DESIGN, SUPPLY, DELIVERY, INSTALLATION AND COMMISSIONING OF GRID-TIED SOLAR POWER SYSTEM AND CHILLING ACCESSORIES AT MERU CENTRAL DAIRY CO-OPERATIVE UNION LTD

Preamble

1) The Schedules shall be read in conjunction with the Instructions to Bidders, General and Particular Conditions, Technical Specifications, and Drawings.

2) The quantities given in the Schedules are estimated and provisional and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices bid in the priced Schedules, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.

3) The rates and prices bid in the priced Schedules shall, except insofar as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, taxes, implementation of ESMP together with all general risks, liabilities, and obligations set out or implied in the Contract.

4) A rate or price shall be entered against each item in the priced Schedules, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Schedules.

5) The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Schedules, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.

6) General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Schedules. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Schedules.

7) Provisional Sums included and so designated in the Schedules shall be expended in whole or in part at the direction and discretion of the Engineer in accordance with Sub-Clauses 13.4 and 13.5 of the General Conditions except with respect to DAAB Fees and Expenses for which no instruction will be required from the Engineer.

8) The method of measurement of completed work for payment shall be Admeasurement in accordance with ICE Conditions of Contract measurement clauses.

9) The solar PV module arrangement, support framing, mounting rails and associated roof installation details indicated in the Tender

Drawings are preliminary and are intended to define the general design requirements.

10) The final layout and spacing of the solar PV modules shall be based on the dimensions, configuration and technical characteristics of the PV modules proposed by the Contractor and approved by the Engineer.

11) Prior to commencement of fabrication, procurement of mounting structures, or installation of any solar PV equipment on the roof, the Contractor shall prepare and submit detailed shop Drawings for review and approval by the Engineer.

12) The Shop Drawings shall include:
    i. Final roof plan showing the location, orientation, dimensions and number of PV modules.
    ii. Module spacing, access paths, setbacks and clearances from roof edges and other obstructions.
    iii. Detailed layout and dimensions of mounting rails, brackets, support members and fixing points.
    iv. Sections and connection details showing how the PV mounting structure shall be fixed to the roof structure.
    v. Details of penetrations, flashings, waterproofing and measures for maintaining the integrity of the roofing system.
    vi. Structural details demonstrating adequate capacity of the mounting system and supporting roof structure for dead loads, wind loads and other applicable design loads.
    vii. Cable routes and coordination with associated electrical installations where applicable.
    viii. Manufacturer, model, dimensions, weight and technical data sheets for the proposed PV modules and mounting system.

13) The Contractor shall verify all dimensions and existing site conditions before preparation of the Shop Drawings.

14) Approval of the Shop Drawings by the Engineer shall not relieve the Contractor of responsibility for the accuracy of dimensions, structural adequacy, coordination, workmanship, performance or compliance of the installation with the Contract requirements and applicable standards.

15) No fabrication or installation of the PV mounting system shall commence until the relevant Shop Drawings have been reviewed and approved by the Engineer. Any modification to the preliminary roof layout required to accommodate the approved PV modules shall be incorporated into the Shop Drawings without compromising the specified PV array capacity, structural integrity, safe access, drainage or performance requirements of the Works.

Schedule of Rates and Prices

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

Item	Description	Code[1]		Qty.	Unit Price[2]		Total Price[2]
						CIP	
				(1)	*(2)*	*(3)*	*(1) x (3)*
	NOT APPLICABLE FOR THIS PROCUREMENT. Plant and Mandatory Spare Parts supplied from abroad are not scheduled.						
TOTAL (to Schedule No. 5. Grand Summary)							

Name of Bidder: _____

Signature of Bidder: _____

1 Bidders shall enter a code representing the country of origin of all imported plant and equipment.
2 Specify currency. Create and use as many columns for Unit Price and Total Price as there are currencies.

Country of Origin Declaration Form

Item	Description	Code	Country
	NOT APPLICABLE FOR THIS PROCUREMENT.		

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from Within the Employer's Country

Item	Description	Qty.	EXW Unit Price1	Sales and other taxes payable per line item if Contract is awarded (in accordance with ITB 17.5 (b) (ii)	EXW Total Price1
		-1	*(2.00)*	*-3*	*(1) x (2)*
1	Smart grid solar PV inverter for Main Factory, nominal 175 kWac, operating voltage 550-1500 V, maximum AC power 185 kWac, complete with compatible monitoring/logger and Ethernet/WLAN communication accessories.	5 No.			
2	Smart grid solar PV inverter for Kiirua and Giantune Cooling Centres, nominal 36 kWac, operating voltage 200-1000 V, maximum AC power 40 kWac, complete with compatible monitoring/logger and Ethernet/WLAN communication accessories.	2 No.			
3	Smart grid solar PV inverter for Kanyakine Cooling Centre, nominal 50 kWac, operating voltage 200-1000 V, maximum AC power 55 kWac, complete with compatible monitoring/logger and Ethernet/WLAN communication accessories.	1 No.			
4	Smart grid solar PV inverter for Githongo, Igoji and Chogoria Cooling Centres, nominal 60 kWac, operating voltage 200-1000 V, maximum AC power 66 kWac, complete with compatible monitoring/logger and Ethernet/WLAN communication accessories.	3 No.			
5	250 A smart power sensor, three-phase, compatible with the proposed grid-tied PV system.	11 No.			

