

ANNEX I / Lot 1 - for Alefa Kebele, Bure Woreda, West Gojam, Amhara			
Lot 1	Specification of solar pumping systems (two types)	Unit	QTY
1.1	Solar pumping system 1 with the following requirements	pcs	5
	Small-holder size, submersible pump-system for minimum 4" wells		
	Water flow per hour: 2.5m ³ /hour- 4.0m ³ /hr at head range of 11m -15m correspondingly		
	Head: 20 m max.		
	Comes with solar panel of at least 300-360Wp mono/polycrystalline or compatible with pump controller and pump voltage and current requirement and all connection accessories included		
	Mounting structure suitable for solar PV and all necessary accessories such as bolts screws etc		
	Maintenance-free brushless DC motor made out of stainless steel (AISI 304) and with IP68-class enclosure. Min. 82% efficiency, insulation class F		
	Pump controller: Controlling and monitoring device that controls inputs for dry running protection, remote control etc. Min efficiency 90%		
	Protected against reverse polarity, overload and overtemperature		
	Integrated MPPT (Maximum Power Point Tracking)		
	Controller should have surge protection capability		
	Bluetooth and onboard data storage		
	Float switch and rope for pump suspension in water source. At least 15m well probe / float switch extension cable with plug for each pump system		
	At least 25m ,10mm ² wire needed to connect each pump to pump controller , grounding wire if needed for each pump system		
	500m -meter delivery hose pipe(HDPE Pipe ID 35mm OD 40 mm or compatible with pump outlet diameter) with connection accessories to deliver water into storage tank		
	Stilling Tube or equivalent to protect the pump from the dirt and all necessary accessories to connect stilling tube to the pump		
	At least 1-year warranty and six month after-sales services		
1.2	Solar pumping system 2 with the following requirements	pcs	5
	Small-holder size, submersible pump-system for minimum 4" wells		
	Water flow per hour: Water flow per hour: between 1.5m ³ /h -2.8m ³ /h at head range of 14m-12m correspondingly		
	Head: 20 m max.		
	Comes with solar panel of at least 200Wp mono/polycrystalline or compatible with pump controller and pump voltage and current requirement and all connection accessories included		
	Mounting structure suitable for solar PV and all necessary accessories such as bolts screws etc		
	Maintenance-free brushless DC motor made out of stainless steel (AISI 304) and with IP68-class enclosure. Min. 82% efficiency, insulation class F		
	Pump controller :Controlling and monitoring device that controls inputs for dry running protection, remote control etc. Min efficiency 90%		
	Protected against reverse polarity, overload and overtemperature		
	Integrated MPPT (Maximum Power Point Tracking)		
	Surge protector or controller should have surge protection capability		
	Float switch and rope for pump suspension in water source. At least 15m well probe / float switch extension cable with plug		
	At least 25m ,10mm ² wire needed to connect each pump to pump controller , grounding wire if needed for each pump system		
	100m meter delivery hose pipe(HDPE Pipe ID 35mm OD 40 mm) with connection accessories for pumping water into storage tank for each pump		
	Stilling Tube or equivalent to protect the pump from the dirt and all necessary accessories to connect stilling to the pump		
	At least 1-year warranty and six month after-sales services		

