	Supply	80	Kg.			
(b)	Fixing	80	Kg.			
(30)	Solderless lugs from 1.5 sq.mm to 400 sq.mm aluminium					
(a)	Supply	100	Kg.			
(b)	Fixing	100	Kg.			
(31)	100 Amp, 415V, 50Hz Manually operated Change Over Switch					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
(32)	Three phase sheet metal reversible switch 16Amp, 415V, 50Hz.		No.			
(a)	Supply	15	No.			
(b)	Fixing	15				
(33)	SPN DB 6 to 10way in sheet metal with double door.		No.			
(a)	Supply	25	No.			
(b)	Fixing	25				
(34)	10 way Modular switches board surface mounting type.		No.			
(a)	Supply	50	No.			
(b)	Fixing	50				
(35)	Modular Switch/Socket, 5/6Amp 215V AC		No.			
(a)	Supply	100	No.			
(b)	Fixing	100				
(36)	Modular switch/Socket 15/16Amp 215V AC					
(a)	Supply	100	No.			
(b)	Fixing	100	No.			
26	Supply and fixing of single phase & three phase digital/electronic energy meter with optical & RS 485 connectivity as mentioned below as per Technical Specification No. 26 of Part-B.					
(i)	Single phase digital energy meter 5-30Amp along with PVC box.					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
(ii)	Three phase digital energy meter 10-60Amp direct type along with PVC meter box					

(a)	Supply	10	No.			
(b)	Fixing	10	No.			
(iii)	Three phase digital energy meter with CT operated type.					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
27	Supply & fixing of 12V, 150AH DC low maintenance lead acid battery for DG set as per site requirement and as per Technical Specification No. 27 of Part-B.					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
28	Supply & fixing of AVR and other accessories for 50 to 400 KVA Silent DG set as per Technical Specification No. 28 of Part-B.					
(i)	50 KVA AVR for Silent DG Set					
(a)	Supply	2	No.			
(b)	Fixing	2	No.			
(ii)	50 KVA Air filer as per original					
(a)	Supply	6	No.			
(b)	Fixing	6	No.			
(iii)	50 KVA Oil filter as per original					
(a)	Supply	6	No.			
(b)	Fixing	6	No.			
(iv)	125 KVA AVR for Silent DG Set					
(a)	Supply	2	No.			
(b)	Fixing	2	No.			
(v)	125 KVA Air filer as per original					
(a)	Supply	6	No.			
(b)	Fixing	6	No.			
(vi)	125 KVA Oil filter as per original					
(a)	Supply	6	No.			
(b)	Fixing	6	No.			
(vii)	125 KVA ATS for AMF panel					
(a)	Supply	2	No.			
(b)	Fixing	2	No.			
(viii)	400 KVA AVR for Silent DG Set					
(a)	Supply	2	No.			
(b)	Fixing	2	No.			
(ix)	400 KVA Air filer as per original					
(a)	Supply	6	No.			
(b)	Fixing	6	No.			
(x)	400 KVA Oil filter as per original					
(a)	Supply	6	No.			
(b)	Fixing	6	No.			

(xi)	Radiator coolant for above generator					
(a)	Supply	50	Ltr.			
(b)	Fixing	50	Ltr.			
29	Complete overhauling of existing HT VCB/RMU breaker located at various location, this also include Injection of CT current, attending the faulty wiring, checking healthiness and tripping test of breaker once in year and its report shall be submitted to EIC. The work shall be carried out as per Technical Specification No. 29 of Part-B.	25	No.			
30	Supply, Installation testing & commissioning of 8mtr PSC pole of 200kg as per GETCO/PGVCL norms and their approved drawings. The work include loading, Unloading, transportation and installation at site as directed by Engineer Incharge, this also include removal of existing damaged pole or as per new site of work and as per Technical Specification No. 30 of Part-B.					
(a)	Supply	10	No.			
(b)	Installation testing & commissioning	10	No.			
31	Supply Installation testing & commissioning of 11mtr RSJ pole as per GETCO/PGVCL norms and their approved drawings. The work include loading, Unloading, transportation and installation at site as directed by Engineer Incharge. This also include removal of existing damaged pole or as per new site of work and as per Technical Specification No. 31 of Part-B.					
(a)	Supply	6	No.			
(b)	Installation testing & commissioning	6	No.			
32	Supply Installation testing & commissioning of 22KV Composite Insulator PIN/SHACKLE as per GETCO/PGVCL norms and their					

	approved drawings. The work include loading, Unloading, transportation and installation at site as directed by Engineer Incharge, This also include removal of existing damaged pin/shackle insulator from existing pole or as per new site of work, and as per Technical Specification No. 32 of Part-B.					
(a)	Supply	30	No.			
(b)	Installation testing & commissioning	30	No.			
33	Supply, Installation, testing & commissioning of AAAC conductor of size 100 Sq.mm (DOG) as per GETCO/PGVCL norms and their approved drawings. The work include loading, Unloading, transportation and installation at site as directed by Engineer Incharge, This also include removal of existing overhead line and laying new conductor over existing pole or as per new site of work and as per Technical Specification No. 33 of Part-B.					
(a)	Supply	3	Km.			
(b)	Installation testing & commissioning	3	Km.			
34	Dressing of loose LT cable on wall, trench in substation by providing suitable MS Clamps at one metre distance or by cable tie etc. complete with labour and materials and as per Technical Specification No. 34 of Part-B.	100	Mtr.			
35	Supply & insertion of blue SILICA Gel of 6mm and above granules for transformer breather and as per Technical Specification No. 35 of Part-B.					
(a)	Supply	25	Kg.			
(b)	Insertion	25	Kg.			
36	Supply & fixing of LT ACB, SFU & MCCB for existing LT panel at our various substation complete with labour & materials and as per Technical Specification No. 36 of Part-B.					
(i)	800 to 1000Amp ACB of L&T					

	Make 415V, 50HZ					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
(ii)	250Amp, 415V, 50Hz SFU unit panel mounting type with HRC fuse.					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
(iii)	400Amp MCCB, 415V, 50Hz extended terminal with current adjusting features.					
(a)	Supply	5	No.			
(b)	Fixing	5	No.			
37	Supply & fixing of Multifunctional panel meter, Ammeter, Voltmeter complete with labour & materials and as per Technical Specification No. 37 of Part-B.					
(i)	Multifunctional meter panel mounting CT operated as per original					
(a)	Supply	5	No.			
(b)	Fixing	5	No.			
(ii)	Ammeter panel mounting without CT operated					
(a)	Supply	5	No.			
(b)	Fixing	5	No.			
(iii)	Ammeter panel mounting CT operated					
(a)	Supply	5	No.			
(b)	Fixing	5	No.			
(iv)	Voltmeter panel mounting					
(a)	Supply	5	No.			
(b)	Fixing	5	No.			
38	Leakage arresting (including supply of material) of Distribution transformer of 250 KVA to 1000 KVA, 11/0.433 KV, AC from its HT/LT bushings, radiators, top cover flange complete with labour & materials and as per Technical Specification No. 38 of Part B.					
(i)	250 KVA Distribution transformer	2	Job			
(ii)	500 KVA Distribution transformer	2	Job			
(iii)	750 KVA Distribution transformer	2	Job			
(iv)	1000 KVA Distribution	2	Job			

	transformer					
39	Rewinding of Distribution transformer as per original of 250 to 1000 KVA, 11/0.433KV, AC of Indoor/Outdoor type of various make. Complete with labour & materials and reinstallation at site and as per Technical Specification No. 39 of Part-B.					
(i)	250 KVA Distribution transformer (HT & LT Complete copper winding)	1	Job			
(ii)	500 KVA Distribution transformer (HT & LT Complete copper winding)	1	Job			
(iii)	750 KVA Distribution transformer (HT & LT Complete copper winding)	1	Job			
(iv)	1000 KVA Distribution transformer (HT & LT Complete copper winding)	1	Job			
40	Transformer oil filtration at site & to give its BDV analysis report for 250 to 1000KVA, 11/0.433KV, AC Distribution transformer and as per Technical Specification No. 40 of Part-B.					
(i)	250 KVA Distribution transformer (Approx. 260 litre)	3	Job			
(ii)	500 KVA Distribution transformer (Approx. 600 litre)	3	Job			
(iii)	750 KVA Distribution transformer (Approx. 800 litre)	3	Job			
(iv)	1000 KVA Distribution transformer (Approx. 1100 litre)	3	Job			
41	Indoor type 11KV VCB/RMU complete electrical & mechanical servicing, testing with its control wiring tripping, testing, current injection work complete with labour & materials and as per Technical Specification No. 41 of Part-B.	2	Each			
42	Painting to LT panel/Transformer as per original shade after					

	chipping/scraping by spray paint complete with labour & materials. This also include its Incoming or Outgoing feeders naming as per Technical Specification No. 42 of Part-B.					
(i)	Distribution transformer	10	Job			
(ii)	HT Panel	10	Job			
(iii)	LT Panel	20	Job			
					Total Amount (Part-B) Rs.	
PART – C – Street Light						
1	Supply, erection, testing & commissioning of 9mtr Octagonal pole or swedged/tubular pole for street light as per existing. The damaged pole is to be removed from its foundation and new pole is to be installed against same with twin detachable arm. This also include 120W LED street light, PVC JB with MCB upto 6Amp rating. This also include painting to same with one coat of metal primer & two coat of silver paint complete with labour & materials and as per Technical Specification No. 1 of Part-C.					
(i)	Street light 9mtr octagonal pole with two nos 120 Watt LED street light.					
(a)	Supply	10	No.			
(b)	Erection, testing & commissioning	10	No.			
(ii)	Street light swaged pole with two nos 120 Watt LED street light					
(a)	Supply	30	No.			
(b)	Erection, testing & commissioning	30	No.			
2	Painting to existing streetlight pole by hard chipping and applying two coat of silver paint, this also include replacement of PVC /Fibre JB with new one complete wiring, Numbering to be done for ease of identification & location for fault attending purpose as per Technical Specification No. 2 of Part-C.	50	No.			
3	Supply & fixing of below mentioned LED street light for					

	existing pole, Wherever the LED fixture are faulty or damaged, the same shall be replaced with new one complete with labour & materials and as per Technical Specification No. 3 of Part-C.					
(i)	90W LED streetlight complete with its hardwares.					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
(ii)	120W LED streetlight complete with its hardwares.					
(a)	Supply	30	No.			
(b)	Fixing	30	No.			
4	Supply & laying of LT XLPE alluminium conductor cable of 1.1 LV Grade by excavation in hard and soft soil complete with labour & materials, as per Technical Specification No 4 of Part-C.					
(i)	4C X 16 sq.mm					
(a)	Supply	500	Mtr.			
(b)	Laying	500	Mtr.			
(ii)	4C X 50 sq.mm					
(a)	Supply	400	Mtr.			
(b)	Laying	400	Mtr.			
(iii)	4C X 95 sq.mm					
(a)	Supply	400	Mtr.			
(b)	Laying	400	Mtr.			
(iv)	4C X 150 sq.mm					
(a)	Supply	300	Mtr.			
(b)	Laying	300	Mtr.			
5	Supply & fixing of 2.5 sq.mm X 3core round flexible stranded copper cable for connecting luminaries with JB complete with labour & materials and as per Technical Specification No. 5 of Part-C.					
(a)	Supply	1000	Mtr.			
(b)	Fixing	1000	Mtr.			
6	Supply & replace of High mast Gearbox as per Original or equivalent specification and as per Technical Specification No. 6 of Part-C.					

