

**Development of Solar Array for JAIP Tenants**

Item	Description	Unit	Quantity	Unit Rate US\$	Amount US\$
	<p><b>Preambles:</b></p> <ul style="list-style-type: none"> <li>• UNDP intends to install PV system for Jericho Agro-Industrial Park (JAIP) facility in Jericho. Targeted buildings and spaces are identified as per the following BoQ.</li> <li>• The bidder should provide manuals and catalogues for the materials will be supplied in line with the technical specifications, with emphasis on providing PV systems from the 5 top manufacturers as per the latest PV magazine or equivalent.</li> <li>• In line with the developed design, the bidder is responsible for providing single line diagram for all electrical connections, technical solutions, distribution layout for the PV panels at the different building structures. Shading and orientation to be taken into full consideration for achieving the best system efficiency.</li> <li>• The connections and installations should be in line with the local Electricity Company (JDECO) rules and regulations and local authorities practices, namely, PENRA</li> <li>• The bidder is responsible for liaison and coordination with Electricity Company (JDECO) for securing the approval and endorsement on the system and issuance of any required documents. Any payment and fees to the Electricity company should be covered by the contractor</li> <li>• The bidder is responsible for connecting the PV System with the existing electrical systems including provision of electrical panels and all necessary installation</li> <li>• The contractor should provide workshop drawings before commencing the installations for prior clearance and approval by the project technical team</li> <li>* The bidder should provide structural analysis from an accredited structural engineer for ensuring the safe accommodation of new added loads to the new targeted spaces. The bidder should provide shop drawings for the mounting structures to be approved by UNDP engineer prior to the installation. The bidder should submit within the offer technical specifications for the proposed mounting structure solutions.</li> <li>* The bidder should provide cost benefit analysis of the expected revenues of the PV systems and tabulate the anticipated production throughout one year, the study shall include operation manuals.</li> <li>* The bidder should investigate the proposed technical solution in close coordination with JDECO.</li> </ul>				

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<b>1</b>	<b>UNDP 12 Hangers Rooftop PV generation facilities new Installation</b>				
	Supply, installation, commissioning and operation of the following components to provide fully operational and functional extendable Photovoltaic system for 12 hangers at JAIP facility.				
1.1	Photovoltaic Module : minimum 72 polycrystalline 345W 39.02V 18% over.	modules	<b>3024</b>		
1.2	Inverter (Power conditioner) 36.0kW	Pcs.	<b>24</b>		
1.3	Monitoring System and data logger for each PV system	Pcs.	<b>12</b>		
1.4	Aluminum Mounting Structure, suitable for the intended PV system capacity per hanger. The installation of the mounting structure include the removal of any existing fixtures and parts in line with the distribution layout for PV panels.	Job	<b>12</b>		
1.5	DC extension cables XLPE 14 mm <sup>2</sup> /2C, solar type	MR	<b>3024</b>		
1.6	5*25 mm cross section AC cables	MR	<b>1000</b>		
1.7	Protection cables- single phase 2.5 mm	MR	<b>1650</b>		
1.8	Protection cables- single phase 50 mm	MR	<b>66</b>		
1.9	Cable protection including thermal conduits and corrugated metal cable trays	Job	<b>12</b>		
1.10	DC protection panel, with appropriate components including body, circuit breakers and others, before the inverter	Job	<b>12</b>		
1.11	AC protection panel, with appropriate components including body, circuit breakers and others, before the inverter	Job	<b>12</b>		
1.12	System Grounding and Lightning Protection	No	<b>12</b>		
1.13	Supply, install ,test and commission complete string Protection boxes for each hanger	Job	<b>12</b>		
1.14	Supply, install ,test and commission complete Extention Cable:CV150mm <sup>2</sup> /4C	MR	<b>907</b>		
1.15	Supply, install ,test and commission complete PV150 Piping including Back filling	MR	<b>247</b>		
1.16	Supply, install ,test and commission complete Optical Fiber Cable including excavation for EFLEX Piping, EFLEX 50 Piping for Optical Cable, back filling for EFLEX Piping include Concrete Protection and Warning Tape	MR	<b>600</b>		
<b>Subtotal 1</b>	<b>UNDP 12 Hangers Rooftop PV generation facilities new Installation - (CASE-1(Zone-D))</b>				

