



# Indian Institute of Technology Kanpur

## National Centre for Flexible Electronics

**Enquiry No.: SCDT/FlexE/2016-17/31**

**Opening Date: March 31, 2017**

**Closing Date: April 17, 2017**

### **Invitation for Expression of Interest for design, supply, install, commission, test, and validate of cleanroom utilities at NCFlexE, IIT Kanpur**

Expression of Interest is invited from the parties to design, supply, install, commission, test and validate the Proposed Utilities required at the clean room in the National Centre for Flexible Electronics (NCFlexE) IIT Kanpur

#### **General statement of objectives and brief description of the project:**

The National Centre for Flexible Electronics IIT Kanpur proposes to engage reputed professional Vendors/Contractors to Design, Supply, Install, Commission, Test & Validate the Utilities required for the clean room built at the centre.

The proposed cleanroom facility building is predominantly reinforced concrete framed structure. A dedicated Utility room is provided in the ground floor of the NCFlexE building for the purpose of housing utilities.

The prospective vendors shall be well versed with the state of the art Utilities as required. Vendors shall provide the details of the space requirements for the proposed utilities.

#### **Scope of work:**

The prospective vendors shall comply with the requirements specified/provided in the various sections of this EOI document and as per specifications needed by NCFlexE.

Details of the Scope of the Work: TO DESIGN, SUPPLY, INSTALL, COMMISSION, TEST & VALIDATE THE UTILITIES mentioned below:

The scope of work shall include

- I. CLEAN DRY AIR
- II. ULTRA HIGH PURITY NITROGEN
- III. DI WATER
- IV. WET EXTRACTION SYSTEM (INCLUDING ABATEMENT SYSTEM)
- V. DRY EXTRACTION SYSTEM (INCLUDING ABATEMENT SYSTEM)
- VI. DRAIN SYSTEM FOR CHEMICALS



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### VII. BULK GASES, INERT GASES, HAZARDOUS & TOXIC GASES

### VIII. ALL UTILITY RELATED PIPING AND DUCTING

It may be noted that this is an invitation for EOI and should not be construed as the Tender/ Request for Proposal (RFP) in any form and would not be binding on the Institute in any manner whatsoever. Expression of Interest prepared in accordance with the Procedure enumerated in this document should be submitted to the Coordinator Prof. Monica Katiyar, NCFlexE, SCDT, IIT Kanpur, 208016, U.P., India. The EOI should be submitted within 17 days from the date of advertisement. The EOI should be valid for 60 days from the date of opening. The application should be accompanied with the following information:

- 1) Evidence of incorporation
- 2) Company / Organisation profile giving details of current activities and Management structure
- 3) A capability statement (Not more than two pages)
- 4) A write-up on the understanding of the assignment (Not more than two Pages)
- 5) Qualification & Experience of key technical and management Personnel that are proposed to be deployed on this contract, if awarded.
- 6) Certified Annual report including balance sheet and profit and loss Account statement for the past three years.
- 7) Information on litigations if any in which the bidder is involved.
- 8) Solvency Certificate recently issued by any Nationalised Bank for a Sum of Rs.50 Lakhs.

#### **Expectations from the professional agency/Vendors:**

The agency is expected to take the entire responsibility of Comprehensive Design, Supply, Installation, commissioning, Test & Validation of the utilities in a turnkey manner

#### **Prequalification of the Vendors/agency:**

Such vendors/agencies expressing the interest will be short listed who either singly or in association with others ( Service providers), are capable of rendering high degree of professional services in the field of work mentioned above and such short listed agencies may be invited later to submit their proposals.



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The shortlisted bidders shall be informed separately and a detailed Request for Proposal (RFP) shall be sent to them for submission of their bids at a later date.