Item	Description	Qty.	EXW Unit Price1	Sales and other taxes payable per line item if Contract is awarded (in accordance with ITB 17.5 (b) (ii)	EXW Total Price1
		-1	*(2.00)*	*-3*	*(1) x (2)*
6	Monocrystalline solar PV modules for Main Factory. Bidder to select individual module wattage and quantity while meeting the specified minimum technical and performance requirements and total installed array capacity.	931,840 W			
7	Monocrystalline solar PV modules for Kiirua Cooling Centre. Bidder to select individual module wattage and quantity while meeting the specified minimum technical and performance requirements and total installed array capacity.	36,180 W			
8	Monocrystalline solar PV modules for Giantune Cooling Centre. Bidder to select individual module wattage and quantity while meeting the specified minimum technical and performance requirements and total installed array capacity.	44,555 W			
9	Monocrystalline solar PV modules for Githongo Cooling Centre. Bidder to select individual module wattage and quantity while meeting the specified minimum technical and performance requirements and total installed array capacity.	60,300 W			

Item	Description	Qty.	EXW Unit Price1	Sales and other taxes payable per line item if Contract is awarded (in accordance with ITB 17.5 (b) (ii)	EXW Total Price1
		-1	*(2.00)*	*-3*	*(1) x (2)*
10	Monocrystalline solar PV modules for Kanyakine Cooling Centre. Bidder to select individual module wattage and quantity while meeting the specified minimum technical and performance requirements and total installed array capacity.	50,920 W			
11	Monocrystalline solar PV modules for Igoji Cooling Centre. Bidder to select individual module wattage and quantity while meeting the specified minimum technical and performance requirements and total installed array capacity.	63,650 W			
12	Monocrystalline solar PV modules for Chogoria Cooling Centre. Bidder to select individual module wattage and quantity while meeting the specified minimum technical and performance requirements and total installed array capacity.	70,015 W			
TOTAL (to Schedule No. 5. Grand Summary)					
Name of Bidder: _____					
Signature of Bidder: _____					

Schedule No. 3. Design Services

Item	Description	Qty.	Unit Price[1]		Total Price[1]
			Local Currency Portion	Foreign Currency Portion	
		(1)	*(2)*	*(optional)*	*(1) x (2)*
	NOT APPLICABLE FOR THIS PROCUREMENT. The Employer has completed the system design. No separate Design Services shall be priced under this Schedule. Costs for Equipment-specific shop drawings, module arrangement, string configuration, mounting/fixing details, structural verification and coordination needed for installation shall be included in Schedule No. 4, Installation and Other Services.				
TOTAL (to Schedule No. 5. Grand Summary)					

Name of Bidder: _____

Schedule No. 4. Installation and Other Services

Item	Description	Qty.	Unit Price[1]		Total Price[1]	
			Foreign Currency Portion	Local Currency Portion	Foreign	Local
		-1	*-2*	*(3.00)*	*(1) x (2)*	*(1) x (3)*
4.1	Excavation and backfilling for electrical cable trenches, including trimming, selected bedding and surround material, backfilling and reinstatement, depth not exceeding 1.0 m unless otherwise specified.	1,210 CUM				
4.2	Provide for erection and maintenance of Project signboards in accordance with the specifications.	7 Item				
4.3	Provide, lay and join electrical sleeve pipes for cable routes, complete with all fittings and accessories.	1,210 LM				
4.4	Local transportation, handling, positioning, installation, connection, configuration, testing and commissioning of all scheduled smart grid solar PV inverters and smart power sensors.(Items on Schedule No.2)	11 Set				
4.5	Installation, mounting, interconnection, testing and commissioning of monocrystalline solar PV modules to the approved detailed design. Rate shall be per Watt of installed PV capacity.	1257460W				
4.6	Main Factory: supply, fabricate and install complete roof-mounted PV support structures as determined by the approved Bidder design, including aluminium/galvanized structural members, rails, brackets, clamps, fasteners, anchors, foundations, corrosion protection, waterproofing and all accessories. Rate shall be per Watt of the scheduled PV capacity.	831600W				