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Item	Description	Unit	Quantity	Unit Rate US\$	Amount US\$
<b>2</b>	<b>Expansion Areas in existing station (CASE-4 (Existing PV station))</b>				
2.1	Photovoltaic Module : minimum 72 polycrystalline 345W 39.02V 18% over	modules	<b>312</b>		
2.2	Inverter (Power conditioner) 100kW, 100kV Transformer	Pcs.	<b>1</b>		
2.3	Monitoring System and data logger for PV system	Pcs.	<b>1</b>		
2.4	Aluminium Mounting Structure, suitable for the intended PV system capacity including excavation and concrete base. The installation of the mounting structure include the removal of any existing fixtures and parts in line with the distribution layout for PV panels. The works include supply and installation of reinforced concrete works required for the fixation of the mounting structure.	Job	<b>1</b>		
2.5	DC extension cables XLPE 14 mm <sup>2</sup> /2C, solar type	MR	<b>312</b>		
2.6	5*25 mm cross section AC cables	MR	<b>100</b>		
2.7	Protection cables- single phase 2.5 mm	MR	<b>150</b>		
2.8	Protection cables- single phase 50 mm	MR	<b>10</b>		
2.9	Cable protection including thermal conduits and corrugated metal cable trays	Job	<b>1</b>		
2.10	DC protection panel, with appropriate components including body, circuit breakers and others, before the inverter	Job	<b>1</b>		
2.11	AC protection panel, with appropriate components including body, circuit breakers and others, before the inverter	Job	<b>1</b>		
2.12	System Grounding and Lightning Protection	No	<b>1</b>		
2.13	Supply, install ,test and commission complete string Protection boxes	Job	<b>1</b>		
2.14	Supply, install ,test and commission complete Optical Fiber Cable including excavation for EFLEX Piping, EFLEX 50 Piping for Optical Cable, back filling for EFLEX Piping include Concrete Protection and Warning Tape	MR	<b>580</b>		
<b>Subtotal 2</b>	<b>Expansion Areas in existing station (CASE-4 (Existing PV station))</b>				

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Item	Description	Unit	Quantity	Unit Rate US\$	Amount US\$
<b>3</b>	<b>8 hangers roof tops (case-7(Zone-A))</b>				
	Supply, installation, commissioning and operation of the following components to provide fully operational and functional extendable Photovoltaic system for 8 hangers at JAIP facility.				
3.1	Photovoltaic Module : minimum 72 polycrystalline 345W 39.02V 18% over	modules	<b>1992</b>		
3.2	Inverter (Power conditioner) 36.0kW	Pcs.	<b>16</b>		
3.3	Monitoring System and data logger for each PV system	Pcs.	<b>8</b>		
3.4	Aluminum Mounting Structure, suitable for the intended PV system capacity per hanger. The installation of the mounting structure include the removal of any existing fixtures and parts in line with the distribution layout for PV panels.	Job	<b>8</b>		
3.5	DC extension cables XLPE 14 mm <sup>2</sup> /2C, solar type	MR	<b>1008</b>		
3.6	5*25 mm cross section AC cables	MR	<b>720</b>		
3.7	Protection cables- single phase 2.5 mm	MR	<b>1200</b>		
3.8	Protection cables- single phase 50 mm	MR	<b>60</b>		
3.9	Cable protection including thermal conduits and corrugated metal cable trays	Job	<b>8</b>		
3.10	DC protection panel, with appropriate components including body, circuit breakers and others, before the inverter	Job	<b>8</b>		
3.11	AC protection panel, with appropriate components including body, circuit breakers and others, before the inverter	Job	<b>8</b>		
3.12	System Grounding and Lightning Protection	No	<b>8</b>		
3.13	Supply, install ,test and commission complete string Protection boxes for each hanger	Job	<b>8</b>		
3.14	Supply, install ,test and commission complete Extention Cable:CV150mm <sup>2</sup> /4C	MR	<b>396</b>		
3.15	Supply, install ,test and commission complete Optical Fiber Cable including excavation for EFLEX Piping, EFLEX 50 Piping for Optical Cable, back filling for EFLEX Piping include Concrete Protection and Warning Tape	MR	<b>250</b>		
<b>Subtotal 3</b>	<b>8 hangers roof tops (case-7(Zone-A))</b>				

