

**INVITATION FOR QUOTATIONS FOR SUPPLY OF
GOODS UNDER SHOPPING PROCEDURES**

No. NITR/TQ-II/CoE-RES/Shopping/2014/L/28

Dt: 31.03.2014

Government of India has received a credit from the International Development Association (IDA) in various currencies towards the cost of the TEQIP-II Project and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this invitation for quotations is issued. The contract shall be for the full quantity as described below.

All duties, taxes and other levies payable by the contractor under the contract shall be included in the total price. The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account. The Prices should be quoted in Indian Rupees only. The last date of submission of quotation is **14th April, 2014**. The quotation shall remain valid for a period not less than 45 days after the deadline date specified for submission. The submission of the quotation should be in the format provided below.

Department	Package No.	Equipment Name	Specification	Quantity	Contact Person																
Electrical Engineering	158	2 KW Solar PV Grid-Tied System	<p style="text-align: center;">1. POLY CRYSTALLINE MODULE (2000WP)</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Parameter</u></th> <th style="text-align: left;"><u>Rating</u></th> </tr> </thead> <tbody> <tr> <td>1 Power rating</td> <td>250Wp</td> </tr> <tr> <td>2 Maximum power voltage</td> <td>36.42V</td> </tr> <tr> <td>3 Maximum power current</td> <td>6.9A</td> </tr> <tr> <td>4 Open circuit voltage</td> <td>43.78V</td> </tr> <tr> <td>5 Short circuit current</td> <td>7.4A</td> </tr> <tr> <td>6 No of cells in series</td> <td>72</td> </tr> <tr> <td>7 Panel efficiency</td> <td>14.87</td> </tr> </tbody> </table> <p style="text-align: center;">2. SPV ARRAY MOUNTING STRUCTURE</p> <p>The panel mounting frames have arrangement for dual axis of rotation. There should be a provision of</p>	<u>Parameter</u>	<u>Rating</u>	1 Power rating	250Wp	2 Maximum power voltage	36.42V	3 Maximum power current	6.9A	4 Open circuit voltage	43.78V	5 Short circuit current	7.4A	6 No of cells in series	72	7 Panel efficiency	14.87	01	Prof. B. Subudhi, Coordinator, CoE-RES, Ph:0661-2462416, Email: bidyadhar@nitrkl.ac.in
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			<p>adjusting the tilt angle in different seasons..</p> <p>3. DC - DC converter Maximum input voltage Minimum input voltage for feeding MPP voltage for ratedoutput Maximum input current Maximum recommended PV input power</p> <p>4. INVERTER MODULE Three Phasel GBT based Power Module Output voltage 195V ... 265V Rated output voltage Maximum output current Maximum output power Rated power Rated frequency Frequency Night-time power loss Feeding phases Power factor Distortion factor</p> <p>5. SENSORS i)3 temperature sensors provided signal conditioning circuits ii)Input: 0-200° C, Output: 0-5 V DC 3 Nos. of Hall effect current transducers with signal conditioning circuits. Input: 0-5 A, Output: 0-3 V iii)3 Nos. of Hall effect voltage transducers with signal conditioning circuits. Input: 0-450 V, Output: 0-3 V</p> <p>6. INVERTERCONTROL SYSTEM Xilinx Artix-7 FPGA AC701 Evaluation Kit (AC701</p>		
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			<p>Base Board + AMS 101 Evaluation Card) AC701 Base Board: ROHS compliant AC701 kit including the XC7A200T-2FBG676C FPGA Targeted Reference Design featuring DDR3, PCIe® and DMA Including a full license for the Northwest Logic DMA DDR3 SODIMM 1GB up to 533MHz / 1066Mbps Quad SPI Flash: 32MB (256Mb)Full seat Vivado® Design Suite: Design Edition</p> <p>Device-locked to the Artix-7 XC7A200T FPGA Printed Getting Started Guide Cables & Power Supply.Additional downloadable content including Reference Designs, Design Examples, and DemosBoard Design FilesExtensive Documentation</p> <p>AMS 101 Evaluation Card XADC 12-bit, 17-channel, 1Msps dual ADCs16-bit dual DAC for analog test signals.AMS Evaluator tool for analyzing analog data, internal temperature and voltage measurements, and saving data to a .csv file</p> <ul style="list-style-type: none"> ➤ Xilinx FMC XM105 Debug Card <p>VITA 57.1 FMC HPC connector Single-ended signals from the carrier board, clocks, JTAG, power. 40 Single Ended I/O (20 Pairs) on the LPC Pins 80 Single Ended I/O (40 Pairs) on the HPC Pins</p> <p>7. DATA ACQUISITION SYSTEM</p> <ul style="list-style-type: none"> ➤ Base Board Specification <ul style="list-style-type: none"> • USB TMC Standards • True plug and play • Multi-Function USB DAQ <p>Minimum Requirements 12 bit ADC & 14 bit DAC</p>		
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			<p>Analog Input : 8SE/4DI Simultaneous Sampling : 2 Channel Sampling Rate : 1msps Range : 0to5v Analog output : 4 Channel 24 high-speed digital I/O lines Resolution : 14 bit Speed : 2msps Range : 5v Essential Software Support Win XP / 7 supported drivers Support for Visual Studio® and Visual Studio® .NET NI LabVIEW™ support MATLAB® DAQ toolbox supported * Battery voltage and current, PV panel's voltage and current, Inverter output Voltage and Current displayed in a PC through the Data Acquisition system (DAS)</p> <p>8. PROGRAMMABLE AC SOURCE Requirements Power: 2kVA Form: 1, 2, and 3 phase dedicated or selectable models Voltage: 0 up to 450VAC Current max. : 5A Frequency: 20 to 5,000Hz. Features Required USB(USBTMC)and RS-232 Standard for Remote Control AC+DC output mode for voltage DC offset simulation PC Software (Including Data Logging) Measurement Functions: Voltage, Current, Power ,Frequency, Power Factor,CF,and Harmonic current Arbitrary Waveform Power Output</p>		
Electrical Engineering	157	2 kW prototype Solar PV Setup	<p>2 kW Prototype Solar PV Set up 1. PHOTOVOLTAIC SOLAR PANELS: 2 KW</p>	01	Prof. B.Subudhi, Coordinator, CoE-RES,

