



### Request for Quote for Supply, Installation, Testing and Commissioning of Nitrogen gas generator with Accessories

- The GEECI (Gallium Nitride Ecosystem Enabling Centre and Incubator) at SID-Indian Institute of Science is seeking bids from qualified industries for a Nitrogen gas generator with accessories
  - Companies need to submit two bids, a technical bid and a commercial bid, in two separate sealed envelopes. The bids should be submitted no later than 21 days from the date of posting of this tender, as listed on the website date/time stamp, and by 5 pm on the 21st day or next weekday in case the 21st day falls on a weekend or a national holiday.
  - Both technical and commercial bids should be addressed to “The Chief Executive, SID, IISc, Bangalore 560012.”
  - The envelopes should be addressed to “Prof. Srinivasan Raghavan, CeNSE, IISc, Bangalore, 560012” and submitted to the office at CeNSE, IISc in Room No. GF 15 between 9 am and 5 pm.
  - All questions regarding this tender should be addressed to Prof. Srinivasan Raghavan at the email address [sraghavan@iisc.ac.in](mailto:sraghavan@iisc.ac.in)
  - Post such submission all vendors should send an email to [sraghavan@iisc.ac.in](mailto:sraghavan@iisc.ac.in) with the subject line: “GEECI\_Bidder’s name Tool Name” to intimate him of the submission within one day.
  - Deviations from the technical specifications requested are allowed. Such deviations must be highlighted and justified. Their acceptance or rejection will be left to the discretion of the technical committee.
  - The equipment sought will be placed at the Centre for Nano Science and Engineering (CeNSE), Indian Institute of Science (IISc). IISc is India’s No. 1 institution on higher learning and the Center for Nano Science and Engineering is home to one of the best academic fabs in the world.
  - Please find the **Annexure-1** for Technical requirements.
  - The technical response, corresponding to the tool being offered, should be in the form of a compliance table with at least 5 columns.  
Serial number in column 1. Each of the numbered technical items below should be addressed in a separate row of the table in column 2. Compliance to this requirement, in Yes/No, deviation from it and justification should be provided in the neighboring columns 3-5. Post the opening of a hard copy of the technical bid the committee will request for a soft copy of the files for further processing. Companies should NOT mail soft copies of the files unless specifically requested for.
  - Detailed technical specifications of the system being offered should be included.
  - Any additional capabilities or technical details, that you would like to bring to the attention of the purchase committee, can be listed at the end of the technical table.
  - If multiple systems can fulfill the requirements, vendors can submit multiple bids.
  - Vendors are encouraged to highlight the advantages of their system over comparable systems from the competitors.
  - The commercial bid should be broken up to the maximum extent possible into separate items with a cost against each to enable better comparison of price for various configurations across the bidders. As an option, please provide itemized cost for any suggested accessories/addons that may enhance the usability, capability, accuracy or reliability of the system. Vendors are encouraged to quote for as many add-ons as their system portfolio permits.
- The quotes should be split into a line item indicating the base price and then each optional item should be listed separately with its pricing.



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### Procedure

- 1) Only vendors who are compliant with the technical requirements will be considered for commercial comparison. The bid is awarded to the lowest cost vendors (referred as L1).
- 2) The commercial comparison is made as per Government of India rules, specifically GFR 2017. Note that GFR has recently been amended. As per recent edits to the GFR, there are three classes of vendors distinguished by their “local content”. In the cover letter, vendors must mention which applies to them:
  - a. Class 1 supplier: Goods and services have a local content of equal to or more than 50%.
  - b. Class 2 supplier: Goods and services have a local content more than 20% but less than 50%
  - c. Non-local supplier: Goods and services have a local content of equal to or less than 20%
- 3) This tender will only apply entertain Class 1 or Class 2 suppliers. Vendors must provide a self-declaration of what Class they belong to.
- 4) In the commercial bid, please provide an itemized cost of the system and required accessories, such as dryer, filters, piping, buffer vessel, receiver tank etc.,
- 5) As an option, please provide itemized cost for any suggested accessories/add-ons that may enhance the usability, capability, accuracy or reliability of the system. Vendors are encouraged to quote for as many add-ons as their system portfolio permits.
- 6) Quote should come only from Indian Original Equipment Manufacturer (OEM). The quotations should be in INR only and must include shipping cost.
- 7) Mention GST separately. IISc will be taxed at 5%. IISc will provide the GST exemption certificate against invoice.
- 8) Please indicate the warranty provided with the Generator or system. Warrant of 3 years or more is required.
- 9) As an option, provide itemized cost for required spares for 2 years of operation from the time of installation.
- 10) Clarify if periodic (preventive) maintenance be done by a trained on-site engineer or requires a specialist from the OEM.
- 11) The technical proposal must include references from 5 previous installations in India. Please provide the names and contact addresses of the referees so that the committee can contact them independently.

