

Terms of Reference

Rehabilitation of Solar PV Plants Components

Oxfam Lebanon Program

**I- Background**

**Oxfam** is a global movement of people, working together to end the injustice of poverty. Oxfam has been working in Lebanon since 1993. We provide humanitarian assistance to vulnerable people affected by conflict, and we promote economic justice and good governance, and women’s rights. Oxfam also works with local partners to contribute to the protection and empowerment of marginalized women and men.

**II- Project Objective**

Oxfam is supporting the Bekaa Water Establishment in the rehabilitation of their solar PV water pumping stations. Therefore, Oxfam is seeking a supplier/contractor to replace damaged components of the PV plants used for water pumping in North Bekaa (batteries of lead acid type, PV panels, contactors, electric relays, padlocks, valves, etc.)

**III- Requested components for the rehabilitation of the PV plants for water pumping.**

**1- Location 1: Kfarzabad Solar Water Station**

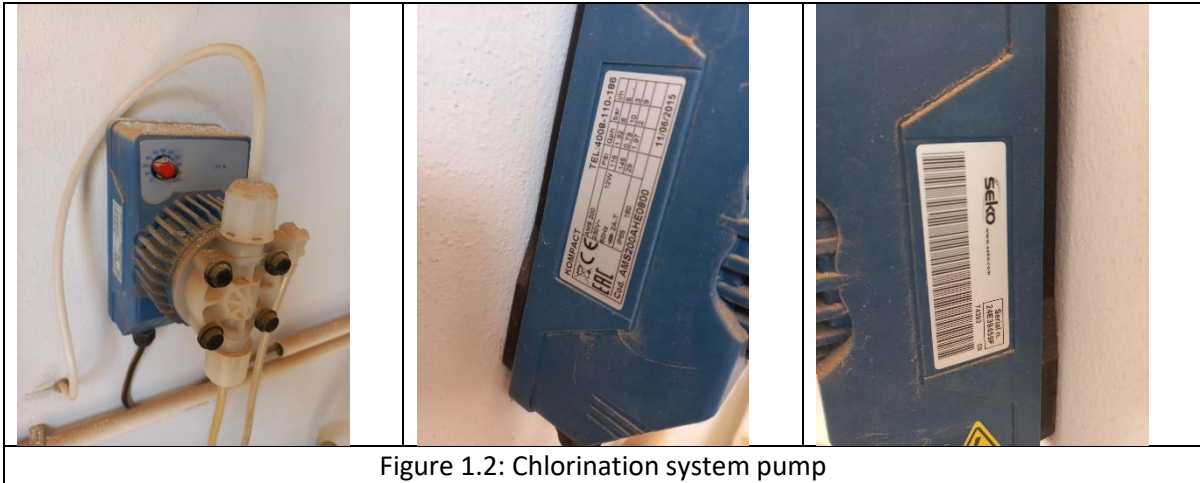


Figure 1.1: Kfarzabad solar water pumping station

**1.1 Chlorination system rehabilitation**

The pump used for the chlorination system needs replacement. It is shown in the figure 1.4 below. The pump characteristics are the following: IP 65, 12 W, 230 V, 8 bars, 5 L/h.

Pressure (Bars)	Flowrate (l/h)
8	5
10	3
2	9



Also, the chlorination system tank mixer is out of use and should be replaced by a new one as shown in the figure 1.3, as well the connection between the two chlorination tanks should be repaired.

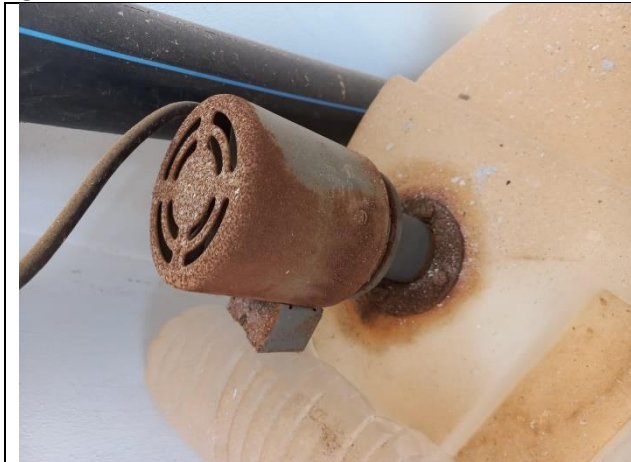


Figure 1.3: Chlorination system tank mixer



Figure 1.4: Connection between the two chlorination tanks

It is to be noted that the chlorination system does not have chlorine powder or chlorine. Therefore, two plastic chlorine containers of 10 kg each are required.