Qualified bidders shall be invited to National Centre for Flexible Electronics (NCFlexE), IIT Kanpur at a specified date to give a presentation on their proposed approach for carrying out the work. Their presentation will be followed by technical discussions with the National Centre for Flexible Electronics, IIT Kanpur team, and a site visit, if necessary. Subsequently National Centre Flexible Electronics IIT Kanpur reserves the rights to accept/reject any application at the prequalification stage without assigning any reason whatsoever. Among other things the agency must broadly fulfil the following criteria:

- It should be a reputed and established company/organization.
- It should have been in existence in providing the Utilities & facilities mentioned above for minimum of three years under taking the jobs in INDIA.
- Mere existence since three years without executing Utilities are not eligible to participate.
- The vendor must have at least three years of experience in executing Utilities with relevant proof & satisfactory certificate.
- The vendor should provide proof of execution of "Similar nature of works". 'Similar nature of works' means one which involved Comprehensive Design, Supply, Installation, commissioning, Testing & Validation of the utilities in a turnkey manner in INDIA.
- The value of utilities works completed should not have been less than Rs.1 Crore in a single order OR two orders of Rs. 50 Lakhs each in any Government Sector or large reputed Private Sector Enterprises/National Institutes, R&D centres etc.
- In support of experience in non-government bodies-companies TDS certificates shall also be enclosed in addition to work order and satisfactory completion certificates.
- The Completion certificate of the job issued by the respective client is necessary. The experience certificate and statement showing the value of existing commitments and on-going works as well as the stipulated period of completion, remaining for the each of the works listed shall be issued by the firm.
- Documentary Evidence along with reference/contact person & address, telephone/ email details of clients should be submitted along with vendor's expression of interest for Verification. The documentary evidence shall be in terms of Work Order/Purchase order indicating the Scope / nature of work, value of Work order /purchase order, Value of Contract & period of Execution etc. The Completion certificate of the job issued by the respective Client is a Must. Without submission of above mentioned Documents & the Completion certificate, the offer will be liable



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to be rejected by NCFlexE at their discretion. The committee will visit your Clients (if deemed fit) to ascertain the Works executed by the vendors as per the Documents submitted by your Company. Necessary arrangements have to be made by the vendor for such visit. No claim is admissible for the same. Cost of visit shall be borne by the Institute.

NOTE: Jobs executed outside India will not be considered. References of the Works executed in India only should be provided.

- It should have an average annual turnover not less than Rs.2 Crores in any one of the last three financial years.
- The vendor should have capability to provide future maintenance and services & support with annual maintenance for a period of minimum 5 years.
- Vendor should point out all the relevant critical issues that they will be addressing while establishing this facility.
- Vendors should be Capable of Supplying, installing, commissioning, testing & maintaining all the services needed for the Facility. Vendors can also identify supporting service providers, in case of consortium, for services & utilities along with them as a team subject to the approval by National Centre for Flexible Electronics IIT Kanpur.
- In case Indian vendors, agents/sub-contractors are not eligible to participate in the BID. Only the Registered Companies fulfilling the Criteria mentioned above are eligible & shall authorize their regular/permanent Employees/executives to Correspond & participate in the Bid.
- Foreign vendor(s) should have their establishment in India or at least have their branch office / representative office in India for execution, follow-up, and maintenance. This establishment/ branch office/ representative office shall be registered in India. These Branch offices should have been registered branch office/representative in India at least three years earlier than the date of Publishing of this EOI. And they shall have technically skilled personnel and project team in India to execute, maintain & undertake Annual Maintenance Contract for a period of 5 years.

**In case of Foreign Vendors, the details of the branch in India/representative in India shall be produced. They shall produce documentary proof of MOU duly registered in INDIA at least three years earlier than the date of publishing this EOI. If the relevant Documents are not submitted, the offer is liable to be rejected by NCFlexE authorities.**