ANNEX I / Lot 2 - for Amude Kebele, Doddota Woreda, Arsi, Oromia

Lot 2	Specification of solar pumping systems (two types)	Unit	QTY
1.1	Solar pumping system 1 with the following requirements	pcs	7
	Small-holder size, submersible pump-system for minimum 4" wells		
	Water flow per hour: 2.5m ³ /hour- 4.0m ³ /hr at head range of 11m -15m correspondingly		
	Head: 20 m max.		
	Comes with solar panel of at least 300-360Wp mono/polycrystalline or compatible with pump controller and pump voltage and current requirement and all connection accessories included		
	Mounting structure suitable for solar PV and all necessary accessories such as bolts		
	Maintenance-free brushless DC motor made out of stainless steel (AISI 304) and with IP68-class enclosure. Min. 82% efficiency, insulation class F		
	Pump controller: Controlling and monitoring device that controls inputs for dry running protection, remote control etc. Min efficiency 90%		
	Protected against reverse polarity, overload and overtemperature		
	Integrated MPPT (Maximum Power Point Tracking)		
	Controller should have surge protection capability		
	Bluetooth and onboard data storage		
	Float switch and rope for pump suspension in water source. At least 15m well probe / float switch extension cable with plug for each pump system		
	At least 25m ,10mm ² wire needed to connect each pump to pump controller , grounding wire if needed for each pump system		
	500m -meter delivery hose pipe(HDPE Pipe ID 35mm OD 40 mm or compatible with pump outlet diameter) with connection accessories to deliver water into storage tank		
	Stilling Tube or equivalent to protect the pump from the dirt and all necessary accessories to connect stilling tube to the pump		
	At least 1-year warranty and six month after-sales services		
1.2	Solar pumping system 2 with the following requirements	pcs	3
	Small-holder size, submersible pump-system for minimum 4" wells		
	Water flow per hour: Water flow per hour: between 1.5m ³ /h -2.8m ³ /h at head range of 14m-12m correspondingly		
	Head: 20 m max.		
	Comes with solar panel of at least 200Wp mono/polycrystalline or compatible with pump controller and pump voltage and current requirement and all connection accessories included		
	Mounting structure suitable for solar PV and all necessary accessories such as bolts screws etc		
	Maintenance-free brushless DC motor made out of stainless steel (AISI 304) and with IP68-class enclosure. Min. 82% efficiency, insulation class F		
	Pump controller :Controlling and monitoring device that controls inputs for dry running protection, remote control etc. Min efficiency 90%		
	Protected against reverse polarity, overload and overtemperature		
	Integrated MPPT (Maximum Power Point Tracking)		
	Surge protector or controller should have surge protection capability		
	Float switch and rope for pump suspension in water source. At least 15m well probe / float switch extension cable with plug		
	At least 25m ,10mm ² wire needed to connect each pump to pump controller , grounding wire if needed for each pump system		
	100m meter delivery hose pipe(HDPE Pipe ID 35mm OD 40 mm) with connection accessories for pumping water into storage tank for each pump		
	Stilling Tube or equivalent to protect the pump from the dirt and all necessary accessories to connect stilling to the pump		
	At least 1-year warranty and six month after-sales services		

ANNEX II: Detailed work description for installing 10 solar pumping systems per kebele (LOT I & II)

No	Detail work Description	Unit	Qty
1	Installation of PV panels and Pump system		
1.1	Installation of PV Modules including completion of all (inter)connections and fixing of accessories: - Installing and interconnecting solar generator - Supporting structure for all PV Modules (ground mounted) - Male and Female PV module connectors connections - Installation of earthing wires, connectors - Installation of pump controller and associated accessories - Testing and commissioning of the above	lump sum per lot/kebele	1
1.2	Installation of solar pump: - Installation of solar pump including fuse, surge arrester, disconnect switch, low water level detection probe inside the borehole, and grounding - connecting the pump terminal with pump controller and all necessary sensors (pump dry run sensor, water level sensor etc) - Testing and commissioning of the above	lump sum per lot	1
2	Training end users (farmers and woreda technicians) and system		
2.1	- General concept and functionality of the system - What to do and What NOT to do with the system - Safety rules when handling the system - system operation trouble shooting - Efficient use of energy and general system management - Basic trouble-shooting maintenance	hours per lot/kebele	8
3	Transport of material to site		
3.1	Loading, transporting using a track of payload 250kg and unloading at site	Lump sum per lot/kebele	1
4	Handing over, documentation and reporting		
4.1	- Full functionality check of the whole installation and according to a testing & commissioning protocol - Preliminary hand-over the installed system to the Farmer - Handing over all necessary documents (manuals) - Reporting all work done to GIZ in hard-copy and soft-copy	Lump sum per lot	1
5	Six months after-sales service		
5.1	- One preventative maintenance visit - After-sales service and maintenance service in case problems occur - Service maintenance and final handing-over report	Lump sum per lot	1

Annex III - Locations

The pre-selected 20 farm sites are clustered in 2 lots. Companies can bid for **one lot or both lots**

In case of circumstances beyond GIZ's control, sites may change and be replaced by alternatives in the area.

