विद्युत अभियांत्रिकी विभाग
DEPARTMENT OF ELECTRICAL ENGINEERING
भारतीय प्रौद्योगिकी संस्थान कानपुर
INDIAN INSTITUTE OF TECHNOLOGY KANPUR
कानपुर-208 016 (भारत)
KANPUR-208016 (INDIA)

Phone : (0512)-2597409
: 2597164
: 2597454
Fax : (0512)-2590063
Webpage : http://www.iitk.ac.in/ee

To,
M/s ----------

Enquiry no:-NaMPET/EE/INV/2014-2015 Dated: 03/11/2014

Enquiry for "55 kW back-to-back converter-inverter"

Sealed tenders are invited from interested vendors for supply of "55 kW back-to-back converter-inverter" as part of an externally sponsored research project, satisfying the following terms and specifications.

Terms

T-1. Separate technical and financial bids are to be submitted in separate sealed covers.

T-2. The bid document must specify the technical capability of the concerned vendors. Specifically, the following details must be clearly stated.

- T-2.i) Registration details, location of manufacturing facility.
- T-2.ii) Whether manufacturing is in-house or outsourced, if outsourced, details of outsourcee as per all items listed in (T-2).
- T-2.iii) Previous experience of working with academic institutions/research laboratories in development/manufacture of full-scale prototype of power electronic equipment (100kW and above from supplied design.
- T-2.iv) Educational background and technical experience of key personnel.

T-3. There will be 2 rounds of evaluation. A first shortlist of the vendors will be prepared based on the technical bids. Subsequently, the financial bids of these shortlisted vendors will be considered for order placement.

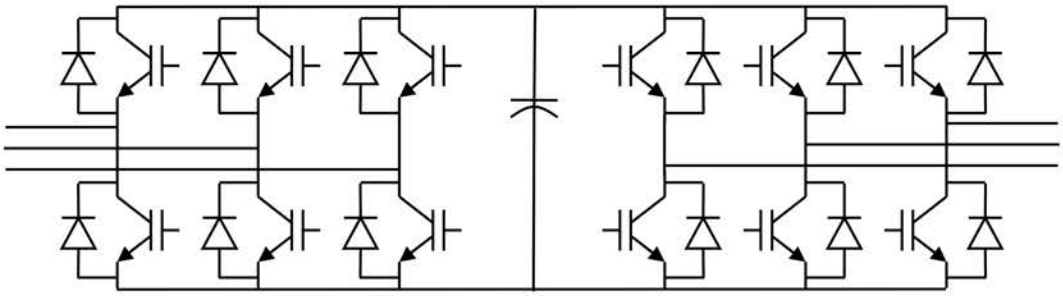
T-4. The technical bid should clearly justify with adequate detail the design to be adopted for completely satisfying the technical specification.

T-5. The financial bid must separately indicate component, manufacturing (including all overheads) and complete testing charges for all electrical specifications.

T-6. All decisions of authorized Purchase Committee are final. The Purchase Committee retains the full rights to change specifications, decide the final design and award of tender. All payment terms would strictly be as per Institute rules.

Technical Specifications

S-1. Circuit diagram depicting the switch network of the back-to-back converter-inverter system is as below. (Coupling filters not shown)



S-2. Nominal rating: 55 kW, 3-phase, 415 V. Continuous overload rating: 100%

S-3. Switching frequency for both converter and inverter: 10 kHz

S-4. Ambient temperature: 55^{o}C, Fan-cooled

S-5. Overall efficiency at rated load: Greater than 96%

S-6. Nominal dc bus voltage: 850 V

S-7. AC side ripple filters (per-phase) : L (750µH, 2.5 A/mm^2), C (50µF, 440 V)

S-8. Isolators (manual) and contactors on both 3-phase lines.

S-9. Display of current (rms), power voltage (L-L, rms), p.f for both 3-phase lines.

S-10. Ethernet connectivity for acquiring electrical variables (voltage, current, power, p.f)

S-11. Control power supply (dc) should have provisions for start-up before energization of main contactor, with options for deriving input power from the two 3-phase lines and dc bus (ref. S-6). Redundancy of control supply is essential. Automatic energization of control supply through UVLO set at 130 V (from any of the possible inputs). Output voltages (current) specifications of control power supply are as follows.

a. Non-isolated (referenced to negative dc bus potential): +5 V (1 A), -5 V (500 mA) , ±15 V (2.5 A)
b. Isolated: 7 nos. of +15 V (100 mA) each.

S-12. Power stack consisting of power switches, dc link capacitors, current & voltage sensors and control power supply should be housed in a sealed enclosure housed within the overall cabinet comprising all remaining components viz. switchgear, input and output filters; Protection : IP64 for power stack enclosure; IP53 for complete cabinet. Both power stack enclosure and cabinet design and component placement must allow easy access for service/repair. Cabinet, Heat sink and power stack enclosure must be earthed though RCD. Isolation level : 3.3 kV.

S-13. Design for controller board and all control codes will be provided to selected vendor after order finalization under Non-Disclosure Agreement to be signed by the selected vendor. Basic specifications of controller board are as follows (for costing purpose only):-

6 layer board with one no. DSP processor (TMS320F2812) with 30 MHz crystal, one no. FPGA processor (Xilinx, Spartan 3, 400 k gates) with 50 MHz crystal, 12 bit 8 channels 500ns internal ADC + one no. 14-bit external ADC (8 analog channels, 526 ksps/ch), 8 differential analog input, 12-bit DAC (4 channels, 200 ksps/channel), 12 PWM outputs, Ethernet port, external memory (SPI Flash, 64 M bits or 4M Words, 100MHz Clock).

S-14 Quantity –One

S-15 Warranty –Price for one Year warranty & price for Two Years warranty

Kindly send your quotation in separate sealed envelope on or before*November 19, 2014 in favor of **"Dr. P. Sensarma, Department of Electrical Engineering IIT Kanpur 208016"**. The Indenter has right to accept or reject the tender.

*Closing date extended to November 26, 2014

akbasu

(Amit Kumar Basu)
Incharge
Email- akbasu@iitk.ac.in
National Mission for Power Electronics Technology (NaMPET) Laboratory
WL-110
Department of Electrical Engineering
Indian Institute of Technology Kanpur
Kanpur-208 016, Uttar Pradesh