



Indian Institute of Science

Bangalore- 560012

Notice Inviting Tender (NIT) under Two-Cover Bid System

for

Supply and Installation of Data Centre Infrastructure with Server Racks, Cooling and Management Systems

in

**Chemical Sciences Building
Indian Institute of Science, Bangalore**

Tender No.: IISc/CSB/DC/2022/02

Date: 27/10/2022

Table of Contents

1	<i>Preamble</i>	3
2	<i>General Information about this Tender</i>	3
3	<i>Schedule of Requirements</i>	4
4	<i>Technical Details</i>	5
5	<i>Warranty and Maintenance</i>	10
6	<i>Technical Details/BoQ Compliance Sheet (to be submitted with Technical Bid)</i>	10
7	<i>Scope of Work</i>	15
8	<i>Bidder’s Eligibility Criteria</i>	15
9	<i>Undertaking in Lieu of Earnest Money Deposit (EMD)</i>	17
10	<i>Performance Security or Performance Bank Guarantee (PBG)</i>	17
11	<i>Acceptance Criteria</i>	17
12	<i>General Terms and Conditions</i>	18
13	<i>Organization of the Technical Bid</i>	19
14	<i>Technical Bid - Terms and Conditions</i>	20
15	<i>Commercial Bid - Terms and Conditions</i>	21
16	<i>Payment Terms</i>	22
17	<i>Important Dates</i>	22
18	<i>Annexure A – List of Recommended Makes</i>	23
19	<i>Annexure B – Undertaking</i>	24
20	<i>Annexure C – Format for Performance Security</i>	25
21	<i>Annexure D – Certificate from Bidder Related to Make in India Orders</i>	28

1 Preamble

Indian Institute of Science (IISc), Bangalore, is India's leading institution of advanced education and research in the sciences and engineering. The Division of Chemical Sciences of IISc has consistently maintained its position among the top 50 chemistry departments in world rankings over the past decade. The Division has nearly 50 full-time faculty members who conduct cutting-edge research various fields of chemistry. The Division hosts several computational clusters to support the research and teaching activities. This tender is intended to create a data center infrastructure where all the divisional computing facilities will be co-located and managed.

2 General Information about this Tender

1. This tender is for a turnkey solution for creating a data centre infrastructure with adequate server racks and allied cooling facilities, power panels and management systems, for hosting small and medium-scale high-performance computing (HPC) systems.
2. Interested bidders are invited to submit their bid in two-cover format, *i.e.*, Technical bid and Price (Financial) bid **by hard copy submissions to the indicated mailing address** within the stipulated deadline. An additional copy of **ONLY** the technical bid as a single combined pdf should sent by email. The price bids should **NOT** be sent by email.
3. The schedule of events is given below:

Publication of Tender	28/10/2022
Deadline for submission of pre-bid queries (by email only)	04/11/2022, 5:00 pm IST
Release of corrigendum (if needed)	07/11/2022, 5:00 pm IST
Start of submission of bids	11/11/2022, 5:00 pm IST
Deadline for submission of bids	18/11/2022, 5:00 pm IST
Opening of technical bids	To be declared later
Opening of price bids	To be declared later

4. For scheduling site visits on the aforementioned dates, the bidder may write to dctender.che@iisc.ac.in at least 48 hours in advance of the visit.
5. Any pre-bid queries may be addressed to dctender.che@iisc.ac.in only. No telephonic or personal email communication will be entertained.

6. After due scrutiny of the bids and identification of responsive bids, technical presentations may be held if deemed necessary by the committee. The bidders will be intimated in sufficient advance.
7. The bidders must clearly understand the existing support infrastructure available and propose accordingly. The solution submitted by the bidders is expected to be a total turnkey solution operated by a single bidder meeting all the stipulated requirements.
8. Design, supply, installation, and commissioning along with on-site warranty services should be provided for three years.
9. Potential bidders are encouraged to contact the SSCU office (Room Number A110, Chemical Sciences Building) to set up appointments and make site visits in the Chemical Sciences Building (CSB) to inspect the facilities before submitting the bid.

3 Schedule of Requirements

The following is the list of requirements:

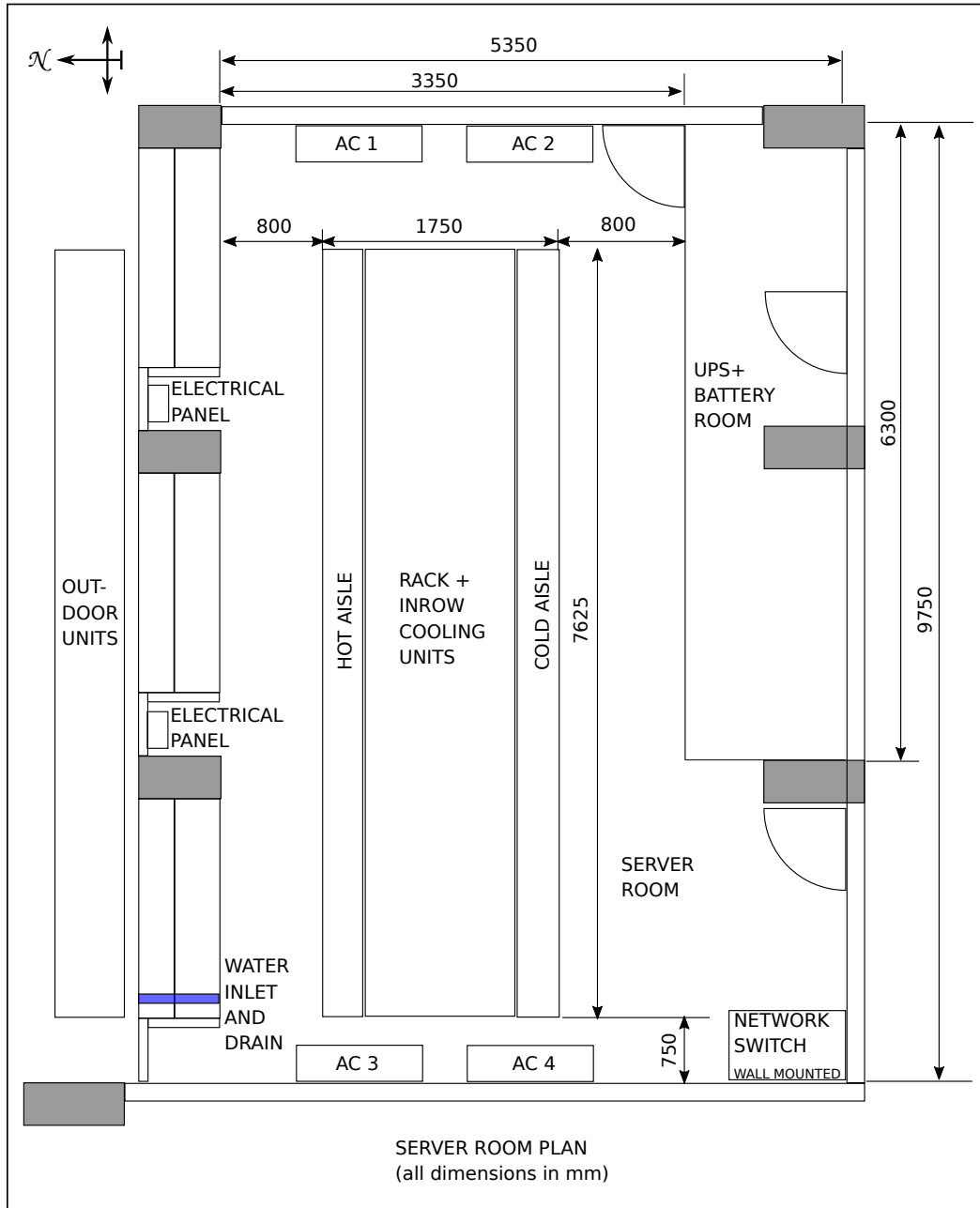
1. Row-based integrated data centre cooling solution for 8 nos. of 42U or higher sized racks, with N+1 redundancy of DX based precision air conditioner (PAC) units, with inbuilt hot and cold aisle separation, UPS, integrated BMS components, and onsite and remote monitoring system.
2. Three-year comprehensive warranty services with quarterly servicing and preventive maintenance of the system.
3. The following components from the solution must be from a single OEM, and also installed, supported and serviced by the same OEM for seamless integration and better service support
 - i. PAC Units
 - ii. Integrated Racks
 - iii. Integrated Monitoring System along with temperature and humidity sensors
 - iv. Uninterrupted power supply (UPS) system

The model numbers for each of the components must be specified and should be readily verifiable from the public domain. Without this information the bidder will be automatically disqualified.

Details of each of the above items is given in the subsequent pages/sections.

4 Technical Details

- Room plan:** The row-based data centre infrastructure is to be housed in a ground floor room of size (approximately) 3350 mm x 9750 mm. The area marked for the row-based cooling units (1750 mm x 7625 mm) is only indicative. You can exceed the indicated dimensions as long as comfortable movement for people is possible in the room and the computer cluster nodes can be installed/serviced without moving the server racks. The revised room plan is below. The UPS room is a marked in the plan.



2. PAC units:

- a. The solution should contain vertical, DX-based PAC units of at least 35 kW capacity with N+1 redundancy for cooling of 8 racks with a power load of up to 15 kW per rack.
- b. Parameters for the PAC units:
- c. Supply air temperature: 20 ± 1 deg C
 - i. Maximum return air temperature: 35 deg C
 - ii. Humidity: 40-65 RH
 - iii. Ambient temperature: 35 deg C

If the specification sheets use a different terminology for the above parameters, the bidder should provide a clarification.

- d. The PAC units should be able to deliver cold air at a rate of minimum 5000 CFM per PAC unit. The units should automatically modulate the airflow as per the operational cooling needs of the servers, for example based upon return air temperature, at any given time. Also, the cold air delivery should be directable to the front of the racks with uniformity across the vertical height of the racks.
- e. The refrigeration should be of direct expansion (DX) type. The refrigerant circuit should have an electronically controlled expansion valve (EEV). Each compressor/refrigerant circuit should have its own independent Evaporator coil and Condenser coil.
- f. The units should be sustainable for operation on R-410A refrigerant. They should consist of an inlet filter, drawn through direct-drive electronically commutated (EC) motors and backward curved EC fans or axial fans.
- g. Provision should be made to collect the condensate from the units and drain it outside the data center room using a drain present in the room.
- h. The Outdoor Condenser units shall comprise of Condenser AC/EC/DC fans & motor, Condenser cooling coil. AC and DC fans should be with fan-speed controllers. The location for these outdoor condenser units is marked in the room plan.
- i. Compressor type: The compressors should be with inverter or digital scroll.
- j. All refrigerant lines up to the condensing unit should be insulated. All insulation exposed to ambient conditions should be UV compliant insulation and weather resistant.
- k. NVH level be at most 70 DB (air noise) at 1 m from each of the PAC units at the rated speed conditions and doors closed.

- l. PAC units should be interfaced with the onsite/remote monitoring and control system, and any anomalies or loss of operation must be reported via email/SMS.
- m. The monitoring and control system in the units should have a provision to switch between the units to provide N+1 redundancy in a pre-programmed manner by the user or automatically based on the cooling needs in the event of a unit failure, need for extra cooling, or in the case of high return air temperatures. If the working of three PAC units is not sufficient to fulfill the cooling requirements of the racks when under heavy load (above 100 kW), then four PAC units should automatically work, overriding the redundancy requirement. OEM design in this regard is acceptable. The details of the regular operation must be mentioned in the bid.
- n. Access to the control system is secured preferably through a numeric passcode-based security system.