Exact locations and GPS coordinates will be provided after contracting

LOT 1 Alefa Kebele Amhara region						
No.	Amhara / Zone	Woreda	Kebele	Farm code	Distance from Addis Ababa (Km)	Distance from woreda town (Km)
1	West Gojam	Bure zuria	Alefa Basi	AM_AL_01 AM_AL_02 AM_AL_03 AM_AL_04 AM_AL_05 AM_AL_06 AM_AL_07 AM_AL_08 AM_AL_09 AM_AL_10	400km	7km

LOT 2 Amude Kebele Oromia region						
No.	Oromia/ Zone	Woreda	Kebele	Farm code	Distance from Addis Ababa (Km)	Distance from woreda town (Km)
1	Arsi zone	Doddota	Amude	OM_AM_01 OM_AM_02 OM_AM_03 OM_AM_04 OM_AM_05 OM_AM_06 OM_AM_07 OM_AM_08 OM_AM_09 OM_AM_10	130km	36km

ANNEX IV : Required staff composition for solar pumping installation

<p>One installation team to install the entire system, test the functionality, give operation instruction training for basic maintenance for one assigned staff member and awareness training for all staff members,</p> <p>Each team should consist of minimum: see below</p>		
1	<p>Solar PV and Pump installation Expert</p> <p>Minimum requirement : Class B professional certificate from Ethiopian Electric Agency</p>	<p><u>Task:</u> Responsible foreman, Solar and pump components installation</p>
2	<p>Plumping and water supply work expert</p> <p>TVET college diploma - Minimum seven years experience in plumping and water supply works</p>	
3	<p>Local daily laborer: Can be hired for Loading and unloading, Excavation work/helper</p>	<p><u>Tasks:</u> physical / manual works when and where needed</p>

ANNEX V - Qualification assessment criteria

No.	Minimum Criteria	Grading
1	Legal Documents	
	Valid Trade license and business registration certificate.	Required
	Construction lincense grade 5 or above	Required
	VAT registration certificate or ToT certificate	Required
	Tax clearance certificate	Required
2	Experience and qualification	
2.1	General Experience	
	A minimum of three solar water pumping projects with each project cost of at least 600,000 Birr in the last three years	20
2.2	Specific Experience	
	At least one submersible solar pumping system installation for small irrigation application with a project cost of 300,000Birr in the last five years	20
3	Qualification and competence of the key professional staffs engaged in the works	
	1 Electrical engineering/ renewable energy/ irrigation engineering professional currently working for the company in the related field and having significant experience in the sector solar water pumping installation and commsioining . The bidder has to indicate other staff and casual labourers required for undertaking the assignment (solar PV, solar pump and pump controller installation)	
3.1	Two site engineers in possession of minimum of BSc degree in electrical/irrigation or other related engineering disciplines - Minimum of Seven years experience in solar pumping	17
3.2	Two general plumbing worker holding TVET college diploma - Minimum seven years experience in plumping and water supply works	7
4	Construction Equipment	
4.1.	Double cabin four-wheel drive pick-up or equivalent means of transport	4
4.2.	Solar pumping installation equipment (solar PV installation, submersable pump installation, plumbing etc) - hoisting equipment (for lowering the pump into the borehole) - basic electrical tools enough - plumbing tools - angle measurement device, compass, GPS device, electrical measurement instrument (digital multimeter)	4
5	Financial competence	
	Annual Turnover	10
5.1	The candidate should have minimum average annual turnover of ETB of 1,000,000.00 throughout the past three years	
6	Work Methodology and schedule (total of 35 points)	
6.1	Clear understanding of the project and description of the work	6
6.2	Work methodology	6
6.3	Time schedule	3
6.4	Backstopping and quality control capacity (please outline installation experience)	3
	TOTAL	100