## Annexure-1

### Technical Requirements: Nitrogen gas generator and Accessories

1	Application	On-site Nitrogen gas generation for a semiconductor foundry. Scope of the order includes: 1. Nitrogen gas generator 2. Accessories
2	Industry type	Semiconductor cleanroom class 100 and class 1000
3	Gas	Nitrogen
4	Type of generator	<b>PSA based(modular type ) :</b> The nitrogen generator should be of PSA based with CMS. Nitrogen should have mass flow controller to control air inlet with proportionate to N2 outlet. The nitrogen generator should have inbuilt oxygen analyzer. Nitrogen generator should have CMS and to have minimum of 10 years guarantee & 5 years guarantee for service valves.
5	Approved make	Chicago pneumatic / Parker domnick hunter / Garner Denver
6	Capacity	115m3/hr
7	N2 Pressure	10 bar
8	Air inlet Pressure	12 bar
9	Purity	>99.999%
10	Dew point of N2	< -60 °c
11	MOC	Diecast extruded Aluminum with corrosion resistance treatment
12	Pre treatment	3 stage filter with refrigeration dryer to give class 4 - ISO 8573.1  Refrigeration dryer should use R513A eco-friendly refrigerant & should have plate type aluminum heat exchanger & advance microprocess control with HMI.
13	Feed Air compressor	Oil lubricated air-cooled screw compressor with IE3 motor. Approved make - Chicago pneumatic / Garner Denver / Compair
14	O2 analyzer	Inbuilt O2 analyzer with ppm reading. Electrochemical type
15	N2 filter	Electronic grade at the outlet of the N2 receiver. 0.01 Micron with SS housing (domnick hunter / pall / Merck Millipore / Sartorius)
16	N2 storage tank	5000 Liters tank with standard accessories
17	Buffer tank	Buffer tank as per design
18	Construction	Modular with expandable provision for future gas demand. ( multi banking type modules )
19	Equipment specifications	<b>a. Energy saving technology: -</b>

		<p>Must matches compressed air flow to the nitrogen outlet flow and purity, reducing compressed air use, and saving energy.</p> <p><b>b. Five-year warranty on service valves is must.</b></p> <p><b>c. Industry compliance: -</b> As per Semi-conductor standards</p> <p><b>d. Gas quality control should have the following:-</b></p> <ul style="list-style-type: none"> <li>- Mass Flow Controller – ensuring correct set pressure and flow</li> <li>- Integral Oxygen Analyzer -constantly measures gas purity</li> <li>- Off-Gas-By-Pass -automatically vents off out of specification gas</li> </ul> <p><b>e. Inlet and Outlet Pressure Regulation: -</b> To prevent damage to the generator application</p> <p><b>f. Electronic Control System must have: -</b> To ensure 100% management of all critical generator functions</p> <p><b>g. Remote monitoring for: -</b> Enabling connection to proprietary remote management and the generator control systems to control and track gas parameters from a central location</p> <p><b>h. Must be Easily upgradable: -</b> Provision to add extra generators as the application requirement grows.</p>
20	Periodic Maintenance	<ol style="list-style-type: none"> <li>a. The system should require minimal maintenance.</li> <li>b. Mention the recommended preventive maintenance schedule for the system. Any accessories needed for periodic preventive maintenance for 3 years.</li> <li>c. Can the preventive maintenance be done by a trained on-site engineer or requires a specialist from the OEM? If the latter, please provide cost of a 3-year AMC with required kit/consumables.</li> <li>d. The system should be supported by a trained local representative and should have a 12-hour window of response.</li> </ol>
21	Installation and Training	<ol style="list-style-type: none"> <li>a. Installation and training at customer site, by the experts from principals should be part of the package.</li> <li>b. During the installation all the specifications of the tank should be verified for acceptance by the customer.</li> </ol>
22	Documentation	<ol style="list-style-type: none"> <li>a. Supplier should provide DQ/OQ/PQ/ IQ.</li> <li>b. Operation &amp; Maintenance Manuals - along with the equipment</li> </ol>
23	Inspection	As per Standard QAP of OEM.
24	Scope of work	<ol style="list-style-type: none"> <li>a. All civil works like wall opening/closing, loading/unloading at site, foundation works, Installation and commissioning is in vendor's scope</li> <li>b. All interconnecting till N2 storage tank in vendor scope.</li> <li>c. Commissioning, erection &amp; training to IISc staffs in vendor scope.</li> <li>d. Vendor should provide list of consumables spares.</li> </ol>

		e. Vendor to provide minimum of 6 numbers of performance satisfactory letter for the machines installed in last 5 years.
25	Safety	<ul style="list-style-type: none"> <li>a. The installation technician should follow all site safety terms.</li> <li>b. Mandatary PPE: Safety helmet with face shield, electrical insulated gloves, electrical insulated safety shoes.</li> <li>c. The Installation should be carried out by trained technicians</li> </ul>
26	Approvals/Permission	<ul style="list-style-type: none"> <li>a. The vendor must submit the GA and P &amp; ID drawings for approval before execution works.</li> <li>b. The GEECI/NNfC Office, GF-20, CeNSE, IISc must be intimated prior 5 weekdays before start of work. The vendor must obtain explicit permission for any shutdown needed to implement the project. The request for shutdown must be escalated at least 10 weekdays prior.</li> </ul>
27	IISc responsibility	<ul style="list-style-type: none"> <li>a. Power will be arranged for execution of works.</li> <li>b. Free storage space at site will be provided.</li> <li>c. Payment will be within 30 days against a tax invoice, after satisfactory completion of the work.</li> </ul>

Thanking you.