### 1.2 Grass removal tools from under and around the PV panels

A grass removal or string trimmer is requested to remove existing grass from under and around the PV panels to avoid fire risks. Figure 1.5 below shows the grass being at a very high risk of fire.

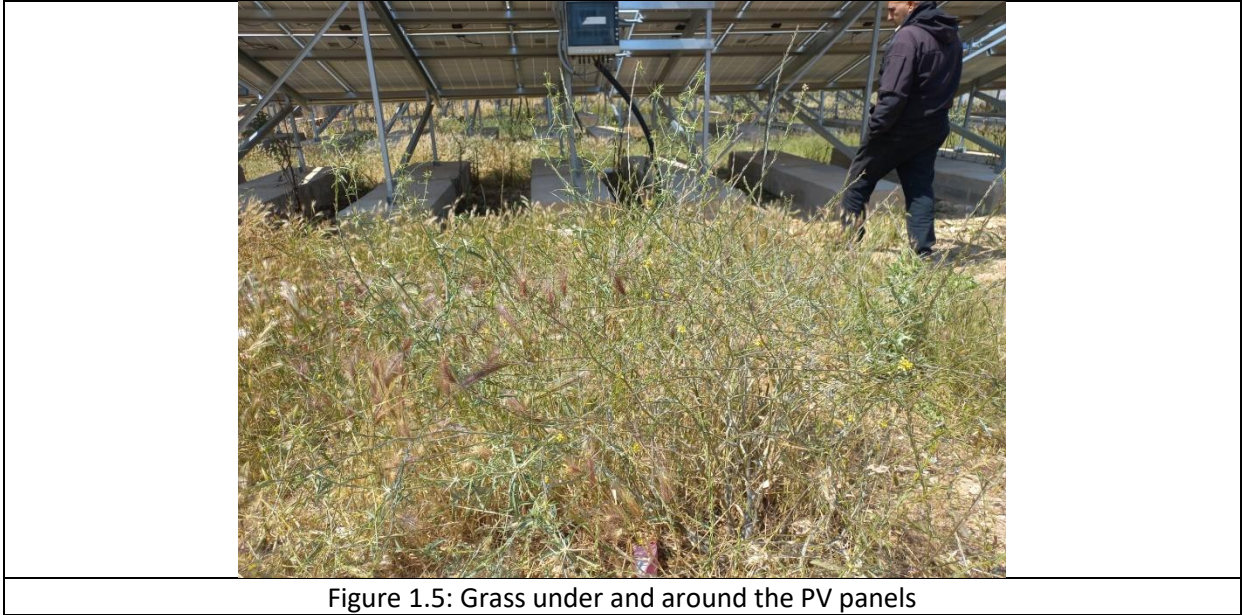


Figure 1.5: Grass under and around the PV panels

In addition to the string trimmer, the following hand tools are requested:

- Hoe (heavy duty, large metal blade > 7 in., wood handle)
- Pickaxe (heavy duty, 36 inches L x 21 inches W x 2.75 inches D, tool head weighs 5 lbs, wood handle)
- Shovel (heavy duty)

### 1.3 Valves for the PV panels cleaning system.

As shown in the figure 1.6 below, the PV panels cleaning system water network is missing the ball tap valves. In total, 5 ball tap valves of ½ in are needed.



Figure 1.6: Existing pits for the installation of the ball tap valves

### 1.4 Output Valve

The below water output valve (3 inches) of is continuously leaking water. Therefore, it must be replaced by a new similar one.