3. **Server racks:** The solution should include 8 racks with the following specifications:

- a. The racks and cooling units are to be arranged in a single row.
- b. Each rack should have at least 42U of usable space for compute/storage servers and network switches. The rack width and depth should be of standard dimensions ($W \times D = 600 \text{ mm} \times 1000 \text{ mm}$), and the hot and cold aisle containment should be a minimum of 300 mm each.
- c. Each rack should be supplied with 30 number of 1U blanking panels and mounting hardware for all of them.
- d. 2U closed hinged type or equivalent cable manager should be provided in each rack.
- e. Each rack should be provided with 2 nos. of 230 V, 32A, 3-phase vertical basic PDUs.
- f. Each PDU should contain at least 30 nos. of C-13 sockets and at least 4 nos. of C-19 sockets.
- g. The PDU should receive input power from the UPS.
- h. Each PDU should be able to support the entire rack at full load (up to 15 kW).
- i. The PDU should support high operating temperatures up to 60 deg C to with stand the high temperatures at the back of the rack.

4. **Uninterrupted power system (UPS)**

- a. A true online, double conversion, high efficiency, and unit power factor modular uninterruptible power supply (UPS) system with a minimum of **four** hot-swappable power modules, each of capacity 30 kVA/kW. The total capacity of the UPS should be a minimum of 120 kVA/kW ($4 * 30 \text{ kVA/kW}$).
- b. Failure of any individual power module in the 120 kVA UPS should not affect the working of the remaining power modules. Only the failed power module capacity should go down. i.e., In case of failure of any one power module, the rest of the

available power modules in the frame should continue to operate in normal double conversion mode of operation with reduced capacity. Each power module should have its own intelligent control logic to avoid a single point of failure. There should not be any common controller that controls all power modules in parallel.

- c. The UPS should support all the nodes in the eight racks, monitoring system, BMS components and the exhaust fan. The UPS should not support the PAC units.
- d. UPS must have 15 minutes of battery backup on full load, excluding the PAC units. The batteries should be sealed maintenance free (SMF), each of capacity at least 100 Amp-hr.
- e. The UPS should have a web interface for monitoring and control. It should also be possible to configure alerts and set up a shutdown command that can be sent to the master nodes and/or broadcast on a subnet.
- f. Both the modular UPS and batteries shall be kept in a rack in the UPS marked room. The physical sizing of the UPS and the battery rack should take into account the size of the UPS room.
- g. Input raw power to the UPS room is provided. Any further electrical work required for the UPS is in the bidder's scope.

5. Overall enclosure

- a. Row based setup should have inbuilt and integrated hot and cold aisle containment.
- b. PAC units should be able to cool all racks uniformly from 1st U to 42nd U.
- c. The following BMS components should be present within the enclosure:
 - a) Smoke detector
 - b) Fire detection and alarm system
 - c) Fire suppression system - NOVEC 1230 based
 - d) Water leak detection system
 - e) Temperature & Humidity sensor (2 sensors per rack, one sensor on the cold aisle and other sensor on the hot aisle)
 - f) Rack front and back door sensors for all 8 racks
 - g) Alarm beacon
 - h) Rodent repellent
- d. The entire assembly should have functionality to graphically monitor the infrastructure
 - a) Touch screen display with a menu driven user-friendly interface
 - b) The menu driven system should allow to display and control the following: thermal management, power supply, PDUs, BMS information, alarms, logs, etc.

- e. The monitoring of the entire solutions critical physical and environmental parameters should be possible remotely through a web-based interface in a single dashboard.
- f. Door access to both the front and the rear of the racks must be available. The front door should be of glass for complete visibility of 42U and the rear door should be split metal door. Electro-magnetic locks with push buttons for manual access to the rack doors are adequate; biometric access is not required. In the closed/locked position, the doors should keep the cold or hot air sealed within the enclosure. Both the front and back rack doors should open automatically in the event of a cooling failure and when the temperature exceeds a user defined programmable threshold. The exhaust fan installed in the room should start working upon the rack doors opening. Automatic door closure on the resumption of the PAC units working is not required.
- g. In the event of power outage and loss of PAC units, the monitoring system and BMS components of the assembly should be active. There should be a provision for a separate power line to the monitoring system and the BMS components from the UPS.

6. Electrical Components

Electrical low-side works include cabling, AC and UPS panel, and a heavy-duty exhaust fan.

- a. AC power of the required capacity is provided (see the room plan for location in section-4.1, Room Plan). There are 4 raw power input lines (35 kW max capacity) terminated inside the cluster room using molded case circuit breaker (MCCB). The vendors can connect to the AC power provided.
- b. The UPS power supply will be bidders scope. Input raw power is provided in the UPS room. The location of UPS is marked in the room plan provided in section-4.1 The bidder should provide cabling from the UPS to the racks, BMS and monitoring systems. OEM design of UPS power distribution to the racks is acceptable. The design should be clearly specified in the tender.
- c. The PDU of each rack should be connected UPS power. All electrical sockets (Havells, Legrand, Schneider, and ABB) and cabling (Havells, Polycab and Finolex) should be of industrial grade.
- d. Additional network cable trays should be mounted to provide connectivity to all racks, and with a tray branching out to the west side wall for connecting to the core switch. Care should be taken to avoid interference between electrical cabling and network cabling that will run on these trays.
- e. Provide self-contained battery powered emergency lighting in case of power failure.

- f. One emergency heavy duty exhaust fan of 4000 CFM with static pressure of 10-30 mm of water column on the north side wall with exhaust shutters should be provided. The exhaust fan should be connected to the UPS and integrated into the monitoring system. The exhaust fan should start automatically when the rack doors open in the event of the cooling failure.
- g. Any paneling or ancillary components that need to be present in the room need to be placed along the space provided in the north of the room.
- h. Dedicated earthing should be provided for all the electrical equipment installed by the bidder.

5 Warranty and Maintenance

Warranty and quarterly maintenance services for the whole system should be comprehensive and valid for **3 years** from the date of installation of the equipment. During the warranty period, the bidder shall attend to all the hardware problems on-site and replace the defective parts at no extra cost to the purchaser. The warranty includes the replacement of spares/labour/consumables that may be required. Consumables like refrigerant gas, fire suppression system NOVEC gas, batteries, emergency lights can be excluded.

