

Port of Tripoli  
Civil Service Council of Lebanon  
PV installation- Tender No RS-B22/0110

Tender documents

## Bill of quantities- Photovoltaic system

Item No.	Description	Unit	Quantity	Unit price USD	Total price USD
<b>I-</b>	<b><u>PHOTOVOLTAIC SYSTEM</u></b> Supply, transport, install and connect complete high end hybrid solar photovoltaic system with batteries including all specified (BOQ & drawings) equipment, but not limited to items specified Regulatory compliance: IEC 61724; IEC 61727; IEC 61730; IEC 61829; IEC 61345; IEC 61215; UL Standard 1741  The Photovoltaic System Design is for tender purposes, the contractor shell verify the conformity of design and present shop drawings for approval.				
<b>I-1-</b>	<b><u>System 1: Civil Service Council</u></b>				
I-1-A	Supply and install photovoltaic panels 550Wp as indicated in the specs , Austa, longi, Philadelphia or approved equal	Nr.	56		0
I-1-B	Supply solar panels 550Wp same brand as spare part on site.	Nr.	6		0
I-1-C	Supply and install galvanized Steel Structure G90 thickness 2mm, slotted C channel 4.1cmx4.1cm as specified. No drilling allowed on the roof.	Item	56		0
I-1-D	Supply and install hybrid inverter 20kw 3 phase. Sofar, GoodWe, FOX ESS or approved equal.	Nr.	2		0
I-1-E	Supply and install high voltage Felicity lithium ion batteries 100kWh. as specified and approved	Nr.	1		0
I-1-F	Supply and install cables, MC4 connectors , fuses, cable trays, rigid PVC conduits, and all needed accessories as mentioned in the single line diagram and as per international standards- European Brand; Distance between PV panels and inverters around 40m.	Item	1		0
I-1-G	Supply and install combiner box including but not limited to breakers, contactors, surge arrestors, fuses, busbar, and all needed accessories as mentioned in the single line diagram and as per international standards-Brand Schneider, Dehn or approved equal	Item	1		0

I-1-H	Supply and install of LED lighting bulbs 50W, color white to replace existing high consumption lamps for Council building with related fixtures, and cables if needed- Brand AEG, Luzled, Philips or approved equal.	Nr.	320		0
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I-2-	<b>System 2: Common area of the building</b>				
I-2-A	Supply and install photovoltaic panels 550Wp as indicated in the specs , Austa, longi, Philadelphia or approved equal.	Nr.	4		0
I-2-B	Supply and install galvanized Steel Structure G90 thickness 2mm, slotted C channel 4.1cmx4.1cm as specified. No drilling allowed on the roof.	Item	4		0
I-2-C	Supply and install hybrid inverter 3kw compatible with net metering ,MUST PH 1800 PRO, AUSTA, GoodWe or approved equal.	Nr.	1		0
I-2-D	Supply and install Felicity lithium ion batteries 200AH, 24V as specified and approved	Nr.	1		0
I-2-E	Supply and install cables, MC4 connectors , fuses, cable trays, rigid PVC conduits, and all needed accessories as mentioned in the single line diagram and as per international standards- European Brand.	Item	1		0
I-2-F	Supply and install combiner box including but not limited to breakers, contactors, surge arrestors, fuses, busbar, and all needed accessories as mentioned in the single line diagram and as per international standards-Brand Schneider, Dehn or approved equal.	Item	1		0
I-2-G	Supply and install of LED tubes plug and play 120cm, Luminous efficacy $\geq 120$ lm/W, with motion sensors, to be installed in the common area of the building (stairs) with related fixtures, and cables- Brand AEG, Luzled, Philips or approved equal	Nr.	20		0
I-2-H	Supply and install LED projectors 100W with motion detection for the building surround and to be connected to system 2- Brand AEG, Luzled, Philips or approved equal	Nr.	3		0
I-2-I	Supply and install cameras with motion detection with the DVR near the projectors, including exposed and concealed conduits, boxes, wiring up to corresponding cabinets with all necessary accessories- Brand Dahua, Hikvision, Canon or approved equal	Nr.	3		0
II-	<b>EARTHING &amp; LIGHTNING SYSTEM</b>				
	Supply, install and connect earthing systems including earth rods, 2.4m long and 2 cm diameter, (Similar to Copper weld or Furse) to provide low connecting earth resistance (<5 Ohms), earth stranded bare copper conductor for earthing network (as specified), earth pits, connectors, clamps, test links, earth bar, excavation and backfilling as mentioned on drawings. The earthing system has to be installed for a perfect operation and to the satisfaction of the engineers- European brand				
II-1	Supply and installation of earthing network for the electrical system	Item	1		0
II-2	Supply and installation of lightning protection system LPS	Item	1		0

III-	<b><u>ELECTRIC NETWORK MODIFICATION</u></b>				
III-1	Inspect and Test existing two generators, maintain these generators to put them in good condition, high efficiency and replace damaged parts, Check the oil and fuel filters, joints, protection control devices and control panels, cables, sound proofers, silencers, mufflers, supports, concrete base, antivibration system, batteries ,battery chargers, conductors, with all necessary accessories and exhaust systems with insulating materials, necessary link to earth system,etc ...all as specified and to the satisfaction of the Engineers. Supply and install required control system for the synchronization of the generators and new system, Genuine parts.	Item	1		0
III-2	Modifications on electric power panels to separate critical loads (supplied by PV system, including but not limited to lighting, office equipment and PCs, electric sockets) from auxiliary loads (including but not limited to air conditioners, and heavy unnecessary loads)	Item	1		0
III-3	Supply, install and connect wall type split air conditioner 12000BTU with inverter for server room (to replace existing) with proper copper pipes and all needed. Trane, Gree, Mitsubishi or equivalent	Item	1		0
IV-	<b><u>GENERAL ITEMS IN CONNECTION WITH SYSTEM</u></b>				
IV-1	Provide a complete training for the operators (at least 5 peoples) in operation and maintenance of the project	Item	1		0
IV-2	Supply and installation of portable dry powder fire extinguisher on roof (12kg) near panels and in inverter room (4kg), an automatic dry powder fire extinguisher (6kg) with stand alone smoke detector with alarm & standalone hydrogen fluoride sensor with alarm in inverter room.	Item	1		0
<b>Grand total</b>					<b>0</b>