		<p>Polycrystalline Rating: MPP power 200 watts, MPP voltage 90V, 12 V, 24 Watts PV panels with stand 8 nos. SPV array mounting structure The panel mounting frames have arrangement for dual axis of rotation. The tilt angle should specifically vary 0° to 90° to the horizontal axis.</p> <p>2. DC TO DC BIDIRECTIONAL BUCK- BOOST CONVERTER FOR CHARGING THE BATTERY</p> <ol style="list-style-type: none"> i. 4 Nos of high speed IGBT or MOSFET semiconductor devices are used ii. 4 Nos of isolated high speed driver circuits are used iii. 2 Nos of Hall effect Current transducer used for sensing the input and output of the converter current iv. 2 Nos of Hall effect voltage transducer used for sensing the input and output of the converter voltage v. In boost mode I/P is 100V and O/P is 300V vi. In buck mode I/P is 300V and O/P is 100V vii. Power Rating is 200Watts viii. dv/dt protection is available for all IGBT (Snubber circuit) <p>3. BATTERY 8 Nos of 12V, 200Amps per hour Batteries are connected in sensing to get 100V DC O/P Battery stands to be provided</p> <p>4. INVERTER MODULE</p> <p><i>Essential Requirements</i></p> <ul style="list-style-type: none"> • Three Phase IGBT based Power Module • Power Circuit Input: 230VAC/300 VDC @ 4 amps • Power Circuit Output: Suitable 750 watt RL load <p>5. SENSORS</p> <ol style="list-style-type: none"> i. 3 temperature sensors provided signal conditioning 	<p>Ph:0661-2462416, Email: bidyadhar@nitrkl.ac.in</p>
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			<ul style="list-style-type: none"> 1066Mbps <ul style="list-style-type: none"> ○ Quad SPI Flash: 32MB (256Mb) • Full seat Vivado® Design Suite: Design Edition <ul style="list-style-type: none"> ○ Device-locked to the Artix-7 XC7A200T FPGA • Printed Getting Started Guide • Cables & Power Supply • Additional downloadable content including <ul style="list-style-type: none"> ○ Reference Designs, Design Examples, and Demos ○ Board Design Files ○ Extensive Documentation <p>AMS 101 Evaluation Card</p> <ul style="list-style-type: none"> • XADC 12-bit, 17-channel, 1Msps dual ADCs • 16-bit dual DAC for analog test signals • AMS Evaluator tool for analyzing analog data, internal temperature and voltage measurements, and saving data to a .csv file <p>➤ Xilinx FMC XM105 Debug Card</p> <ul style="list-style-type: none"> • VITA 57.1 FMC HPC connector • Single-ended signals from the carrier board, clocks, JTAG, power. • 40 Single Ended I/O (20 Pairs) on the LPC Pins • 80 Single Ended I/O (40 Pairs) on the HPC Pin <p>8. DATA ACQUISITION SYSTEM</p> <p>➤ Base Board Specification</p> <ul style="list-style-type: none"> • USB TMC Standards • True plug and play • Multi-Function USB DAQ <p>Minimum Requirements</p> <ul style="list-style-type: none"> • 12 bit ADC & 14 bit DAC • Analog Input : 8SE/4DI <ul style="list-style-type: none"> ○ Simultaneous Sampling : 2 Channel ○ Sampling Rate : 1msps 		
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			<ul style="list-style-type: none">○ Range : 0to5v● Analog output : 4 Channel● 24 high-speed digital I/O lines<ul style="list-style-type: none">○ Resolution : 14 bit○ Speed : 2msps○ Range : 5v <p>Essential Software Support</p> <ul style="list-style-type: none">● Win XP / 7 supported drivers● Support for Visual Studio® and Visual Studio® .NET● NI LabVIEW™ support● MATLAB® DAQ toolbox supported <p>* Battery voltage and current, PV panel's voltage and current, Inverter output Voltage and Current displayed in a PC through the Data Acquisition system (DAS)</p>		
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Nodal Officer (Procurement)
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TEQIP-II
National Institute of Technology
Rourkela-769008

FORMAT OF QUOTATION * SUBMISSION
(In letterhead of the supplier with seal)

Sl. No.	Description of goods (with full Specifications)	Qty.	Unit	Quoted Unit rate in Rs. (Including Ex-Factory price, excise duty, packing and forwarding, transportation, insurance, other local costs incidental to delivery and warranty/ guaranty commitments)	Total Price (A)	Sales tax and other taxes payable	
						In %	In figures (B)
Total Cost							

Gross Total Cost (A+B): Rs. _____

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. _____(Amount in figures) (Rupees _____amount in words) within the period specified in the Invitation for Quotations.

We confirm that the normal commercial warranty/ guarantee of _____ months shall apply to the offered items and we also confirm to agree with terms and conditions as mentioned in the Invitation Letter.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier

Name: _____

Address: _____

Contact No: _____