1. The bidder must ensure that the proposed solution is a total turnkey solution operated by a single bidder to meet the stated requirements and delivers an uptime guarantee of 95% of the entire system measured on a monthly basis. The downtime due to high side power distribution and UPS failures will not be considered in computing the uptime of the system.
2. If any sub-systems or components of the proposed solution fail, the bidder must ensure that the minor defects are rectified before the end of the next working day and the major defects should be fixed in three working days. Failure to meet the above requirement will result in an extension of the warranty services by 3 days for each day's delay during the warranty period. Therefore, the bidder along with the OEMs must put systems and processes in place to address the above during the contract period.
3. Basic training and operational training to be provided after the successful installation of data center

6 Technical Details/BoQ Compliance Sheet (to be submitted with Technical Bid)

Bidders must ensure that the price is **NOT** mentioned in this table.

S. No	Description of Requirements	Yes/No	Remarks/Make/Model
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1	<p>Row-based integrated cooling solution with inbuilt hot and cold aisle separation and integrated BMS components. (Make and Model No.)</p> <p>The critical components PACs, server racks, monitoring system and UPS should be from a single OEM. These components must be installed, supported and serviced by the same OEM. Make and model number MUST be provided, else the bidder will be disqualified.</p>		
2	<p>a. PAC units (Make and Model No.)</p> <p>b. Precision Air Conditioner should have following Features:</p> <ul style="list-style-type: none"> a. PAC units should be of at least 35 kW capacity each. b. Indicate the number of PAC units c. PAC units deliver cold air at a rate of minimum 5000 CFM d. Parameters for the PAC units: <ul style="list-style-type: none"> a. Supply air temperature: 20 ± 1 deg C b. Maximum return air temperature: 35 deg C c. Ambient temperature: 35 deg C d. Humidity: 40-65 RH e. N+1 redundancy for cooling of 8 racks with a power load of up to 15 kW per rack. f. The monitoring and control system in the units has a provision to switch between the units to provide N+1 redundancy in a pre-programmed manner by the user or automatically based on the cooling needs in the event of a unit failure. g. If the working of three PAC units is not sufficient to fulfill the cooling requirements of the racks when under heavy load (above 100 kW), then the four PAC units should automatically work, overriding the redundancy requirement. 		

	<ul style="list-style-type: none"> h. PAC units should be able to cool all racks uniformly from 1st U to 42nd U i. PAC units provide DX-based cooling j. PAC units operate using R-410A refrigerant k. PAC units consist of an inlet filter, drawn through direct-drive electronically commutated (EC) Motors and backward curved EC fans or axial fans l. PAC units have provision to collect the condensate from the units and drain it outside the data center room using a drain present in the room. m. The Outdoor Condenser units comprise of Condenser AC/EC/DC fans & motor, Condenser cooling coil. The AC and DC fans have fan-speed controllers. n. PAC units are interfaced with the onsite/remote monitoring and control system o. Inbuilt heater and humidifier to cater IT load 		
3	<p>Server Racks</p> <ul style="list-style-type: none"> a. Server racks make and model No. b. 8 server racks c. Dimensions of rack (Width x Depth = 600 mm x 1000 mm) d. Hot and cold aisle containment is minimum 300 mm each. e. Each rack has at least 42U of usable space f. Each rack has 30 number of 1U blanking panels g. 1U Rack mounted 18" foldable LCD Display (or better) with Keyboard and mouse per Rack. VGA, HDMI and USB cables of sufficient (at least 4 m) should be provided h. Each rack has 2U closed hinged type cable manager or equivalent 		

	<ul style="list-style-type: none"> i. PDUs make and model No. j. Each rack has 2 nos. of 230 V, 32A 3-phase vertical basic PDUs k. Each PDU has at least 30 nos. of C-13 sockets and at least 4 nos. of C-19 sockets l. The PDU supports the entire rack at full load (up to 15 kW) m. Door access to both front and back of racks n. Front door is glass and rear door is split metal door. The doors have electromagnetic locking system with common biometric access system o. Front and back doors open automatically in the event of power and cooling failure and when the temperature exceeds a user defined threshold p. The exhaust fan automatically starts when the rack doors open upon cooling failure 		
4	<p>UPS</p> <ul style="list-style-type: none"> a. Modular UPS with a minimum of four hot-swappable power modules, each of capacity 30 kVA/kW. b. Make and model number of the UPS modules c. Failure of any individual power module in the UPS does not affect the working of the remaining power modules. d. Each power module has its own intelligent control logic to avoid a single point of failure. e. The UPS support all the nodes in the eight racks, monitoring system, BMS components and the exhaust fan. 		

	<ul style="list-style-type: none"> f. UPS must have 15 minutes of battery backup on full load, excluding the PAC units. g. The batteries are of SMF type, and the capacity of each battery is at least 100 Amp-hr. h. The UPS should have a web interface for monitoring and control. It should also be possible to configure alerts and set up a shutdown command that can be sent to the master nodes and/or broadcast on a subnet. 		
5	<p>Integrated BMS components</p> <ul style="list-style-type: none"> a. Smoke detector b. Fire detection and alarm system c. Fire suppression system - NOVEC 1230 based d. Water leak detection system e. Temperature & Humidity sensor (two per rack. One on the cold aisle and the other on the hot aisle) f. Door sensors for racks g. Alarm beacon h. Rodent repellent i. Exhaust fan 		
6	<p>Electrical Low Side Work</p> <ul style="list-style-type: none"> a. All electrical cabling and any additional panels as required for the solution towards power for the PAC units as well as UPS power for the racks will be provided by the bidder. b. Dedicated earthing should be provided for the equipment installed wherever necessary by the bidder. 		
7	<p>Monitoring</p>		

	<p>Row-based cooling units should have functionality to graphically monitor the infrastructure</p> <ol style="list-style-type: none"> a. Monitoring system make and model No. b. Touch screen display with a user-friendly interface c. It should be menu driven system to display and control thermal management, power supply, BMS information, alarms, logs, exhaust fan, etc. d. Remote monitoring of all critical physical and environmental parameters through a web-based interface in a single dashboard e. Monitoring system is active in the event of power/cooling failure f. Access to the control system is secured preferably through a numeric passcode-based security system 		
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7 Scope of Work

1. Civil works related to the outdoor cooling units including positioning, mounting and ducting (Bidder's scope)
2. Input raw electrical power up to the server room (IISc scope; already provided)
3. UPS and SMF batteries in the UPS room (Bidders Scope)
4. Drawing UPS power for the racks and other critical subsystems from the UPS room (Bidder's scope)
5. Low side electrical works (Bidder's scope)
6. Earthing work (Bidder's scope)

8 Bidder's Eligibility Criteria

1. The bidder should be an Indian Original Equipment Manufacturer (OEM) or an OEMs Indian authorized distributor.
2. The bidder should be a tier-1 or highest level partner of the OEM. A supporting document should be provided.