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- In case of Foreign Vendors, the NCFlexE committee may visit the Premises of the Vendors branch office in India/representative office in India & verify the Documents for their existence as per the documents submitted by them. If found not satisfactory the respective vendor will not be allowed to participate in the proposed Utilities project. Also if found not existing the respective Vendor will be disqualified from Participating in the proposed Utilities project & will be BLACK LISTED. This branch office/ representative of the Foreign Vendor in INDIA must have at least THREE years of experience in Comprehensive Design, Supply, Install, commission, Test & Validate the utilities mentioned in the document in a turnkey manner
- The documents/completion certificates etc. submitted by the vendor, if found manipulated/forged/ corrected, the vendor will not be entertained to participate in the BID & will be disqualified & black listed at the discretion of NCFlexE.
- Even after submission of documents, if the foreign company does not possess the qualified personnel to take care the project during Construction & their after Annual maintenance for a minimum period of FIVE years, the offer is liable to be rejected at the discretion of NCFlexE authorities.
- The relevant Documentary evidence shall be produced regarding the experience of their branch office/representative in INDIA
- In case of Foreign Vendors, the Order will be placed on the foreign vendor only & not on their Branch office /agents in India or their representative in India.
- Foreign companies shall possess the qualified personnel in INDIA to take care the project during Construction & their after Annual maintenance, the offer is liable to be rejected at the discretion of NCFlexE authorities if the above criterion is not met by the Foreign Vendor. The details of their qualified Branch office/Representative/ personnel in INDIA along with Documentary evidence to prove their Experience shall be provided otherwise the offer will be liable to be rejected.
- The vendor(s) who do not individually meet the criteria mentioned in the above clauses may form a consortium of companies to qualify the above criteria. In such case, it is necessary that majority of the partners of the consortium have comprehensively fulfilled all the qualifying criteria given in this document. Further, there should be one vendor (“lead bidder”) in the consortium who shall submit the indent and shall take responsibility of bidding, commissioning, validation and operation. The lead bidder shall be liable for the entire scope of work and risks involved thereof. The service provider to the Lead Bidder will not be considered as lead bidder. The lead bidder



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must have experience of executing comprehensive Design, Supply, Installation, commissioning, Testing & Validation of the utilities mentioned in the document in a turnkey manner.

- The vendor should meet the eligibility criteria mentioned in this document and to be supported by documentary evidence
- National centre for Flexible Electronics IIT Kanpur, will evaluate the bidders based on the data furnished by them and may call the Eligible Vendors for a Detailed Presentation as part of prequalification of bidders for the above mentioned scope of work.

### **Details of UTILITY Requirements**

#### **I. CLEAN DRY AIR**

Supply, installation and commissioning of oil-free CDA Plant to compress air upto 10Kg/cm<sup>2</sup> (approx. motor capacity of 10kW) with dryers and filters.

#### **II. ULTRA HIGH PURITY NITROGEN**

Design, Supply, installation and commissioning of PSA Nitrogen generation plant (approx. capacity 10m<sup>3</sup>/hr) with storage tank, dew point meter and cylinder manifolds.

#### **III. DI WATER**

Supply, installation and commissioning of DI Water plant (approx. capacity 200 ltr/hr) with storage tank, motor and resistivity display unit.

#### **IV. WET EXTRACTION SYSTEM (INCLUDING ABATEMENT SYSTEM)**

#### **V. DRY EXTRACTION SYSTEM (INCLUDING ABATEMENT SYSTEM)**

#### **VI. DRAIN SYSTEM FOR CHEMICALS AND EFFLUENT TREATMENT FOR CHEMICALS**

**Chemicals to be used in the Cleanroom are specified in the table below:**

Sl.No	Name of Chemicals	Remarks (Acid/Alkali/Solvent)
1	Hydrochloric acid	
2	Sulphuric acid	
3	Nitric Acid	
4	HF	
5	SODIUM Hydroxide	



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6	Potassium Hydroxide	
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### **VII. BULK GASES, INERT GASES, HAZARDOUS & TOXIC GASES**

#### **BULK & PROCESS GAS SYSTEMS:**

The vendor should design both bulk and process gases facilities based on the details such as per details given and Cleanroom layout plan with equipment footprints. The facilities should be built to meet the norms of The Static & Mobile Pressure Vessels (Unfired) Rules, 1981, Department Of Explosives and SEMI standards. Gases to be used in the Cleanroom are specified in the table below:

Sl. No	Gas	Remarks
1	Ammonia (NH <sub>3</sub> )	
2	SiH <sub>4</sub>	
3	Cl <sub>2</sub>	
4	BCl <sub>3</sub>	
5	SF <sub>6</sub>	
6	CF <sub>4</sub>	
7	N <sub>2</sub> O	
8	C <sub>4</sub> F <sub>8</sub>	
9	Oxygen	
10	Argon	
12	Ozone	
13	Helium	
14	CHF <sub>3</sub>	
15	Hydrogen	

### **VIII. ALL UTILITY RELATED PIPING AND DUCTING**

The Vendor/Contractor should have experience in Design, Supply, installation, Commissioning & validation of gas distribution system involving hazardous & toxic gases using co-axial SS 316L EP tubing where needed. Vendor should also categorize above gases in order to meet standard safety protocols.

