

**Reply to Pre-Bid Technical Queries against NIB 144 dtd:24/07/15**  
**2MW GRID INTERACTIVE SOLAR PV POWER PROJECT at Assam Don Bosco University, ASSAM**

Sr.No.	Section	Clause No	Page No.	Tender Specification	Query	Remarks
1	1.3	Volume-2, Part-I	2	The specification also includes receiving, unloading, storage, insurance, in-plant transportation and handling, complete erection, final check up and testing of all equipment and accessories covered under this specification including their trial run and commissioning ensuring safe and trouble free continuous operation of the specified electrical power supply, distribution and evacuation system to the complete satisfaction of the purchaser.	Please indicate the trial run period	After commissioning, there shall be reliability test and performance test to ensure continuous operation of the units to design parameters and to prove the performance of the equipment meeting the parameters specified for period of one year
2	2.2	Volume-2, Part-I	3	No. of modules in series : 19 No. of parallel combination : 351	Number of modules to be connected in series and parallel is dependant on the wattage of the module and the MPPT range of the inverter. Hence it will be decided accordingly as per the selection of module and inverter. Please accept.	Acceptable. It shall be decided during detail engineering.
3	10.10	Volume-2, Part-II, Section-II	11	Modules will be interconnected to form a string of 22 modules using these leads to form a string.	In general for the 300Wp/305Wp module 20 modules will be connected in series and respective number of parallel strings will be made to fulfill the power requirement. Please accept	
4	2.3 (b)	Volume-2, Part-I	3	PV Module Electrical Parameter	Electrical Parameters of the modules & Inverter will be different for different manufacturer. The parameter of the module & Inverter will be as per the selected module manufacturer. Also we are proposing modules of 300Wp/305Wp capacity and inverter of 1000Wp capacity. Please accept.	Acceptable. It shall be decided during detail engineering.
5	2.5	Volume-2, Part-I	4	Inverter/ Power Conditioning Unit (PCU)		

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6	3.2.2.1	Volume-2, Part-I	5	The generated voltage shall be connected to inverters through Circuit Breakers and then stepped-up to 33kV by 1 (one) numbers, of adequate capacity but not less than 1.25 MVA, */*/33KV, 3 phase 3 winding stepup transformer (* is inverter output voltage). Vector group of the transformer shall be as per system requirement.	We are proposing inverter of 1MW capacity and for the connection of the same 2MVA, three winding transformer will be used. Please accept.	Acceptable. It shall be decided during detail engineering.
7	3.2.2.2	Volume-2, Part-I	5	All the station loads shall be fed through 300KVA, 33/0.433 kV, outdoor type station service transformer	Auxiliary transformer of 63kVA will suffice the auxiliary requirement of the plant. Please accept.	Bid stipulation prevail. Rating of auxiliary transformer can be changed according to auxiliary power requirement which can be decided during detail engineering.
8	3.2.2.18	Volume-2, Part-I	9	33KV SUBSTATION, 8.5 KM D/C TRANSMISSION LINE ALONGWITH ASSOCIATED EQUIPMENTS, MATERIAL ETC.	Please clarify the scope of work for the Transmission line:- (i) Single Circuit or Double Circuit? (ii) Overhead or Underground? (iii) ROW scope client or EPC? (iv) Bay extension work at existing substation? (v) Termination will be at Assam Don Bosco University or ASEB substation?	will be clarified shortly.
9	21.3 (i)	Volume-2, Part-I	15	Effect due to variation of meteorological parameters e.g. ambient temperature, windspeed, humidity etc shall not be considered.	Module performance is dependent on the meteorological parameters like ambient temperature and the generation may change according to the variation of the meteorological data quoted and observed on the site. Please consider the effect of temperature during the energy generation calculation.	Acceptable.