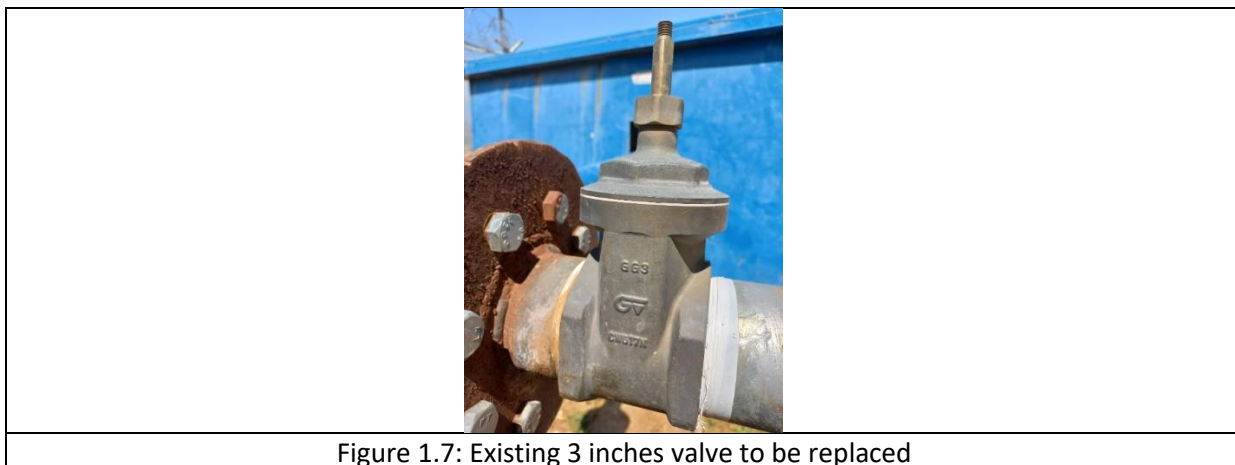


Figure 1.7: Existing 3 inches valve to be replaced

### 1.5 Technical room roof water proofing

The roof of the technical room presented in figure 1.1 needs to be waterproofed to avoid water leakage to the electrical equipment. Therefore, it is requested to prepare the roof surface properly (surface cleaning, dirt/debris removal) and then apply a waterproofing material layer (Polyurethane, EU origin). The estimated area of the roof is 10 m<sup>2</sup>.

### 1.6 Summary of actions or items to installed in Kfarzabad solar water station.

#	Action
1.2.1	Supply and install a chlorination pump (IP 65, 12 W, 230 V, 8 bars, 5 L/h, EU Origin)
1.2.2	Supply and install a chlorination system tank mixer (EU Origin)
1.2.3	Fix the connection between the two chlorination tanks
1.2.4	Supply two plastic chlorine containers of 10 kg each
1.3	Supply string trimmer for grass removal (Heavy duty, >50 cc quick start gasoline engine, >40 cm cutting width)
1.4	Supply and install 5 ball tap valves of ½ in each (EU Origin)
1.5	Supply and install 3 inches valve (brass or equivalent, EU Origin)
1.6	Supply 2 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys
1.7	Supply: <ul style="list-style-type: none"> <li>- 1 Hoe (heavy duty, large metal blade &gt; 7 in., wood handle)</li> <li>- 1 Pickaxe (heavy duty, 36 inches L x 21 inches W x 2.75 inches D, tool head weighs 5 lbs, wood handle)</li> <li>- 1 Shovel (heavy duty)</li> </ul>
1.8	Roof of the technical room waterproofing. Including treating of roof surface properly (surface cleaning, dirt/debris removal) and then applying a waterproofing material layer (Polyurethane, EU origin). The estimated area of the roof is 10 m <sup>2</sup> .

## **2- Location 2: Al Maslaha Baalback Solar Water Station**

### **2.1 Batteries**

The 2 batteries of lead acid type 150 Ah (figure below) need replacement by new ones with similar specifications (12 V, equivalent or higher storage capacity). These batteries are connected to an old hybrid inverter and therefore it is not recommended to be connected to lithium type battery.



Figure 2.2: Existing 2 lead acid batteries

### **2.2 PV panels**

10 PV panels of 320 Wp need to be replaced. Some of these panels are broken or hit by bullets (Figure 2.3). It is recommended to be replaced by 550 Wp Tier 1 PV panels if 320 Wp are not available.



Figure 2.3: Broken PV panel (hit by a bullet)

### **2.3 Grass removal from under and around the PV panels**

A grass removal or string trimmer is requested to remove existing grass from under and around the PV panels to avoid fire risks.



Figure 2.4: Grass under and around the PV panels in May 2024 (left) and Summer 2023 (right)

In addition to the string trimmer, the following tools are requested:

- Hoe (heavy duty, large metal blade > 7 in., wood handle)
- Pickaxe (heavy duty, 36 inches L x 21 inches W x 2.75 inches D, tool head weighs 5 lbs, wood handle)
- Shovel (heavy duty)
- 2 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys

#### **2.4 EDL electricity connection to the diesel generator panel board**

Supply and install 40 meters AC cable 4x125mm<sup>2</sup> and electrical accessories (MTS 400 A, ...) to connect EDL electricity to the diesel generator panel board. All accessories and safety items are requested.