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Item	Description	Unit	Quantity	Unit Rate US\$	Amount US\$
<b>4</b>	<b>2 hangers rooftop (Case-8 (Zone-E))</b>				
	Supply, installation, commissioning and operation of the following components to provide fully operational and functional extendable Photovoltaic system for 2 hangers at JAIP facility.				
4.1	Photovoltaic Module : minimum 72 polycrystalline 345W 39.02V 18% over	modules	<b>504</b>		
4.2	Inverter (Power conditioner) 36.0kW	Pcs.	<b>5</b>		
4.3	Monitoring System and data logger for each PV system	Pcs.	<b>2</b>		
4.4	Aluminum Mounting Structure, suitable for the intended PV system capacity per hanger. The installation of the mounting structure include the removal of any existing fixtures and parts in line with the distribution layout for PV panels.	Job	<b>2</b>		
4.5	DC extension cables XLPE 14 mm <sup>2</sup> /2C, solar type	MR	<b>500</b>		
4.6	5*25 mm cross section AC cables	MR	<b>180</b>		
4.7	Protection cables- single phase 2.5 mm	MR	<b>300</b>		
4.8	Protection cables- single phase 50 mm	MR	<b>14</b>		
4.9	Cable protection including thermal conduits and corrugated metal cable trays	Job	<b>2</b>		
4.10	DC protection panel, with appropriate components including body, circuit breakers and others, before the inverter	Job	<b>2</b>		
4.11	AC protection panel, with appropriate components including body, circuit breakers and others, before the inverter	Job	<b>2</b>		
4.12	System Grounding and Lightning Protection	No	<b>2</b>		
4.13	Supply, install ,test and commission complete string Protection boxes for each hanger	Job	<b>2</b>		
4.14	Supply, install ,test and commission complete Extention Cable: CV150mm <sup>2</sup> /4C	MR	<b>369</b>		
4.15	Supply, install ,test and commission complete PV150 Piping including Back filling	MR	<b>177</b>		
4.16	Supply, install ,test and commission complete Optical Fiber Cable including excavation for EFLEX Piping, EFLEX 80 Piping for Optical Cable, back filling for EFLEX Piping include Concrete Protection and Warning Tape.	MR	<b>300</b>		
<b>Subtotal 4</b>	<b>2 hangers rooftop (Case-8 (Zone-E))</b>				

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<b>SUMMARY</b>					
<b>No</b>	<b>Description</b>				<b>Amount (USD)</b>
1	<b>Subtotal 1: UNDP 12 Hangers Rooftop PV generation facilities new Installation (CASE-1(Zone-D))</b>				
2	<b>Subtotal 2: Expansion Areas in existing station, (CASE-4 (Existing PV station))</b>				
3	<b>Subtotal 3: 8 hangers roof tops (case-7(Zone-A))</b>				
4	<b>Subtotal 4: 2 hangers rooftop, (Case-8 (Zone-E))</b>				
	<b>Grand total - Not including Value Added Tax (VAT)</b>				
	<b>Discount (if any )</b>				
	<b>Discount Amount (if any )</b>				
	<b>Net Grand Total - Not including Value Added Tax (VAT)</b>				

TOTAL PRICE (in words):

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 Company Name:

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 Authorized Signatory Name & Title:

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 Signature / stamp:

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 Date: \_\_\_\_\_