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10	6.05.2	Volume-2,Part-II, Section-II	6	Each SMU will have Suitable Reverse Blocking Diodes of maximum DC blocking voltage of 1000 V with suitable arrangement for its connecting.	Reverse blocking diodes produces heat in the SMU and affect the performance of the other equipment present in the SMU. Also the failure rate of reverse blocking diodes are very high and in case of shorting will allow the flow of current in reverse direction. Hence we are proposing fuse with reverse blocking capability, which does't produde heat during operation and in no case will allow the flow of current in reverse direction.	Bid stipulation prevails
11	10.10	Volume-2,Part-II, Section-II	11	For further connections, single core, minimum size of 6 sq. mm multi-stranded copper cables shall be used to connect the strings to the String Monitoring Unit (SMU).	As the current rating of the modules connected in series are below 9Amp, hence the use of 4sq.mm cable will be sufficient to connect the modules in series and upto SMU keeping the ampacity and voltage drop within the limit. Please accept.	Bid stipulation prevails
12	10.10	Volume-2,Part-II, Section-II	11	These cables will be cross linked polyethylene insulated with ultraviolet (UV) and temperature resistant solar grade cables. Subsequently, from SMUs, two runs of minimum size of 95 sq.mm copper will be provided to connect to the Inverter.	As per standard solar application TUV certified XLPO insulated Copper solar cable will be provided for the interconnection of modules with SMU. As the XLPO insulation will be able to withstand harsh UV radiation condition.  As the cable after SMU will be burried inside ground 1.1kVAC grade Aluminium cable suitable for 1.5kVDC applications will be used for the interconnection of SMU to inverter, inverter to transformer and for further LT application. Please accept.	Bid stipulation prevails
13	Specific technical parameters III	Volume-2,Part-II, Section-II	14	DC voltage range : 475-900 V	MPPT range will be different for different manufacturer. Final MPPT will be given as per the inverter selected. Please accept.	Acceptable. It shall be decided during detail engineering.
14	1.2	Volume-2,Part-II Section-III	4	percentage impedance at 75 oC : As per system requirement(minimum 6.25% )	Impedance of the transformer will be as per the inverter manufacturer recommendation. Please accept.	Acceptable. It shall be decided during detail engineering.

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15	1.13.3 (II)	Volume-2,Part-II Section-III	22	Type Tests	All the routine test of the transformer will be done as per the list indicated in the tender, type test for the transformer will not be possible in this duration of project completion. Since the type test of the three winding is not present in the market and duration to test the same successfully is still uncertain and may affect the completion date of the project. Please accept	Bid stipulation prevails
16	2.02.01	Volume-2, Part-II, Section - IV	11	Transformer differential protection suitable for two winding	Transformer differential protection will not be possible on inverter duty transformer due to size constrain. Please accept.	Bid stipulation prevails
17	2.00	Volume-2, Part-II, Section- VII	3	PCU and lines will be provided with microprocessor based ABT compliant trivector meters to record energy.	Metering system comprises of one set of Main and Check meter and it will be provided before the final evacuation point of the solar power plant and all energy guaranteed will be measured at the same point. Please confirm.	Bid stipulation prevails
18	1.05	Volume-2,Part-II, Section-IX	5	AC system for the Computer room, office room and SCADA system, housing various relay panels, control and protection panels shall be provided with Air conditioner of required tonnage, confirming to standards.	Air conditioner will be provided in the SCADA room and in other places exhaust fans with ceiling fans will be provided for the proper ventilation. Increase In the number of air conditioner will increase the auxiliary consumption of the plant. Please accept.	Bid stipulation prevails
19	6.03.00	Vol 2 Part-III, Section-1	6	The filling operation shall consist of laying the earth in layers of 20cm thick each, compacting it by rolling and plying to required number of passes at the optimum moisture content of the soil. The soil thus compacted should give at least 95% of maximum dry density of soil.	Generally filling operation is done of laying the earth as 30cm thick each and Optimum moisture content of the soil is at least 90% of maximum dry density of soil.	Bid stipulation prevails
20	7.01.00	Vol 2 Part-III, Section-1	7	Seismic factors for the site to be considered while making the design of the foundation.	In module mounting structure, no extra dead load (other than module)/ live load is envisaged. Wind load is governing load in this case. As per standard solar power plant application, seismic load is not considered. May please allow.	Bid stipulation prevails

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21	8.01.00	Vol 2 Part-III, Section-1	7	All major roads within the Plant boundary shall be of 4.0m wide black topping and 0.5m wide shoulders on either side of the road and all minor roads shall be of 3.5m wide black topping and 0.25m wide shoulders on either side.	Please allow all major roads of 3.5m wide and 0.5m shoulder. And all minor roads shall be 3.0m wide with 0.25m shoulder on either side of the road.	Bid stipulation prevails
22	8.01.00	Vol 2 Part-III, Section-1	8	1. Open graded Premix carpet of 25mm compacted thickness. 2. Minimum 500mm thick sub-grade. Sub grade shall be compacted to 95% of max. Dry density for entire depth in case of cohesive sub-grade. 3. 150mm thick (compacted) moorum shoulder. Soil under shoulder area shall be compacted to min. 95% of max. proctor density for the entire depth and width.	1. As per standard practice for road construction premix carpet of 20mm thick is sufficient. 2. In road construction generally 300mm sub grade is sufficient for load bearing capacity in solar plant. 3. Can we use moorum/broken bricks? May please allow.	Bid stipulation prevails
23	10.01.00	Vol 2 Part-III, Section-1	8	The drains shall normally be in RCC construction and trapezoidal in shape with concrete pipe culverts provided at road crossings.	Can we propose PCC drain? May please allow.	Bid stipulation prevails