#### **2.5 Summary of actions or items to installed in Al Maslaha Baalbeck solar water station**

#	Action
2.1	Supply and install 2 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)
2.2	Replacement of 10 PV panels of 320 Wp (550 Wp Tier 1 PV panels are preferred if 320 Wp are not available)
2.3	Supply string trimmer for grass removal
2.4	Supply and install 40 meters AC cable 4x125mm <sup>2</sup> and all needed accessories (MTS 400 A, terminal electrical connections, fixing items, protection...) to connect EDL electricity to the diesel generator panel board
2.5	Supply 2 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys

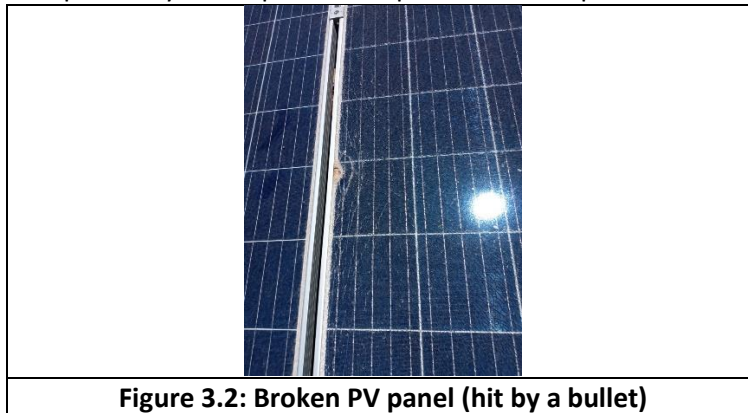
### 3- Location 3: Assayra 10 - Baalbeck Solar Water Station

#### **3.1 Batteries**

2 batteries of lead acid type 150 Ah need replacement by new ones with similar specifications (12 V, equivalent or higher storage capacity). These batteries are connected to an old hybrid inverter and therefore it is not recommended to be connected to lithium type battery.

#### **3.2 PV panels**

10 PV panels of 320 Wp need to be replaced. Some of these panels are broken or hit by bullets (Figure 2.3). It is recommended to be replaced by 550 Wp Tier 1 PV panels if 320 Wp are not available.



#### **3.3 Electric contactor**

The electric contactor 400 A shown in the figure below needs replacement by a new one.

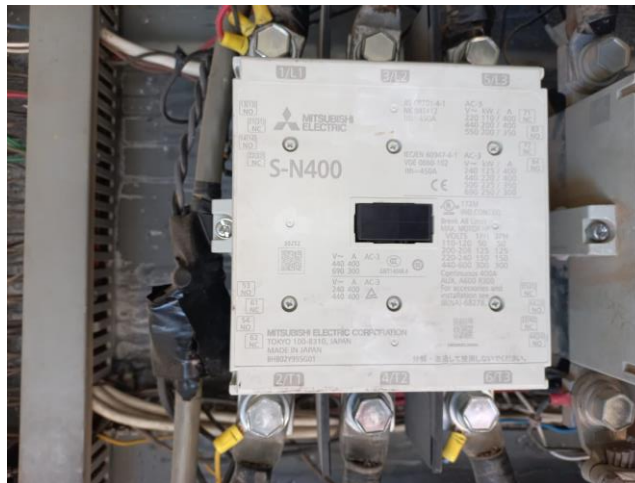
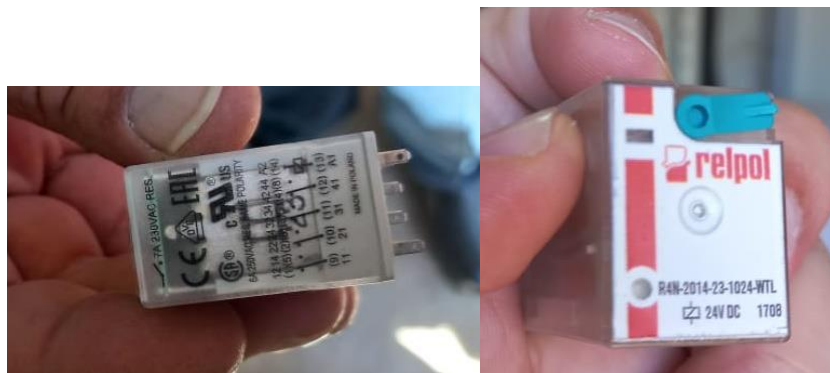


Figure 3.3: Damaged electrical contactor (400A)

#### **3.5 Electric relays**

As well, 5 electric relays like the one shown in the figure below need replacement.



**Figure 3.4: Damaged electrical relays**

### 3.6 Fence padlock

It was observed that the fence padlock is damaged and requires to be replaced by new one of heavy-duty type.