(a)	Supply	2	No.			
(b)	Replace	2	No.			
7	Supply and apply of Wire Rope Grease, multipurpose type and as per Technical Specification No. 7 of Part-C.					
(a)	Supply	20	Kg.			
(b)	Apply	20	Kg.			
8	Supply & fixing of stainless steel wire rope marine grade of AISI 316 grade along with accessories for High mast towers on per meter bases and as per Technical Specification No. 8 of Part-C					
(i)	6 MM					
(a)	Supply	1000	Mtr.			
(b)	Fixing	1000	Mtr.			
(ii)	8 MM					
(a)	Supply	500	Mtr.			
(b)	Fixing	500	Mtr.			
9	Supply & fixing of EPR cable, 5 core, 4sqmm round stranded copper conductor unarmoured for high mast tower on per meter basis and as per Technical Specification No. 9 of Part-C.					
(a)	Supply	100	Mtr.			
(b)	Fixing	100	Mtr.			
10	Supply & fixing of ABS (Acrylonitrile Butadiene Styrene) Junction Boxes of 3.5 mm thickness with covers for termination of wires & cables on High mast/Lattice towers etc. with termination strip to terminate cable up to 16 sq.mm with PG gland of single compression gland as applicable and as per Technical Specification No. 10 of Part-C.					
(i)	125X175X100mm					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
(ii)	190X280X130mm					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
(iii)	280X280X130mm					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
11	Supply & fixing of high mast mechanical accessories as					

	mention below and as per Technical Specification No. 11 of Part-C.					
(i)	Lantern Carriage "C" Channel type as per existing.					
(a)	Supply	1	No.			
(b)	Fixing	1	No.			
(ii)	Lantern Carriage Tubular type as per existing.					
(a)	Supply	1	No.			
(b)	Fixing	1	No.			
(iii)	Head frame as per existing.					
(a)	Supply	1	No.			
(b)	Fixing	1	No.			
(iv)	Compensating Disc					
(a)	Supply	1	No.			
(b)	Fixing	1	No.			
(v)	Industrial Plug 16/32 Amp, 415V, 50Hz with five pins male, female type.					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
12	Supply & fixing of miscellaneous sizes of stainless steel hardwares of 316 grade for fixing of fixture, JB, circular rings etc., on per Kg basis and as per Technical Specification No. 12 of Part-C.					
(a)	Supply	50	Kg.			
(b)	Fixing	50	Kg.			
13	Supply & fixing hot dipped galvanized door cover of High mast as per original of BAJAJ/PHILIPS/BPI make towers or its equivalent and as per Technical Specification No. 13 of Part-C.					
(a)	Supply	2	No.			
(b)	Fixing	2	No.			
14	Supply & fixing of hot dipped galvanized foundation nut/washer of High mast towers as per original and as per Technical Specification No. 14 of Part-C.					
(a)	Supply	50	Kg.			

(b)	Fixing	50	Kg.			
15	Supply & fixing cool white LED flood light fitting of following type and as per Technical Specification No. 15 of Part-C.					
(i)	LED floodlight 350 to 400 W die cast aluminium body with IP 66, along with driver.					
(a)	Supply	80	No.			
(b)	Fixing	80	No.			
(ii)	LED floodlight 200 to 300 W die cast aluminium body with IP 66, along with driver.					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
(iii)	Aviation LED Red dome ABS material light 215V 50Hz, AC.					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
16	Supply & fixing of following accessories in existing feeder pillar/ Office/ gate or at HM/Lattice towers and as per Technical Specification No. 16 of Part-C.					
(i)	100 Amp, 4 Pole, MCCB extended terminal with overcurrent setting, 18KA, 415V, 50Hz AC with latest IS.					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
(ii)	250 Amp, 4 Pole, MCCB extended terminal with overcurrent setting, 18KA, 415V, 50Hz AC. With latest IS.					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
(iii)	MCBs 4 Pole, up to 63Amps, 415V, "C" Series, 50Hz AC.					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
(iv)	3 Pole contactor, up to 100Amp, 415 or 230 volts, 50HZ AC coil voltage 215/415V, 50Hz, AC.					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			

(v)	Digital time switch 16Amp rating, 215V, 50Hz, AC.					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
(vi)	Three phase horizontal mounting motor 2.2 HP, 415V, 50Hz AC.					
(a)	Supply	2	No.			
(b)	Fixing	2	No.			
(vii)	125 Amp Switch fuse unit with HRC fuse open execution. 415V, 50Hz, AC.					
(a)	Supply	5	No.			
(b)	Fixing	5	No.			
(viii)	2 Nos of Sprocket one for gearbox other for motor with chain for high mast towers.					
(a)	Supply	2	Set			
(b)	Fixing	2	Set			
17	Supply & making HT Cable Jointing & end termination as per following at site and as per Technical Specification No. 17 of Part-C.					
(i)	HT Heat Shrink Cable straight through joint 120 to 185 sq.mm.					
(a)	Supply	10	No.			
(b)	Making Jointing	10	No.			
(ii)	HT Heat Shrink Cable straight through joint 240 to 300 sq.mm.					
(a)	Supply	10	No.			
(b)	Making Jointing	10	No.			
(iii)	HT Heat Shrink Cable end termination indoor kit 95 to 150 sq.mm					
(a)	Supply	10	No.			
(b)	Making end termination	10	No.			
(iv)	HT Heat Shrink Cable end termination outdoor 240 to 300 sq.mm					
(a)	Supply	10	No.			
(b)	Making end termination	10	No.			
(v)	EPR trailing cable 5 core 4 sq.mm heat shrink joint.					
(a)	Supply	5	No.			

(b)	Making Jointing	5	No.			
18	Laying of HT/LT cable as per Technical Specification No. 18 of Part-C.					
(i)	Laying of HT/LT cable by excavation in hard/soft soil	900	Mtr.			
(ii)	Laying of LT cable by breaking RCC/PCC as per site situation by laying HDPE pipe of suitable dia having 10 mm or above wall thickness of pipe and shall be 500mm deep & 400mm width excavation for single length of cable up to 4 C X 185 Sq.mm aluminium armoured cable. Complete with labour & materials.	400	Mtr.			
(iii)	Horizontal boring (Augar) for HT cable as per site situation by laying HDPE pipe 10mm and above thick X 75 mm dia or above as per cable diameter to be laid 1500mm deep for HT cable from ground level up to 3c X 300 sq.mm HT cable for single length complete with labour & materials.	300	Mtr.			
19	Removing the Old/ damaged cable from the existing Trench on metre basis, Transportation, Loading, Unloading & handing Over to sub Division store/main store as directed by Engineering –In- Charge and as per Technical Specification No. 19 of Part-C.					
(a)	3.5/4 Core LT cable up to 185 sq.mm	1000	Mtr.			
(b)	3Core cable HT cable from 70 to 300 sq.mm	1000	Mtr.			
20	Supply and making of chemical earthing with Flat in pipe, Hot dipped galvanized pipe of length 3.0 Mtr., dia 76 mm & thickness 3.2mm or more with 120 microns hot dipped along with its chemical bags with brick masonry on top along with PVC frame & cover as directed including all labour and Material as per site requirement and as per Technical					

	Specification No. 20 of Part-C.					
(a)	Supply	40	No.			
(b)	Making Earthing	40	No.			
21	Supply and fixing of HRC Cartridge/DIN Type fuse as mentioned below and as per Technical Specification No. 21 of Part-C.					
(i)	Cartridge fuse up to 32 Amp., 690V AC					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
(ii)	Cartridge fuse above 63 to 100 Amp., 690V AC					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
(iii)	DIN fuse size 00, up to 100 Amp., 690V AC					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
(iv)	DIN fuse size 0, up to 200 Amp., 690V AC					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
(v)	DIN fuse size 2 up to 400 Amp., 690V AC					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
22	Supply, Laying, Connecting of GI Strips connecting earth station to the equipment on meter basis as directed and as per Tech. Specification No. 22 of Part-C.					
(i)	50 X 6 Hot dipped flat.					
(a)	Supply	250	Mtr.			
(b)	Laying & Connecting	250	Mtr.			
(ii)	25 x 6 Hot dipped flat					
(a)	Supply	250	Mtr.			
(b)	Laying & Connecting	250	Mtr.			
23	Deployment of equipment by hiring for 08 Hrs shift with driver, diesel and safe operation for lifting & shifting of faulty transformer, VCB, Cable drum					

	etc. from site to area to be shifted as directed by EIC and as per Technical Specification No. 23 of Part-C.					
(i)	Tractor with trolley along with required sling	10	Shift			
(ii)	Hydra 5ton capacity along with required sling	15	Shift			
(iii)	Telescopic Mobile crane with extended boom of 32 mtr., having lifting capacity of approx. 15 ton or above with required sling.	5	Shift			
(iv)	Hydraulic elevated platform vehicle	50	Shift			
					Total Amount (Part-C) Rs.	
PART – D – Flameproof						
1	Supply and fixing of flameproof 20 to 30W LED tube light of 4 feet long with complete accessories complete with labour & materials as per Technical Specification No. 1 of Part-D.					
(a)	Supply	50	No.			
(b)	Fixing	50	No.			
2	Supply and fixing of flameproof flood light LED light with latest IS compliance complete accessories complete with labour & materials as per Technical Specification No. 2 of Part-D.					
(i)	90W LED with driver complete with all accessories					
(a)	Supply	50	No.			
(b)	Fixing	50	No.			
(ii)	120 W LED with driver complete with all accessories					
(a)	Supply	50	No.			
(b)	Fixing	50	No.			
3	Supply and fixing of flameproof wall mounting fan 18", single phase 230V AC supply with complete accessories complete with labour & materials as per Technical Specification No. 3 of Part-D.					

(a)	Supply	10	No.			
(b)	Fixing	10	No.			
4	Supply and fixing flameproof MCB socket combined for 16 to 32amp, single phase 230V AC with complete accessories complete with labour & materials as per Technical Specification No. 4 of Part-D.					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
5	Supply and fixing flameproof 16amp switch with flameproof box, single phase 230V AC with complete accessories complete with labour & materials as per Technical Specification No. 5 of Part-D.					
(a)	Supply	20	No.			
(b)	Fixing	20	No.			
6	Supply and fixing in existing flameproof panel, 3 Phase, 415V, 50Hz AC with the accessories as mentioned below complete with labour & materials as per Technical Specification No. 6 of Part-D.					
(i)	100amp 25Ka C curve MCCB					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
(ii)	200amp 25Ka C curve MCCB					
(a)	Supply	10	No.			
(b)	Fixing	10	No.			
(iii)	400Amp 50Ka C curve MCCB					
(a)	Supply	5	No.			
(b)	Fixing	5	No.			
7	Supply and fixing of flameproof double compression brass gland and aluminium lugs for below mentioned cable with complete accessories complete with labour & materials as per Technical Specification No. 7 of Part-D.					
(i)	Up to 16 sq.mm LT cable					
(a)	Supply	10	Set			
(b)	Fixing	10	Set			
(ii)	From 25 sq.mm to 50 sq.mm LT Cable					

(a)	Supply	10	Set			
(b)	Fixing	10	Set			
(iii)	From 70 to 120 sq.mm LT Cable					
(a)	Supply	10	Set			
(b)	Fixing	10	Set			
(iv)	From 150 to 300 sq.mm LT Cable					
(a)	Supply	10	Set			
(b)	Fixing	10	Set			
Total Amount (Part-D) Rs.						
Total Amount SCHEDULE -I (Part-A + Part-B + Part-C+ Part-D) Rs.						

SCHEDULE – B

Appointment of Service Operator and Advisory Services for Distribution Business, Metering and Billing for a period of three years.