Item	Description	Qty.	Unit Price[1]		Total Price[1]	
			Foreign Currency Portion	Local Currency Portion	Foreign	Local
		-1	*-2*	*(3.00)*	*(1) x (2)*	*(1) x (3)*
4.7	Main Factory: supply, fabricate and install complete ground-mounted PV support structures as determined by the approved Bidder design, including aluminium/galvanized structural members, rails, brackets, clamps, fasteners, anchors, foundations, corrosion protection, waterproofing and all accessories. Rate shall be per Watt of the scheduled PV capacity.	100240W				
4.8	Kiirua Cooling Centre: supply, fabricate and install complete ground-mounted PV support structures as determined by the approved Bidder design, including aluminium/galvanized structural members, rails, brackets, clamps, fasteners, anchors, foundations, corrosion protection, waterproofing and all accessories. Rate shall be per Watt of the scheduled PV capacity.	30870W				
4.9	Kiirua Cooling Centre: supply, fabricate and install complete roof-mounted PV support structures as determined by the approved Bidder design, including aluminium/galvanized structural members, rails, brackets, clamps, fasteners, anchors, foundations, corrosion protection, waterproofing and all accessories. Rate shall be per Watt of the scheduled PV capacity.	3150W				
4.10	Giantune Cooling Centre: supply, fabricate and install complete roof-mounted and/or ground-mounted PV support structures as determined by the approved Bidder design, including aluminium/galvanized structural members, rails, brackets, clamps, fasteners, anchors, foundations, corrosion protection, waterproofing and all accessories. Rate shall be per Watt of the scheduled PV capacity.	44555W				

Item	Description	Qty.	Unit Price[1]		Total Price[1]	
			Foreign Currency Portion	Local Currency Portion	Foreign	Local
		-1	*-2*	*(3.00)*	*(1) x (2)*	*(1) x (3)*
4.11	Githongo Cooling Centre: supply, fabricate and install complete roof-mounted and/or ground-mounted PV support structures as determined by the approved Bidder design, including aluminium/galvanized structural members, rails, brackets, clamps, fasteners, anchors, foundations, corrosion protection, waterproofing and all accessories. Rate shall be per Watt of the scheduled PV capacity.	60300W				
4.12	Kanyakine Cooling Centre: supply, fabricate and install complete roof-mounted and/or ground-mounted PV support structures as determined by the approved Bidder design, including aluminium/galvanized structural members, rails, brackets, clamps, fasteners, anchors, foundations, corrosion protection, waterproofing and all accessories. Rate shall be per Watt of the scheduled PV capacity.	50920W				
4.13	Igoji Cooling Centre: supply, fabricate and install complete roof-mounted PV support structures as determined by the approved Bidder design, including aluminium/galvanized structural members, rails, brackets, clamps, fasteners, anchors, foundations, corrosion protection, waterproofing and all accessories. Rate shall be per Watt of the scheduled PV capacity.	53600W				
4.14	Igoji Cooling Centre: supply, fabricate and install complete roof-mounted and/or ground-mounted PV support structures as determined by the approved Bidder design, including aluminium/galvanized structural members, rails, brackets, clamps, fasteners, anchors, foundations, corrosion protection, waterproofing and all accessories. Rate shall be per Watt of the scheduled PV capacity.	10050W				

Item	Description	Qty.	Unit Price[1]		Total Price[1]	
			Foreign Currency Portion	Local Currency Portion	Foreign	Local
		-1	*-2*	*(3.00)*	*(1) x (2)*	*(1) x (3)*
4.15	Chogoria Cooling Centre: supply, fabricate and install complete roof-mounted and/or ground-mounted PV support structures as determined by the approved Bidder design, including aluminium/galvanized structural members, rails, brackets, clamps, fasteners, anchors, foundations, corrosion protection, waterproofing and all accessories. Rate shall be per Watt of the scheduled PV capacity.	70015W				
4.16	Supply and install complete DC and AC protection and isolation arrangements at all project sites, including DC combiner boxes/string protection as required by the approved module and string configuration, PV disconnects, AC breakers, surge protection, terminals and accessories.	7 Set				
4.17	Supply, install, terminate and test 16 mm2 single-core solar PV cable, black, complete with connectors, glands, lugs, markers and accessories.	2,732 LM				
4.18	Supply, install, terminate and test 16 mm2 single-core solar PV cable, red, complete with connectors, glands, lugs, markers and accessories.	2,782 LM				
4.19	Supply, install, terminate and test 35 mm2 single-core solar PV cable, black, complete with connectors, glands, lugs, markers and accessories.	120 LM				
4.20	Supply, install, terminate and test 35 mm2 single-core solar PV cable, red, complete with connectors, glands, lugs, markers and accessories.	120 LM				

