Inverter Technical Specification and Data Sheet

Rev.	Date Of Issue	Purpose Of Issue	Prepared	Checked	Approved
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1. INTERDUCTION

This document examines the INVERTER TECHNICAL SPECIFICATION AND DATA SHEET for the 9 MW Neyriz Solar Power Plant.

2. PURPOSE OF ISSUE

The aim of this document is to specify the minimum requirements for INVERTER.
The Inverters means Solar Inverter designed to convert solar PV DC power to 3-phase AC power and fed into utility grid. Inverter consists of an electronic inverter along with associated control, protection, filtering, measuring instruments and data logging devices. The Inverter shall have maximum power point tracker (MPPT) for operating the inverter at its maximum power point. The Inverter shall be designed to supply three phase AC power to the grid at load without any disturbance. The Inverter shall automatically adjust the voltage & frequency levels to suit the Grid condition. All three phases shall be supervised with respect to rise/fall in programmable threshold values of frequency. The model offered should be in operational condition in Iran.
Any other item(s) not mentioned specifically but necessary for the satisfactory completion of scope of work defined above, as per accepted standard(s) / best international practices.

2.1. SPECIFIC PARAMETERS AND LAYOUT CONDITIONS

INVERTER shall be placed outdoor/ in container based on optimization of available area utilization with appropriate array layout for maximum power packaging.
The inverter shall be capable of operation between -30°C to +60°C. INVERTER shall be designed to deliver its name plate rating at ambient temperature of 50°C. (If different power ratings are mentioned at different temperatures, then power rating at 50°C in KW at unity power factor will be considered as inverter rated capacity).

3. PURPOSE OF ISSUE QUANTITY AND DESCRIPTION OF EQUIPMENT AND/ OR MATERIALS INQUIRED

Item	Description	Type	Qty.
01	String Inverter	String-multi MPPT	3MW + 2

4. TECHNICAL SPECIFICATION & DATASHEET

Item	Description	Unit	Technical Particulars	Vendor Data
1	**General**			
1.1	Manufacturer		To be filled by vendor	
1.3	Material and process warranty	Years	≥05	
2	**PV Plant Information**			
2.1	Active Power at Point of Interconnection (POI)	MW	5	
2.2	Voltage Level at POI	kV	20	
2.3	ambient temperature range	℃	-16 to +55	
2.4	Relative Humidity Max./Min.	%	100 / 0	
2.5	Site Elevation above sea level	m	2	
3	**Inverter**			
3.1	**Inverter General Data**			
3.1.1	Manufacturer		To be filled by vendor	
3.1.3	Dimensions	(W/H/D) mm	To be filled by vendor	
3.1.4	Weight	Kg	To be filled by vendor	
3.1.5	Self-consumption	W	To be filled by vendor	
3.1.6	Cooling/Heating method		To be filled by vendor	
3.1.7	Degree of protection		To be filled by vendor	
3.1.8	Operating Ambient temp. range	℃	-35 to 60	
3.1.9	Relative humidity	%	≥ 95	
3.1.10	Maximum altitude (above sea level)	m	2000	
3.1.11	Maximum noise level	dBA	≤ 85	
3.2	**Input (DC)**			
3.2.1	Maximum recommended PV power	W	To be filled by vendor	
3.2.2	Maximum DC current (Imax (DC))		To be filled by vendor	
3.2.3	MPP voltage range at 35 °C	VDC	To be filled by vendor	
3.2.4	MPP voltage range at 55 °C	VDC	To be filled by vendor	
3.2.5	Maximum DC voltage	VDC	1500	
3.2.6	Number of MPPT trackers		To be filled by vendor	
3.2.7	Number of protected DC inputs		14 (at most)	
3.2.8	PV fuse size (per input)	A	60	
3.2.9	Input-side disconnection point		DC load break switch	
3.2.10	DC Connection via		To be filled by vendor	
3.3	**Output (AC)**			
3.3.1	Nominal AC power (at 35°C / at 55°C)	kVA	≥300kvA@50℃	
3.3.2	Maximum AC current	A	To be filled by vendor	
3.3.3	Nominal output voltage	VAC	To be filled by vendor	
3.3.4	Max. total harmonic distortion	%	3	
3.3.5	AC power frequency/range	Hz	50 / 45 - 55	
3.3.6	Power factor at rated power/displacement power factor adjustable		> 0.99 / 0.8 leading - 0.8 lagging	
3.3.8	Max. efficiency / European efficiency	%	≥ 98% / To be filled by vendor	
3.3.9	AC Connection via		To be filled by vendor	

Item	Description	Unit	Technical Particulars	Vendor Data
3.4	**Protections & Features**			
3.4.1	DC reverse-polarity protection		Required	
3.4.2	Short circuit protection		Required	
3.4.3	Output over current protection		Required	
3.4.5	Surge protection		Required-Class II	
3.4.6	Anti-islanding protection		Required	
3.4.7	Temperature protection		Required	
3.5	**Control & Monitoring**			
3.5.1	Communication		Optical fiber/Modbus RTU/TCP IP	
3.5.2	Display		LED indicator	
3.5.3	Strings monitoring		Required	
3.5.3	I/V Curve scanning		Required	

5. TESTS:

The below tests and certifications are required for Inverters:

the VENDOR shall submit all the type test reports including temperature rise test and surge withstand test carried out within last ten years. These reports should be for the test conducted on the equipment similar to those proposed to be supplied under this contract and the test(s) should have been either conducted at an independent laboratory or should have been witnessed by a client. However, if the VENDOR is not able to submit report of the type test(s) conducted within last ten years, or in the case of type test reports are not found to be meeting the specification requirements, the VENDOR shall conduct all such tests under this contract at no additional cost to the owner either at third party lab or in presence of client/owners representative and submit the reports for approval.

General Notes:

i. This document is the minimum requirement for the project's Inverters.
ii. The Vendor shall fill and confirm the required gaps.
iii. All characteristics of the Inverters shall be specified by the vendor.