



केन्द्रीय इलेक्ट्रॉनिकी अभियान्त्रिकी अनुसंधान संस्थान

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**EXPRESSION OF INTEREST FOR PROCUREMENT OF  
“Grid Tied Inverter Test Facility for CSIR-CEERI’s Incubation-cum-  
Innovation Hub, Jaipur”.**

Director, CSIR- CEERI, Pilani invites interested manufacturer / authorized distributors only to participate in per-indent conference for procurement of the Grid Tied Inverter Test Facility equipment are required for DSIR-Common Research & Technology Development Hub is being setup at CFC-1, Malviya Industrial Area, Jaipur to help Micro Small & Medium Entrepreneurs (MSMEs). **Equipment should include: 15 kW Photovoltaic Simulator – 2 Nos., Regenerative 30 kVA Grid Simulator – 1 No. and 30 kVA Programmable RLC Load for anti-islanding test of utility type inverters – 1 No.**

The PV simulator should be a fully integrated system and that should simulate IV curve with programmable open circuit voltage,  $V_{oc}$ , and short circuit current  $I_{sc}$ , as required for a wide variety of inverters. We should also be able to simulate different solar cell characteristics and also should be able to program the following parameters, irradiance level, temperature value, temperature coefficient, and simulation time to ramp the voltage, temperature and/or irradiance level, etc.

The regenerative grid simulator is needed to vary relevant parameters in order to simulate real world grid environments and conditions. It should support in variations, which includes frequency, phase angle, voltage amplitude, voltage drops in either single as well as three phase modes. It should simulate unbalanced three phase conditions. Moreover, it should provide precision measurements, such as, RMS voltage, RMS current, true power, power factor, current crest factor, etc. Also it should simulate power line disturbance (PLD) using LIST, PULSE and STEP modes. Additional features to program various distorted harmonic waveforms are required to meet the regulatory standards. GPIB, RS-232, USB and Ethernet interface should be available to control the grid simulator remotely.

Programmable RLC AC Load is needed in accordance to the anti-islanding protection test requirement. The same will be used as a Grid connected Inverter Anti-islanding Test System (Smart RLC Load). It should be used suitably for three phase and single phase Grid Tied Solar PV Inverter for the anti-islanding protection testing. The power of resistive load, inductive load and capacitive load should be independently controlled and adjusted. It should satisfy the resonant point accurately when the voltage is unbalanced. Furthermore, it should satisfy the testing needs of grid inverter full load and it should simulate the occurrence of the circuit resonance accurately. Most importantly it should inspect effectively the Islanding Prevention function of utility grid inverter, satisfies the Islanding Prevention Detection of utility grid inverter and also satisfies the work efficiency test of utility grid inverter, overload protection test, over-current protection test, power factor experiment, grid electric current harmonic test, etc.

The scope of this test facility is to provide the complete setup required to test the PV inverters for various test conditions as IEC Standards. IEC 61683 – Procedure for measuring efficiency of Photovoltaic systems, IEC 62116 – Test procedure for islanding prevention measures for utility interconnected PV inverters and IEC 61727 – Procedure for measuring PV inverter efficiency. Other requirement i.e. The vendor should provide the details of installations of similar products with contact details, the vendor should have the local service centre and applications support facility for post sales and application support and in case the bidder is a distributor, should provide necessary documentation such as authorization letter from the OEM, post-sales support process as well as the technical support structure in India.

The meeting will be held on 28.8.2017 at 2.30 P.M. in CSIR-CEERI New Conference Room. The interested participants should visit CSIR-CEERI, Pilani at their own cost and should bring supporting documents i.e. leaflets/technical literature and also be able to deliver technical presentation of the 15 kW Photovoltaic Simulator, Regenerative 30 kVA Grid Simulator and 30 kVA Programmable RLC Load for anti-islanding test of utility type inverters.

Stores & Purchase Officer