Item	Description	Qty.	Unit Price[1]		Total Price[1]	
			Foreign Currency Portion	Local Currency Portion	Foreign	Local
		-1	*-2*	*(3.00)*	*(1) x (2)*	*(1) x (3)*
4.21	Supply, install, terminate and test 95 mm2 single-core solar PV cable, black, complete with connectors, glands, lugs, markers and accessories.	240 LM				
4.22	Supply, install, terminate and test 95 mm2 single-core solar PV cable, red, complete with connectors, glands, lugs, markers and accessories.	240 LM				
4.23	Supply, install, terminate and test 16 mm2 armoured AC cable, 600/1000 V, complete with glands, lugs, markers and accessories, number of cores as required by the approved connection design and Employer's Requirements.	70 LM				
4.24	Supply, install, terminate and test 35 mm2 armoured AC cable, 600/1000 V, complete with glands, lugs, markers and accessories, number of cores as required by the approved connection design and Employer's Requirements.	150 LM				
4.25	Supply, install, terminate and test 150 mm2 armoured AC cable, 600/1000 V, complete with glands, lugs, markers and accessories, number of cores as required by the approved connection design and Employer's Requirements.	2,280 LM				
4.26	Supply and install earth rods complete with clamps and accessories.	31 No.				
4.27	Supply and install lightning arrestors/protection devices complete with all accessories.	28 No.				
4.28	Main Factory: Supply and install complete DC and AC earthing systems, bonding and associated accessories at all project sites.	1 Item				

Item	Description	Qty.	Unit Price[1]		Total Price[1]	
			Foreign Currency Portion	Local Currency Portion	Foreign	Local
		-1	*-2*	*(3.00)*	*(1) x (2)*	*(1) x (3)*
4.29	Kiirua, Githongo, Giantune, Kanyakine, Igoji, Chogoria: Supply and install complete DC and AC earthing systems, bonding and associated accessories at all project sites.	6 Item				
4.3	Main Factory: Supply and install assorted cable trays, covers, supports and associated cable management accessories at all project sites.	1 Item				
4.31	Kiirua, Githongo, Giantune, Kanyakine, Igoji, ChogoriaSupply and install assorted cable trays, covers, supports and associated cable management accessories at all project sites.	6 Item				
4.32	Delivery to site, positioning, installation, electrical and process connection, testing and commissioning of the two scheduled 20,000 L bulk milk chilling tanks and associated accessories. Bulk milk chilling tank, 20,000 L capacity, AISI 304 food-grade stainless steel inner and outer shells, 100 mm high-density polyurethane insulation, cooling from 30°C to 4°C within 4 hours, thermal retention below 6°C for minimum 20 hours, 3 agitators, hermetically sealed Danfoss compressors, Sporlan thermal expansion valves, integrated CIP spray-ball system, preferred flowmeter make Endress+Hauser electromagnetic, Siemens S7-1200 PLC, Siemens KTP-700 Basic Touch Panel, 3-phase 400 V 50 Hz supply, complete with controls, safety devices and accessories, compliant with 3-A Sanitary, EU Machinery Directive and ISO 5708 requirements.	2 No.				
4.33	System testing, performance verification, grid-tie functional tests, final commissioning, operator training, O&M manuals, warranties, test certificates and handover documentation.	1 Item				

Item	Description	Qty.	Unit Price[1]		Total Price[1]	
			Foreign Currency Portion	Local Currency Portion	Foreign	Local
		-1	*-2*	*(3.00)*	*(1) x (2)*	*(1) x (3)*
4.34	Provide for energy data collection and analysis at the Main Factory and six cooling centres as required for final design and coordination.	7 Item				
4.35	Provide for the mobilization and establishment of the Contractor's site camp,	1 Item				
TOTAL (to Schedule No. 5. Grand Summary)						
Name of Bidder: _____						

1 Specify currency in accordance with ITB 18

Schedule No. 5. Grand Summary

Item	Description	Total Price[1]	
		Foreign	Local
1	**Total Schedule No. 1. Plant, and Mandatory Spare Parts Supplied from Abroad**	**N/A**	**N/A**
2	Total Schedule No. 2. Plant, and Mandatory Spare Parts Supplied from Within the Employer's Country		
3	Total Schedule No. 3. Design Services		
4	Total Schedule No. 4. Installation and Other Services		
TOTAL (to Letter of Bid)			

Name of Bidder: _____

Signature of Bidder: _____

1Specify currency in accordance with ITB 18. Create and use as many columns for Foreign Currency requirement as there are foreign currencies

Schedule No. 6. Recommended Spare Parts

Item	Description	Qty.	Unit Price		Total Price
			CIF or CIP (foreign parts)	EXW (local parts)	
		(1)	*(2)*	*(3)*	*(1) x (2) or(3)*
	NOT APPLICABLE FOR THIS PROCUREMENT. Recommended Spare Parts are not required as a separate Price Schedule.				

Name of Bidder: _____

Signature of Bidder: _____