3. The bidder must have installed and commissioned an HPC data center cooling system solution (at least one) during the financial years 2017 – 2022 in a reputed educational/research Institution or a reputed public/private company with a budget of at least 75 lakhs. If the bidder happens to be a system integrator, either the bidder or the cooling system OEM that the bidder has indicated for the current bid should meet this condition; **Supporting Documents Needed:** 1. A copy of the P.O., 2. Completion certificate from the customer indicating the start and end date of installation and commissioning corresponding to the P.O.
4. The bidder must have a proven record of maintaining and managing at least one HPC data centre cooling system installed with a budget of at least 75 lakhs for a contiguous period of one year any time between 1st Jan 2017 and 31st Oct 2022. **Supporting Documents Needed:** 1. Copy of the P.O. of the maintenance contract 2. A letter from the customer site stating clearly the details of the maintenance/management responsibilities, the specific period and the performance of the bidder. IISc may independently obtain inputs from the provided referees before arriving at a final decision.
5. The bidder is expected to be a company with an annual turnover of at least Rs. 1 crore per year in any of the two years in the last 5 financial years. In all the last 5 financial years the minimum annual turnover should be Rs. 50 lakhs. **Supporting Document Needed:** Annual audited balance sheet for the last 5 financial years.
6. The bidder should have a registered office in India and been in operation for at least 5 years as on the date of the submission of the bids. Joint ventures or consortia are not permitted. The bidder should provide relevant document to support this condition.
7. The bidder should have an office in Bangalore and the OEM should have an authorized service centre located in Bangalore. Supporting documentation should be provided.
8. The OEM must provide a support letter stating that along with the bidder they will ensure that all the technical specifications mentioned in the tender will be met after the data center installation to the satisfaction of IISc. The OEM will also provide all technical support to the bidder for the entire duration of the contract including post warranty AMC. A support letter from the OEM to the bidder stating the above should be provided.
9. The bidder must submit a supporting document in the form a registration certificate or a declaration of compliance with the provisions of Office Memorandum F/No/6/18/2019-PPD dated 23rd July 2020, issued by Public Procurement Division, Department of Expenditure, Ministry of Finance, GoI.
10. The bidder must not be blacklisted by any Central/State Govt. Organizations of India as on date of submission of the bids. A certificate or undertaking to this effect must be submitted.

11. The solution offered must comply with the provisions of Public Procurement (Preference to Make in India) Order No P-45021/2/2017-PP (BE-II) dated 16th September 2020 issued by Public Procurement Section, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, GoI. The minimum local content, the margin of purchase preference, and the procedure for preference to Make in India for this tender are as per the mentioned Public Procurement (Preference to Make in India) Order. A supporting document in the format shown in Annexure-D should be provided.
12. OEM for the row-based cooling solution should be a company registered under the Companies Act since last 10 years. Valid company registration certificate should be submitted

9 Undertaking in Lieu of Earnest Money Deposit (EMD)

The bidder must provide an Undertaking on bidder's letterhead, in lieu of Earnest Money Deposit (EMD) as per format given in Annexure B subject to the conditions stipulated therein.

10 Performance Security or Performance Bank Guarantee (PBG)

The successful bidder(s), on whom order will be placed has to submit a performance security of 3% of the total order value at the earliest as per Purchase Orders (PO) terms within two weeks from the date of PO. Performance security has to be submitted in the form of RTGS / NEFT / Bank Guarantee/Demand Draft/FDR from any Nationalized/Scheduled commercial Bank in India (as per RBI list) in favour of the Registrar, IISc, Bangalore. The security deposit must be submitted within two weeks of the issue of Purchase Order, otherwise order may be cancelled. IISc will issue a formal purchase order to the successful Bidder upon furnishing of the PBG/Security deposit.

Performance security should remain valid for a period of three months beyond the date of completion of all contractual obligations (including warranty period) of the successful bidder. No interest will be payable by IISc, Bangalore on the performance security deposited. In case the bidder fails to provide satisfactory service or supply, the performance security submitted by the bidder is liable to be forfeited. The PBG will be forfeited in case of violation of any terms & conditions of the purchase order or agreement done thereof by the successful bidder. An undertaking to this is to be submitted.

11 Acceptance Criteria

1. The bidder must demonstrate the following at the time of acceptance of the installation and commissioning.
 - a. Cooling units: Supply or Return air temperature, NVH level of each unit using standard measurements, measurement of CFM with a flow grid or a flow hood at

the time of commissioning, working of drain pump, logging and switching capacity of monitoring and control system, compressor type as in Section 4.2.

- b. Successful demonstration of the operation (on-site and remote) of monitoring and control system.
2. It is to be noted that a maximum of two weeks will be available (after Installation & Commissioning) to the bidder to conform to this acceptance test criterion set out.
3. Any delay of more than 90 days in commissioning and conformance to the acceptance criteria from the P.O. date will result in extending the warranty: each day of delay would result in 3 additional days of warranty.
4. This penalty clause is only applicable for solutions that are considered as technically meeting the requirements, as evaluated by the technical committee. Therefore, the clause cannot be used as an argument to qualify any solution, which the technical committee considers as not meeting the requirements.