Sr.no.	Description	Qty.	Unit	Rate	Amount
1	Charges towards professional services for the following as per the Scope of Work:				
A	Advisory Support	Lump sum	Complete Job		
B	Distribution Services Support				
(a)	1st Year	Lump sum	Year		
(b)	2nd Year	Lump sum	Year		
(c)	3rd Year	Lump sum	Year		
Sub Total of B					
C (a)	Energy Auditing	Lump sum	Complete Job to be done		
Sub Total of C (a)					
C (b)	Illumination Survey	Lump sum	Complete Job to be done		
Sub Total of C (b)					
Total Amount (i.e. of A+B+C(a)+C(b)) Rs.:					

Note: Work related to Part-D (Supervision of Capex Planning and Implementation) shall be awarded to service operator on need basis. Service operator will be paid supervision charges for new service connections & load extension/ reductions and for Repair & Capital Works respectively as per GERC regulations.

TOTAL AMOUNT (SCHEDULE-A+ SCHEDULE-B) Rs.	

(Grand Total In Words Rupees …….....
……..……
……..Only)

(NOTE: The rates should be inclusive of All Taxes, Duties, Fees, Cess etc and all incidental charges but exclusive GST.

Signature & Seal
of Contractor

Executive Engineer (E)
Deendayal Port Authority

SCOPE OF WORK

SCHEDULE-A

Part-I

The operation and maintenance work of 66 KV switchyard equipment i.e. isolator outdoor type PT&CT, SF6 circuit breaker, 12.5 MVA,10 MVA & 6.3 MVA (66/11KV) power transformer, 66 & 11 KV VCB, 11/0.433 KV station transformer, 11 KV shut capacitor, 11 KV underground outgoing feeder (within substation), control and relay panel, battery & battery charger, lighting fixtures inside the substation and 66 KV switchyard, electrical supply from 2x 1000 KVA DG set (excluding O&M of DG Set)

Staff requirement: - Contractor shall maintain a team of 13 (thirteen) members of competent professions at the site for managing various activities as per the scope of work as detailed below:-

Designation	Requirement
Assistant Engineer	3
Jr. Engineer	4
Electrician	6

I. Power Transformers (66/11KV Transformer, and 11/0.433KV station transformer):

1. Daily:
   a) Check oil & winding temperatures, check for abnormalities & recording them.
   b) Observe and record Load (amperes) and Voltage. Check against rated figures.
   c) Visual check for overheating if any at terminal connections (Red hots) and observation for any unusual noises.
   d) Observation of oil levels in (a) main conservator tank (b) OLTC conservator (c) bushings and examining for oil leaks, if any, from the transformer.
   e) Checking the Color of silica gel in the breather and also oil level of the oil seal. If silica gel colour changes from blue to pink by 50% the silica gel is to be reconditioned or replaced.
   f) Visual check of explosion vent diaphragm for any cracks.

2. Weekly: NA

3. Monthly:
   a. Physical examination of diaphragm of vent pipe for any cracks.
   b. Checking of Oil levels and providing oil top-ups (oil to be provided by DPT)
   c. Cleaning of bushings, inspect for any cracks or chippings of the porcelain and checking of tightness of clamps and jumpers.
   d. Cleaning of Silica gel breather.
   e. Checking of temperature alarms by shorting contacts by operating the knob.

4. Quarterly: NA

5. Half yearly:
   a. Measurement of Earth Resistance
   b. TR Buchz. Alarm & Tripping Check.
   c. WDG Temp. Alarm & Tripping Checking
   d. Oil Temp. Alarm & Tripping Checking
   e. Oil BDV Check

6. Yearly:
   a. Testing of oil for dissolved gas analysis, acidity, tan delta, interface tension specific resistivity.
   b. Calibration & testing of oil & winding temperature indicators.
   c. Measurement of magnetizing current at normal tap and extreme taps.
   d. Measurement of DC winding resistance.
   e. Turns ratio test at all taps.
   f. Changing the gaskets at all locations as when leakage is found or the gasket is damaged or else yearly.
   g. Replacing of Buchholz relay, OTI, WTI if found malfunctioning (material to be provided by DPT)
   h. Replacement of bushing when required (material to be provided by DPT)
   i. Measurement and recording of the IR value

II. Circuit Breakers 66KV SF6 CB/IIKV VCB/RMU Breaker

1. Daily:
   a. Check for load conditions on 3 phase, adjust relay settings, if necessary.
   b. Examine the switchgear premises doors for general cleanliness.
   c. Check for load conditions on 3 phase, adjust relay settings, if necessary.
   d. Examine the switchgear premises doors for general cleanliness.

   a. Check that auxiliary fuses are intact.
   b. Visual inspection to see that mechanism is in operating condition.
   c. See that all power/control circuit switches are closed.

3. Monthly:
   a. Air cleaning with blower.
   b. Cleaning of circuit breaker body and bushings.
   c. Tightening of nuts and bolts.
   d. Checking breaker Operation (Local/Remote operation).
   e. check anti-condensation protection.
   f. Check of motor control
   g. Use of anti—corrosion spray where required.

4. Quarterly: NA

5. Half-yearly:
   a. Complete servicing, oiling and greasing of all moving parts.
   b. Operation and control of Auxiliary circuits.
   c. Tripping of Breaker through Relay
   d. Checking of Interlocking
   e. Checking of Relay Tripping
   f. Checks on specific operations.

6. Yearly:
   a. Checking contact resistance of Breaker main contact.
   b. Mechanism checking and lubrication to all moving parts.
   c. IR values of Power and Control Circuits.
   d. Verification of correct rated operating sequence.
   e. Checking and adjustment of Track alignment and Interlocking mechanism

III. Lightning Arrestors: 66KV, 40KA

1. Quarterly:

   a. Removing of bird nests, if any.
   b. Monitor the total leakage current (capacitive and resistive current) and resistive current.
   c. Records of the number of operations of the Arrester should be maintained and if more number of operations are seen then the same should be informed to the concerned authority.

2. Yearly:
   a. Testing of counters
   b. Repairs:
      i. Replacement of Lightening Arrestor pole.(Material to be provided by DPT)

IV. Isolators, 66KV , 400 A

1. Quarterly:
   a. Open the disconnector and earthing switch and inspect the contacts. (Wipe the contact surface with solvent).
   b. Check for contact surface soundness.

c. After maintenance and inspection, smear contact surface lightly with contact lubricant.
d. Check for split pins in clevis, if damaged, to replace the same.
e. Lubricate all clevis pins.
f. Check contact gap. if found inadequate replace contact spring.

2. Yearly:

Maintenance of Drive Mechanism:

a. Apply grease on the teeth of the spur gear and GEAR box Lead screw and guide nut and in case of lead screw type.
b. Oil auxiliary switch linkage and pivot on the guard aperture for manual operation.
c. Cleaning of auxiliary switch contact & greasing with silicon grease.
d. Check that all the electrical components are firmly fixed and let the contactors operate freely.
e. Check all electrical connections for tightness.
f. Check all mounting bolts for tightness.
g. Apply grease to mechanical interlock-cam groove, if the disconnector is with earth switch.
h. Check interlocks.
i. Adjustment of limit switch if it is required.

Main Contacts

a. Cleaning and lubrication of main controls
b. Check Alignment.
c. Tightness of nuts bolts and pins etc.
d. Cleaning of support insulators and checking of insulator cracks, if any.

Earth Switch

a. Checking and Alignment of earthing blades
b. Cleaning of contacts
c. Checking of Contact resistance.
d. Operation of earthing switch.
e. Checking of aluminum Copper flexible conductor.
f. Checking of earth connections of structures and marshalling box.

Marshalling Box

a. Visual check of auxiliary contacts.
b. Cleaning and terminal tightness.
c. Checking of space heaters and illumination.
d. Checking of healthiness of gaskets else replace the gaskets.

Lubrication:

a. For Contact Surface - Clean contact surface with plain cloth and apply contact Grease.
b. "For External drive linkage — grease

V. Current Transformers

1. Quarterly:
   a. Check for Oil leakage
   b. Tan-delta and Capacitance measurement
   c. Secondary connection of the CT should be intact.
2. Yearly:
   a. Check the I.R. value of each Current Transformer and keep record.
   b. Check the Pressure Diaphragm. If pressure diaphragm is defective, replace it with new one as per the procedure explained in the instruction manual.
   c. If the insulation resistance of the current transformer is low it can be improved by oil filtration under vacuum.
   d. Attending to oil leakage in the CT. If it due to failure of gaskets, the gaskets need to be replaced. (Gaskets should be provided by DPT)

VI. Voltage Transformers

1. Quarterly:
   a. Cleaning of Bushing
   b. Checking for Oil level & topping up of oil if, required
2. Half yearly:
   a. Check the I.R. value of each Voltage Transformer and keep record.
   b. Check the Pressure Diaphragm. If pressure diaphragm is defective, replace it with new one as per the procedure explained in the instruction manual.
   c. If the insulation resistance of the Voltage transformer is low it can be improved by oil filtration under vacuum.
   d. Attending to oil leakage in the VT. If it due to failure of gaskets, the gaskets need to be replaced. (Gaskets should be provided by DPT)

VII. Switch Yard (all equipment including structural that are not covered elsewhere)

a. Checking the yard at period intervals and attend to any unusual observations, defects, sparks, loose contacts, red hot spots and loose bolts and nuts etc., and informing the concerned authority. The records of operational persons shall also be consulted for this purpose.
b. Checking the earth resistance of earthing half-yearly.
c. Checking the Protection and control circuit of each equipment monthly.
d. Checking of operation and interlock of all equipments monthly.
e. The premises should be kept neat and clean.

VIII. Control & Relay Panels:

1. Daily:

a. Check for any tripping chattering in the electrical parts, abnormal noise, overheating in the panels.
b. Check whether indication lamps, enunciator lights, bell, buzzers and hooter are working
c. Check all terminal cubicle for healthycontacts, minor repairs/services/cleaning etc.
d. Observe the annunciation window, and there is any alarm then consults the concerned authority.
e. Check whether the panel is ingress protected.
f. Cleaning of relay cases of dirt etc.
g. Cleaning the panels, relay covers, blowing dust from inner side of panels. viii) Polarity of DC supply.
h. Physical checks of all wiring & connections.

2. Quarterly:
a. Check for the proper working of all ammeters, voltmeters, relays, contactors malfunction etc.
b. Clean the panels from inside with the help of the blower/vacuum cleaners.
c. Check all the cables for overheating, tightness of the glands, lugs & crimping.
d. Check the fuse-link & fuse holders.
e. Check the control wiring of the panel along with the controls for the proper functioning and tripping at the preset parameters.
f. Tightening of all earthing connections.

3. Repairs:
a. The following items can be replaced and made functional if they are found not repairable, then need to be replaced MCB, Contactors, Cable termination with glands, T NC, selector switch, indicating lamps, voltmeter, ammeter, fuse holders etc. (All material to be provided by DPT).

IX. 66KV & 11 kV Switch Boards:

1. Daily:
a. Visual inspection
b. Check whether indication lamps, selector switch, TNC, ammeter, volt meters are working.
c. Check whether all relays, are functioning properly.

2. Quarterly:
a. Visual inspection of panels.
b. Checking of control scheme for healthiness.
c. Visual Checking of Panel Meters.
d. Checking of heater circuit & rectification of required.
e. Checking handles and doors & rectification if required.
f. Checking and ensuring the closing of all the panels doors etc

g. Checking and sealing of cable entry holes.
h. Tightening of all earthing connections.

3. Yearly:

a. Measurement and recording of IR values for Main Bus bar.
b. Checking of all terminations for tightness.
c. Checking of CT, PT and Relays connections for tightness.
d. Measurement of insulation resistance value of circuit breaker.
e. Measurement of breaker closing and tripping time.
f. Vacuum test (if required)
g. Measurement of contact resistance.
h. Checking of control circuit
i. Visual inspection of earth connections and checking of tightness
j. Checking of mechanical and electrical interlocks, interlocks within the switch board to ensure proper functioning of the same.
k. Checking and sealing of cable entry holes

4. Repairs:

a. During the time of operation any of the items mentioned above are found malfunctioning then they must be replaced.(All materials will be supplied by DPT)

X. LT Panel/ACDB

1. Daily:

a. Visual inspection
b. Check whether indication lamps, selector switch, TNC & all meters are working.
c. Check whether all relays, are functioning properly.

2. Quarterly:

a. Visual inspection of panels.
b. Checking and sealing of cable entry holes.
c. Checking of D.C. supply & control switchgear.
d. Checking of Indication lamps, replacement if required.
e. Checking of Indication Meter and rectification/replacement if, required.
f. Checking/replacement of fuses if required.
g. Checking of Bus bar connection, Tightening of nut bolts, cleaning of bus bar if, required.
h. Cleaning and tightening of bus bar in the bus bar chamber. i.Tightening of all earthing connections.
j. Cleaning of the inside and outside panels using blowers and vacuum cleaner.

3. Yearly:

a. Checking of D.C. supply & control switchgear.

b. Checking & ensuring the closing of the all panels doors including the supply of necessary material (if required)
c. Cleaning of breakers, lubricating the moving parts as per maintenance procedure
d. Checking of alignment in racking mechanism of breakers for free and smooth movement of circuit breakers.
e. Checking of contact erosion of circuit breakers.
f. Checking of mechanical/electrical interlocks, interlocks within the switchboard to ensure proper functioning of same.
g. Functional operations check of limit switches, auxiliary contacts.
h. Visual inspection of earth connections and checking of tightness i.Measurement of insulation resistance value of circuit breakers
j. Measurement of circuit breaker closing and tripping time.
k. Functional operations check of circuit breaker
l. During operation, any of the items found malfunctioning must be replaced. All material will be provided by DPT.
m. Measurement and recording of IR values for Main Bus bar.
n. Checking of all terminations for tightness.
o. Checking of CT, PT and Relays connections for tightness.
p. Testing of all panel Relays and Meters CT & PT.

XI. 433 V Distribution System (MDBs and DBS):

1. Daily:
   a. Visual inspection
   b. Check whether indication lamps, selector switch, ammeter, MCBs etc are working.

2. Quarterly:
   a. Check if all the panels are ingress protected.
   b. Checking of termination of incoming and outgoing cables.
   c. Routing of cables for new loads if required (only flexible cables and indoor).
   d. At the time of adding new cable proper tags and ferruling must be done.
   e. Cleaning of the panel.
   f. Tightening of all earthing connections.

3. Repairs:
   a. If any component is found malfunctioning it has to be replaced. Material will be provided by DPT

XII. PROTECTIVE RELAYS

A. Quarterly:
   a. Visual inspection and cleaning from outside.

B. Yearly:
   a. Checking of each relay for its correct operation by secondary injection.

b. Cleaning of relay contacts by CRC—2-26.
c. Calibration of relay.
d. Checking of current/voltage setting as per recommended setting.
e. Checking of time characteristic as per recommended setting.

Annually check Coordination:

Annually checking he operation of MCB, relays, TNC. Perform the testing and calibration of relays. Co-ordination study with income, outgoing and associated sub-stations.

Cleaning and housekeeping:

Cleaning of switchyard, housekeeping of complete 66 KV substation complex, coordination with DPA, PGVCL and GETCO and updating the parameters in log sheets etc.

Supply of spare parts

For replacement of failed equipment, DPA shall provide the spares at its own cost to contractor.

Minor repair of equipment

Contractor shall carry out minor repair of equipment .

Tools/tackles, consumables and minor spares:

In addition to the consumables mentioned below, contractor shall maintain all the times the tools & tackles, consumable and minor spares at its own cost, at substation during the period of the contract. At the end of the contract, the remaining consumables will be handed over to DPA without any cost.

Consumables: -

Sr.No.	Item	Qty.
1	Anti-Tracking Spray	As per site requirement
2	Contact Cleaner Spray	As per site requirement
3	Tarpaulin Tent Set suitable for jointing the cable in Monsoon season	As per site requirement
4	DG Set Hose Pipe & Belt, filter of all sizes	As per site requirement
5	Metal Putty	As per site requirement
6	Cotton Waste, Cotton cloth, Knitted cloth	As per site requirement
7	Silica Gel	As per site requirement
8	Distilled water / Battery Solution.	As per site requirement
9	Contactors for DG set & panel	As per site requirement
10	Various sizes of fuse	As per site requirement
11	Hacksaw Blades	As per site requirement
12	Electrical Insulation tapes of blue, black, red and yellow colours HT tape 3m/Scotch	As per site requirement
13	T-5 LED tube lights	As per site requirement

Tools & Tackles:-

Sr. No.	Item	Requirement/Year	
1	Basic electrical tool kit box comprising various spanners, screw drivers, crimping and skinning tools, insulation materials, cutting and nose pliers, etc.	2 Set	2
2	Hammer (500 gms), Chisel (8-10) inches, , Sledge hammer, Chisel, Pipe wrench 14 inches (TAPARIA MAKE)	2 Set	2
3	Digital Insulation Tester Meter HT/ LT	2 Set	2
4	Digital Tong Tester and digital multimeter (5KV electrically operated.)	2 Set	2
5	Clamp meter AC/DC upto 1000 A	2 Set	2
6	Earth Resistance Tester.	1 Set	1
7	Phase Sequence Meter.	1 Set	1
8	Infra-red thermometer	1 Set	1
9	Hand Pump for transformer oil topping up	2 Set	2
10	Non-contact Line tester High voltage 11 KV	1 Set	1
11	Non-contact type low voltage Line tester.	2 Set	2
12	HT Hand Gloves (As per Voltage level) and LT Hand Gloves.	4 Set	4
13	Electrical grade Safety shoes, goggles, safety harness and Helmets.	For each staff	4
14	Capacitance Meter	1 Set	1
15	Online Battery Cell Testers 2 nos.	2 Sets	2
16	Vacuum Cleaner (Wet & Drytype , 5 kg or above)	2 Set	2
17	Electrical Blower	2 Set	1
18	Telescopic earthing rod	2 sets	2
19	Allen Key Sets up to 14 mm.	1 Set	1
20	Torch LED	4 Nos.	4
21	Drilling Machine with drill bits	1 Set	1
22	Hydraulic / Hand crimping machine / tools with set of dies	1 Set	1
23	Extension board (Single phase & three phase)	2 No. each	4
24	Welding Sets	1 Set	1
25	Gas Cutters with cylinders and accessories	1 Set	1
26	Ladder	2 Nos.	2
27	Pressure Jet Pump with Pipe & all accessories (3HP or above)	2 Set	2

NOTE:- In addition to this contractor shall visit the site and keep 30% of the spare of other consumables required for successful repair and maintenance work & breakdown work of 66 KV UG/OH transmission line at their own cost.

Original Equipment Manufacturer visit:

Contractor will arrange the visits of OEMs of equipment I.e. (66 KV SF6 breaker, 11 KV VCB, battery charger, transformer and RTCC only) as and when required and as per prior specified schedule of OE. Before arranging the visit of OEM, Contractor will obtained the written permission from DPA. The cost towards above visit will be paid by contractor on actual basis.

Contingency repair

The spares/services "in case of contingency" for repair of the equipment/system at 66/11 KV switch yard/substation shall be arranged by the contractor through OEM/authorized dealer/channel partner/supplier/local supplier after written approval of EIC. The cost of such spares/services shall be bear by contractor on actual basis .

Relay co-ordination

Relay co-ordination of the 66 KV system of DPA with GETCO system as well as downstream 11 KV system shall be done by the contractor / third party agency on every three month basis. Before arranging the relay coordination, Contractor will obtained the written approval of EIC.

Filtration of transformer oil

The power transformer & lighting transformer oil filtration at 66 KV substation shall be done by the contractor once a year and report shall be submitted by the contractor to the Engineer-In-Charge. However, for top up oil will be provided by DPA based on availability.

O&M work of 66/11 kV Substation and Maintenance of 11/0.433 KV Sub-stations and associated equipment at 66 KV switchyard:

The operation & maintenance work of 66/11 kV and 11/0.433 kV Sub-stations, including indoor/outdoor type CT& PT, SF6/VCB/ACB circuit breaker, control & relay panels, relay coordination, metering panel, associated Power transformer, station transformers, control cables, battery & battery charger, lighting fixtures inside the sub-station/switchyard.

Operation & maintenance of 0.433 kV LT distribution panels including LT Air circuit breakers, LT meters, Relay Panels, control and power cables etc. at 66 KV substation.

O&M of substation power supply including substation housekeeping, the electrical maintenance inside substation for example light fixtures, switch & socket, MCB's, MPCB's, Panel indication lamp, fans, etc. of 66 KV substation.

The operation & maintenance work includes all the HT, LT, AMF panel, APFC Panel, Transformers of 66/11 KV substation.

As a part of strengthening the electrical system at 66 KV substation, DPA may install RMU and GIS panels in the future. Operation and Maintenance of any such future installation, done during the contract period, will be under the scope of the contractor

Operation and Maintenance of existing and future electrical installation, done during the contract period, will be under the scope of the contractor.

Contractor shall provide a vehicle for to handle its manpower.

Contractor shall provide at least one communication aids (Mobile/Telephone) 24x7 for communication with the staff deployed at 66/11kV substation.

Contractor shall inform well in advance for taking power shut down as and when required for preventive/ periodical maintenance in 66/11KV Substation, 66KV switchyard & D.G. Sets in order to intimate concerned Port officials to enable them to make necessary arrangements during power shut down.

Contractor shall arrange to clean all the 66KV insulators including GI structure periodically once in a 15 days as directed by EIC with soft water (Provided by DPA). The equipment's in 66KV switchyard shall also be attended for cleaning work simultaneously and petroleum jelly or grease shall be applied wherever required. Also include daily housekeeping of sub-station & D.G. set building, toilets, its surrounding area etc. as directed by EIC.

Preventive, Breakdown and Periodic Maintenance:

Preventive and break-down maintenance of 66/11 kV, underground cables/control cables including 0.433 kV LT panels at 66 KV substation.

Providing systematic inspection, detection and correction of incipient failures either before they occur or before they develop into major defects. Maintenance including tests, measurements, calibration and part/component replacement performed specially to prevent occurrence of faults /failures.

Need based Flexibility of Manpower schedule:

The Manpower matrix can be rescheduled as per requirement by DPA.

Documentation:

Substation Equipment's parameters should be recorded in daily logbooks. Separate log books will be prepared for separate equipment. Contractor should maintain individual History Records for all critical equipment's, earth pits and other safety related items, this history record should have all the details of work carried out on day to day, monthly, quarterly, half yearly and yearly. Detailed inventory records like materials movement, material consumption, materials disposed etc. also should be maintained. The following registers are statuary requirement of contract and this will be regular inspected & verified by Engineer-in-charge & TPIA.

Maintenance (Planned /Preventive/ Breakdown) Register, Log Book for each substation.

a) Following Register is to be strictly maintained by the Contractor during O&M period as per the Contract Labour (Regulation & Abolition) Central Rules, 1971.
   - (i) Muster Roll Register i.e. Form No. 16
   - (ii) Register of Wages i.e. Form No. 17
   - (iii) Register of overtime i.e. Form No. 23
   - (iv) Register of advance pay i.e. Form No. 22
   - (v) Register of accident, major accident & dangerous occurrence i.e. Form No. 29
   - (vi) Register of Workman employed by Contractor i.e. Form No. 13.

b) Profile of staff personnel for posted staff during O&M period.

c) Consumable, Tools and Plants.

All the documents prepared by the Contractor will be the property of DPA. The Contractor will not share the information contained in the above said log books registers with any outside person without written permission of the EIC. Contractor will hand over the logs and registers to DPA at the time of completion of contract period.

NOTE:

<u>Power Transformer</u>:

Yearly:
Changing the gaskets at all locations as when leakage is found or the gasket is damaged.

Current Transformer:

Quarterly:
Tan-delta and Capacitance measurement- This test is ideally based around scheduled shutdown of the associated plant or factory. For new items, test when new and then test annually. If the test result remains "good" keep the item on an annual test cycle. Hence, it is kept for yearly cycle.

Contractor has to deploy a person authorized by DPA in three shifts for obtaining outage for 66KV GETCO line.

PART- II

The main aim of this contract is to maintain electrical power to each and every residential and non-residential area, which also include lighting towers of High mast/Lattice and streetlight poles, apart from same we had 6 Nos Oil jetties at Old Kandla with flameproof installation, Contractor has to maintain smooth electrical power as per IS norms, and to pay the working category deployed as per latest wages, as approved by Govt. minimum wage regulation. Contractor is advised to make A4 size triplicate complaint requisition book, in which he has to register type of complain date material utilized against complaint and same is to be handed over to concern J.E.(E) everyday, based on which monthly payment will be released.

In the ARC we had categorized three parts as mentioned below:

PART- A: Man Power, Housekeeping & Vehicle.

- Supply of Man Power (In 3 shifts) for day to day preventive & breakdown maintenance, attending complaints of all the area i.e. Port Power House, Old Kandla colony (Residential, Non-Residential, hospital, water towers etc. up to the end user), up to the end power point from where power supply to various slum area are provided, all the oil jetties, Road Street lights from outside port custom bonded area to zero point, Tuna Port.
- Manpower to be stationed at Port Power House, Estate Office-Kandla & Oil Jetty Substation

Staff Profile:

S/N	Designation	Requirement	Qualification	Experience
1	Electrical In Charge	1 in General Shift. (Total-1 No.)	Diploma in Electrical Engineering	Experience of min. 4 years of HT & LT Power supply and distribution system.
2	Electrician cum board operator	• **At Port Power House:** 3 in each shift + 1 reliever. • **At Oil Jetty:** 3 in each shift + 1 reliever.	ITI	Having experience O & M of 11 KV HT Switchgear & LT Panels.

		• **At Estate Office, Kandla:** 3 in each shift + 1 reliever. (Total-12 Nos.)		
3	Helper	• **At Port Power House:** 3 in each shift + 1 reliever. • **At Oil Jetty:** 3 in each shift + 1 reliever. • **At Estate Office, Kandla:** 3 in each shift + 1 reliever. (Total-12 Nos.)		Having knowledge of 11 KV HT Switchgear & LT Panels, its tools & tackles.
4	Lift attendant cum helper	• **At Nirman Lift:** 2 in two shifts (Except Sunday). • **At Seva Sadan-III Lift:** 2 in two shifts (Except Sunday). (Total-4 Nos.)		Having knowledge of O & M of passenger lift.

Note:

1) Deployment of above staff is for Item No. 1 of Part-A only.
2) For execution of items of Part-B; separate man power to be deployed as and when required. However, Vehicle if ideal can be used during execution of items of Part-B
    - Daily Housekeeping of all the substations including its floor & periphery, HT/LT Panels, Transformers, DGs and substation inside & outside lights.
    - Providing of vehicle as mention in Schedule-I along with driver (In 3 shift) including diesel, lubricants etc.

PART- B: ARC Work at Residential, Non-Residential Buildings & Substations.

- The work to be carried out as assigned day to day and also to resolve any kind of complaints including material and man power. Also, the contractor has to carry out item rate work mentioned in Part-B of Schedule-I assigned time to time by EIC / AE (E) / JE (E). No excuse regarding shortage of material and/ or material will be entertained.
- Contractor has to make and maintained A4 size triplicate complaint requisition book, in which he has to register type of complain, date, material utilized against complaint and any work assigned time to time and same is to be handed over to concern J.E. (E) / A.E. (E) everyday, based on which monthly work done will be listed out and accordingly payment will be released.

PART- C: Street Light.

- The scope work is to maintained illumination by attending any fault and resolve the same on priority basis. This includes maintaining illumination of Oil jetties, Port Colony, Tuna, Bunder Area, Power House area including all nonresidential buildings covering High Mast, lattice type tower, street light at various location including street light poles from zero point to West Gate-I & II and unto custom bonded area. In future if any addition of light tower & street light, the maintenance of same will under the scope of contractor.

- Contractor has to make and maintained A4 size triplicate complaint requisition book, in which he has to register type of complain, date, material utilized against complaint and any work

assigned time to time and same is to be handed over to concern J.E. (E) / A.E. (E) everyday, based on which monthly work done will be listed out and accordingly payment will be released.

PART- D: Flameproof fittings and accessories.

- The scope work is to maintained flameproof light fittings and accessories at Oil Jetties by attending any fault and resolve the same on priority basis. This also includes maintaining flameproof fitting illuminations at Oil jetties. In future if any addition of any kind of flameproof fittings at oil jetty area, the maintenance of same will under the scope of contractor.

- Contractor has to make and maintained A4 size triplicate complaint requisition book, in which he has to register type of complain, date, material utilized against complaint and any work assigned time to time and same is to be handed over to concern J.E. (E) / A.E. (E) everyday, based on which monthly work done will be listed out and accordingly payment will be released.

2 This item rate Contract shall be carried out on the basis of 24 X 7 for Port Colony, New Kandla, Bunder area, Tuna & Port Power house. Also, in exigency at Gopalpuri, as per compliant daily fault finding & rectification of fault is to be done with materials, attending breakdowns and new work if any relates to electrical nature. Housekeeping of 11KV Substations located at various location DG operations, Water Towers, attending overhead lines HT/LT fault especially of colony & old kandla premises, maintaining regularly High mast lighting, Lattice tower lighting, Oil jetty Flame proof lighting, Pathway Lighting, Street Lights & its accessories including Residential & Non Residential Buildings situated Oil jetty, Port Colony New Kandla, Tuna Port & Port Power house. The tentative details of various equipment's installed in each 11KV Substations, overhead lines & residential & non-residential building are given in Annexure-I.

3 The Rate Contract will be entered initially for two years for part A, B, C & D of the Schedule, further same can be extended for three months as per terms and conditions of tender by mutual consent and approval of DPA.

3 **Area of work:**

Complete DTP installation outside cargo jetty area such as Port Colony New Kandla, Tuna Port, Oil Jetty, Bunder Area, Port Power House, Khari Rohar etc.

Rate Contract is of complete electrical installation equipment like LT panel boards, LT cables, pump houses power supply system, power supply to all offices, residential & non-residential buildings, internal wiring & its accessories of quarters, Earthing, flood lighting, street light, lattice / high mast tower is covered under scope of this rate contract.

4 **SPARES**

Complete Electrical accessories will be supplied by contractor as per site requirement, duly signed by JE(E)/AE(E)/EIC every month for site work, 100% supply of material as per requisition will be done by contractor within 15days on receiving the requisition, and payment will be done 100% against same in next monthly bill, based on BOQ rates. The rates shall remain valid for two years excluding GST.

5 The overall as well as individual variations shall be ± 30% in quantity for which the rate quoted by the bidder and accepted by the employer shall be applicable.

The electrical accessories will be maintained by contractor for smooth day to day work, if Electrical spares are available with DPA same shall be consumed for site work and contractor will be paid only fixing rate for the same. Contractor should arrange the materials immediately within given time for smooth work, for any reason if contractor fails to arrange the material within time period, penalty at the applicable rate will be imposed on BOQ rate of that particular item.

6 For proprietary material, there is no penalty clause to the contractor but same will be decided by EIC

weather to procure new or to repair the same, based on same reimbursed by DPA will be done on submission of original invoice against delivery by supplier. (The supply order regarding proprietary material shall be placed to the Contractor after approval of competent authority)

7 The contractor shall keep adequate advanced tools and tackles, testing instruments duly calibrated etc. Looking to the wide area, new vehicle (preferably pick-up)4+1seater is to be provided round the clock, after the date of LOI at site during the contract period till completion of work.

8 During the execution of ARC, if any kind of repairs is considered to be of the major nature like Major repair to RMU/ VCB, Compact Substation, DG set, ceramic coating of live conductor / Busbar etc. and other major work as decided by Engineer-in - charge. And if same is absolutely necessary for healthy power supply system, the cost of such repairs shall be reimbursed by DPA on actual basis to the contractor on production of relevant original documents. The rate includes all charges of dismantling, packing, forwarding and transportation up to manufacturer's place and back to site at Kandla and re-erection of same material. (The Work order regarding such major repairs shall be placed to the Contractor separately after approval of competent authority).

9 The contractor shall inform well in advance in writing for taking power shut down obtain work permit as and when required for maintenance in 11 kV Substation in order to intimate concerned port officials to enable them to make necessary arrangements during power shutdown. The above permission letter record should be obtained by the contractor in proper manner.

10 The Contractor shall attend day-to-day work like housekeeping, cleaning of Substation, HT & LT panels, Transformers & Compact substation. DG set etc. daily. Also, Each High Mast raising up & lowering down operation for lantern shall be carry out once in a three months including complete servicing and overhauling of high mast accessories and apply of grease & oil on wire ropes, filling of gear oil in gearbox (Complete work under the scope of Contractor). The contractor should maintain the record in a log book duly signed by the DPA personnel, while undergoing this operation all the Luminary glass should be properly cleaned with sweet water.

11 Contractor shall maintain the required spares of D.G Set viz. 1 No. at Power house (400 KVA), 2 Nos D.G Set at oil jetty of 125KVA each , and 1 No. DG at kandla hospital by properly cleaning and maintaining the water level in battery & weekly ideal running of D.G set & provide backup power under load shedding immediately. Necessary register should be maintained with signature & name of the foreman & also minor repair of the D.G set is in the scope of the contractor.

12 The ARC also includes filtration of transformer oil within 1 year on award of contract and second time after one year and third time after 36 months from date of first one (for topping of transformer, Oil will be supplied by Deendayal Port Authority).

13 Contractor shall get approved schedule, including pre-monsoon maintenance for equipment's installed at various Substations & overhead line before commencement of contract from Engineer-in-Charge during ARC.

14 **Consumables:**

Consumables are to be provided by the contractor during period of maintenance contract at his own cost for carry out routine maintenance as mentioned in tender. The mentioned minimum quantity of consumables shall be recoup every month during currency of Maintenance Contract.

Sr. No.	Description of consumables to be available at site	Requirement (Qty.)
1	Petroleum Jelly	1 Kg.
2	Silica Get	5 Kg.
3	Contact Cleaner Spray	10 Tin
4	M-Seal	250 Gram

5	Araldite	250 Gram
6	Fuse Wire HT	per site requirement
7	11KV Insulation tape (Self amalgating & fusing)	50 Nos.
8	Bitumen Impregnated Cotton Tape	10 Nos.
9	Water proof Rubber Tape (150mm width & above).	10 Nos.
10	Emery paper	10 Nos.
11	Scotch Brite	5 Nos.
12	HC-80 (Anti Tracking electrical Spray) Make: 3M, ASV, Twin Tech	5 Tins
13	Rust Remover Agent - Make: WD-40, CRC, Kli Nit, Twin Tech	5 Tins
14	Moisture Displacer- Make: WD-40, CRC, Kli Nit, Twin Tech	5 Tins
15	On Line Contact Cleaner - Make: WD-40, CRC, Kli Nit, Twin Tech	5 Tins.
16	Aluminium Foil Tape (Cavity Sealing Tape)	5 Nos.
17	Scotch 23 (High Voltage Tape)	5 Nos.
18	Scotch fill Putty (Insulation Putty)	5 Nos.
19	Foam Tape (Gasket Form Tape)	5 Nos.
20	HT Heat shrink sleeves	5 Sets
21	Cleaning agent viz. soap, detergent powder	2 Kg.
22	Cotton waste	50 Kq.
23	Muslin Cloth	20 Mtr.
24	Stainless steel / copper Nut bolts, and washer	25 Nos

15 **Deployment of Manpower:**

The following minimum manpower shown in Part-A Sr. No. 1 shall be deployed by the Contractor round the clock for old kandla, Colony & Port powerhouse substation for switching of HT/LT switchgear, during tripping and communicating same to our concern shift Incharge, log book shall be kept for recording of power, operating DG set in event of power failure, every hours recording of various values of power. Adequate man power shall be deployed round the clock by contractor as per his planning and same shall be informed to Engineer-in-charge.

Being flammable area of Oil jetties following staff is to be deployed round the clock for Oil jetties for electrical work duty & other works.

- **Oil Jetty:**

S/N	Designation	1 st Shift 07:00 to 15:00 Hrs.	2nd Shift 15:00 to 23:00 Hrs.	3rd Shift 23:00 to 07:00 Hrs.
1	Electrician cum Board Operator	1 No.	1 No.	1 No.
2	Helpers to above	1 No.	1 No.	1 No.
	Reliever to Electrician & Helper	2 Nos.		

- **Colony (Estate Office):**

S/N	Designation	1 st Shift 07:00 to 15:00 Hrs.	2nd Shift 15:00 to 23:00 Hrs.	3rd Shift 23:00 to 07:00 Hrs.
1	Electrician cum Board Operator	1 No.	1 No.	1 No.

2	Helpers to above	1 No.	1 No.	1 No.
3	Reliever to Electrician & Helper	2 Nos.		

- **Port Power House, New Kandla:**

S/N	Designation	1 st Shift 07:00 to 15:00 Hrs.	2nd Shift 15:00 to 23:00 Hrs.	3rd Shift 23:00 to 07:00 Hrs.
1	Electrician cum Board Operator	1 No.	1 No.	1 No.
2	Helpers to above	1 No.	1 No.	1 No.
3	Reliever to Electrician & Helper	2 Nos.		
4	Lift Operator cum helper (Nirman)	1 No.	--	--
5	Lift Operator cum helper (Sevasadan-III)	1 No.	1 No.	--
6	Reliever to Lift Operator cum helper	1 No.		

Staff mentioned in the above chart shall be posted at various location as above & separate attendance register should be maintained along with Daily progress report book in which signature of individual person should be there.

Contractor should provide one Bio metric attendance machine at oil jetty substation and second one at port power house, for registering the attendance for **IN** of his entire staff daily print out should be taken and submit the copy to DPA site in-charge which will be verified from the site attendance & DPR.

Apart from above adequate experienced staff for 24X 7 shall be deployed by contractor for ARC work of colony & nonresidential buildings and other overhead line work, along with new mobile jeep of 2023 for ease of fault finding & complain attending. The above posting of the staff can be changed as per the situation arise and as per the requirement of DPA site in-charge i.e. JE / AE.

16 The below mentioned staff should have the minimum qualifications mentioned as under:

Site Engineer: An Engineer having Degree in Electrical Engineering and having experience of at least 4 years in operation & maintenance of 11KV Substations OR Diploma with Electrical Engineering having experience of 4 years in operation & maintenance of 11KV Substations.

Electrician Cum Board Operator: - The electrician has minimum qualification ITI Certification in Electrician Trade or practical experience in field of electrical Installation of 3 years of operation & maintenance of 11/0.433KV Substations & knowledge of wiring of residential & non-residential building.

Helper to Electrician cum board operator: shall assist Electrician/operator in their work and time to time work given by Site Engineer.

Lift Operator cum Helper: Should have knowledge of lift operation or having practical experience of single phase wiring of three years.

Site Engineer:

The Site Engineer shall be overall in charge on behalf of Contractor at the site of work specified in the tender i.e. New Kandla Township, Oil jetty, Tuna port & Power house.

The Duty of the site in-charge is to collect the requisition /report of the activities happen in 24hrs from individual location and new work /maintaining proper inventory of materials, updating labour reports,

monthly wages disbursement of staff to be carried out. Apart from same if any modification in work is suggested same is to be corporate.

The Site Engineer shall inspect that all the received complaints from internal and external occupants of Quarters & offices, users etc. & Recording of same in the respective complaint register, allocation of complaint no, phone no. of consumer/user etc. is been carried out properly by the additional staff and monitor the complaint attended at individual location.

The Site Engineer shall instruct his staff to depute the staff to attend the respective complaints depending on the priority. Priority may be given as specified i.e. 11KV Incoming & outgoing feeders, 11KV HT service connections if any, water towers, HT overhead line as directed by Engineer-in-charge. Also, operation of LT and HT indoor sub-station switchgear and recording and issue of Line clearance & normalization of HT / LT Electrical shutdowns works & breakdowns works as per DPA procedures. The recording of the vehicles running and monitoring shall be controlled by Site Engineer.

Site Engineer being overall in charge shall reach at site during any major break down even in late hours by calling the Site vehicle and simultaneously inform the above situation to Engineer-in charge and remain present in site up to restoration of power.

- The brief scope of Work of staff posted are as under:
- Attending of 11KV HT/LT overhead line / UG cable complaints including service connections, Oil jetty lighting, street lighting etc. as informed by Site Engineer along with available staff. Feedback collection after attending of complaints from the customer/ user, reporting of works attended to Site Engineer, recording of details of works executed, rectifications / repairs.
- Efficiently utilizing of staff providing for replacement/repair & solving of complaints recorded / reported from time to time.
- Safety of staff provided for work, usage of proper PPE during the work.
- Communicating with the representative of DPA from time to time for further guidance / instructions from Engineer-in-Charge or superior officials. Issue of Line clearance & normalization of HT / LT Electrical shutdowns works & breakdowns works as per DPA procedures.
- Troubleshooting and breakdown Maintenance of electrical equipment's. Material shifting from sub-stores. Record keeping of operation & Maintenance activities of shifts in Registers and on Computers. Daily log book should be updated of individual substation from oil jetty to port power substation.
- Coordinating with the GETCO / PGVCL officials & staff for attending complaints regarding LT / HT service connections will be entrusted.
- No idle time will be entertained. In case non-receipt of any complaint the pending complaints received by the officer-in-charge / noticed during the preventive maintenance will be entrusted.
- Operate all outdoor & indoor switchgear and maintain trouble free power supply for New Kandla Township, Oil jetty, Tuna port & Power house.
- The Contractor has insured to maintain the tower lighting and pathway lighting of oil jetty. Street lighting from north gate to Estate office, west Gate I to 16th Berth up to zero-point road lighting by the respective staff. However, if any major break down in lighting same should be noted in the register and forward the information to Site in charge & DPA officials.
- Attend the complaints related to High mast tower, Lattice tower, pathway lighting, street lighting also if required switching of the lights are to done by the Electrician and accordingly submit the detail report area wise Attend the complaints related to pump house, gen sets, panels, HT /LT cables, control schemes etc. work on pump houses, various starters, gen sets, LT / HT panel boards, lighting etc., as directed by Site Engineer (Contractor) and shift in charges (DPA).

17 **Responsibilities of Contractor:**

Complete responsibility of the contractor to deploy qualified Site Engineer, Electricians and helpers on experience, relevant License/permits to handle electrical equipment's, etc., as applicable. The Contractor has to submit the Notarized Aadhar Card/Election Card, Educational & Experience Certificates of his deployed personnel along with Profile of Staff. In case of Helper to Electrician cum Operator, the Notarized copy of Aadhar Card/Election Card shall be submitted along with Profile of Staff. No person below 18 years should be deployed for Maintenance Contract. The deployed personnel of Contractor should be well conversant with Indian Standards, Indian Electricity Rule and acts as applicable and should have knowledge of electrical and Industrial safety practices.

The above staff is posted for carrying out day to day, dogwatch duty at old kandla/colony/powerhouse at 11/0.433 KV substation. Apart from above additional man power is to be decided by contractor to attend daily complain as per ARC items. However due to the exigency of work, contractor shall carry out or attend the fault during odd hours, Sunday & Holiday as directed without additional cost.

The contractor has to manage and execute all the works entrusted, through dedicated Engineer by deploying the required manpower. For the purpose of effective monitoring and maintenance throughout the year (even on holidays).

Contractor will ensure consistency of work and work force, correct trouble shooting, good workmanship, follow all safety procedures and will make all necessary efforts to maintain healthy environment and reliable services.

If any of the staff member appointed by Contractor is found to be 'not competent', he has to be replaced by a right person within a stipulated time as instructed by Electrical Engineer- In-charge.

In no case, the contractor or his/her employees shall claim job / employment with DPA. No transport facility shall be provided for the contractor or his employees.

It is purely contractor's responsibility to get his staff acquainted/trained with the site conditions, operation and maintenance procedure, equipment detail, safety devices, scope of work etc.

Contractor will be responsible for any act of theft, sabotage, misdeed, indiscipline, and negligence on the part of contractor or his employees. Penalty or legal action, as decided by EIC shall be imposed on the contractor.

The contractor's Site Engineer shall meet the EIC or his nominee every day to receive the details of issues / complaints to be attended and after attending to these complaints, a report on the same has to be submitted to the concerned Officer.

The contractor shall maintain five sets of Cell phones round the clock for New Kandla Township and One set for Oil jetty for proper communication one set for Power house and one set for site in charge and between department and the Contractor at the cost and responsibility of the Contractor.

18 **Submission of Schedule**:

Maintenance Schedules to be followed during the contract. Accordingly, contractor shall prepare each substation and equipment wise maintenance schedule i.e. Daily/Weekly/Monthly/Half yearly/Yearly for performing the maintenance work. The Maintenance Schedules are indicative and subject to review by EIC as and when need arises which will be final and binding on the contractor without any financial implication.

So far as activities indicated in the half yearly and yearly maintenance schedule are concerned, the successful bidder will submit a schedule to EIC showing the activities mentioned in the half yearly and yearly maintenance schedule will be carried out.

Contractor should also prepare the maintenance schedule of the Lattice/ high mast tower/pole and street light area wise, for performing the illumination work and same should be get approved by DPA EIC.

19 Contractor shall prepare the Duty Roaster and same shall be submitted to the Engineer-in-charge. Arrival & Departure of staff should be well-planned to up-keep the ARC. Punctuality should be maintained at site any person coming late will not be tolerated a grace period of 10 minutes will be accepted above 10 minutes period absent will be marked against the above candidate. Prior permission should be obtained by the Engineer-in –charge for coming late in written only in that condition he may be allowed to attend his duties.

20 DOCUMENTATION

Contractor should maintain individual History Records for all critical equipment's and other safety related items, this history record should have all the details of work carried out on day to day, monthly, quarterly, half yearly and yearly Substation wise. Detailed inventory records like materials movement, material consumption, materials disposed etc. also should be maintained. In all documents, for each work, contractor should get signature from Engineer In-charge (Electrical) or his nominees.

All the documents prepared by the contractor will be the property of DPA. The contractor will not share the information contained in the above said log books registers with any outside person without written permission of EIC. The contractor will hand over the logs and registers to DPA at the time of completion of contract period.

21 Instruments & Tools & tackles:

The following newly procured instruments and tools along should always be available at site.

(A) Measuring Instruments

Sr. No.	Description of Instruments to be available at site	equirement (Qty.)
1	Multi meter (Fluke / kyoritsu / Megger / Motwani / Hoiki)	2 Nos.
2	5000V Insulation Tester (Fluke / kyoritsu / Megger / Motwani / Hoiki)	1 No.
3	Earth resistance measurement instrument (0.1 Ohm LC) with kit	1 No.
4	Phase sequence meter (kusam-meco/ Fluke / kyoritsu / Hoiki)	1 No.
5	Tong tester (Fluke / kyoritsu / Megger / Motwani / Hoiki)	2 Nos.

(B) Tools & Tackles

Sr. No.	Description tools & tackles to be available at site	Requirement (Qty.)
1	Double end open spanner from size 6-7 to 30 – 32 size	2 Sets
2	Double end ring spanner from size 6-7 to 30 – 32	2 Sets
3	6-7 to 30 – 32 size (metric) set	2 Sets
4	Adjustable wrenches (12 inch)	2 Sets
5	Hydraulic Crimping tool	2 Sets
6	Allen keys set	2 Sets
7	Tubular spanner set	2 Sets
8	Star screw driver set	2 Sets
9	Screw driver set	2 Sets
10	Hammers each (1lb & 2lb)	2 Sets each
11	Torque Wrench set	2 Sets
12	High voltage discharge rod including operating rod	4 Sets
13	Dual mode Air Blower (Normal and Heating Mode)	2 Nos.
14	Emergency lights with 4 Hrs, battery backup.	3 Nos.
15	Cable Jointing Kit (Gas bottle & Burner)	1 Kit.

16	Spade – 4 Nos.	4 Nos.
17	Aluminium Ladder as site requirement	2 Nos.
18	RCC Breaker M/c with Drill Bit	1 No.
19	Pliers to every Electrician and Wireman	25 Nos.
20	Line Tester to every Electrician and Wireman	25 Nos.
21	Test lamps to every Electrician and Wireman	25 Nos.
22	Torches to every Electrician & Wireman	--
23	First aid kits at power house , estate office, oil jetty	3 Nos.

However, any other tools felt necessary for execution of the work would also have to be arranged by the contractor.

22 **Uniform & PPE:**

The Contractor has to provide 2 uniform set to all the employees deployed under Contract, all the employees of Contractor shall wear the uniform and PPE while on duty. The uniform colour shall be as per their company dress code with company Logo. The following PPE shall be provided by Contractor to his deployed staff during contract.

- **Personnel Protective Equipment's (PPEs):**

Sr. No.	Description	equirement (Qty.)
1	15000 grade Hand Gloves	2 Pairs
2	High Voltage Discharge Rod	2 Sets
3	Safety Belt	2 Nos.
4	Safety Helmet – To every staff member deployed by Contractor.	15 Nos.
5	Safety Shoes – To every staff member deployed by Contractor.	15 Pairs
6	Uniform to contractor personnel	To every staff personnel of Contractor
7	Face Shield	5 Nos
8	Safety Glass	5 Nos
9	Dust Mask	5 No.

23 DPA will not be responsible for death, accident or injury to the Contractor's employees engaged by him, which may arise in the course of their duty at our premises, nor shall we be responsible and be liable to pay damages or compensation to such persons or to third parties. The Contractor shall at all times indemnify and keep DPA indemnified against all claims which may be under the Workmen's Compensation Act, 1923, or any statutory modifications thereof or otherwise for or in respect of any damages or compensation payable in consequence of any accident or injury sustained by any workman or other person/ person at the Centre or premises, building, equipment's etc. is attributable to the Contractor or his workmen, such damages shall be made good by the Contractor or his workmen, such damages shall be made good by the Contractor. The E.S.I. (Employees' State Insurance) is compulsory for the employee deputed at work site for the above work.

24 **Overhead lines ARC/maintenance work:**

The work includes removal/replacement of damaged ACSR/AAAC conductor/ABC Conductor and its accessories on LT overhead lines including stringing of conductor, jumpering, binding etc., as directed by Engineer-in-Charge, Replacement of jumpers by providing new conductor in place of un-serviceable jumpers from overhead lines. Replacement of unserviceable earth wire with 8/6 SWG GI wires duly connecting/fixing to the wall or in the ground as directed for all the quarters as directed by

Engineer-in-Charge.

Supply, Fixing, connecting, commissioning of various accessories such as ICDP/ ICTP/ switches/ twilight switches/ MCCBs etc. of various capacities with suitable hardware, MS clamps bolts, nuts etc., as per site situation as per ARC items.
Painting of Poles/ Structures/ Towers/ panels including cleaning, scraping, wire brushing etc. for surface preparation shall be carried out at least once in a year.

Overhauling / Repairing of H.T. Panels, H.T overhead lines / U.G. cables are also under the scope of ARC.

25 **RESIDENTIAL BUILDINGS AND NON- RESIDENTIAL BUILDINGS WORKS**

- Attend and solve the complaints received immediately. Other than minor repairs, if any replacement/new fixing of switches, sockets, wire, board, wires, fans etc. is same shall be carried out without any delay. Item rates are already in Schedule-B of the tender.
- Replacement of unserviceable energy meters with new/reconditioned energy meters (whichever applicable) on the existing switch board/plank as directed.
- Replacement of defective bulk heads/batten holders/pendent holders etc., existing in the stair case of the buildings by replacing holder, lamps, cover glass, wire guard etc.
- Replacement of unserviceable earth wire with 8/6 SWG GI wire duly fixing to the wall are drawing recessed in the ground and connecting to earth electrode and to the gadgets.
- Fixing, connecting, commissioning of ICDP/ICTP switches/ DBs /MCCBs of various capacities with suitable hardware as directed by the Engineer-in-Charge. Clamping of various sizes of cables to the wall/pole with suitable clamps at equal intervals using suitable hardware as directed by the Engineer-in-Charge (required sizes of clamps to be supplied by contractor & Cable will be supplied by DPA free of cost).
- Replacement of defective/unserviceable ceiling fans/wall mounted fans/exhaust fans etc.
- The staff should attend electrical works as mentioned in the item rate work as per instructions of Engineer-in-Charge from time to time.
- Replacement of distribution boards / L.T. panel if necessary replacement of MCCB/MCB/Contractors etc. also repairing of door broken hinges etc. All the panel doors should be closed and locked as per the ARC and as per directions of Engineer-in-Charge.
- All 3 pin sockets should have proper earthing connection and ensure the voltage between neutral. All loose wirings shall be made updated. All electrical installations, wirings, lines in Residential buildings and non-residential buildings should be maintained intact, handed over to DPA in good working condition/intact on completion of contract.
- It is responsibility and in the scope of contractor to insure healthy power supply to end user and unto end point from where service connections are provided to hutments

26 **HIGH MAST LIGHTING, LATTICE TOWER LIGHTING, PATHWAY LIGHTING AND STREET LIGHTING:**

- This ARC include repairing of High Mast Accessories like repairing of damaged lantern carriage, replacement of lighting fixtures of High Mast, replacement of safety and suspension wire rope, replacement of hoist trailing cable, repairing/overhauling of double drum winch, power tool, Gear Box complete, motor, Replacement/Fixing of luminaries with wiring and control gear box etc.
- Repairing/replacement of the HPSV / LED Flood Light fittings at High mast / Lattice tower situated at Oil jetty, Bunder basin & Tuna Port.
- Replacement of LED Flame proof fittings at oil jetties.

- Replacement of LED Flame Proof Pathway fittings LED Street light fitting from starting point & within oil jetties.
- ARC of Lattice / High mast tower distribution boards / panel if necessary replacement of MCCB/MCB/Contractors etc. also repairing of door broken hinges etc. all the panel doors should be closed and locked as per the directions of Engineer-in-Charge are in the scope of contractor. (Overall random illumination shall be near to 25 LUX of HM & Lattice towers).
- Maintenance of illumination system and Schedule:

27 **Vehicle:**

The work includes providing one new pickup vehicle for 24Hrs. along with 3 Nos driver along with diesel lubricants, vehicle insurance for mobilization of staff, materials as per site requirement i.e. TUNA, Oil jetty, Port power house, colony for electrical nature of work or for transportation of fuel for DG set at various location. The vehicle will run around 3000 KM per month, same shall be of 2022 RTO passing of Mahindra Utility, Imperio, TATA YODHA, ISUZU SMAX. Contractor is directed to keep logbook in the vehicle for check of KM and to trace the area where the vehicle is deployed. The vehicle driver shall have its driving licensee, with company Uniform and the vehicle will be stationed at port power house or colony as per site requirement.

Vehicle: Vehicle shall be including 24Hrs. driver including fuel (Diesel), lubricants & maintenance. Min. running of vehicle will be 3000 KM per Month.

SCHEDULE -B

Background:

Deendayal Port is a natural harbor situated in Kandla creek and is about 90 km from the Gulf of Kutch - with 10 dry cargo berths and a state-of-the-art container terminal with a capacity of 3.6 MMTPA. It is one of the major ports on the west coast of India under the Government of India, Ministry of Shipping and its main activity is to facilitate maritime trade for commercial cargo handling vessels. The license for supply of electrical energy was granted to Deendayal Port Authority by the Chief Commissioner of Kutch under the Indian Electricity Act, 1910. Consequent to the enactment of the Electricity Act, 2003, DPA has become a deemed licensee under the Act. The distribution of electricity by DPA is limited to the port area and it mainly supplies power to domestic and commercial consumers and for port operations. DPA itself carries out all major operations in the port, along with another HT consumer carrying out part of the operations. The present distribution system within DPA comprises of one 66 kV substation and fifteen 11 kV substations in the licensee area. DPA is receiving 66 kV power supply from GETCO. The distribution network of DPA's licensee area is consisting of Overhead and Underground system.

Deendayal Port Authority (DPA) is a deemed distribution licensee as per the provision of Electricity Act 2003 and Gujarat Electricity Industry (Reorganization and Regulation) Act 2003. Consequently all the provisions under the regulations notified by the Gujarat Electricity Regulatory Commission (GERC), for the Distribution Licensee are applicable to the DPA.

Objective:

DPA is currently establishing itself as a fully functional distribution licensee. With limited infrastructure, manpower shortage and experience in the distribution business, DPA intends to hire a Service Operator (SO) for its distribution services related activities including Metering and Billing and associated services to improve the quality of service and meet GERC's Standard of Performance as well as comply with all directions.

Detailed Scope of Work:

Service Operator shall undertake the work for a period of 3 years from the date of issuance of work order. The Service Operator shall deploy qualified resources to successfully execute the task specified herein.

Sr.No	Designation	Qualification	Nos.
1	Chief Manager (equivalent to SE)	B. Tech (Electrical) & MBA	1
2	Relationship Manager	MBA	1
3	Manager (Revenue and Billing)	B. Tech(Electrical)	1
4	Manager (Metering)	B. Tech (Electrical)	1
5	Manager (Power Purchase and CRM)	B. Tech (Electrical) & MBA	1
6	Executive (Billing)	raduate Engineer (Electrical)	2
7	Executive (Metering)	raduate Engineer (Electrical)	2
8	Executive (CRM)	Graduate Engineer(Electrical)	2
9	Expert Planning & Scheduling	B. Tech(Electrical) & MBA	1
10	Legal Advisor	LLM	1

Further, the backend team would consist of the following experts deputed at Service operator corporate office:

The current status of distribution business of DPA lacks proper Business and Automation processes.

DPA also has pending compliances for directives issued by GERC in tariff orders. DPA intends to comply with all such directives, comply with regulatory filings, improve business processes, proper load forecasting and network planning, alternatives for power purchase etc.

The Service operator shall provide all services which are broadly as under:

a. Advisory services pertaining to Regulatory, Commercial etc.
b. Handling Energy and assigning sources of power
c. Meter Reading & Billing
a. Support in Re-connection/ disconnection etc.
b. Loss reduction, control of thefts, handling CGRF cases etc.
c. Meter Replacements/ Installations, Load Extensions
d. Demand Side Management, Load Management and Load forecasting.
e. Energy Audit
f. Supervision of capital expenditure, and Power procurement.

The above scope of work is divided into four (4) parts viz. Part – (A) Advisory Support and Part – (B) Distribution Services Support, Part – (C) Energy Auditing and Illumination Survey, and Part – (D) Supervision of Capex Planning.

PART A: Advisory Support

1. **As-is Study of DPA Distribution Business:**
   This would include study of existing load, consumer metering status, feeder metering status, energy audit, energy accounting, assessment of loading on DPA's existing network (sample/ representative data to be used for assessing the voltage fluctuations, losses, load flow, reactive power etc.), review of business processes, present level of IT automation, operational structure, operational performance, review of power purchase/ sale arrangement, review of GERC directives, present loss levels etc. Identify specific areas of interest within the segment – network augmentation and modernization, technology implementation, capacity building, distribution licensee, MBC, technical consultancy, financing etc. Provide technical and financial advisory on all aspects pertaining to Distribution Segment through proper documentation/ report duly supported by the consulting organization as a whole and not just as individual opinion. Preparation and updating cost data/ annual tariff filing/fulfilling regulatory requirements etc.

2. **Smart Metering and Prepaid Metering Feasibility study:**
   Explore the feasibility for implementation of Smart Metering and Prepaid Metering in DPA area. The scope will include following:
   2.1 Based on the consumer, its metering location, load, consumption pattern, Service Operator shall provide options and finalize towards rolling out of SMART & Prepaid metering in DPA area
   2.2 Design smart metering scheme, supporting modules, data flow planning, SMART Metering Control Centre Architecture, specification of smart meters and other control Centre equipment. Similarly design prepaid metering schemes etc.
   Service operator shall undertake cost benefit analysis and provide specifications, warranties, procurement model etc.
   2.3 Service operator shall support in selection of vendor/ contractor for procurement and installation of smart and prepaid meters. However, Service operator will have to review/ verify the installations.

3. **Network Study of Entire License Area under DPA:**
   DPA is serving only part of the license area and rest other area is served by PGVCL/ GUVNL with prior NOC from DPA. The distribution network in this area is developed and maintained

by PGVCL/ GUVNL. However, DPA is now providing power to such new consumers on its own network and has stopped giving NOCs. DPA intends to undertake feasibility study to take over the unserved license area along with financial implications. Service operator shall be doing the evaluation which shall cover following:

3.1 Profile of Total Distribution Network of PGVCL/ GUVNL in License area of DPA
3.2 Determination of category wise load/ demand in the unserved area and assessment of power purchase requirement.
3.3 Financial implications if assets are to be taken over by DPA vis-à-vis payment of wheeling charges for use of such assets by DPA.

4. Preparation of Distribution Master Plan for 5 years:

A Distribution Network plan (Physical and Financial) for the next 5 years shall be prepared, giving year wise Network augmentations to meet load growth for entire License area under DPA. The network rollout plan shall also take into health of existing distribution network in terms of reliability, loading, voltage regulations, losses etc. This would include following:

4.1 Estimate for number of new substations / Additional Power Transformers required with tentative capacity and Augmentation of existing Power Transformers
4.2 Estimate for number of Feeders to be augmented/ New Feeders
4.3 Estimate for number of Distribution Transformers (New /augmentation)
4.4 Synchronized evacuation plan with reference to GETCO STU plan
4.5 The network design parameters such as n-1, reliable and quality of power supply etc.
4.6 Assessment of DSM potential, preparation of DSM Plan and support for selection of DSM implementation agency

The network rollout plan shall be done for existing license area and entire license area of DPA (the area proposed to be taken over from PGVCL) separately with Capital Investment Plan. Necessary site visit will be done by service operator.

5. To Be Report for DPA Distribution Business:

Post study of existing business operations of DPA, Service operator shall submit the To-Be report on redefined Business Processes considering latest technological interventions, MIS/ Dashboards for Management of DPA, Timelines for replacement of Meters, Installation of new meters, measures for loss reduction and revenue enhancement, best industry practices etc. to be submitted.

PART B: Distribution Services Support

1. Regulatory and Commercial Support:

Service operator shall provide all type of regulatory, commercial and power sale and purchase support on day to day basis to DPA. This would include following:

1.1 Commercial Analysis: Developing Key Performance Indicators, regular Billing data analysis, Arrear analysis, consumption abnormalities etc.;
1.2 Service operator shall prepare the yearly /Multiyear tariff Petition with ARR for filing the same by DPA before GERC. Service operator shall prepare draft replies for responding to GERC on operational matters and other regulatory affairs;
1.3 Support for all matters related of Regulatory, Commercial and Power purchase before GERC, GUVNL, GETCO and PGVCL.
1.4 Service operator will also assist DPA, in drafting reply for the letter, direction received from GERC/CERC/CEA/Ministry of Power / Ministry of Shipping related to distribution business of DPA.

1.5 Service operator shall assist DPA in conducting detailed network study and preparation of asset register. Availability of an asset register shall assist DPA in complying with regulatory directives and computing true depreciation, to be claimed, under the ARR petitions.

1.6 Submission of MIS: Various statements like monthly T&D loss calculation, interruption statement, list of stopped/ defective meters/ replaced, new service connections released, list of pending applications at the end of month, consumer wise billing statement, list of consumers in arrears etc. would be made available to the DPA by Service operator.

2. Metering and Billing:

2.1 Service operator shall arrange monthly joint meter reading (along with DPA) and preparation of monthly energy bills as per Performa of DPA on the basis of meter reading of consumers and distribution of bills to the consumers.

2.2 The bill shall be prepared in accordance with the applicable tariff order passed by the regulatory commission. Time to time testing/ calibration of consumers meters and input meters installed in substation(s) shall be done.

2.3 Revenue collection from the consumers situated in DPA area will be done by the DPA through their existing mechanism, however details of cash listing would be required from DPA for incorporation in consumer bills.

2.4 Service operator will strive to increase collection efficiency in DPA area by timely disconnection of defaulting consumers.

2.5 Service operator shall also be suggesting best industry practices to reduce technical and commercial losses in the system and thus assisting in minimization of distribution and AT&C losses.

2.6 Energy Meter Survey: Under this activity service operator shall note the consumer details including consumer number, energy meter number, connected load, etc.

2.7 Necessary user interface shall be required from DPA for electronically pushing the meter reading and uploading the meter reading data in the billing system of DPA. Billing will be done on monthly basis based on the approved applicable tariff order of GERC.

2.8 Service operator shall also be assessing the existing billing mechanism of DPA and suggesting the software support to expedite the overall billing process. The cost of such software, if being procured, shall be borne by service operator.

2.9 New Service Connections, load extension/ reduction

a. Applications received for new service connections, load extension/ reduction shall be processed by Service operator within time period and as per the procedure prescribed in Gujarat Electricity Supply Code and new connections, load extension/ reduction shall be served. Service operator shall carry out site survey and assess the requirement and submit the estimate to DPA for releasing new connection. The equipment and material for releasing new connections, load extension/ reduction i.e. metering equipment (ME), meter and control cable, etc. shall be provided by DPA to Service operator (the rental charges for ME and meter are billed to the consumers in energy bills). Service operator shall provide specifications and requirement of desired equipment; procurement of equipment shall be done by DPA.

b. Service operator shall share the details of the new consumers and the changes related to the consumers data with the DPA so as to enable the DPA to keep its database of consumers updated.

2.10 Disconnection/ Reconnection of defaulting consumers

a. Immediate after receiving instruction from DPA, Service operator shall serve the notices to defaulting consumers whose electricity connection is liable to be disconnected after serving a notice. After expiry of the notice period, Service operator (as per direction of DPA) will disconnect the supply to consumer premises in case payments are not made.

b. Service operator shall remove all metering equipment from the consumer's premises and deposit them to DPA's designated stores in cases of permanent disconnection.
c. Service operator (as per direction of DPA) shall reconnect the consumers as per the existing provisions on receipt of the outstanding amount.

2.11 Customer Services:

Service operator shall establish a customer care center for electricity related issues on 24X7 basis.

3. Power Procurement Planning and Power Scheduling & Operations:

3.1 Service operator shall carryout calculation and assessment of day ahead, fortnightly and monthly power requirement for DPA area. For any gap between availability of power from existing power purchase agreement and demand forecasts, appropriate actions will be suggested /initiated for procuring additional power after consent from DPA;

3.2 Service operator will co-ordinate with GUVNL/NTPC/PGCIL/WRLDC/ WRDC/DPA for matters related to procurement of power from bilateral sources /IEX etc. The power procurement bills will be payable by DPA to respective agencies as per their practice in vogue;

3.3 Service operator shall be assessing the load scheduled and drawl on actual basis and shall be suggesting appropriate load profiling to achieve cost optimization;

3.4 Service operator shall be reviewing the present sources of power purchase and respective agreements and provide assistance to DPA in devising their optimal power procurement strategy based on their load profile. In case of power procurement through open access, Service operator shall assist in tendering, selection of the vender. Compliance to renewable purchase obligations shall also be a part of the suggested power procurement strategy.

3.5 Service operator shall provide assistance & co-ordinations for regulatory provision with regard to wheeling of power from RE projects of DPA.

PART C: Energy Auditing & Illumination Survey

1. Service operator shall carry out energy audit twice in a year on all HT & LT feeders and distribution transformers, wherever feeder meters and DT meters have been installed.
2. Illumination Survey shall be carried out once every year during the Contract Period as per Dock Safety requirement.
3. Service operator shall provide energy audit reports both for feeder/DT wise and sub division/division wise.

PART D: Supervision of Capex Planning

1. Service operator shall carry out load growth study and\ necessary network expansion plan will be submitted to DPA. Supervision of line erection work done by DPA or consumers in the DPA area will be done by service operator for which supervision charges as per GERC regulations will be payable to service operator.
2. The Capital expenditure for new lines, substation etc. would be arranged by DPA. Survey and estimation works would be done by service operator, for which supervision charges, as mentioned at S no. 1 above will be payable to service operator.
3. Service operator will assist DPA in preparation of tenders including evaluation for distribution business.

Exclusions to Scope of Work:

1. Payment of professional fees for any legal opinion/ advocate as per need shall be excluded from the services to be provided by Service operator. Services of consultants, wherever

required, shall be availed in consultation with DPA and such charges shall be directly settled by DPA with such consultants;

2. Representation in adjudicating authorities/appellate forums viz CERC, APTEL, High Court, Supreme Court, etc. in relation to any matters pertaining to this contract and payment of fees of such institutions shall be excluded from the services to be provided by Service operator. However, necessary information support to deal with such cases shall be provided by Service operator. Fees shall be directly paid by DPA to the respective institutions;
3. Service operator shall be responsible for discharging its obligations for the period commencing from Effective Date only. The pending matters related to regulatory /statutory compliance on the Effective Date shall be outside the scope of services to be provided by Service operator;
4. Payment of any statutory fees, if required, shall be paid by DPA directly;
5. Services including weather & generation forecasting for Renewable Energy projects;
6. The Cost of new equipment, including but not limited to meter, cable, transformer, VCB, relays, panels, etc. for either new installation or replacement of failed/defective/stopped/burnt equipment shall be paid by DPA. Service operator shall provide specifications and requirement of desired equipment; procurement of equipment shall be done by DPA.
7. DPA shall pay supervision charges on the capital works as per the estimate prepared by Service operator on case to case basis.
8. Preparation/separation of Financial Accounts of DPA for power business shall be outside the scope of services to be provided by Service operator. However, the service operator shall provide all types of support as will be required for separation of accounts.
9. Representation before Courts, Forums and Tribunals etc. in the cases involving disputes between DPA and electricity consumers of Port area is excluded from the services to be provided by Service operator. However, necessary MIS and back-end support to deal with such cases shall be provided by Service operator. Professional fees of advocates and consultants in such cases shall also be directly settled by DPA with such professionals.

Signature & Seal of Contractor

Executive Engineer (E) Deendayal Port Authority