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Date: 22/07/2015

<u>Changes and Clarifications to the Tender Document for</u> <u>Design, Supply, Installation (Erection), Testing, Commissioning, including Warranty</u> <u>and Operation & Maintenance for a period of 5 years for 25 KWp Solar Photovoltaic</u> <u>Power Plant Systems dt.27.06.2015</u>

After carefully analysing and considering the queries/points raised by the parties during the pre-bid meeting of "Installation of a Solar Power Plant of 25 KWp" held on 14.07.2015 and also, the e-mails/letters in the matter received till 15.07.2015(5 p.m.), the Commission is pleased to effect the modifications in the tender document of 27.06.15 as given below. The following table containing the changes and clarifications will form a part of the tender document for Design, Supply, Installation (Erection), Testing, Commissioning, including Warranty and Operation & Maintenance for a period of 5 years for 25 KWp Solar Photovoltaic Power Plant Systems dt.27.06.2015.

Sl.	Topic/Issue	<u>Clause/Para in the Tender</u>	Changes / Clarifications
No		Document of 27.06.2015	(Green and <u>Underlined</u> portion
		(Red and <u>Underlined</u> portion	below represent the final /
		below is/are changed /	clarified version after change /
		clarified)	clarification)
1	Check list &	5. Copy of audited balance sheet	"5. Copy of audited balance sheet
	Index of	and profit and loss account for	and profit and loss account for last
	documents to	last three years.	three years. Provisional may be
	be submitted		provided, if not audited.
2.	GI or	"2.2 Structural material of GI or	"2.2 Structural material of GI or
	Aluminium	Aluminium (<u>to be quoted</u>	Aluminium (one of the two may
		separately, if quoting for both	be included in the price bid and
		GI & Aluminium) shall be	the differential amount for the
		corrosion resistant and	other may be put as a note at the
		electrolytically compatible with	end of price bid) shall be

		the materials used in the module frame, its fasteners, nuts and bolts. Galvanizing should meet ASTM A-123 hot dipped galvanizing or equivalent which provides at least spraying thickness of 70 microns on steel as per IS5905, if steel fasteners and nuts and bolts are used. Structures shall be supplied complete with all members to be compatible for allowing easy installation at the rooftop site.	corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Galvanizing should meet ASTM A-123 hot dipped galvanizing or equivalent which provides at least spraying thickness of 70 microns on steel as per IS5905, if steel fasteners and nuts and bolts are used. Structures shall be supplied complete with all members to be compatible for allowing easy installation at the rooftop site."
3	Power Conditioning Unit (PCU)	"3. Overloading capacity (10 sec) should be 200% continuous rating."	"3. Over load capacity (for 10 sec) should be <u>150%</u> of continuous rating."
4	Emergency Off button for PCU	"3.16 The PCU shall include an easily accessible emergency OFF button located at an appropriate position on the unit ."	"3.16 The PCU shall include an easily accessible emergency OFF button located at an appropriate position."
5	Energy Meter	3.24(a) PV array energy production: Digital Meters to log the actual value of <u>AC/DC</u> Voltage, Current & Energy generated by the PV system shall have to be provided. <u>Two</u> way LT 415V energy meter (<u>Import - Export metering</u>) shall be incorporated in the system on the main LT AC <u>Grid supply confirming to the</u> stipulations as mentioned in the order dated 26.11.2014 of OERC and amendments, if any, thereto on net metering.	"3.24(a) PV array energy production: Digital Meter <u>of</u> <u>reputed manufacturer</u> to log the actual value of voltage, current & energy generated by the PV system shall have to be provided."
6	Solar Irradiance & an integrating pyranometer	3.24 (b) Solar Irradiance: <u>An</u> integrating pyranometer (Class <u>II or better) should be</u> provided with the sensor mounted in the plane of the array. Readout should be integrated with data logging system.	3.24 (b) Solar Irradiance: <u>Irradiance sensors should be</u> <u>integrated with data logging</u> <u>system</u> .
7	Computer	"3.24(e) A suitable Computer: <u>i3/i5 with 500 GB HDD, 4 GB</u> <u>RAM, 2 Parallel & 2 Serial</u>	"3.23(e)A suitable Computer: <u>i5</u> with min. 500 GB HDD, 4 GB RAM, 2 Parallel & 1 Serial Port,