**Figure 3.5: Damaged fence padlock**

The supplier is requested to supply 3 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys.

### 3.7 Summary of actions or items to installed in Assayra #10 Baalbeck solar water station

#	Action
3.1	Supply and install 2 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)
3.2	Replacement of 12 PV panels of 320 Wp (550 Wp Tier 1 PV panels are preferred if 320 Wp are not available)
3.3	Supply string trimmer for grass removal
3.4	Supply and install three phase 400 A contactor (S-N400, IEC/EN 60947-4-1, VDE 0660, Ith 450 A, AC-3, continuous current rating 400 A)
3.5	Supply and install of 5 electric relays industrial R4N type (Contacts: 4 CO; rated load AC1 - 7 A/230 V AC; coils AC or DC; for plug-in sockets and PCB; mechanical indicator, LED (option); test button)
3.6	Supply 3 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys



**4- Location 4: Assayra 12 - Baalbeck Solar Water Station**

**4.1 Summary of actions or items to installed in Assayra #12 Baalbeck solar water station**

#	Action
4.1	Supply and install 2 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)
4.2	Replacement of 14 PV panels of 320 Wp (550 Wp PV panels Tier 1 are preferred if 320 Wp are not available)
4.3	Supply string trimmer for grass removal
4.4	Supply and install three phase 400 A contactor (S-N400, IEC/EN 60947-4-1, VDE 0660, Ith 450 A, AC-3, continuous current rating 400 A)
4.5	Supply and install of 5 electric relays industrial R4N type (Contacts: 4 CO; rated load AC1 - 7 A/230 V AC; coils AC or DC; for plug-in sockets and PCB; mechanical indicator, LED (option); test button)
4.6	Supply 2 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys

**5- Location 5: Al Maslakh - Baalbeck Solar Water Station**

**5.3 Summary of actions or items to installed in Al Maslakh Baalbeck solar water station**

#	Action
5.1	Addition of 16 PV panels (550 Wp Tier 1 PV panels are preferred if 320 Wp are not available) with their steel structure and all needed accessories (Galvanized G90 type, to withstand wind speed of 120 km/h and snow load) and connection to the existing inverter
5.2	Supply and install of 5 electric relays industrial R4N type (Contacts: 4 CO; rated load AC1 - 7 A/230 V AC; coils AC or DC; for plug-in sockets and PCB; mechanical indicator, LED (option); test button)
5.3	Supply 3 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys
5.4	Supply and install 2 door locks (figure 5.1 below)
5.5	150 mm valve and 90 mm valve to be replaced by new ones with same specifications



**Figure 5.1: Door locks needs to be replaced or maintained.**

**6- Location 6: Douris - Baalbeck Solar Water Station**

**6.1 Summary of actions or items to installed in Douris Baalbeck solar water station**

#	Action
6.1	Supply and install 2 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)
6.2	Replacement of 8 PV panels of 320 Wp (550 Wp Tier 1PV panels are preferred if 320 Wp are not available)
6.3	Supply string trimmer for grass removal
6.4	Supply and install three phase 400 A contactor (S-N400, IEC/EN 60947-4-1, VDE 0660, Ith 450 A, AC-3, continuous current rating 400 A)
6.5	Supply and install of 5 electric relays industrial R4N type (Contacts: 4 CO; rated load AC1 - 7 A/230 V AC; coils AC or DC; for plug-in sockets and PCB; mechanical indicator, LED (option); test button)
6.6	Supply 2 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys

**7- Location 7: Brital - Baalbeck Solar Water Station**

**7.1 Summary of actions or items to installed in Brital Baalbeck solar water station**

#	Action
7.1	Supply and install 2 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)

**8- Location 8: Seriine - Baalbeck Solar Water Station**

**8.1 Summary of actions or items to installed in Seriine Baalbeck solar water station**

#	Action
8.1	Supply and install 2 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)

**9- Location 9: Nabi Chit - Baalbeck Solar Water Station**

**9.1 Summary of actions or items to installed in Nabi Chit Baalbeck solar water station**

#	Action
9.1	Supply and install 4 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)

## **10- General Equipment for Solar Water Stations**

### **10.1 Summary of actions or items**

#	Action
10.1	Multimeter x 2 (AC/DC Digital Clamp Meter (minimum 800 VDC, 400A AAC))
10.2	Safety helmet x 10
10.3	Piezometer with accessories length 300 m
10.4	5 kWp solar hybrid inverter monophase, colorful touch LCD, IP65, efficiency > 97%, Surge protection DC Type II / AC Type II, Battery type Lead-acid or Lithium-ion, Self-adaption to BMS, PV Input Voltage 100V~500V, PV Input Current 13 A, No. of MPPT Trackers 2, 5 years warranty.
10.5	Supply, install, test, and commission of a lithium battery not less than 5 kWh, 200 Ah 48VDC, 6000 cycle depth of discharge is 95%, the battery system shall be mounted on rack or wall mounted, well-ventilated including all required cables and accessories
10.6	Electrical fuses, surge arrestor, circuit breakers, electrical cable junctions and terminals, contactors, phase relays, timers, thermal relays, cables.

## **IV- General Requirements**

- **The contractor should demonstrate his proposal with a sample or detailed specifications with pictures.**
- The quantities of the items described in the above may be increased or reduced according to the site conditions, based on the same pricing presented in the bill of quantities.
- The contractor is responsible for the material supply, power supply and all means of works on site.
- Oxfam has the right to reject any items/works not approved by the delegated engineer.
- The period of execution of works should not exceed **30 calendar day**.
- The contractor should prepare and submit technical and financial offer for the works with detailed Work plan, detailed Bills of Quantities, and execution schedule.
- The contractor will be responsible to provide transportation for his worker to the site.
- The tender items are not dividable.
- The Site Engineer may amend what he deems "technically" suitable for the project and after taking the approval of Oxfam, and the Contractor must abide completely with what was required by the supervising committee.
- The Contractor's relationship will directly be with OXFAM staff.
- OXFAM staff or his/her representative will be present onsite during the installation.
- The contractor shall execute all work required in the presence of the site Engineer or his/her representative considering that the supervision committee has the right to require re-implementation in case of violation of specifications agreed in the technical Book of Conditions or the instructions of the supervising committee or which have been executed in the absence of Oxfam supervisors without informing the supervisor of the time of executing the works.

- Oxfam Team or his/her representative is responsible to monitor and confirm the work.
- Oxfam has the right to increase or decrease quantities at the same unit cost.
- The contractor should assign a site engineer/technician to follow the execution work and be the focal point from the contractor field side.
- The contractor should ensure safety and security/prevention to avoid any accident while implementing the activity.

**The Contractor must:**

- Ensure that the supplied items are brand new **not renewed**, and that applies to all the supplied items. Preference is given to the items that have proven technical quality and efficiency during the operation.

**V- Bill of Quantities**

#	Description	Quantity	Unit	Unit cost	Total cost
<b>Location 1: Kfarzabad Solar Pumping Station</b>					
1.2.1	Supply and install a chlorination pump (IP 65, 12 W, 230 V, 8 bars, 5 L/h, EU Origin)	1			
1.2.2	Supply and install a chlorination system tank mixer (EU Origin)	1			
1.2.3	Fix the connection between the two chlorination tanks	1			
1.2.4	Supply two plastic chlorine containers of 10 kg each	2			
1.3	Supply string trimmer for grass removal (Heavy duty, >50 cc quick start gasoline engine, >40 cm cutting width)	1			
1.4	Supply and install 5 ball tap valves of ½ in each (EU Origin)	5			
1.5	Supply and install 3 inches valve (brass or equivalent, EU Origin)	3			
1.6	Supply 2 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys	2			
1.7.1	Supply 1 Hoe (heavy duty, large metal blade > 7 in., wood handle)	1			
1.7.2	Supply 1 Pickaxe (heavy duty, 36 inches L x 21 inches W x 2.75 inches D, tool head weighs 5 lbs, wood handle)	1			
1.7.3	1 Shovel (heavy duty)	1			
1.8	Roof of the technical room waterproofing. Including treating of roof surface properly (surface cleaning, dirt/debris removal) and then applying a waterproofing material layer (Polyurethane, EU origin). The estimated area of the roof is 10 m <sup>2</sup> .	10	m <sup>2</sup>		
<b>Location 2: Al Maslaha Baalbeck solar water station</b>					
2.1	Supply and install 2 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)	2			
2.2	Replacement of 10 PV panels of 320 Wp (550 Wp Tier 1 PV panels are preferred if 320 Wp are not available)	10			
2.3	Supply string trimmer for grass removal	1			