12 General Terms and Conditions

1. Offer must be submitted under TWO-BID system *i.e.*, Technical bid and Price (Financial) bid **by hard copy submissions to the indicated mailing address** within the stipulated deadline. An additional copy of **ONLY** the technical bid should be sent by email. The price bids should **NOT** be sent by email. In case the price bid is received by email from any bidder, that bidder will be treated as non-responsive.
2. The vendors may communicate to the committee through the email ID provided on the first page, the official email for this tender. However, the communications from the committee will only be with regards to the pre-bid clarification meeting, corrigenda and shortfall requests. While the committee may consider the emails from the vendor, the committee will respond/communicate by email only from the official email ID and only when absolutely necessary, including, for example, arranging site visits, arranging technical presentations and calling the successful bidder for further discussions. In all other circumstances, no responses or communications will be made by the committee via email or any other means.
3. Any clarifications required by the committee will be sought in technical presentations and/or shortfall requests via email. The shortfall requests will precisely point to the tender clauses that are not met by the technical bid. It is the bidder's responsibility to address the shortfall by submitting an adequate and satisfactory shortfall response via email and hard copy. Bidders who do not respond within the given timeframe would be deemed non-responsive and their bid would not be considered further.
4. The technical evaluations will be made only based on the technical bids and the shortfall responses submitted by the bidder.
5. IISc reserves the right to cancel the tender at any time without assigning any reason whatsoever.

13 Organization of the Technical Bid

The technical bid should strictly be organized in the following sequence only.

Note: IISc reserves the right to disqualify any bid that does not provide all the required data and not followed the organization given below.

1. A cover letter from the bidder. Among other things, the cover letter should certify that all the requirements of the tender are provided, and the offered solutions meet and comply with the technical and other specifications of the tender. The cover letter should also certify that the primary bidder will be responsible for offering the total turn-key solution in meeting all the tender specifications.
2. A letter indicating the name, designation, email and phone number of the contact person from the bidder's company who may be reached by the committee with regards to any aspect of the submitted tender.
3. Undertaking in lieu of EMD as per the format in Annexure B.
4. Technical details/BoQ compliance sheet as in Section 6.
5. Table of Contents page listing only the items 6-19 listed below, and their corresponding page numbers in the pdf document.
6. A table listing the Make and model for each of the components.
7. Manufacturer Authorization Form (MAF) and supporting letter from the OEM to the bidder.
8. The copy of the registration certificate or a declaration in compliance with the provisions stipulated in office memorandum F/No/6/18/2019-PPD dated 23rd July 2020 issued by Public Procurement Division, Dept. of Expenditure, Ministry of Finance, GoI.
9. Certificates from the bidder, as per format given in **Annexure D**, declaring the country of OEM, country of manufacture, location of local value addition and percentage of local contents for row-based cooling units, server racks, BMS components, and electrical low side works, overall percentage of the turnkey solution and compliance with the provisions of Public Procurement (Preference to Make in India) order No. P-45021/2/2017-PP (BE-II) dated 16th September 2020 issued by Public Procurement Section, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, GoI. **Note: Bids without this information in Annexure D will be summarily rejected.**
10. The bidder must not be blacklisted by any Central/State Govt. Organizations of India as on date of submission of the bids. A certificate or undertaking to this effect must be submitted.
11. For each of the clauses 1 to 11 of the Bidders Eligibility Criteria, the bidder must provide supporting documents.
12. Row-based Cooling Units
 - a. Product specification sheet(s) where the specifications mentioned in Section 4, wherever available, are highlighted.
 - b. Software selection sheet showing the following specifications and where these specifications are highlighted. If the software selection sheet does not show some

of the specifications, the compliance and details of those specifications (see point c below) should be given in separate sheets following the software selection sheet

- i. Item c of Section 4.2
- ii. Item d of Section 4.2
- iii. Item e of Section 4.2 – refrigerant gas
- iv. Item g of Section 4.2 – type of fan in outdoor condenser
- v. Item h of Section 4.2 – Compressor type and number of scrolls

13. Server racks

- a. Product specification sheet(s) including rack dimensions and number of available U's.
- b. Tonnage or load capacity of the racks, both for static and rolling loads.

14. Specifications of the emergency heavy-duty exhaust fan.

15. Design layout CAD diagrams showing placement of row-based units including PAC units, racks, electrical panels and cabling.

16. Clear demarcation of the responsibilities between the bidder and the OEMs.

17. The bidder must provide a letter agreeing to abide by the acceptance criteria of the tender and the scope of the work.

18. A certificate agreeing to all the terms and conditions mentioned in the tender.

19. Appendix

- a. Company Profile Documents, if desired by the bidder or OEM (Maximum 2 pages each for the bidder and the OEMS).
- b. Supporting technical materials including brochures.
- c. Any other information or documents that the bidder/OEMs deem necessary.

14 Technical Bid - Terms and Conditions

1. A hardcopy of the technical bids should be submitted to the address given below. A copy of the technical bids should also be submitted by email.
2. The technical bid should contain all the information and should have the organization as given in Section 13. Bids without the specific information and organization as in Section 13 will be automatically disqualified.
3. If PAC units, server racks and monitoring system along with temperature and humidity sensors are not from a single OEM, the bid will be automatically disqualified. Further, these components should be manufactured, installed and serviced by the same OEM. Violation of any of these terms will lead to automatic disqualification.

4. If the model and make numbers of the PAC units, server racks and monitoring system are not provided, the bid will be automatically disqualified.
5. Vendors who include price information in the technical bids will be automatically disqualified.
6. Technical bids will be opened first. IISc may seek clarifications after the opening of technical bids. Vendors are required to give presentations.