		Port , Wi-Fi Lan Card, DVD RW Drive, 20" LCD, USB Scroll Mouse, along with 1 KVA ups.	Wi-Fi Lan Card, DVD RW Drive, 20" LCD, USB Scroll Mouse, along with 1 KVA ups.
8	a)Array Junction Box Main Junction Boxes	"4. The junction boxes are to be provided in the PV yard for termination of connecting cables. The J. Boxes shall be made of FRP/Powder Coated Aluminum with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The J.Bs shall be such that input & output termination can be made through suitable cable glands.	The firm may quote any alternative arrangement/design, which should take care of the functionality as mentioned in this clause.
		Provision of Copper bus bars/ terminal blocks housed in the junction box with suitable termination threads.	
		Provision of Hinged door with EPDM rubber gasket to prevent water entry.	
		Single compression cable glands and Provision of earthing.	
		Suitable capacity MOVs should be provided within the box to protect against lighting	
	b) DC Distribution Board	b) "6. DC Distribution panel to receive the DC output from the array field with analog measurement meter for voltage, current and power from different MJBs so as to check any failure in the array field.	
		DC DPBs shall have sheet from enclosure of dust & vermin proof. The bus bars are to made of copper of desired size. Suitable capacity MCBs be provided for controlling the DC power output to the PCU along with necessary surge arrestors.	

9	Only FRLS	9.2 "Wires: Only FRLS copper	9.2 "Wires: Preferably FRLS
	copper wires	wires of appropriate size and of	copper wires of appropriate size
		reputed make with IS mark shall	and of reputed make with IS mark
		have to be used."	may be used."
10	Tools, Tackles	13. <u>Para-2</u>	13. <u>Para-2</u>
	& Spares	"A list of requisite spares in case	"A list of requisite and
		of PCU comprising of a set of	recommended spares in case of
		control logic cards, IGBT	PCU e.g. control logic cards,
		driver cards etc. Junction	IGBT driver cards etc. along
		Boxes. Fuses, MCCBs etc along	with the technical specification
		with spare set of PV modules	may be provided. A minimum
		and batteries (if required) be	set of fuses, transfer switches
		indicated, which shall be	and printed Circuit Boards
		supplied along with the	required for power plant may be
		equipment. A minimum set of	maintained at site for the entire
		spares shall be maintained in	period of warranty and operation
		the plant itself for the entire	& maintenance which upon its use
		period of warranty and Operation	shall be replenished."
		& Maintenance which upon its	
		use shall be replenished."	
11	Bi-directional	Annexure-A (Technical Bid)	Annexure-A (Technical Bid)
	meter with	8. <u>3 Phase 415 Volt Bi-</u>	8. <u>Solar generation meter</u>
	export reading	directional Meter with Import	(DLMS compliant, 0.5S class
		& Export Readings interfacing	with LT CT arrangement) may
		with Distribution Supply;	<u>be provided.</u>
		Compliant with OERC's Net	
		Metering Order dt.26.11.14.	
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12	Removal of	Annexure-C	Annexure-C (Last para of 8.3)
	Fault – Time	Last para of 8.3	• "In case of any fault, the fault
	stipulation &	• "In case of any fault, the fault	must be removed within 48
	penalty	must be removed within 24	hours and in case of any part
	thereof.	<u>hours failing which a</u>	to be imported the minimum
		penalty of Rs.1,000/- per day	neriod for renair should not
		shall be charged. In case of	be more than 30 days failing
		any part to be imported the	which a penalty of Rs 1000/-
		<u>maximum period for repair</u>	par day shall be charged
		should not be more than 15	However under Force Majuro
		days. However, under Force	circumstances waiver of
		Majure circumstances	nenalty may be considered
		penalty can be waived off."	Any fault which required
			more than 18 hours for
			rectification must be informed
			to OFRC "
			UULKC.