2.4	Supply and install 40 meters AC cable 4x125mm <sup>2</sup> and all needed accessories (MTS 400 A, terminal electrical connections, fixing items, protection...) to connect EDL electricity to the diesel generator panel board	1			
2.5	Supply 2 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys	2			
<b>Location 3: Assayra #10 Baalbeck solar water station</b>					
3.1	Supply and install 2 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)	2			
3.2	Replacement of 12 PV panels of 320 Wp (550 Wp Tier 1 PV panels are preferred if 320 Wp are not available)	12			
3.3	Supply string trimmer for grass removal	1			
3.4	Supply and install three phase 400 A contactor (S-N400, IEC/EN 60947-4-1, VDE 0660, Ith 450 A, AC-3, continuous current rating 400 A)	1			
3.5	Supply and install of 5 electric relays industrial R4N type (Contacts: 4 CO; rated load AC1 - 7 A/230 V AC; coils AC or DC; for plug-in sockets and PCB; mechanical indicator, LED (option); test button)	5			
3.6	Supply 3 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys	3			
<b>Location 4: Assayra #12 Baalbeck solar water station</b>					
4.1	Supply and install 2 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)	2			
4.2	Replacement of 14 PV panels of 320 Wp (550 Wp PV panels Tier 1 are preferred if 320 Wp are not available)	14			
4.3	Supply string trimmer for grass removal	1			
4.4	Supply and install three phase 400 A contactor (S-N400, IEC/EN 60947-4-1, VDE 0660, Ith 450 A, AC-3, continuous current rating 400 A)	1			
4.5	Supply and install of 5 electric relays industrial R4N type (Contacts: 4 CO; rated load AC1 - 7 A/230 V AC; coils AC or DC; for plug-in sockets and PCB; mechanical indicator, LED (option); test button)	5			
<b>Location 5: Al Maslakh Baalbeck solar water station</b>					
5.1	Addition of 16 PV panels (550 Wp Tier 1 PV panels are preferred if 320 Wp are not available) with their steel structure and all needed accessories (Galvanized G90 type, to withstand wind speed of 120 km/h and snow load)	16			
5.2	Supply and install of 5 electric relays industrial R4N type (Contacts: 4 CO; rated load AC1 - 7 A/230 V AC; coils AC or DC; for plug-in sockets and PCB; mechanical indicator, LED (option); test button)	5			
5.3	Supply 3 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys	3			

5.4	Supply and install 2 door locks (figure 5.1 below)	2			
5.5	150 mm valve to be replaced by new ones with same specifications (Metal type for water use, EU origin)	1			
5.6	90 mm valve to be replaced by new ones with same specifications (Metal type for water use, EU origin)	1			
<b>Location 6: Douris Baalbeck solar water station</b>					
6.1	Supply and install 2 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)	2			
6.2	Replacement of 8 PV panels of 320 Wp (550 Wp Tier 1PV panels are preferred if 320 Wp are not available)	8			
6.3	Supply string trimmer for grass removal	1			
6.4	Supply and install three phase 400 A contactor (S-N400, IEC/EN 60947-4-1, VDE 0660, Ith 450 A, AC-3, continuous current rating 400 A)	1			
6.5	Supply and install of 5 electric relays industrial R4N type (Contacts: 4 CO; rated load AC1 - 7 A/230 V AC; coils AC or DC; for plug-in sockets and PCB; mechanical indicator, LED (option); test button)	5			
6.6	Supply 2 padlocks of 100mm 4" heavy duty stainless steel armored padlock anti-theft including 3 keys	2			
<b>Location 7: Brital Baalbeck solar water station</b>					
7.1	Supply and install 2 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)	2			
<b>Location 8: Seriene Baalbeck solar water station</b>					
8.1	Supply and install 2 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)	2			
<b>Location 9: Nabi Chit Baalbeck solar water station</b>					
9.1	Supply and install 4 batteries of lead acid type (storage capacity higher than 150 Ah, 12 V), and all needed accessories (35 mm <sup>2</sup> DC cable, fixing connections)	4			
<b>10: General Equipment for Solar Water Stations</b>					
10.1	Multimeter x 2 (AC/DC Digital Clamp Meter (minimum 800 VDC, 400A AAC))	2			
10.2	Safety helmet x 10	10			
10.3	Piezometer with accessories length 300 m	1			
10.4	Supply and install 5 kWp solar hybrid inverter monophase, colorful touch LCD, IP65, efficiency > 97%, Surge protection DC Type II / AC Type II, Battery type Lead-acid or Lithium-ion, Self-adaption to BMS, PV Input Voltage 100V~500V, PV Input Current 13 A, No. of MPPT Trackers 2, 5 years warranty.	1			
10.5	Supply, install, test, and commission of a lithium battery not less than 5 kWh, 200 Ah 48VDC, 6000 cycle depth of discharge is 95%, the battery system shall be mounted on	1			

	rack or wall mounted, well-ventilated including all required cables and accessories				
10.6.1	DC Fuse 25 A 1000 V DC (EU origin)	10			
10.6.2	DC Fuse 20 A 1000 V DC (EU origin)	10			
10.6.3	DC Fuse 15 A 1000 V DC (EU origin)	10			
10.7.1	DC Circuit Breaker 2P 20 A 600 VDC (EU origin)	10			
10.7.2	DC Circuit Breaker 2P 125 A (EU origin)				
10.8.1	AC Circuit Breaker 2P 6 A (EU origin)	10			
10.8.2	AC Circuit Breaker 2P 10 A (EU origin)	10			
10.8.3	AC Circuit Breaker 2P 20 A (EU origin)	10			
10.8.4	AC Circuit Breaker 2P 32 A (EU origin)	10			
10.8.5	AC Circuit Breaker 4P 10 A (EU origin)	10			
10.8.6	AC Circuit Breaker 4P 25 A (EU origin)	10			
10.9	DC Surge Arrestor Type I+II, 2P, VDC 1000, Up 2.5 kV, response time < 25 ns, with indicator window (EU origin)	10			
10.10	AC Surge Arrestor SPD Type I+II 1000 V (EU origin)	10			
10.11	Electrical cable junctions and terminals				
10.11.1	Copper electrical terminal 150 mm (Cosse électrique)	60			
10.11.2	Copper electrical terminal 120 mm (Cosse électrique)	60			
10.11.3	Copper electrical terminal 90 mm (Cosse électrique)	60			
10.11.4	Copper electrical terminal 50 mm (Cosse électrique)	60			
10.11.5	Aluminum electrical terminal 120 mm (Cosse électrique)	60			
10.11.6	Aluminum electrical terminal 90 mm (Cosse électrique)	60			
10.11.7	Electrical terminal 150 mm (Cosse électrique femelle isolée)	60			
10.11.8	Electrical terminal 120 mm (Cosse électrique femelle isolée)	60			
11.1	Circuit Breaker 120 A (EU or Japanese origin)	2			
11.2	Circuit Breaker 150 A (EU or Japanese origin)	2			
11.3	Circuit Breaker 250 A (EU or Japanese origin)	2			
11.4	Circuit Breaker 400 A (EU or Japanese origin)	2			
12.1	Contacteur 120 A (EU or Japanese origin)	5			
12.2	Contacteur 150 A (EU or Japanese origin)	5			
12.3	Contacteur 180 A (EU or Japanese origin)	5			
12.4	Contacteur 250 A (EU or Japanese origin)	5			
12.5	Contacteur 400 A (EU or Japanese origin)	5			
13	Phase relay 3 phases (EU origin)	10			
14	Timer seconds (EU origin)	10			
15	Timer minutes (EU origin)	10			
16	Level relay (EU origin)	10			
17.1	Thermal relay 100 A (EU origin)	10			
17.2	Thermal relay 120 A (EU origin)	10			
17.3	Thermal relay 150 A (EU origin)	10			
17.4	Thermal relay 250 A (EU origin)	10			
17.5	Thermal relay 300 A (EU origin)	10			
18.1	AC Copper Cable flexible 90 mm <sup>2</sup> length 100 meters	1			
18.2	AC Copper Cable flexible 50 mm <sup>2</sup> length 100 meters	1			
19	Motor temperature sensor/switch (EU origin)	10			



**Coordination and Supervision**

The activity will be supervised by Oxfam’s team.

**The work expected to start on August 12, 2024.**

**Questions / Request for clarification**

Any requests for clarification may be submitted by email to [lebanonprocurement@oxfam.org.uk](mailto:lebanonprocurement@oxfam.org.uk) ccing Sabdelkader@oxfam.org.uk

A site visit will be organized to one typical PV plant in Baalbeck region on **July 29, 2024 at 10 am** to show the bidders the requested works. **The bidders must participate to the site visit before submitting their technical offer and they must match the technical offer with the actual status for the execution.**

**Timeframe and Payment**

100% payment after completing the installation of the requested quantity and submitting the financial documents.

Please submit the full application documents (as mentioned above) to [lebanonprocurement@oxfam.org.uk](mailto:lebanonprocurement@oxfam.org.uk) ccing rdiab@oxfam.org.uk by August 4th, 2024 midnight mentioning “Rehabilitation of Solar PV Plants Components ” in the Subject line.