- i). Should have design capability for safe gas distribution system.



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- ii). The contractor must possess technically experienced & trained team to install, Commission the hazardous & toxic gases Systems. Shall be capable of servicing and troubleshooting gas cabinets both single and Dual cylinders, VMB, VMP, Gas Panels, other essential Equipment ,accessories & PLC programming etc.
- iii). Required Documentary evidence shall be submitted from respective Clients for having undertaking similar Works.
- iv). The Vendor/contractor must have done similar work in nature for reputed industries either in Public sector or in reputed private sector, National institutes, R&D centres or in Government agencies.
- v). Shall use analyzers for measurement of trace sub-micron particles(minimum 0.1 micron), oxygen(minimum 500ppb), trace moisture (minimum 500 ppb) during commissioning & validation of Gas pipe lines & accessories.
- vi). Should have thorough knowledge in the usage of instruments like, gas leak detectors, coaxial pressure switch & pressure transducers & venturies etc.
- vii). The contractor should have orbital weld machine to perform the welding operation
- viii). Must have Stainless Steel tools for handling components in the project.
- ix). The contractor shall possess suitable radius benders.
- x). The contractor shall have understanding of JSA (Job Safety Analysis), PSR (Pre Start up safety review) for effective project implementation& MAPP (Major Accident Prevention Plan)
- xi). The contractor must have implemented SCADA & Gas Management software involving emergency responses and shut down procedures.

**Nitrogen:**

Sl No.	Gas	
1	UHP Nitrogen	

- Desired configuration of the Bulk gas & UHP Nitrogen facility: Ultra High Purity Nitrogen of (99.9999% purity) Nitrogen.
- The design standards adopted for fabrication of the Purifier internal vessels shall comply with SEMI Standards. Following features are must:
- Shall provide suitable PLC and SCADA System for process gas management

Process gases: Process gases shall comprises of Inert, Toxic, Flammable and Corrosive. Vendor should design, fabricate, supply, install and commission the requisite Gas facilities. Complete requirements of gas facility, safety and the distribution network to be met as per the specifications given above.





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Vendors shall be provide with suitable Gas cabinets, VMBS, VMPS, panels & Gas Leak detectors wherever required along with suitable safety measures.

### **SPECIAL TERMS & CONDITIONS**

1. All the pages of the Documents submitted by vendor shall be signed by the permanent Employee/executives/Directors/managers etc., with name, Designation & seal of the Vendor Company on each page.
2. The intending vendor must read the EOI and conditions carefully.
3. Suppliers/vendors should only submit his expression of interest, if he considers himself eligible in possession of all the documents required in EOI.
4. Vendors must submit the EOI documents in hard copies to the given address within the given period to submit the EOI.
5. Suppliers/vendors must provide future maintenance and services & support with Annual maintenance for a period of minimum 5 years. Vendor should point out all the relevant critical issues that they will be addressing while establishing this facility.
6. A scoring system for selected parameters will be used for comparative evaluation. The suppliers/vendors will have to achieve a minimum score determined by IIT Kanpur.
7. Validity of EOI should be at least for 60 days.
8. All suppliers/vendors shall submit his queries/points of doubts within the period of 3 days from the date of floating EOI online.

Kindly send the quotation in sealed envelope latest by dated 17/03/2017 to the following address;

To,  
Prof Monica Katiyar.  
Room No.310,  
Samtel Centre for Display Technologies (SCDT),  
Indian Institute of Technology Kanpur,  
Kanpur – 208016, Uttar Pradesh, India