15 Commercial Bid - Terms and Conditions

1. The bidder should be an Indian Original Equipment Manufacturer (OEM) or an OEMs Indian authorized distributor.
2. A hardcopy of the Priced Bill of Quantities should be submitted to the address given below.
3. Price bids of only technically qualified vendors will be considered. The commercial bids of only the technically qualified bidders shall be opened.
4. The hardcopy commercial bid should contain the prices of
 - a) row-based cooling solution including PAC units, server racks, UPS, monitoring system, BMS components, 3 year comprehensive warranty, shipping and delivery to the installation site in IISc.
 - b) electrical low side works (UPS panel, AC panel, earthing, emergency heavy-duty exhaust fan)
5. Prices should be quoted only in INR with GST separately listed and inclusive of all delivery charges to the installation site. The order must be on FOR IISc Bangalore basis. No Custom Duty Exemption Certificate will be provided.
6. The lowest bidder will be decided based on the total price (excluding GST) of the items mentioned above in point-4.
7. The hardcopy of the commercial bid should also contain payment terms, warranty, installation, commissioning etc. as per requirements of IISc mentioned in the tender document. All such conditions must be in line with the tender. In case of any deviation or conditional offer, the bid may be treated as non-responsive and not be considered for evaluation.
8. Proposals should contain the name and contact details, viz., phone, fax, and email of the designated person to whom all future communication will be addressed. The contact details should also be mentioned on the overall envelope.
9. Bid and price validity should be for six months from the date of opening of the technical bids.
10. IISc will place the purchase order only on the successful bidder as per the decision of IISc. In this regard, the decision of IISc will be final and binding.

16 Payment Terms

1. The total project cost will consist of Equipment supply and installation and comprehensive warranty for three years from the acceptance and successful installation as decided by IISc.
2. IISc shall release 100% payment against delivery, inspection, successful installation, Commissioning, and acceptance of the equipment at IISc Bangalore in good and functional condition and to the entire satisfaction of the Purchaser (IISc) and on the production of unconditional performance bank guarantee of 3% of the total order value valid for 3 months beyond all contractual obligations. Requests for partial payments will not be entertained.
3. Payment will be subject to deduction of TDS as per rules/laws and any other deduction as per PO terms.
4. The total solution as per the agreed bill of materials must be supplied within 6 – 8 weeks after receiving a firm PO from IISc. The installation, commissioning and acceptance must be completed within 2-3 weeks after the supply of the equipment.
5. Liquidated Damage: As time is the essence for this procurement, hence the ordered materials are required to be delivered and installed in all respects within the stipulated period in the purchase order failing which penalty for late delivery and installation will be imposed at the rate 1% of the total order value per week or part thereof for the delayed period subject to maximum of 10% of the total order value and this liquidated damage will be deducted during the payment of the invoice/bill of the supplier. The earliest/expected delivery period should be clearly indicated in the technical bid.

17 Important Dates

Publication of Tender	28/10/2022
Deadline for submission of pre-bid queries	04/11/2022, 5:00 pm IST
Release of corrigendum (if needed)	07/11/2022, 5:00 pm IST
Start of submission of bids	11/11/2022, 5:00 pm IST
Deadline for submission of bids	18/11/2022, 5:00 pm IST
Opening of technical bids	To be declared later
Opening of price bids	To be declared later

Mailing Address:

Prof. Govardhan Reddy
SSCU Office (Room# A110),
Chemical Sciences Building
Indian Institute of Science (IISc)
Bangalore – 560012, India

Annexures

18 Annexure A – List of Recommended Makes

The following list is indicative only. The items offered must comply with the Public Procurement (Preference to Make in India) ORDER NO. P-45021/2/2017-PP (BE-II) dated 16th September, 2020 issued by Public Procurement Section, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, GoI.

Item Recommended Makes

1. *Electrical Cables*: Havells, Polycab and Finolex
2. *Electrical Sockets*: Havells, Schneider, ABB and Legrand
3. *Fire alarm system*: Tyco, Honeywell, Siemens, Schneider, and OEM branded equipment is allowed
4. *Aspiration smoke detection system*: Xtralis, ICAN, Tyco, Honeywell, Siemens, Securiton, and OEM branded equipment is allowed
5. *NOVEC 1230 based fire suppression system*: Ansul, UTC, Tyco, Siemens, and OEM branded equipment is allowed
6. *Rodent Repellent System*: Maser (Tarrant Range), C Systems, Verma Craft, Star Electronics, and OEM branded equipment is allowed
7. *Water leak detection system*: Trancetek, Leibert, Sontay, Star Electronics, and OEM branded equipment is allowed

19 Annexure B – Undertaking

Date:

To:

The Registrar

Indian Institute of Science (IISc)

Bangalore – 560012

India

Subject: Undertaking as per GFR – 2017, Rule 170(iii)

Dear Sir,

We, the undersigned, offer to carry out the 'Turn-key' project including Products/items, components etc. as per tender at CSB, IISc, Bangalore, in response to your Tender No IISC/CSB/DC/2022/01. We are hereby submitting hardcopies of our proposal for the same, which includes Technical bid and the Financial Bid. As a part of the eligibility requirement stipulated in the said tender document, we hereby submit a declaration in lieu of Earnest Money Deposit (EMD), as given below:

1. We will not withdraw or amend or modify or impair or derogate the our bid partly or fully or any condition of it after tender opening, during the period of tender validity (six months from the date of opening of the technical bid),
2. In case, we are declared a successful bidder and an order is placed on us, we will submit the acceptance in writing within 7 days of placement of order on us.
3. In case, we are declared as a successful bidder and an order is placed on us, we undertake, to submit the required Performance Security / Performance Bank Guarantee (PBG) /Security deposit within two weeks from the issue of the Purchase Order.
4. In case of failure on our part to deliver/provide the item/installation/service as per the order's terms and conditions within the stipulated period, we are aware that we shall be declared as ineligible for the said tender and /or debarred from any future bidding process of IISc or any Government entity for a period of minimum one year.
5. The undersigned is authorized to sign this undertaking.

