

**LOT 6
ISILOLO**

SCHEDULE NO. 1 - PLANT AND MANDATORY SPARE PARTS SUPPLIED FROM ABROAD

Item	Description	Quantity and capacity of single unit ²	Code ³	Unit ⁴	Qty	CIP Unit Price ¹	CIP Total Price ¹
					(1)	(2)	(1) x (2)
ERAS HA BORU 160 kWp (160 kW AC) SOLAR PV MINI GRID							
A	Solar Power Generation Plant (SPGP)						
A1	SPV Modules & Inverters						
	160 kWp (DC) Standard monocrystalline silicon SPV modules			Lot	1		
2	Fixed-tilt racking structure(s) for above SPV modules including all necessary nuts and bolts as well as necessary clamps, foundation bolts etc.			Lot	1		
3	160 kW (AC) Solar PV Inverters			Lot	1		
4	100 kW Solar Battery Inverter Charger			Lot	1		
A2	Battery Energy Storage System						
5	400 kWh Usable Battery Energy Storage System (BESS)			Lot	1		
6	Battery Management system			Lot			
7	Supply of SCADA along with associated equipment, data acquisition, data logger and display units and Industrial type PC with remote monitoring.			Lot	1		
A3	Diesel Generator						
8	100 kVA Prime Rated Diesel Generator(s) (DG) 415 V, 3-phase installed with a common genset controller capable of parallel operation with shunt-trip breakers for auto-start capability			Lot	1		
9	2000Litres Fuel Storage Tank			Lot	1		
A4	Other SPGP Items						
10	Metering system consisting of check and main meters for Import / export of energy from solar plant as per grid code			No.	1		
11	Auxiliary power supply as per specifications			Lot	1		
12	Air conditioners for the control room as per specifications.			Lot	1		
13	All balance of system components for interconnecting the battery and solar array with their inverters and the wider 415V three-phase 50 Hz AC distribution system, including but not limited to: AC & DC wiring, breakers, fuses, combiner boxes, recombiner boxes, panelboards, conduits, cables and cable trays, relays, transformers, enclosures, foundations, trenches, poles, support structures, cabinets, grounding electrodes, grounding conductors, lighting arrestors, lightning rods, insulators, surge protection, meters, sensors, and any other fixtures required for safety, reliability, and compliance with all relevant local and			Lot	1		

	international codes and standards at the time of installation.						
ERAS HA BORU SUBTOTAL A							
B	Power Distribution Network (PDN)						
B1	3-phase and single-phase LV Distribution Line						
14	10M LV Concrete Pole (TSP/03/005-1)			No	428		
15	LV Concrete Pole fittings-clamps, bolts,nuts,stays, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	428		
16	50sqmm AA bare conductor for length of LV (2-wire) line (TSP/06/020-2)			Km	16.9 5		
17	Complete Earthing- Protective Multiple Earthing (PME) (TSP/06/031-1)			No	188		
18	LV Concrete stays- (Stay wire, stay block, stay rod)			No	407		
19	LV Concrete strut pole- (Concrete strut pole, heavy duty clamps)			No	99		
B2	Other PDN Items						
20	Service Cable (25mm ² PVC Insulated three phase, 4 core Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	60		
21	Service Cable (16mm ² PVC Insulated Single Phase Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	14.9		
22	10mm dropper cable Red and Black; 1m each for single phase meters ² (TSP/05/016)			M	596. 4		
23	Service cable concrete fittings (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/03/003), (TSP/06/035)			No.	497		
24	Service Cable fittings for wall mounting including Angle Iron (TSP/02/003-3), (TSP/04/011), (TSP/03/003), (TSP/02/003-1)			No.	497		
25	Ready Boards complete with mounting accessories (TSP/14/051)			No.	497		

26	1ftX1ftX3/4ft metallic meter boards (galvanized gauge 30 plain iron sheet) with wall mounting accessories and suitable for meter & MCB mounting, Service cable entry and Earthing .			No	497		
27	Other Items not Mentioned above but required for installation and commissioning of the single and three phase Distribution line for Mini Grid and end user installation such as insulators, binding wires, fittings including nuts, bolts, Danger Plates, Name Plates, anti-climbing Barbed wire and accessories etc. on turn-key basis			Lot	1		
B3	11KV MV Distribution line						
28	12M MV Concrete Pole (TSP/03/005-1)			No	0		
29	14M MV Concrete Pole (TSP/03/005-1)			No	0		
30	MV Concrete Pole fittings- (Cross arms, Tie straps, insulator composites, Universal clamps, bolts, nuts, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	0		
31	75sqmm Aluminium Conductor Steel Reinforced (ACSR) conductor for length of three phase (3 - wire) line (TSP/06/020-2)			Km	0		
32	MV Concrete Pole stays - (Stay wire, stay rod, stay block, shackle insulator)			No	0		
33	MV Concrete Pole flying stays - (Concrete pole, Stay wire, stay rod, stay block, shackle insulator)			No	0		
34	MV Concrete Pole strut pole – (Concrete strut pole, heavy duty clamps)			No	0		
B4	11KV Distribution Transformer						
35	11KV 50KVA transformer			No	0		
36	11KV 50 - 200KVA transformer substation structure and fittings (Earthing & lightning Protection and associated material requirement, Expulsion Fuses, Surge diverters, Overhead fuse carriers, 10M Concrete poles, 11KV Steel channel and clamps etc. Danger plates, phase plates, circuit plates, number plates, anti-climbing devices and other safety requirements)			Set	0		
ERAS HA BORU SUBTOTAL B							
C	Mandatory spares						
37	Mandatory spares including at least 1 spare inverter, 5% of total solar PV panel capacity, fuses, cabling and hardware for 7 years including all consumable parts.			Lot	1		
ERAS HA BORU SUBTOTAL C							

Item	Description	Quantity and capacity of single unit ²	Code ³	Unit ⁴	Qty	CIP Unit Price ¹	CIP Total Price ¹
					(1)	(2)	(1) x (2)
GARFASA 160kWp (160 kW AC) SOLAR PV MINI GRID							
A	Solar Power Generation Plant (SPGP)						
A1	SPV Modules & Inverters						
1	160 kWp (DC) Standard monocrystalline or polycrystalline silicon SPV modules			Lot	1		
2	Fixed-tilt racking structure(s) for above SPV modules including all necessary nuts and bolts as well as necessary clamps, foundation bolts etc.			Lot	1		
3	160 kW (AC) Solar PV Inverters			Lot	1		
4	100 kW Solar Battery Inverter Charger			Lot	1		
A2	Battery Energy Storage System						
5	400 kWh Usable Battery Energy Storage System (BESS)			Lot	1		
6	Battery Management system			Lot	1		
7	Supply of SCADA along with associated equipment, data acquisition, data logger and display units and Industrial type PC with remote monitoring.			Lot	1		
A3	Diesel Generator						
8	100 kVA Prime Rated Diesel Generator(s) (DG) 415 V, 3-phase installed with a common genset controller capable of parallel operation with shunt-trip breakers for auto-start capability			Lot	1		
9	2000Litres Fuel Storage Tank						
A4	Other SPGP Items						
10	Metering system consisting of check and main meters for Import / export of energy from solar plant as per grid code			No.	1		
11	Auxiliary power supply as per specifications			Lot	1		
12	Air conditioners for the control room as per specifications.			Lot	1		
13	All balance of system components for interconnecting the battery and solar array with their inverters and the wider 415V three-phase 50 Hz AC distribution system, including but not limited to: AC & DC wiring, breakers, fuses, combiner boxes, recombiner boxes, panelboards, conduits, cables and cable trays, relays, transformers, enclosures, foundations, trenches, poles, support structures, cabinets, grounding electrodes, grounding conductors, lighting arrestors, lightning rods, insulators, surge protection, meters, sensors, and any other fixtures required for a safety, reliability, and compliance with all relevant local and international codes and standards at the time of installation.			Lot	1		
GARFASA SUBTOTAL A							

B	Power Distribution Network (PDN)					
B1	3-phase and single-phase LV Distribution Line					
14	10M LV Concrete Pole (TSP/03/005-1)		No	486		
15	LV Concrete Pole fittings- (Multipurpose/universal clamps, bolts,nuts,stays, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)		Set	486		
16	50sqmm AA bare conductor for length of LV (2-wire) line (TSP/06/020-2)		Km	22.41		
17	Complete Earthing- Protective Multiple Earthing (PME) (TSP/06/031-1)		No	309		
18	LV Concrete stays- (Stay wire, stay block, stay rod)		No	262		
19	LV Concrete strut pole- (Concrete strut pole, heavy duty clamps)		No	18		
B2	Other PDN Items					
20	Service Cable (25mm ² PVC Insulated three phase, 4 core Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)		M	240		
21	Service Cable (16mm ² PVC Insulated Single Phase Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)		M	19,230		
22	10mm dropper cable Red and Black; 1m each for single phase meters ² (TSP/05/016)		M	778.8		
23	Service cable concrete fittings (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/03/003), (TSP/06/035)		No.	649		
24	Service Cable fittings for wall mounting including Angle Iron (TSP/02/003-3), (TSP/04/011), (TSP/03/003), (TSP/02/003-1)		No.	649		
25	Ready Boards complete with mounting accessories (TSP/14/051)		No.	649		
26	1ftX1ftX3/4ft metallic meter boards (galvanized gauge 30 plain iron sheet) with wall mounting accessories and suitable for meter & MCB mounting, Service cable entry and Earthing .		No	649		
27	Other Items not Mentioned above but required for installation and commissioning of the single and three phase Distribution line for Mini Grid and end user installation such as insulators, binding wires, fittings including nuts, bolts, Danger Plates, Name Plates, anti-climbing Barbed wire and accessories etc. on turn-key basis		Lot	1		
B3	11KV MV Distribution line					

28	12M MV Concrete Pole (TSP/03/005-1)			No	39		
29	14M MV Concrete Pole (TSP/03/005-1)			No	4		
30	MV Concrete Pole fittings- (Cross arms, Tie straps, insulator composites, Universal clamps, bolts, nuts, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	43		
31	75sqmm Aluminium Conductor Steel Reinforced (ACSR) conductor for length of three phase (3 - wire) line (TSP/06/020-2)			Km	3.3		
32	MV Concrete Pole stays - (Stay wire, stay rod, stay block, shackle insulator)			No	15		
33	MV Concrete Pole flying stays - (Concrete pole, Stay wire, stay rod, stay block, shackle insulator)			No	0		
34	MV Concrete Pole strut pole – (Concrete strut pole, heavy duty clamps)			No	0		
B4	11KV Distribution Transformer						
35	11KV 50KVA transformer			No	3		
36	11KV 50 - 200KVA transformer substation structure and fittings (Earthing & lightning Protection and associated material requirement, Expulsion Fuses, Surge diverters, Overhead fuse carriers, 10M Concrete poles, 11KV Steel channel and clamps etc. Danger plates, phase plates, circuit plates, number plates, anti-climbing devices and other safety requirements)			Set	3		
B5	Step up Transformer						
37	415V/11KV 150KVA transformer			No	1		
38	All system components for interconnecting the inverters and the 11kV distribution transformers, including but not limited to: panelboards, bus bars, switchgears, air break switch and structure, 11kv solid links, surge diverters, mounting structures for the surge diverters, underground cabling, conduits, cables and cable trays, grounding electrodes, grounding conductors, lightning arrestors, lightning mast galvanized steel structure and associated earthing, insulators, meters, sensors, concrete plinth, circuit breaker complete with its accessories, mounting structures for the HT neutral bushing and any other fixtures required for safety, reliability, and compliance with all relevant local and international codes and standards at the time of installation			Set	1		
					GARFASA SUBTOTAL B		
C	Mandatory spares						

39	Mandatory spares including at least 1 spare inverter, 5% of total solar PV panel capacity, fuses, cabling and hardware for 7 years including all consumable parts.		Lot	1		
		GARFASA SUBTOTAL C				

Item	Description	Quantity and capacity of single unit ²	Code ³	Unit ⁴	Qty	CIP Unit Price ¹	CIP Total Price ¹
					(1)	(2)	(1) x (2)
KIPSING 100 kWp (100 kW AC) SOLAR PV MINI GRID							
A	Solar Power Generation Plant (SPGP)						
A1	SPV Modules & Inverters						
1	100 kWp (DC) Standard monocrystalline silicon SPV modules			Lot	1		
2	Fixed-tilt racking structure(s) for above SPV modules including all necessary nuts and bolts as well as necessary clamps, foundation bolts etc.			Lot	1		
3	100kW (AC) Solar PV Inverters			Lot	1		
4	60 kW Solar Battery Inverter Charger			Lot	1		
A2	Battery Energy Storage System						
5	250 kWh Usable Battery Energy Storage System (BESS)			Lot	1		
6	Battery Management system			Lot	1		
7	Supply of SCADA along with associated equipment, data acquisition, data logger and display units and Industrial type PC with remote monitoring.			Lot	1		
A3	Diesel Generator						
8	60 kVA Prime Rated Diesel Generator(s) (DG) 415 V, 3-phase installed with a common genset controller capable of parallel operation with shunt-trip breakers for auto-start capability			Lot	1		
9	2000Litres Fuel Storage Tank			Lot	1		
A4	Other SPGP Items						
10	Metering system consisting of check and main meters for Import / export of energy from solar plant as per grid code			No.	1		
11	Auxiliary power supply as per specifications			Lot	1		
12	Air conditioners for the control room as per specifications.			Lot	1		
13	All balance of system components for interconnecting the battery and solar array with their inverters and the wider 415V three-phase 50 Hz AC distribution system, including but not limited to: AC & DC wiring, breakers, fuses, combiner boxes, recombiner boxes, panelboards, conduits, cables and cable trays, relays, transformers, enclosures, foundations, trenches, poles, support structures, cabinets, grounding electrodes, grounding conductors, lighting arrestors, lightning rods, insulators, surge protection, meters, sensors, and any other fixtures required for a safety, reliability, and compliance with all relevant local and international codes and standards at the time of installation.			Lot	1		
KIPSING SUBTOTAL A							

B	Power Distribution Network (PDN)						
B1	3-phase and single-phase LV Distribution Line						
14	10M LV Concrete Pole (TSP/03/005-1)			No	196		
15	LV Concrete Pole fittings- (Multipurpose/universal clamps, bolts,nuts,stays, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	196		
16	50sqmm AA bare conductor for length of LV (2-wire) line (TSP/06/020-2)			Km	11.95		
17	Complete Earthing- Protective Multiple Earthing (PME) (TSP/06/031-1)			No	129		
18	LV Concrete stays- (Stay wire, stay block, stay rod)			No	133		
19	LV Concrete strut pole- (Concrete strut pole, heavy duty clamps)			No	2		
B2	Other PDN Items						
20	Service Cable (25mm ² PVC Insulated three phase, 4 core Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	0		
21	Service Cable (16mm ² PVC Insulated Single Phase Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	5940		
22	10mm dropper cable Red and Black; 1m each for single phase meters ² (TSP/05/016)			M	237.6		
23	Service cable concrete fittings (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/03/003), (TSP/06/035)			No.	198		
24	Service Cable fittings for wall mounting including Angle Iron (TSP/02/003-3), (TSP/04/011), (TSP/03/003), (TSP/02/003-1)			No.	198		
25	Ready Boards complete with mounting accessories (TSP/14/051)			No.	198		
26	1ftX1ftX3/4ft metallic meter boards (galvanized gauge 30 plain iron sheet) with wall mounting accessories and suitable for meter & MCB mounting, Service cable entry and Earthing .			No	198		
27	Other Items not Mentioned above but required for installation and commissioning of the single and three phase Distribution line for Mini Grid and end user installation such as insulators, binding wires, fittings including nuts, bolts, Danger Plates, Name Plates, anti-climbing Barbed wire and accessories etc. on turn-key basis			Lot	1		

B3	11KV MV Distribution line						
28	12M MV Concrete Pole (TSP/03/005-1)			No	0		
29	14M MV Concrete Pole (TSP/03/005-1)			No	0		
30	MV Concrete Pole fittings- (Cross arms, Tie straps, insulator composites, Universal clamps, bolts, nuts, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	0		
31	75sqmm Aluminium Conductor Steel Reinforced (ACSR) conductor for length of three phase (3 - wire) line (TSP/06/020-2)			Km	0		
32	MV Concrete Pole stays - (Stay wire, stay rod, stay block, shackle insulator)			No	0		
33	MV Concrete Pole flying stays - (Concrete pole, Stay wire, stay rod, stay block, shackle insulator)			No	0		
34	MV Concrete Pole strut pole – (Concrete strut pole, heavy duty clamps)			No	0		
B4	11KV Distribution Transformer						
35	11KV 50KVA transformer			No	0		
36	11KV 50 - 200KVA transformer substation structure and fittings (Earthing & lightning Protection and associated material requirement, Expulsion Fuses, Surge diverters, Overhead fuse carriers, 10M Concrete poles, 11KV Steel channel and clamps etc. Danger plates, phase plates, circuit plates, number plates, anti-climbing devices and other safety requirements)			Set	0		
KIPSING SUBTOTAL B							
C	Mandatory spares						
37	Mandatory spares including at least 1 spare inverter, 5% of total solar PV panel capacity, fuses, cabling and hardware for 7 years including all consumable parts.			Lot	1		
KIPSING SUBTOTAL C							

Item	Description	Quantity and capacity of single unit ²	Code ³	Unit ⁴	Qty	CIP Unit Price ¹	CIP Total Price ¹
					(1)	(2)	(1) x (2)
BASSA 135 kWp (135kW AC) SOLAR PV MINI GRID							
A	Solar Power Generation Plant (SPGP)						
A1	SPV Modules & Inverters						
1	135 kWp (DC) Standard monocrystalline silicon SPV modules			Lot	1		
2	Fixed-tilt racking structure(s) for above SPV modules including all necessary nuts and bolts as well as necessary clamps, foundation bolts etc.			Lot	1		
3	135 kW (AC) Solar PV Inverters			Lot	1		
4	82 kW Solar Battery Inverter Charger			Lot	1		
A2	Battery Energy Storage System						
5	338 kWh Usable Battery Energy Storage System (BESS)			Lot	1		
6	Battery Management system			Lot	1		
7	Supply of SCADA along with associated equipment, data acquisition, data logger and display units and Industrial type PC with remote monitoring.			Lot	1		
A3	Diesel Generator						
8	82 kVA Prime Rated Diesel Generator(s) (DG) 415 V, 3-phase installed with a common genset controller capable of parallel operation with shunt-trip breakers for auto-start capability			Lot	1		
9	2000Litres Fuel Storage Tank			Lot	1		
A4	Other SPGP Items						
10	Metering system consisting of check and main meters for Import / export of energy from solar plant as per grid code			No.	1		
11	Auxiliary power supply as per specifications			Lot	1		
12	Air conditioners for the control room as per specifications.			Lot	1		
13	All balance of system components for interconnecting the battery and solar array with their inverters and the wider 415V three-phase 50 Hz AC distribution system, including but not limited to: AC & DC wiring, breakers, fuses, combiner boxes, recombiner boxes, panelboards, conduits, cables and cable trays, relays, transformers, enclosures, foundations, trenches, poles, support structures, cabinets, grounding electrodes, grounding conductors, lighting arrestors, lightning rods, insulators, surge protection, meters, sensors, and any other fixtures required for a safety, reliability, and compliance with all relevant local and international codes and standards at the time of installation.			Lot	1		
BASSA SUBTOTAL A							

B	Power Distribution Network (PDN)						
B1	3-phase and single-phase LV Distribution Line						
14	10M LV Concrete Pole (TSP/03/005-1)			No	412		
15	LV Concrete Pole fittings- (Multipurpose/universal clamps, bolts,nuts,stays, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	412		
16	50sqmm AA bare conductor for length of LV (2-wire) line (TSP/06/020-2)			Km	20.14		
17	Complete Earthing- Protective Multiple Earthing (PME) (TSP/06/031-1)			No	245		
18	LV Concrete stays- (Stay wire, stay block, stay rod)			No	185		
19	LV Concrete strut pole- (Concrete strut pole, heavy duty clamps)			No	32		
B2	Other PDN Items						
20	Service Cable (25mm ² PVC Insulated three phase, 4 core Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	60		
21	Service Cable (16mm ² PVC Insulated Single Phase Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	13710		
22	10mm dropper cable Red and Black; 1m each for single phase meters ² (TSP/05/016)			M	550.8		
23	Service cable concrete fittings (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/03/003), (TSP/06/035)			No.	459		
24	Service Cable fittings for wall mounting including Angle Iron (TSP/02/003-3), (TSP/04/011), (TSP/03/003), (TSP/02/003-1)			No.	459		
25	Ready Boards complete with mounting accessories (TSP/14/051)			No.	459		
26	1ftX1ftX3/4ft metallic meter boards (galvanized gauge 30 plain iron sheet) with wall mounting accessories and suitable for meter & MCB mounting, Service cable entry and Earthing .			No	459		
27	Other Items not Mentioned above but required for installation and commissioning of the single and three phase Distribution line for Mini Grid and end user installation such as insulators, binding wires, fittings including nuts, bolts, Danger Plates, Name Plates, anti-climbing Barbed wire and accessories etc. on turn-key basis			Lot	1		

B3	11KV MV Distribution line						
28	12M MV Concrete Pole (TSP/03/005-1)			No	0		
29	14M MV Concrete Pole (TSP/03/005-1)			No	0		
30	MV Concrete Pole fittings- (Cross arms, Tie straps, insulator composites, Universal clamps, bolts, nuts, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	0		
31	75sqmm Aluminium Conductor Steel Reinforced (ACSR) conductor for length of three phase (3 - wire) line (TSP/06/020-2)			Km	0		
32	MV Concrete Pole stays - (Stay wire, stay rod, stay block, shackle insulator)			No	0		
33	MV Concrete Pole flying stays - (Concrete pole, Stay wire, stay rod, stay block, shackle insulator)			No	0		
34	MV Concrete Pole strut pole – (Concrete strut pole, heavy duty clamps)			No	0		
B4	11KV Distribution Transformer						
35	11KV 50KVA transformer			No	0		
36	11KV 50 - 200KVA transformer substation structure and fittings (Earthing & lightning Protection and associated material requirement, Expulsion Fuses, Surge diverters, Overhead fuse carriers, 10M Concrete poles, 11KV Steel channel and clamps etc. Danger plates, phase plates, circuit plates, number plates, anti-climbing devices and other safety requirements)			Set	0		
BASSA SUBTOTAL B							
C	Mandatory spares						
37	Mandatory spares including at least 1 spare inverter, 5% of total solar PV panel capacity, fuses, cabling and hardware for 7 years including all consumable parts.			Lot	1		
BASSA SUBTOTAL C							

Item	Description	Quantity and capacity of single unit ²	Cod e ³	Unit ⁴	Qty	CIP Unit Price ¹	CIP Total Price ¹
					(1)	(2)	(1) x (2)
MALKADAKA 100 kWp (100kW AC) SOLAR PV MINI GRID							
A	Solar Power Generation Plant (SPGP)						
A1	SPV Modules & Inverters						
1	100 kWp (DC) Standard monocrystalline or polycrystalline silicon SPV modules			Lot	1		
2	Fixed-tilt racking structure(s) for above SPV modules including all necessary nuts and bolts as well as necessary clamps, foundation bolts etc.			Lot	1		
3	100 kW (AC) Solar PV Inverters			Lot	1		
4	60 kW Solar Battery Inverter Charger			Lot	1		
A2	Battery Energy Storage System						
5	250 kWh Usable Battery Energy Storage System (BESS)			Lot	1		
6	Battery Management system			Lot	1		
7	Supply of SCADA along with associated equipment, data acquisition, data logger and display units and Industrial type PC with remote monitoring.			Lot	1		
A3	Diesel Generator						
8	60 kVA Prime Rated Diesel Generator(s) (DG) 415 V, 3-phase installed with a common genset controller capable of parallel operation with shunt-trip breakers for auto-start capability			Lot	1		
9	2000Litres Fuel Storage Tank			Lot	1		
A4	Other SPGP Items						
10	Metering system consisting of check and main meters for Import / export of energy from solar plant as per grid code			No.	1		
11	Auxiliary power supply as per specifications			Lot	1		
12	Air conditioners for the control room as per specifications.			Lot	1		
13	All balance of system components for interconnecting the battery and solar array with their inverters and the wider 415V three-phase 50 Hz AC distribution system, including but not limited to: AC & DC wiring, breakers, fuses, combiner boxes, recombiner boxes, panelboards, conduits, cables and cable trays, relays, transformers, enclosures, foundations, trenches, poles, support structures, cabinets, grounding electrodes, grounding conductors, lighting arrestors, lightning rods, insulators, surge protection, meters, sensors, and any other fixtures required for a safety, reliability, and compliance with all relevant local and international codes and standards at the time of installation.			Lot	1		
MALKADAKA SUBTOTAL A							

B	Power Distribution Network (PDN)						
B1	3-phase and single-phase LV Distribution Line						
14	10M LV Concrete Pole (TSP/03/005-1)			No	124		
15	LV Concrete Pole fittings- (Multipurpose/universal clamps, bolts,nuts,stays, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	124		
16	50sqmm AA bare conductor for length of LV (2-wire) line (TSP/06/020-2)			Km	9.14		
17	Complete Earthing- Protective Multiple Earthing (PME) (TSP/06/031-1)			No	128		
18	LV Concrete stays- (Stay wire, stay block, stay rod)			No	69		
19	LV Concrete strut pole- (Concrete strut pole, heavy duty clamps)			No	3		
B2	Other PDN Items						
20	Service Cable (25mm ² PVC Insulated three phase, 4 core Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	30		
21	Service Cable (16mm ² PVC Insulated Single Phase Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	8820		
22	10mm dropper cable Red and Black; 1m each for single phase meters ² (TSP/05/016)			M	354		
23	Service cable concrete fittings (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/03/003), (TSP/06/035)			No.	295		
24	Service Cable fittings for wall mounting including Angle Iron (TSP/02/003-3), (TSP/04/011), (TSP/03/003), (TSP/02/003-1)			No.	295		
25	Ready Boards complete with mounting accessories (TSP/14/051)			No.	295		
26	1ftX1ftX3/4ft metallic meter boards (galvanized gauge 30 plain iron sheet) with wall mounting accessories and suitable for meter & MCB mounting, Service cable entry and Earthing .			No	295		
27	Other Items not Mentioned above but required for installation and commissioning of the single and three phase Distribution line for Mini Grid and end user installation such as insulators, binding wires, fittings including nuts, bolts, Danger Plates, Name Plates, anti-climbing Barbed wire and accessories etc. on turn-key basis			Lot	1		

B3	11KV MV Distribution line							
28	12M MV Concrete Pole (TSP/03/005-1)			No	50			
29	14M MV Concrete Pole (TSP/03/005-1)			No	7			
30	MV Concrete Pole fittings- (Cross arms, Tie straps, insulator composites, Universal clamps, bolts, nuts, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	57			
31	75sqmm Aluminium Conductor Steel Reinforced (ACSR) conductor for length of three phase (3 - wire) line (TSP/06/020-2)			Km	4.97			
32	MV Concrete Pole stays - (Stay wire, stay rod, stay block, shackle insulator)			No	21			
33	MV Concrete Pole flying stays - (Concrete pole, Stay wire, stay rod, stay block, shackle insulator)			No	3			
34	MV Concrete Pole strut pole – (Concrete strut pole, heavy duty clamps)			No	0			
B4	11KV Distribution Transformer							
35	11KV 50KVA transformer			No	2			
36	11KV 50 - 200KVA transformer substation structure and fittings (Earthing & lightning Protection and associated material requirement, Expulsion Fuses, Surge diverters, Overhead fuse carriers, 10M Concrete poles, 11KV Steel channel and clamps etc. Danger plates, phase plates, circuit plates, number plates, anti-climbing devices and other safety requirements)			Set	2			
B5	Step up Transformer							
37	415V/11KV 100KVA transformer			No	1			
38	All system components for interconnecting the inverters and the 11kV distribution transformers, including but not limited to: panelboards, bus bars, switchgears, air break switch and structure, 11kv solid links, surge diverters, mounting structures for the surge diverters, underground cabling, conduits, cables and cable trays, grounding electrodes, grounding conductors, lightning arrestors, lightning mast galvanized steel structure and associated earthing, insulators, meters, sensors, concrete plinth, circuit breaker complete with its accessories, mounting structures for the HT neutral bushing and any other fixtures required for safety, reliability, and compliance with all relevant local and international codes and standards at the time of installation			Set	1			
MALKADAKA SUBTOTAL B								

SCHEDULE NO. 2 - PLANT AND MANDATORY SPARE PARTS FROM WITHIN THE EMPLOYER'S COUNTRY

Item	Description	Quantity and capacity of single unit ²	Code ³	Unit ⁴	Qty	EXW Unit Price ¹	EXW Total Price ¹
					(1)	(2)	(1) x (2)
ERAS HA BORU 160 kWp (160 kW AC) SOLAR PV MINI GRID							
A	Solar Power Generation Plant (SPGP)						
A1	SPV Modules & Inverters						
	160 kWp (DC) Standard monocrystalline silicon SPV modules			Lot	1		
2	Fixed-tilt racking structure(s) for above SPV modules including all necessary nuts and bolts as well as necessary clamps, foundation bolts etc.			Lot	1		
3	160 kW (AC) Solar PV Inverters			Lot	1		
4	100 kW Solar Battery Inverter Charger			Lot	1		
A2	Battery Energy Storage System						
5	400 kWh Usable Battery Energy Storage System (BESS)			Lot	1		
6	Battery Management system			Lot			
7	Supply of SCADA along with associated equipment, data acquisition, data logger and display units and Industrial type PC with remote monitoring.			Lot	1		
A3	Diesel Generator						
8	100 kVA Prime Rated Diesel Generator(s) (DG) 415 V, 3-phase installed with a common genset controller capable of parallel operation with shunt-trip breakers for auto-start capability			Lot	1		
9	2000Litres Fuel Storage Tank			Lot	1		
A4	Other SPGP Items						
10	Metering system consisting of check and main meters for Import / export of energy from solar plant as per grid code			No.	1		
11	Auxiliary power supply as per specifications			Lot	1		
12	Air conditioners for the control room as per specifications.			Lot	1		
13	All balance of system components for interconnecting the battery and solar array with their inverters and the wider 415V three-phase 50 Hz AC distribution system, including but not limited to: AC & DC wiring, breakers, fuses, combiner boxes, recombiner boxes, panelboards, conduits, cables and cable trays, relays, transformers, enclosures, foundations, trenches, poles, support structures, cabinets, grounding electrodes, grounding conductors, lighting arrestors, lightning rods, insulators, surge protection, meters, sensors, and any other fixtures required for safety, reliability,			Lot	1		

	and compliance with all relevant local and international codes and standards at the time of installation.						
ERAS HA BORU SUBTOTAL A							
B	Power Distribution Network (PDN)						
B1	3-phase and single-phase LV Distribution Line						
14	10M LV Concrete Pole (TSP/03/005-1)			No	428		
15	LV Concrete Pole fittings- (Multipurpose/universal clamps, bolts,nuts,stays, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	428		
16	50sqmm AA bare conductor for length of LV (2-wire) line (TSP/06/020-2)			Km	16.95		
17	Complete Earthing- Protective Multiple Earthing (PME) (TSP/06/031-1)			No	188		
18	LV Concrete stays- (Stay wire, stay block, stay rod)			No	407		
19	LV Concrete strut pole- (Concrete strut pole, heavy duty clamps)			No	99		
B2	Other PDN Items						
20	Service Cable (25mm ² PVC Insulated three phase, 4 core Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	60		
21	Service Cable (16mm ² PVC Insulated Single Phase Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	14.9		
22	10mm dropper cable Red and Black; 1m each for single phase meters ² (TSP/05/016)			M	596.4		
23	Service cable concrete fittings (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/03/003), (TSP/06/035)			No.	497		
24	Service Cable fittings for wall mounting including Angle Iron (TSP/02/003-3), (TSP/04/011), (TSP/03/003), (TSP/02/003-1)			No.	497		
25	Ready Boards complete with mounting accessories (TSP/14/051)			No.	497		

26	1ftX1ftX3/4ft metallic meter boards (galvanized gauge 30 plain iron sheet) with wall mounting accessories and suitable for meter & MCB mounting, Service cable entry and Earthing .			No	497		
27	Other Items not Mentioned above but required for installation and commissioning of the single and three phase Distribution line for Mini Grid and end user installation such as insulators, binding wires, fittings including nuts, bolts, Danger Plates, Name Plates, anti-climbing Barbed wire and accessories etc. on turn-key basis			Lot	1		
B3	11KV MV Distribution line						
28	12M MV Concrete Pole (TSP/03/005-1)			No	0		
29	14M MV Concrete Pole (TSP/03/005-1)			No	0		
30	MV Concrete Pole fittings- (Cross arms, Tie straps, insulator composites, Universal clamps, bolts, nuts, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	0		
31	75sqmm Aluminium Conductor Steel Reinforced (ACSR) conductor for length of three phase (3 - wire) line (TSP/06/020-2)			Km	0		
32	MV Concrete Pole stays - (Stay wire, stay rod, stay block, shackle insulator)			No	0		
33	MV Concrete Pole flying stays - (Concrete pole, Stay wire, stay rod, stay block, shackle insulator)			No	0		
34	MV Concrete Pole strut pole – (Concrete strut pole, heavy duty clamps)			No	0		
B4	11KV Distribution Transformer						
35	11KV 50KVA transformer			No	0		
36	11KV 50 - 200KVA transformer substation structure and fittings (Earthing & lightning Protection and associated material requirement, Expulsion Fuses, Surge diverters, Overhead fuse carriers, 10M Concrete poles, 11KV Steel channel and clamps etc. Danger plates, phase plates, circuit plates, number plates, anti-climbing devices and other safety requirements)			Set	0		
ERAS HA BORU SUBTOTAL B							
C	Mandatory spares						
37	Mandatory spares including at least 1 spare inverter, 5% of total solar PV panel capacity, fuses, cabling and hardware for 7 years including all consumable parts.			Lot	1		
ERAS HA BORU SUBTOTAL C							

Item	Description	Quantity and capacity of single unit ²	Code ³	Unit ⁴	Qty	EXW Unit Price ¹	EXW Total Price ¹
					(1)	(2)	(1) x (2)
GARFASA 160kWp (160 kW AC) SOLAR PV MINI GRID							
A	Solar Power Generation Plant (SPGP)						
A1	SPV Modules & Inverters						
1	160 kWp (DC) Standard monocrystalline or polycrystalline silicon SPV modules			Lot	1		
2	Fixed-tilt racking structure(s) for above SPV modules including all necessary nuts and bolts as well as necessary clamps, foundation bolts etc.			Lot	1		
3	160 kW (AC) Solar PV Inverters			Lot	1		
4	100 kW Solar Battery Inverter Charger			Lot	1		
A2	Battery Energy Storage System						
5	400 kWh Usable Battery Energy Storage System (BESS)			Lot	1		
6	Battery Management system			Lot	1		
7	Supply of SCADA along with associated equipment, data acquisition, data logger and display units and Industrial type PC with remote monitoring.			Lot	1		
A3	Diesel Generator						
8	100 kVA Prime Rated Diesel Generator(s) (DG) 415 V, 3-phase installed with a common genset controller capable of parallel operation with shunt-trip breakers for auto-start capability			Lot	1		
9	2000Litres Fuel Storage Tank						
A4	Other SPGP Items						
10	Metering system consisting of check and main meters for Import / export of energy from solar plant as per grid code			No.	1		
11	Auxiliary power supply as per specifications			Lot	1		
12	Air conditioners for the control room as per specifications.			Lot	1		
13	All balance of system components for interconnecting the battery and solar array with their inverters and the wider 415V three-phase 50 Hz AC distribution system, including but not limited to: AC & DC wiring, breakers, fuses, combiner boxes, recombiner boxes, panelboards, conduits, cables and cable trays, relays, transformers, enclosures, foundations, trenches, poles, support structures, cabinets, grounding electrodes, grounding conductors, lighting arrestors, lightning rods, insulators, surge protection, meters, sensors, and any other fixtures required for a safety, reliability, and compliance with all relevant local and			Lot	1		

	international codes and standards at the time of installation.						
GARFASA SUBTOTAL A							
B	Power Distribution Network (PDN)						
B1	3-phase and single-phase LV Distribution Line						
14	10M LV Concrete Pole (TSP/03/005-1)			No	486		
15	LV Concrete Pole fittings-clamps, (Multipurpose/universal bolts,nuts,stays, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	486		
16	50sqmm AA bare conductor for length of LV (2-wire) line (TSP/06/020-2)			Km	22.41		
17	Complete Earthing- Protective Multiple Earthing (PME) (TSP/06/031-1)			No	309		
18	LV Concrete stays- (Stay wire, stay block, stay rod)			No	262		
19	LV Concrete strut pole- (Concrete strut pole, heavy duty clamps)			No	18		
B2	Other PDN Items						
20	Service Cable (25mm ² PVC Insulated three phase, 4 core Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	240		
21	Service Cable (16mm ² PVC Insulated Single Phase Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	19,230		
22	10mm dropper cable Red and Black; 1m each for single phase meters ² (TSP/05/016)			M	778.8		
23	Service cable concrete fittings (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/03/003), (TSP/06/035)			No.	649		
24	Service Cable fittings for wall mounting including Angle Iron (TSP/02/003-3), (TSP/04/011), (TSP/03/003), (TSP/02/003-1)			No.	649		
25	Ready Boards complete with mounting accessories (TSP/14/051)			No.	649		

26	1ftX1ftX3/4ft metallic meter boards (galvanized gauge 30 plain iron sheet) with wall mounting accessories and suitable for meter & MCB mounting, Service cable entry and Earthing .			No	649		
27	Other Items not Mentioned above but required for installation and commissioning of the single and three phase Distribution line for Mini Grid and end user installation such as insulators, binding wires, fittings including nuts, bolts, Danger Plates, Name Plates, anti-climbing Barbed wire and accessories etc. on turn-key basis			Lot	1		
B3	11KV MV Distribution line						
28	12M MV Concrete Pole (TSP/03/005-1)			No	39		
29	14M MV Concrete Pole (TSP/03/005-1)			No	4		
30	MV Concrete Pole fittings- (Cross arms, Tie straps, insulator composites, Universal clamps, bolts, nuts, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	43		
31	75sqmm Aluminium Conductor Steel Reinforced (ACSR) conductor for length of three phase (3 - wire) line (TSP/06/020-2)			Km	3.3		
32	MV Concrete Pole stays - (Stay wire, stay rod, stay block, shackle insulator)			No	15		
33	MV Concrete Pole flying stays - (Concrete pole, Stay wire, stay rod, stay block, shackle insulator)			No	0		
34	MV Concrete Pole strut pole – (Concrete strut pole, heavy duty clamps)			No	0		
B4	11KV Distribution Transformer						
35	11KV 50KVA transformer			No	3		
36	11KV 50 - 200KVA transformer substation structure and fittings (Earthing & lightning Protection and associated material requirement, Expulsion Fuses, Surge diverters, Overhead fuse carriers, 10M Concrete poles, 11KV Steel channel and clamps etc. Danger plates, phase plates, circuit plates, number plates, anti-climbing devices and other safety requirements)			Set	3		
B5	Step up Transformer						
37	415V/11KV 150KVA transformer			No	1		

38	All system components for interconnecting the inverters and the 11kV distribution transformers, including but not limited to: panelboards, bus bars, switchgears, air break switch and structure, 11kv solid links, surge diverters, mounting structures for the surge diverters, underground cabling, conduits, cables and cable trays, grounding electrodes, grounding conductors, lightning arrestors, lightning mast galvanized steel structure and associated earthing, insulators, meters, sensors, concrete plinth, circuit breaker complete with its accessories, mounting structures for the HT neutral bushing and any other fixtures required for safety, reliability, and compliance with all relevant local and international codes and standards at the time of installation.			Set	1			
		GARFASA SUBTOTAL B						
C	Mandatory spares							
39	Mandatory spares including at least 1 spare inverter, 5% of total solar PV panel capacity, fuses, cabling and hardware for 7 years including all consumable parts.			Lot	1			
		GARFASA SUBTOTAL C						

Item	Description	Quantity and capacity of single unit ²	Code ³	Unit ⁴	Qty	EXW Unit Price ¹	EXW Total Price ¹
					(1)	(2)	(1) x (2)
KIPSING 100 kWp (100 kW AC) SOLAR PV MINI GRID							
A	Solar Power Generation Plant (SPGP)						
A1	SPV Modules & Inverters						
1	100 kWp (DC) Standard monocrystalline silicon SPV modules			Lot	1		
2	Fixed-tilt racking structure(s) for above SPV modules including all necessary nuts and bolts as well as necessary clamps, foundation bolts etc.			Lot	1		
3	100kW (AC) Solar PV Inverters			Lot	1		
4	60 kW Solar Battery Inverter Charger			Lot	1		
A2	Battery Energy Storage System						
5	250 kWh Usable Battery Energy Storage System (BESS)			Lot	1		
6	Battery Management system			Lot	1		
7	Supply of SCADA along with associated equipment, data acquisition, data logger and display units and Industrial type PC with remote monitoring.			Lot	1		
A3	Diesel Generator						
8	60 kVA Prime Rated Diesel Generator(s) (DG) 415 V, 3-phase installed with a common genset controller capable of parallel operation with shunt-trip breakers for auto-start capability			Lot	1		
9	2000Litres Fuel Storage Tank			Lot	1		
A4	Other SPGP Items						
10	Metering system consisting of check and main meters for Import / export of energy from solar plant as per grid code			No.	1		
11	Auxiliary power supply as per specifications			Lot	1		
12	Air conditioners for the control room as per specifications.			Lot	1		
13	All balance of system components for interconnecting the battery and solar array with their inverters and the wider 415V three-phase 50 Hz AC distribution system, including but not limited to: AC & DC wiring, breakers, fuses, combiner boxes, recombiner boxes, panelboards, conduits, cables and cable trays, relays, transformers, enclosures, foundations, trenches, poles, support structures, cabinets, grounding electrodes, grounding conductors, lighting arrestors, lightning rods, insulators, surge protection, meters, sensors, and any other fixtures required for a safety, reliability, and compliance with all relevant local and			Lot	1		

	international codes and standards at the time of installation.						
		KIPSING SUBTOTAL A					
B	Power Distribution Network (PDN)						
B1	3-phase and single-phase LV Distribution Line						
14	10M LV Concrete Pole (TSP/03/005-1)			No	196		
15	LV Concrete Pole fittings- (Multipurpose/universal clamps, bolts,nuts,stays, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	196		
16	50sqmm AA bare conductor for length of LV (2-wire) line (TSP/06/020-2)			Km	11.95		
17	Complete Earthing- Protective Multiple Earthing (PME) (TSP/06/031-1)			No	129		
18	LV Concrete stays- (Stay wire, stay block, stay rod)			No	133		
19	LV Concrete strut pole- (Concrete strut pole, heavy duty clamps)			No	2		
B2	Other PDN Items						
20	Service Cable (25mm ² PVC Insulated three phase, 4 core Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	0		
21	Service Cable (16mm ² PVC Insulated Single Phase Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	5940		
22	10mm dropper cable Red and Black; 1m each for single phase meters ² (TSP/05/016)			M	237.6		
23	Service cable concrete fittings (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/03/003), (TSP/06/035)			No.	198		
24	Service Cable fittings for wall mounting including Angle Iron (TSP/02/003-3), (TSP/04/011), (TSP/03/003), (TSP/02/003-1)			No.	198		
25	Ready Boards complete with mounting accessories (TSP/14/051)			No.	198		
26	1ftX1ftX3/4ft metallic meter boards (galvanized gauge 30 plain iron sheet) with wall mounting accessories and suitable for meter & MCB mounting, Service cable entry and Earthing .			No	198		

27	Other Items not Mentioned above but required for installation and commissioning of the single and three phase Distribution line for Mini Grid and end user installation such as insulators, binding wires, fittings including nuts, bolts, Danger Plates, Name Plates, anti-climbing Barbed wire and accessories etc. on turn-key basis			Lot	1		
B3	11KV MV Distribution line						
28	12M MV Concrete Pole (TSP/03/005-1)			No	0		
29	14M MV Concrete Pole (TSP/03/005-1)			No	0		
30	MV Concrete Pole fittings- (Cross arms, Tie straps, insulator composites, Universal clamps, bolts, nuts, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	0		
31	75sqmm Aluminium Conductor Steel Reinforced (ACSR) conductor for length of three phase (3 - wire) line (TSP/06/020-2)			Km	0		
32	MV Concrete Pole stays - (Stay wire, stay rod, stay block, shackle insulator)			No	0		
33	MV Concrete Pole flying stays - (Concrete pole, Stay wire, stay rod, stay block, shackle insulator)			No	0		
34	MV Concrete Pole strut pole – (Concrete strut pole, heavy duty clamps)			No	0		
B4	11KV Distribution Transformer						
35	11KV 50KVA transformer			No	0		
36	11KV 50 - 200KVA transformer substation structure and fittings (Earthing & lightning Protection and associated material requirement, Expulsion Fuses, Surge diverters, Overhead fuse carriers, 10M Concrete poles, 11KV Steel channel and clamps etc. Danger plates, phase plates, circuit plates, number plates, anti-climbing devices and other safety requirements)			Set	0		
KIPSING SUBTOTAL B							
C	Mandatory spares						
37	Mandatory spares including at least 1 spare inverter, 5% of total solar PV panel capacity, fuses, cabling and hardware for 7 years including all consumable parts.			Lot	1		
KIPSING SUBTOTAL C							

Item	Description	Quantity and capacity of single unit ²	Code ³	Unit ⁴	Qty	EXW Unit Price ¹	EXW Total Price ¹
					(1)	(2)	(1) x (2)
BASSA 135 kWp (135kW AC) SOLAR PV MINI GRID							
A	Solar Power Generation Plant (SPGP)						
A1	SPV Modules & Inverters						
1	135 kWp (DC) Standard monocrystalline silicon SPV modules			Lot	1		
2	Fixed-tilt racking structure(s) for above SPV modules including all necessary nuts and bolts as well as necessary clamps, foundation bolts etc.			Lot	1		
3	135 kW (AC) Solar PV Inverters			Lot	1		
4	82 kW Solar Battery Inverter Charger			Lot	1		
A2	Battery Energy Storage System						
5	338 kWh Usable Battery Energy Storage System (BESS)			Lot	1		
6	Battery Management system			Lot	1		
7	Supply of SCADA along with associated equipment, data acquisition, data logger and display units and Industrial type PC with remote monitoring.			Lot	1		
A3	Diesel Generator						
8	82 kVA Prime Rated Diesel Generator(s) (DG) 415 V, 3-phase installed with a common genset controller capable of parallel operation with shunt-trip breakers for auto-start capability			Lot	1		
9	2000Litres Fuel Storage Tank			Lot	1		
A4	Other SPGP Items						
10	Metering system consisting of check and main meters for Import / export of energy from solar plant as per grid code			No.	1		
11	Auxiliary power supply as per specifications			Lot	1		
12	Air conditioners for the control room as per specifications.			Lot	1		
13	All balance of system components for interconnecting the battery and solar array with their inverters and the wider 415V three-phase 50 Hz AC distribution system, including but not limited to: AC & DC wiring, breakers, fuses, combiner boxes, recombiner boxes, panelboards, conduits, cables and cable trays, relays, transformers, enclosures, foundations, trenches, poles, support structures, cabinets, grounding electrodes, grounding conductors, lighting arrestors, lightning rods, insulators, surge protection, meters, sensors, and any other fixtures required for a safety, reliability, and compliance with all relevant local and			Lot	1		

	international codes and standards at the time of installation.						
BASSA SUBTOTAL A							
B	Power Distribution Network (PDN)						
B1	3-phase and single-phase LV Distribution Line						
14	10M LV Concrete Pole (TSP/03/005-1)			No	412		
15	LV Concrete Pole fittings- (Multipurpose/universal clamps, bolts,nuts,stays, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	412		
16	50sqmm AA bare conductor for length of LV (2-wire) line (TSP/06/020-2)			Km	20.14		
17	Complete Earthing- Protective Multiple Earthing (PME) (TSP/06/031-1)			No	245		
18	LV Concrete stays- (Stay wire, stay block, stay rod)			No	185		
19	LV Concrete strut pole- (Concrete strut pole, heavy duty clamps)			No	32		
B2	Other PDN Items						
20	Service Cable (25mm ² PVC Insulated three phase, 4 core Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	60		
21	Service Cable (16mm ² PVC Insulated Single Phase Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	13710		
22	10mm dropper cable Red and Black; 1m each for single phase meters ² (TSP/05/016)			M	550.8		
23	Service cable concrete fittings (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/03/003), (TSP/06/035)			No.	459		
24	Service Cable fittings for wall mounting including Angle Iron (TSP/02/003-3), (TSP/04/011), (TSP/03/003), (TSP/02/003-1)			No.	459		
25	Ready Boards complete with mounting accessories (TSP/14/051)			No.	459		

26	1ftX1ftX3/4ft metallic meter boards (galvanized gauge 30 plain iron sheet) with wall mounting accessories and suitable for meter & MCB mounting, Service cable entry and Earthing .			No	459		
27	Other Items not Mentioned above but required for installation and commissioning of the single and three phase Distribution line for Mini Grid and end user installation such as insulators, binding wires, fittings including nuts, bolts, Danger Plates, Name Plates, anti-climbing Barbed wire and accessories etc. on turn-key basis			Lot	1		
B3	11KV MV Distribution line						
28	12M MV Concrete Pole (TSP/03/005-1)			No	0		
29	14M MV Concrete Pole (TSP/03/005-1)			No	0		
30	MV Concrete Pole fittings- (Cross arms, Tie straps, insulator composites, Universal clamps, bolts, nuts, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	0		
31	75sqmm Aluminium Conductor Steel Reinforced (ACSR) conductor for length of three phase (3 - wire) line (TSP/06/020-2)			Km	0		
32	MV Concrete Pole stays - (Stay wire, stay rod, stay block, shackle insulator)			No	0		
33	MV Concrete Pole flying stays - (Concrete pole, Stay wire, stay rod, stay block, shackle insulator)			No	0		
34	MV Concrete Pole strut pole – (Concrete strut pole, heavy duty clamps)			No	0		
B4	11KV Distribution Transformer						
35	11KV 50KVA transformer			No	0		
36	11KV 50 - 200KVA transformer substation structure and fittings (Earthing & lightning Protection and associated material requirement, Expulsion Fuses, Surge diverters, Overhead fuse carriers, 10M Concrete poles, 11KV Steel channel and clamps etc. Danger plates, phase plates, circuit plates, number plates, anti-climbing devices and other safety requirements)			Set	0		
BASSA SUBTOTAL B							
C	Mandatory spares						
37	Mandatory spares including at least 1 spare inverter, 5% of total solar PV panel capacity, fuses, cabling and hardware for 7 years including all consumable parts.			Lot	1		
BASSA SUBTOTAL C							

Item	Description	Quantity and capacity of single unit ²	Code ³	Unit ⁴	Qty	EXW Unit Price ¹	EXW Total Price ¹
					(1)	(2)	(1) x (2)
MALKADAKA 100 kWp (100kW AC) SOLAR PV MINI GRID							
A	Solar Power Generation Plant (SPGP)						
A1	SPV Modules & Inverters						
1	100 kWp (DC) Standard monocrystalline or polycrystalline silicon SPV modules			Lot	1		
2	Fixed-tilt racking structure(s) for above SPV modules including all necessary nuts and bolts as well as necessary clamps, foundation bolts etc.			Lot	1		
3	100 kW (AC) Solar PV Inverters			Lot	1		
4	60 kW Solar Battery Inverter Charger			Lot	1		
A2	Battery Energy Storage System						
5	250 kWh Usable Battery Energy Storage System (BESS)			Lot	1		
6	Battery Management system			Lot	1		
7	Supply of SCADA along with associated equipment, data acquisition, data logger and display units and Industrial type PC with remote monitoring.			Lot	1		
A3	Diesel Generator						
8	60 kVA Prime Rated Diesel Generator(s) (DG) 415 V, 3-phase installed with a common genset controller capable of parallel operation with shunt-trip breakers for auto-start capability			Lot	1		
9	2000Litres Fuel Storage Tank			Lot	1		
A4	Other SPGP Items						
10	Metering system consisting of check and main meters for Import / export of energy from solar plant as per grid code			No.	1		
11	Auxiliary power supply as per specifications			Lot	1		
12	Air conditioners for the control room as per specifications.			Lot	1		
13	All balance of system components for interconnecting the battery and solar array with their inverters and the wider 415V three-phase 50 Hz AC distribution system, including but not limited to: AC & DC wiring, breakers, fuses, combiner boxes, recombiner boxes, panelboards, conduits, cables and cable trays, relays, transformers, enclosures, foundations, trenches, poles, support structures, cabinets, grounding electrodes, grounding conductors, lighting arrestors, lightning rods, insulators, surge protection, meters, sensors, and any other fixtures required for a safety, reliability, and compliance			Lot	1		

	with all relevant local and international codes and standards at the time of installation.						
MALKADAKA SUBTOTAL A							
B	Power Distribution Network (PDN)						
B1	3-phase and single-phase LV Distribution Line						
14	10M LV Concrete Pole (TSP/03/005-1)			No	124		
15	LV Concrete Pole fittings- (Multipurpose /universal clamps, bolts,nuts,stays, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	124		
16	50sqmm AA bare conductor for length of LV (2-wire) line (TSP/06/020-2)			Km	9.14		
17	Complete Earthing- Protective Multiple Earthing (PME) (TSP/06/031-1)			No	128		
18	LV Concrete stays- (Stay wire, stay block, stay rod)			No	69		
19	LV Concrete strut pole- (Concrete strut pole, heavy duty clamps)			No	3		
B2	Other PDN Items						
20	Service Cable (25mm ² PVC Insulated three phase, 4 core Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	30		
21	Service Cable (16mm ² PVC Insulated Single Phase Concentric Aluminium Cable Without Two Core Copper Communication Cable) (TSP/05/004)			M	8820		
22	10mm dropper cable Red and Black; 1m each for single phase meters ² (TSP/05/016)			M	354		
23	Service cable concrete fittings (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/03/003), (TSP/06/035)			No.	295		
24	Service Cable fittings for wall mounting including Angle Iron (TSP/02/003-3), (TSP/04/011), (TSP/03/003), (TSP/02/003-1)			No.	295		
25	Ready Boards complete with mounting accessories (TSP/14/051)			No.	295		
26	1ftX1ftX3/4ft metallic meter boards (galvanized gauge 30 plain iron sheet) with wall mounting accessories and suitable for meter & MCB mounting, Service cable entry and Earthing.			No	295		
27	Other Items not Mentioned above but required for installation and commissioning of the single and three phase Distribution line for Mini Grid and end user installation such as insulators, binding wires, fittings including nuts, bolts, Danger Plates, Name Plates, anti-climbing Barbed wire and accessories etc. on turn-key basis			Lot	1		

B3	11KV MV Distribution line						
28	12M MV Concrete Pole (TSP/03/005-1)			No	50		
29	14M MV Concrete Pole (TSP/03/005-1)			No	7		
30	MV Concrete Pole fittings- (Cross arms, Tie straps, insulator composites, Universal clamps, bolts, nuts, preformed guy-grips, D-irons, insulators, etc) (TSP/06/035), (TSP/03/021), (TSP/03/003), (TSP/02/004), (TSP/02/003-1), (TSP/04/011), (TSP/02/003-2), (TSP/02/002), (TSP/06/036-1), (TSP/07/001), (TSP/03/022)			Set	57		
31	75sqmm Aluminium Conductor Steel Reinforced (ACSR) conductor for length of three phase (3 - wire) line (TSP/06/020-2)			Km	4.97		
32	MV Concrete Pole stays - (Stay wire, stay rod, stay block, shackle insulator)			No	21		
33	MV Concrete Pole flying stays - (Concrete pole, Stay wire, stay rod, stay block, shackle insulator)			No	3		
34	MV Concrete Pole strut pole – (Concrete strut pole, heavy duty clamps)			No	0		
B4	11KV Distribution Transformer						
35	11KV 50KVA transformer			No	2		
36	11KV 50 - 200KVA transformer substation structure and fittings (Earthing & lightning Protection and associated material requirement, Expulsion Fuses, Surge diverters, Overhead fuse carriers, 10M Concrete poles, 11KV Steel channel and clamps etc. Danger plates, phase plates, circuit plates, number plates, anti-climbing devices and other safety requirements)			Set	2		
B5	Step up Transformer						
37	415V/11KV 100KVA transformer			No	1		
38	All system components for interconnecting the inverters and the 11kV distribution transformers, including but not limited to: panelboards, bus bars, switchgears, air break switch and structure, 11kv solid links, surge diverters, mounting structures for the surge diverters, underground cabling, conduits, cables and cable trays, grounding electrodes, grounding conductors, lightning arrestors, lightning mast galvanized steel structure and associated earthing, insulators, meters, sensors, concrete plinth, circuit breaker complete with its accessories, mounting structures for the HT neutral bushing and any other fixtures required for safety, reliability, and compliance with all relevant local and international codes and standards at the time of installation			Set	1		
MALKADAKA SUBTOTAL B							
C	Mandatory spares						
39	Mandatory spares including at least 1 spare inverter, 5% of total solar PV panel capacity,			Lot	1		

fuses, cabling and hardware for 7 years including all consumable parts.						
MALKADAKA SUBTOTAL C						
TOTAL (to Schedule No. 7. Grand Summary)						
Name of Bidder						_____
Signature of Bidder						_____
¹ Specify currency. Create and use as many columns for Unit Price and Total Price as there are currencies.						
² Bidder to provide further breakdown of items quoted for i.e. the exact number of single units that make up the item as well as the size/capacity of a single unit.						
³ Lot per km - Bidders are advised to assume a span length of 100m for Medium Voltage network (11kV) and 50m for Low Voltage network.						
NB – Refer to Employer’s Requirements & Technical Specifications for details of each item (Bidding Documents Volumes II and IV)						

SCHEDULE NO. 3 - SURVEY & DESIGN SERVICES					
LOT 6 SOLAR PV MINIGRIDS					
Item	Description	Unit	Qty	Unit Price ¹	Total Price ¹
			(1)	(2)	(1) x (2)
1	Survey and Design of SPV Modules & Inverters including structures	Lot	5		
2	Design of Battery Energy Storage System, including Inverter/Charger	Lot	5		
3	SCADA system design	Lot	5		
4	Diesel Generator Design	Lot	5		
5	Design of other SPGP items	Lot	5		
6	Survey and Design of Power Distribution Network	Lot	5		
7	Design of other PDN items	Lot	5		
8	Design of Civil/Structural works and associated works	Lot	5		
Lot 6 SUBTOTAL					
TOTAL (to Schedule No. 7. Grand Summary)					
Name of Bidder					_____
Signature of Bidder					_____
¹ Specify currency in accordance with specifications in Bid Data Sheet under ITB 18.1					
NB – Refer to Employer’s Requirements & Technical Specifications for details of each item (Bidding Documents Volumes II and IV)					
The design costs should include Survey (including picking distance of the solar plant from the existing KPLC grid), premises picking, customer sensitization, customer data collection, transformer positioning/picking, LV line wayleaves consent acquisition, and detailed design including design proposals/information updating on the KPLC Facility Data Base (FDB), preparation and submission of drawings. The civil and structural works design shall include Geotechnical Survey, Topographical Survey, hydrogeological survey and all Designs and drawings submission and all statutory approvals.					

SCHEDULE NO. 4 - INSTALLATION, TESTING, COMMISSIONING AND OTHER SERVICES

Item	Description	Unit ²	Quantity	Unit Price ¹	Total Price ¹
			(1)	(2)	(1) x (2)
ERAS HA BORU 160 kWp (160 kW AC) SOLAR PV MINI GRID					
A	Solar Power Generation Plant (SPGP)				
1	Installation, Erection, Testing and Commissioning of SPV Modules & Inverters including Mounting structures	Lot	1		
2	Installation, Erection, Testing and Commissioning of Battery Energy Storage System, including Inverter/Charger	Lot	1		
3	Installation, Erection, Testing and Commissioning of SCADA system	Lot	1		
4	Installation, Erection, Testing and Commissioning of Diesel Generator				
5	Installation of all balance of system components to complete erection of the SPGP	Lot	1		
6	Testing & commissioning of all supplied equipment including DG. Test running of Solar Power Plant as well as load trials at site, prior to handover and implementation of maintenance contract	Lot	1		
			ERAS HA BORU SUBTOTAL A		
B	Power Distribution Network				
B-1	Pegging, Erection, dressing and stringing of LV lines- 3 phase lines and Single phase lines				
7	Pole Erection and dressing- Concrete	No	428		
8	Conductor Stringing including trace clearance as per KPLC standard	Km	16.95		
9	PME installation	No	188		
10	LV Stay hole digging, making & Erection	No	407		
11	LV Strut hole digging, making & Erection	No	99		
B-2	Service cable				
12	Service cable installation complete with terminations on both the pole and angle iron on the wall, pole mounted meter box, Prepaid meter and MCB installation	No.	497		
13	Installation of Ready Boards, Earthing and Testing	No.	497		
14	Installation of wall mounted metallic customer meter boards complete with MCB and service cable termination	No.	497		
15	Class C-2 ERC Wiring Certificates	No	497		
B-3	Pegging, Erection, dressing and stringing of 11KV MV Distribution line				
16	Pole Erection and dressing- Concrete	No	0		
17	Conductor Stringing including trace clearance as per KPLC standard	Km	0		
18	MV Stay hole digging, making & Erection	No	0		
19	MV Flying Stay hole digging, making & Erection	No	0		
20	MV Strut hole digging, making & Erection	No	0		
B-4	Mounting, Dressing, Welding and Earthing 11KV Distribution Transformer				

21	Transformer Mounting, Dressing, Welding and Earthing	No	0		
ERAS HA BORU SUBTOTAL B					
C	Civil works				
22	Platform Works-Earthworks and slope protection, site clearing and disposal, Galvanised Boundary chain link fence with steel posts for the entire Mini grid developed area, Gates, SPGP area barricade fence. Solar panels reinforced concrete foundations/helical anchor foundations, Generator Equipment Plinth, 2000L underground fuel storage tank, Access Road, SPGP Internal road, Storm water drainage.	Lot	1		
23	Cable network and conduits	Lot	1		
24	Containerized technology solution for Office Building and Control Room, Air conditioners.	Lot	1		
25	Galvanized Steel Structures- solar panels steel support structures.	Lot	1		
26	Masonry guard house	Lot	1		
27	Masonry twin VIP Pit Latrine	Lot	1		
28	Security Systems, SPGP Outdoor Lighting and Perimeter Lighting, Control room and office building security lighting, Guard House Alarm System and danger and warning plate.	Lot	1		
29	Rainwater harvesting and Storage	Lot	1		
30	Fire Prevention System-Fire Extinguishers, and Fire Suppression System at the BESS Section.	Lot	1		
ERAS HA BORU SUBTOTAL C					

Item	Description	Unit ²	Quantity	Unit Price ¹	Total Price ¹
			(1)	(2)	(1) x (2)
GARFASA 160 kWp (160 kW AC) SOLAR PV MINI GRID					
A	Solar Power Generation Plant (SPGP)				
1	Installation, Erection, Testing and Commissioning of SPV Modules & Inverters including Mounting structures	Lot	1		
2	Installation, Erection, Testing and Commissioning of Battery Energy Storage System, including Inverter/Charger	Lot	1		
3	Installation, Erection, Testing and Commissioning of SCADA system	Lot	1		
4	Installation, Erection, Testing and Commissioning of Diesel Generator				
5	Installation of all balance of system components to complete erection of the SPGP	Lot	1		
6	Testing & commissioning of all supplied equipment including DG. Test running of Solar Power Plant as well as load trials at site, prior to handover and implementation of maintenance contract	Lot	1		
GARFASA SUBTOTAL A					
B-1	Pegging, Erection, dressing and stringing of LV lines- 3 phase lines and Single phase lines				
7	Pole Erection and dressing- Concrete	No	486		
8	Conductor Stringing including trace clearance as per KPLC standard	Km	22.41		
9	PME installation	No	309		
10	LV Stay hole digging, making & Erection	No	262		
11	LV Strut hole digging, making & Erection	No	18		
B-2	Service cable				
12	Service cable installation complete with terminations on both the pole and angle iron on the wall, pole mounted meter box, Prepaid meter and MCB installation	No.	649		
13	Installation of Ready Boards, Earthing and Testing	No.	649		
14	Installation of wall mounted metallic customer meter boards complete with MCB and service cable termination	No.	649		
15	Class C-2 ERC Wiring Certificates	No	649		
B-3	Pegging, Erection, dressing and stringing of 11KV MV Distribution line				
16	Pole Erection and dressing- Concrete	No	43		
17	Conductor Stringing including trace clearance as per KPLC standard	Km	3.3		
18	MV Stay hole digging, making & Erection	No	15		
19	MV Flying Stay hole digging, making & Erection	No	0		
20	MV Strut hole digging, making & Erection	No	0		
B-4	Mounting, Dressing, Welding and Earthing 11KV Distribution Transformer				
21	Transformer Mounting, Dressing, Welding and Earthing	No	3		
B-5	Mounting, Dressing, Welding and Earthing Step up Transformer				

22	Transformer Mounting, Dressing, Welding and Earthing	No	1		
			GARFASA SUBTOTAL B		
C	Civil works				
23	Platform Works-Earthworks and slope protection, site clearing and disposal, Galvanised Boundary chain link fence with steel posts for the entire Mini grid developed area, Gates, SPGP area barricade fence. Solar panels reinforced concrete foundations/helical anchor foundations, Generator Equipment Plinth, 2000L underground fuel storage tank, Access Road, SPGP Internal road, Storm water drainage.	Lot	1		
24	Cable network and conduits	Lot	1		
25	Containerized technology solution for Office Building and Control Room, Air conditioners.	Lot	1		
26	Galvanized Steel Structures- solar panels steel support structures.	Lot	1		
27	Masonry guard house	Lot	1		
28	Masonry twin VIP Pit Latrine	Lot	1		
29	Security Systems, SPGP Outdoor Lighting and Perimeter Lighting, Control room and office building security lighting, Guard House Alarm System and danger and warning plate.	Lot	1		
30	Rainwater harvesting and Storage	Lot	1		
31	Fire Prevention System-Fire Extinguishers, and Fire Suppression System at the BESS Section.	Lot	1		
			GARFASA SUBTOTAL C		

Item	Description	Unit ²	Quantity	Unit Price ¹	Total Price ¹
			(1)	(2)	(1) x (2)
KIPSING 100 kWp (100 kW AC) SOLAR PV MINI GRID					
A	Solar Power Generation Plant (SPGP)				
1	Installation, Erection, Testing and Commissioning of SPV Modules & Inverters including Mounting structures	Lot	1		
2	Installation, Erection, Testing and Commissioning of Battery Energy Storage System, including Inverter/Charger	Lot	1		
3	Installation, Erection, Testing and Commissioning of SCADA system	Lot	1		
4	Installation, Erection, Testing and Commissioning of Diesel Generator				
5	Installation of all balance of system components to complete erection of the SPGP	Lot	1		
6	Testing & commissioning of all supplied equipment including DG. Test running of Solar Power Plant as well as load trials at site, prior to handover and implementation of maintenance contract	Lot	1		
			KIPSING SUBTOTAL A		
B	Power Distribution Network				
B-1	Pegging, Erection, dressing and stringing of LV lines- 3 phase lines and Single phase lines				
7	Pole Erection and dressing- Concrete	No	196		
8	Conductor Stringing including trace clearance as per KPLC standard	Km	11.95		
9	PME installation	No	129		
10	LV Stay hole digging, making & Erection	No	133		
11	LV Strut hole digging, making & Erection	No	2		
B-2	Service cable				
12	Service cable installation complete with terminations on both the pole and angle iron on the wall, pole mounted meter box, Prepaid meter and MCB installation	No.	198		
13	Installation of Ready Boards, Earthing and Testing	No.	198		
14	Installation of wall mounted metallic customer meter boards complete with MCB and service cable termination	No.	198		
15	Class C-2 ERC Wiring Certificates	No	198		
B-3	Pegging, Erection, dressing and stringing of 11KV MV Distribution line				
16	Pole Erection and dressing- Concrete	No	0		
17	Conductor Stringing including trace clearance as per KPLC standard	Km	0		
18	MV Stay hole digging, making & Erection	No	0		
19	MV Flying Stay hole digging, making & Erection	No	0		
20	MV Strut hole digging, making & Erection	No	0		
B-4	Mounting, Dressing, Welding and Earthing 11KV Distribution Transformer				
21	Transformer Mounting, Dressing, Welding and Earthing	No	0		
			KIPSING SUBTOTAL B		

C	Civil works				
22	Platform Works-Earthworks and slope protection, site clearing and disposal, Galvanised Boundary chain link fence with steel posts for the entire Mini grid developed area, Gates, SPGP area barricade fence. Solar panels reinforced concrete foundations/helical anchor foundations, Generator Equipment Plinth, 2000L underground fuel storage tank, Access Road, SPGP Internal Road, Storm water drainage.	Lot	1		
23	Cable network and conduits	Lot	1		
24	Containerized technology solution for Office Building and Control Room, Air conditioners.	Lot	1		
25	Galvanized Steel Structures- solar panels steel support structurers.	Lot	1		
26	Masonry guard house	Lot	1		
27	Masonry twin VIP Pit Latrine	Lot	1		
28	Security Systems, SPGP Outdoor Lighting and Perimeter Lighting, Control room and office building security lighting, Guard House Alarm System and danger and warning plate.	Lot	1		
29	Rainwater harvesting and Storage	Lot	1		
30	Fire Prevention System-Fire Extinguishers, and Fire Suppression System at the BESS Section.	Lot	1		
		KIPSING SUBTOTAL C			

Item	Description	Unit ²	Quantity	Unit Price ¹	Total Price ¹
			(1)	(2)	(1) x (2)
BASSA 135 kWp (135kW AC) SOLAR PV MINI GRID					
A	Solar Power Generation Plant (SPGP)				
1	Installation, Erection, Testing and Commissioning of SPV Modules & Inverters including Mounting structures	Lot	1		
2	Installation, Erection, Testing and Commissioning of Battery Energy Storage System, including Inverter/Charger	Lot	1		
3	Installation, Erection, Testing and Commissioning of SCADA system	Lot	1		
4	Installation, Erection, Testing and Commissioning of Diesel Generator				
5	Installation of all balance of system components to complete erection of the SPGP	Lot	1		
6	Testing & commissioning of all supplied equipment including DG. Test running of Solar Power Plant as well as load trials at site, prior to handover and implementation of maintenance contract	Lot	1		
BASSA SUBTOTAL A					
B	Power Distribution Network				
B-1	Pegging, Erection, dressing and stringing of LV lines- 3 phase lines and Single phase lines				
7	Pole Erection and dressing- Concrete	No	412		
8	Conductor Stringing including trace clearance as per KPLC standard	Km	20.14		
9	PME installation	No	245		
10	LV Stay hole digging, making & Erection	No	185		
11	LV Strut hole digging, making & Erection	No	32		
B-2	Service cable				
12	Service cable installation complete with terminations on both the pole and angle iron on the wall, pole mounted meter box, Prepaid meter and MCB installation	No.	459		
13	Installation of Ready Boards, Earthing and Testing	No.	459		
14	Installation of wall mounted metallic customer meter boards complete with MCB and service cable termination	No.	459		
15	Class C-2 ERC Wiring Certificates	No	459		
B-3	Pegging, Erection, dressing and stringing of 11KV MV Distribution line				
16	Pole Erection and dressing- Concrete	No	0		
17	Conductor Stringing including trace clearance as per KPLC standard	Km	0		
18	MV Stay hole digging, making & Erection	No	0		
19	MV Flying Stay hole digging, making & Erection	No	0		
20	MV Strut hole digging, making & Erection	No	0		
B-4	Mounting, Dressing, Welding and Earthing 11KV Distribution Transformer				
21	Transformer Mounting, Dressing, Welding and Earthing	No	0		
BASSA SUBTOTAL B					

C	Civil works					
22	Platform Works-Earthworks and slope protection, site clearing and disposal, Galvanised Boundary chain link fence with steel posts for the entire Mini grid developed area, Gates, SPGP area barricade fence. Solar panels reinforced concrete foundations/helical anchor foundations, Generator Equipment Plinth, 2000L underground fuel storage tank, Access Road, SPGP Internal Road, Storm water drainage.	Lot	1			
23	Cable network and conduits	Lot	1			
24	Containerized technology solution for Office Building and Control Room, Air conditioners.	Lot	1			
25	Galvanized Steel Structures- solar panels steel support structurers.	Lot	1			
26	Masonry guard house	Lot	1			
27	Masonry twin VIP Pit Latrine	Lot	1			
28	Security Systems, SPGP Outdoor Lighting and Perimeter Lighting, Control room and office building security lighting, Guard House Alarm System and danger and warning plate.	Lot	1			
29	Rainwater harvesting and Storage	Lot	1			
30	Fire Prevention System-Fire Extinguishers, and Fire Suppression System at the BESS Section.	Lot	1			
		BASSA SUBTOTAL C				

Item	Description	Unit ²	Quantity	Unit Price ¹	Total Price ¹
			(1)	(2)	(1) x (2)
MALKADAKA 100 kWp (100kW AC) SOLAR PV MINI GRID					
A	Solar Power Generation Plant (SPGP)				
1	Installation, Erection, Testing and Commissioning of SPV Modules & Inverters including Mounting structures	Lot	1		
2	Installation, Erection, Testing and Commissioning of Battery Energy Storage System, including Inverter/Charger	Lot	1		
3	Installation, Erection, Testing and Commissioning of SCADA system	Lot	1		
4	Installation, Erection, Testing and Commissioning of Diesel Generator				
5	Installation of all balance of system components to complete erection of the SPGP	Lot	1		
6	Testing & commissioning of all supplied equipment including DG. Test running of Solar Power Plant as well as load trials at site, prior to handover and implementation of maintenance contract	Lot	1		
			MALKADAKA SUBTOTAL A		
B	Power Distribution Network				
B-1	Pegging, Erection, dressing and stringing of LV lines- 3 phase lines and Single phase lines				
7	Pole Erection and dressing- Concrete	No	124		
8	Conductor Stringing including trace clearance as per KPLC standard	Km	9.14		
9	PME installation	No	128		
10	LV Stay hole digging, making & Erection	No	69		
11	LV Strut hole digging, making & Erection	No	3		
B-2	Service cable				
12	Service cable installation complete with terminations on both the pole and angle iron on the wall, pole mounted meter box, Prepaid meter and MCB installation	No.	295		
13	Installation of Ready Boards, Earthing and Testing	No.	295		
14	Installation of wall mounted metallic customer meter boards complete with MCB and service cable termination	No.	295		
15	Class C-2 ERC Wiring Certificates	No	295		
B-3	Pegging, Erection, dressing and stringing of 11KV MV Distribution line				
16	Pole Erection and dressing- Concrete	No	57		
17	Conductor Stringing including trace clearance as per KPLC standard	Km	4.97		
18	MV Stay hole digging, making & Erection	No	21		
19	MV Flying Stay hole digging, making & Erection	No	3		
20	MV Strut hole digging, making & Erection	No	0		
B-4	Mounting, Dressing, Welding and Earthing 11KV Distribution Transformer				
21	Transformer Mounting, Dressing, Welding and Earthing	No	2		
B-5	Mounting, Dressing, Welding and Earthing				

	Step up Transformer				
22	Transformer Mounting, Dressing, Welding and Earthing	No	1		
MALKADAKA SUBTOTAL B					
C	Civil works				
23	Platform Works-Earthworks and slope protection, site clearing and disposal, Galvanised Boundary chain link fence with steel posts for the entire Mini grid developed area, Gates, SPGP area barricade fence. Solar panels reinforced concrete foundations/helical anchor foundations, Generator Equipment Plinth, 2000L underground fuel storage tank, Access Road, SPGP Internal Road, Storm water drainage.	Lot	1		
24	Cable network and conduits	Lot	1		
25	Containerized technology solution for Office Building and Control Room, Air conditioners.	Lot	1		
26	Galvanized Steel Structures- solar panels steel support structurers.	Lot	1		
27	Masonry guard house	Lot	1		
28	Masonry twin VIP Pit Latrine	Lot	1		
29	Security Systems, SPGP Outdoor Lighting and Perimeter Lighting, Control room and office building security lighting, Guard House Alarm System and danger and warning plate.	Lot	1		
30	Rainwater harvesting and Storage	Lot	1		
31	Fire Prevention System-Fire Extinguishers, and Fire Suppression System at the BESS Section.	Lot	1		
MALKADAKA SUBTOTAL C					
D			Others		
32	Cost allocation for end-of-life (EOL) plan for all batteries and other potentially hazardous e-waste at the end of its useful life	Lot	1		
33	Offices facilities : Provide a furnished site office complete with communication facilities(Laptop, internet, printer and stationery)	Site	5		
34	Provision of communication facilities for the employer	Lot	1		
35	Provision of Transport: Provide fuel and maintain with driver transport for exclusive use of the REREC project engineer for project supervision and coordination services (1 No. 4X4)	Vehicle/ Months	12		
36	Factory Acceptance Tests for Major Items	Lumpsum	1		
37	Provisional sum for Community Project for compensation in kind for land acquisition (The project to be decided after land value is determined)	Fixed amount	5	KSh. 1,000,000	KSh. 5,000,000
SUBTOTAL D					
TOTAL (To Schedule No. 7. Grand Summary)					
Name of Bidder					
Signature of Bidder					
¹ Specify currency in accordance with ITB 18. Create and use as many columns for Unit Price and Total Price as there are currencies.					

² Lot per km - Bidders are advised to assume a span length of 100m for Medium Voltage network (11kV) and 50m for Low Voltage network.

SCHEDULE NO. 5 - ENVIRONMENTAL, SOCIAL, HEALTH AND SAFETY (ESHS) SERVICES							
Item	Description	Unit	Qty	Unit Price ¹		Total Price ¹	
			(Sites)	Foreign Currency Portion	Local Currency Portion	Foreign	Local
			(1)	(2)	(3)	(1) X (2)	(1) X (3)
Air Quality: Dust and exhaust emissions							
1	Sprinkle water to minimize dust generation	Lot	5				
2	Enclose/ cover/ water stockpiles of excavated soil during dry or windy conditions	Lot	5				
3	Conduct air quality measurements on a monthly basis	Lot	5				
Solid Waste generation							
4	Provide proper facilities for holding, separating and storing waste to reduce exposure and damage by elements of weather	Lot	5				
5	Contract NEMA registered waste handlers to dispose, hazardous, obsolete and E-waste and contaminated soil	Lot	5				
6	Store hazardous products and wastes separately in well labelled containers	Lot	5				
Noise and Vibration							
7	Conduct noise measurements on a monthly basis	Lot	5				
Vegetation disturbance							
8	Plant and nurture (200) indigenous trees in selected areas in public/community institutions	Lot	5				
Fire hazards							
9	Designate smoking zone, fire assembly point and provide appropriate firefighting equipment	Lot	5				
10	Provide trained fire marshals	Lot	5				
Traffic congestion & damage to roads and other existing infrastructure							
11	Provide traffic marshals and signages	Lot	5				
Occupational safety and Health risks							
12	Awareness creation and training of staff on occupation health and safety issues	Lot	5				
13	Provide appropriate PPEs including Helmets, Safety Boots, Overalls, Dust Coats, Ear Muffs, Safety Harness, Gloves, Safety Glasses, etc	Lot	5				
14	Provide fully stocked first aid kit	Lot	5				

15	Provide insurance to the workers as per Work Injury and Benefits Act (WIBA) requirements	Lot	5				
16	Proper barricading and hazard communication and signage	Lot	5				
Training and Sensitization on Labour influx related impacts (Gender based violence)-Sexual abuse and exploitation and sexual harassment, HIV/AIDs, Alcohol and drugs abuse and crime							
17	Awareness creation to the workers and members of public on Abstinence, Being Faithful and Use of Condoms to prevent HIV/AIDs spread.	Lot	5				
18	Install information on the site billboard - 'Beware of HIV/AIDs, it's real, it kills' and other posters around site	Lot	5				
19	Provide adequate condoms at convenient locations	Lot	5				
Risks related to spread of COVID-19 to workers and locals							
20	Install hand washing facilities with adequate running water and soap	Lot	5				
21	Use thermal guns for everyone entering the site for monitoring temperatures levels	Lot	5				
Stakeholder Engagement							
22	Conduct stakeholder engagement forums in a culturally appropriate manner	Lot	5				
23	Conduct separate adequate public consultation for the VMGs where applicable	Lot	5				
TOTAL (To Schedule No. 7. Grand Summary)							
				Name of Bidder _____			
				Signature of Bidder _____			
¹ Specify currency in accordance with ITB 18. Create and use as many columns for Unit Price and Total Price as there are currencies. NB – For details of each item, refer to the Environmental, Social, Health and Safety Management Plan for proposed solar mini-grid for community facilities, enterprises, and households - Component 1 of the Kenya Off-grid Solar Access Project (Bidding Document Volume I)							

SCHEDULE NO. 6 - OPERATION & MAINTENANCE

Item	Description	Unit	Qty	% of O&M Contract Price	Unit Price ¹		Total Price ¹
					Local Currency Portion	Foreign Currency Portion	
						(optional)	
ERAS HA BORU 160 kWp (160 kW AC) SOLAR PV MINI GRID							
1	Operation and Maintenance of the Distribution Network and Plant Facility for FIRST YEAR	Year	1	11.5			
2	Operation and Maintenance of the Distribution Network and Plant Facility for SECOND YEAR	Year	1	11.5			
3	Operation and Maintenance of the Distribution Network and Plant Facility for THIRD YEAR	Year	1	11.5			
4	Operation and Maintenance of the Distribution Network and Plant Facility for FOURTH YEAR	Year	1	11.5			
5	Operation and Maintenance of the Distribution Network and Plant Facility for FIFTH YEAR	Year	1	18			
6	Operation and Maintenance of the Distribution Network and Plant Facility for SIXTH YEAR	Year	1	18			
7	Operation and Maintenance of the Distribution Network and Plant Facility for SEVENTH YEAR	Year	1	18			
SUBTOTAL A							
GARFASA 160kWp (160 kW AC) SOLAR PV MINI GRID							
1	Operation and Maintenance of the Distribution Network and Plant Facility for FIRST YEAR	Year	1	11.5			
2	Operation and Maintenance of the Distribution Network and Plant Facility for SECOND YEAR	Year	1	11.5			
3	Operation and Maintenance of the Distribution Network and Plant Facility for THIRD YEAR	Year	1	11.5			
4	Operation and Maintenance of the Distribution Network and Plant Facility for FOURTH YEAR	Year	1	11.5			
5	Operation and Maintenance of the Distribution Network and Plant Facility for FIFTH YEAR	Year	1	18			
6	Operation and Maintenance of the Distribution Network and Plant Facility for SIXTH YEAR	Year	1	18			
7	Operation and Maintenance of the Distribution Network and Plant Facility for SEVENTH YEAR	Year	1	18			
SUBTOTAL B							

KIPSING 100 kWp (100 kW AC) SOLAR PV MINI GRID							
1	Operation and Maintenance of the Distribution Network and Plant Facility for FIRST YEAR	Year	1	11.5			
2	Operation and Maintenance of the Distribution Network and Plant Facility for SECOND YEAR	Year	1	11.5			
3	Operation and Maintenance of the Distribution Network and Plant Facility for THIRD YEAR	Year	1	11.5			
4	Operation and Maintenance of the Distribution Network and Plant Facility for FOURTH YEAR	Year	1	11.5			
5	Operation and Maintenance of the Distribution Network and Plant Facility for FIFTH YEAR	Year	1	18			
6	Operation and Maintenance of the Distribution Network and Plant Facility for SIXTH YEAR	Year	1	18			
7	Operation and Maintenance of the Distribution Network and Plant Facility for SEVENTH YEAR	Year	1	18			
SUBTOTAL C							
BASSA 135 kWp (135 kW AC) SOLAR PV MINI GRID							
1	Operation and Maintenance of the Distribution Network and Plant Facility for FIRST YEAR	Year	1	11.5			
2	Operation and Maintenance of the Distribution Network and Plant Facility for SECOND YEAR	Year	1	11.5			
3	Operation and Maintenance of the Distribution Network and Plant Facility for THIRD YEAR	Year	1	11.5			
4	Operation and Maintenance of the Distribution Network and Plant Facility for FOURTH YEAR	Year	1	11.5			
5	Operation and Maintenance of the Distribution Network and Plant Facility for FIFTH YEAR	Year	1	18			
6	Operation and Maintenance of the Distribution Network and Plant Facility for SIXTH YEAR	Year	1	18			
7	Operation and Maintenance of the Distribution Network and Plant Facility for SEVENTH YEAR	Year	1	18			
SUBTOTAL D							
MALKADAKA 100 kWp (100 kW AC) SOLAR PV MINI GRID							
1	Operation and Maintenance of the Distribution Network and Plant Facility for FIRST YEAR	Year	1	11.5			
2	Operation and Maintenance of the Distribution Network and Plant Facility for SECOND YEAR	Year	1	11.5			
3	Operation and Maintenance of the Distribution Network and Plant Facility for THIRD YEAR	Year	1	11.5			
4	Operation and Maintenance of the Distribution Network and Plant Facility for FOURTH YEAR	Year	1	11.5			
5	Operation and Maintenance of the Distribution Network and Plant Facility for FIFTH YEAR	Year	1	18			
6	Operation and Maintenance of the Distribution Network and Plant Facility for SIXTH YEAR	Year	1	18			
7	Operation and Maintenance of the Distribution Network and Plant Facility for SEVENTH YEAR	Year	1	18			

		SUBTOTAL E		
	TOTAL (to Schedule No. 7. Grand Summary)			
		<i>Name of Bidder</i> _____		
		<i>Signature of Bidder</i> _____		
	' Specify currency in accordance with specifications in Bid Data Sheet under ITB 18.1			

SCHEDULE NO. 7 - GRAND SUMMARY

Item	Description	Total Price ¹	
		<i>Foreign</i>	<i>Local</i>
	Phase 1 - Supply and Installation		
1	Total Price of Schedule No 1 : Plant and Mandatory Spare Parts Supplied from Abroad		
2	Total Price of Schedule No 2 : Plant and Mandatory Spare Parts Supplied from Within the Employer's Country		
3	Total Price of Schedule No 3 : Survey & Design Services		
4	Total Price of Schedule No 4 : Installation, Testing, Commissioning, and Other Services		
5	Total Price of Schedule No 5 : Environmental, Social, Health And Safety (ESHS) Services		
	Phase 2 - Operations and Maintenance		
6	Total Price of Schedule No 6 : Operation & Maintenance		
	TOTAL (to Letter of Bid)		
		<i>Name of Bidder</i>	
		<i>Signature of Bidder</i>	