Yours sincerely,

Authorized Signatory:

Name and Title of Signatory:

e-mail:

Mobile No:

20 Annexure C – Format for Performance Security

FORMAT FOR BANK GUARANTEE FOR PERFORMANCE SECURITY (PERFORMANCE BANK GUARANTEE)

To
The Registrar
Indian Institute of Science (IISc) Bangalore – 560 012 (Karnataka, India)

Subject: Performance Bank Guarantee (PBG)

Reference: IISc. Purchase Order No. _____

dated _____

Dear Sir,

1. We hereby issue a Bank Guarantee as follows: -
Bank Guarantee No. _____ Date: _____
Amount of Guarantee Rs. _____
Guarantee covers From _____ To _____
Last Date for Lodgement of Claim: _____
2. This deed of Guarantee executed by the (Name of the Bank: _____)
constituted under _____ Act, _____ having its
Central Office at _____
_____ and amongst other places a
branch at _____ (hereinafter referred to as “The Bank”)
in favour of The Registrar, Indian Institute of Science, Bangalore – 560 012 (hereinafter referred
to as IISc) for an amount of not
exceeding Rs. _____ (in words:
Rupees. _____ only) at the request of
M/s _____ (hereinafter referred to as the “Contractor” /
”Supplier”).
3. In consideration of The Registrar, Indian Institute of Science, Bangalore – 560 012 (hereinafter
called IISc) having entered into an agreement vide IISc’s Purchase
Order No. _____ dated _____ with M/s _____
(hereinafter called the Supplier) to carry out the supply and installation of the

_____ <Name of the equipments/work/Job> at
Indian Institute of Science, Bangalore as per their above order, the Supplier agreed to execute a
Bank Guarantee for 10% of the total order value viz. Rs. _____ (in words: Rupees
_____ only) towards Performance Security /
Performance Guarantee obligation for a period of _____ year(s) /
month(s) from _____ to _____.
4. We, the _____ Bank, _____ Branch
(hereinafter referred to as a Guarantor) at the request of the supplier, irrevocably undertake to
indemnify and to keep indemnify IISc. without any demur to the extent of Rs. _____ (in
words: Rupees

_____ only) in the event of the aforesaid Supplier failing to comply the Warranty / contractual Obligations as per the agreed terms to the full satisfaction of the Company as mentioned in the IISc.'s purchase order.

5. NOW THIS BANK HEREBY GUARANTEES that in the event of the said Supplier failing to abide by any of the conditions referred in tender document / purchase order / performance of the equipment / Machinery / service, etc. this Bank shall pay to Indian Institute of Science, Bangalore on demand and without protest or demur Rs (in words: Rupees.....only).
6. We _____ Bank, further agree that the Guarantee herein contained shall remain in full force and affect during the period that would be taken for the performance of the equipment and / or services as stated in the Purchase Order issued by IISc. and that it shall continue to be enforceable till the completion of the period and certified that warranty and contractual obligations have been fully carried out by the supplier and accordingly discharges the Guarantee subject. However, IISc. shall have no right under after the expiry of the Guarantee, i.e. _____ (date).
7. We, _____ Bank undertake not to revoke this Guarantee, during its currency except with the previous consent of IISc. in writing.
8. Notwithstanding anything contained herein,
 1. (a) Our liability under the Bank Guarantee shall not exceed Rs. _____ (in words: Rupees _____ only).
 2. (b) This Bank Guarantee shall be valid up to _____.
 3. (c) We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if IISc. serve upon us a written claim or demand on or before expiry of date (i.e. _____).
9. NOTWITHSTANDING anything contained herein above, our liability under this Guarantee is restricted to Rs. _____ (in words: Rupees _____ only) our guarantee shall remain in force until. Unless a Demand or claim under the guarantee is made on our Bank in writing on or before _____ all your rights under the said guarantee be forfeited and we shall be relieved and discharged from all liabilities thereunder.
10. This Bank further agrees that the decision of Indian Institute of Science, Bangalore as to whether the said Supplier has committed a breach of any of the conditions referred in tender document / purchase order shall be final and binding.
11. This Bank further agrees that the claims if any, against this Bank Guarantee shall be enforceable at our branch office at situated at (Address of local branch) as following details:

Name of the Bank Branch Name
Branch Code

IFSC Code
E-mail Id Phone/Mobile Number

Seal and Signature of the Bank

21 Annexure D – Certificate from Bidder Related to Make in India Orders

To:
The Registrar
Indian Institute of Science (IISc)
Bangalore – 560012

We hereby certify that the goods being offered by us vide our proposal, comply with the provisions of Public Procurement (Preference to Make in India) Order No P-45021/2/2017-PP (BE-II), dated 16th September 2020 and P-45021/102/2019-BE-II-Part(1) (E-50310) dated 4th March 2021 issued by Public Procurement Section, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, GoI.

We hereby certify the details pertaining to goods offered by us, as given below:

S No.	Item Description	Make & Model No.	Country of Origin of OEM	Country and Location of Manufacture of Item	Location in India at which local value addition is made, if any	Percentage of Local Content
1	Precision Air Conditioners					
2	Server Racks					
3	UPS					
4	Integrated Monitoring System					
5	Exhaust Fan					
6	BMS Related: Aspiration system for smoke detection					
7	Fire Detection and Alarm System					
8	NOVEC 120 Based Fire Suppression System					
9	Rodent Repellent System					

10	Water Leak Detection System					
11	Temperature & Humidity sensor					
12	Front and rear door sensors					

Note 1: Please enclose certification from the OEM on the above for their respective item(s) provided in this tender.

Note 2: If a product is manufactured in India under a license from foreign manufacturer who holds intellectual property rights and where there is a technology collaboration agreement / transfer of technology agreement for indigenous manufacture of a product developed abroad with clear phasing of increase in local content, please enclose the relevant agreement copies.

Self-certification on Compliance to Make-in-India Order:

1. We certify that the local content of the overall turnkey solution offered in our bid is _____ (specify in percentage).
2. We also certify that the turnkey solution offered meets the local content requirement for ‘Class-I local supplier’/’Class-II local supplier’ [tick one and strike out the other], as per the Public Procurement (Preference to Make in India) Order.

We also certify that, we are not from a country sharing land border with India as defined in order No. F/No/6/18/2019-PPD dated 23 July 2020 issued by Public Procurement Division, Dept. of Expenditure, Ministry of Finance, GoI and the goods offered by us comply with the provisions of said order.

For (Name of bidder)

Authorized Signatory

Name & Designation:

Mobile No: