

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
VIKRAM SARABHAI SPACE CENTRE (VSSC)
THIRUVANANTHAPURAM**

Tender for Eddy Covariance system

Bids to be submitted online

Tender No.: VSSC/PURCHASE UNIT II (AVN)/VS202400152101 dated 22-07-2024

A. Tender Details

Tender No : **VSSC/PURCHASE UNIT II (AVN)/VS202400152101**

Tender Date : **22-07-2024**

Tender Classification: **GOODS**

Purchase Entity : **PURCHASE UNIT II (AVN)**

Centre : **VIKRAM SARABHAI SPACE CENTRE (VSSC)**

Eddy Covariance system

Eddy Covariance system

A.1 Tender Schedule

Bid Submission Start Date : **25-07-2024 17:00**

Bid Clarification Due Date : **07-08-2024 16:00**

Bid Submission Due Date : **26-08-2024 14:00**

Bid Opening Date : **26-08-2024 15:00**

Price Bid Opening Date : **05-09-2024 15:00**

B. Tender Attachments

NA

Instructions To Vendors

1. Conditions for BIDDER FROM A COUNTRY WHICH SHARES LAND BORDER WITH INDIA - Restrictions under Rule 144 (XI) in GFR, 2017.

1. Any bidder from a country which shares a land border with India will be eligible to bid in this tender, only if the bidder is registered with the Competent Authority. Competent Authority for the purpose of registration shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).
2. Any false declaration and non-compliance of the above would be a ground for immediate rejection of offer or termination of the contract and further legal action in accordance with the laws.
3. Validity of Registration: Registration should be valid at the time of submission of bids and should be valid at the time of placement of order.

2. PPP Make in India(Divisible Items-Class I & II Local Suppliers)

1. A committee (with an external expert from a practicing cost accountant or practicing chartered accountant, if required) constituted for independent verification shall verify the self-declarations & auditor's / accountant's certificates on random basis, as per the requirements.
2. a) The subject item falls under divisible category. b) The offers are sought from Class I & II Local Suppliers.
3. Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: i. Equal to or more than 50%: Class-I local supplier. ii. More than 20% but less than 50%: Class-II local supplier. iii. Less than or equal to 20%: Non-local supplier.
4. False declarations will be in breach of code of the integrity for which a bidder or its successor's will not be eligible/debarred for purchase preference from further tenders / pending tenders for two years along with other actions as may be applicable.
5. In case of a complaint received from any local supplier indicating a need for review / verification of

Local content of successful vendor / awarded vendor, for accepting a complaint from such complainant (w.r.t the false declaration given by the successful vendor on the local content), a complaint fee of Rs.2Lakhs or 1% of the locally manufactured items being procured (subject to a maximum Rs. 5Lakhs), whichever was higher, to be paid by demand draft by the complainant. In case, the complaint is found to be incorrect, the complaint fee shall be forfeited. In case, the complaint is upheld and found to be substantially correct, deposited fee of the complainant would be refunded without any interest.

6. In cases the quoted price is in excess of Rs.1000 Lakhs (including duties, taxes and freight & Insurance) the 'Class-I & II local supplier shall provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in case of suppliers other than companies) giving the percentage of local content.

7. In line with Public Procurement (Preference to Make in India), Order 2017 & its amendments issued by Govt. of India from time to time with a view to support the Indian industries, ISRO has implemented "Purchase Preference Policy". The "Purchase Preference" is applicable for the "Class-I Local Supplier" for the goods/ services/ works covered in this tender, subject to the following terms & conditions:-

8. 'L1' means the lowest technically accepted tender / bid / quotation (i.e. lowest landed cost including duties, taxes and freight & Insurance).

9. 'Local content' means the amount of value added in India (i.e. indigenous items/services added in the offered products/ services/ works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent.

10. 'Margin of purchase preference' means the maximum extent to which the price quoted by the "Class-I local supplier" above the L1 (landed cost).

11. Purchase Preference Policy:- Goods/Works which are divisible in nature (required quantity is greater than 1 or not a package basis):

i.If L1 is 'Class-1 local supplier', the order/contract for full quantity shall be awarded to L1 bidder.

ii.If L1 bid is not from a 'Class-I local supplier', 50% of the order quantity shall be awarded to L1.

Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to the Class-I local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and contract for that quantity shall be awarded to such Class-I local supplier subject to matching the L1 price (inclusive of duties, taxes and freight & insurance).

iii.In case such lowest eligible 'Class-I local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher 'Class-I local supplier' within the margin of purchase 'preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In cases where none of the 'Class-I local supplier' within the margin of purchase agree to

match L1 price, in such cases 100% quantity shall be ordered on original L1 bidder.

iv. In case no offers are received from 'Class-I local supplier' or none of the 'Class-I local supplier' falls within the margin of purchase preference of 20%, the order shall be processed on L1 vendor.

v. In case L1 bidder (not a 'Class-I local supplier') is not accepting splitting of order on 50:50 basis, in that case the order/contract shall be awarded to such 'Class-I local supplier' for full quantity subject to matching the L1 price.

vi. Regarding MSEs (Indian vendors):

a) The following additional aspect as indicated below would be applicable for procurement which falls under divisible category (i.e., not applicable for indivisible category), in case of participation of MSEs in the tendering who are also complying to the Minimum Local Content (MLC) stipulated in the tender.

b) If any Indian vendor satisfies the requirement of MSEs stipulation and also falls within the purchase preference margin as called for in MSME policy (in case of matching L1 price) will be considered for ordering 25% of tendered quantity, the balance quantity / works will be considered for distribution amongst all bidders (including MSEs) as per the purchase preference policy.

c) In case no MSEs qualifies for purchase preference or do not match with L1 price then the total tendered quantity will be distributed amongst all bidders as per the purchase preference policy.

12. The 'Class-I & II local supplier' should provide a "Self Certification" along with technical offer indicating that the item offered meets the minimum local content [as per Sl. No.(3)] as called for in the tender and provide the percentage of local content along with details of the location(s) at which the local value addition is made. In case of two bid tenders, it is mandatory to indicate compliance to MLC(minimum Local Content) in technical bid zone.

13. The ink-signed certificate shall be provided on vendors letter head along with the offer (in case of online tender, copy of ink-signed certificate shall be uploaded along with your offer under concerned tab. Original in Hard copy shall be produced on request). In case of non-submission of certificate, the purchase preference shall not apply.

14. The margin of Purchase Preference shall be up to 20%.

15. The Public Procurement (Preference to Make in India), Order 2017 issued by Govt. of India indicates that if there are any general or specific restrictive clauses to restrict participation of Indian companies in those countries procurement tenders, reciprocity clause need to be invoked as per the order. Hence, if ISRO or Govt. of India come across that Indian suppliers of an item are not allowed to participate and / or compete in procurement by your government, the bid submitted by you will be not be considered and excluded from eligibility for procurement. Please note this point.

16. Works means all works as per Rule 130 of GFR- 2017, and will also include 'turnkey works'. Works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

C. Bid Templates

C.1 Technical Bid - Eddy Covariance system

1. EDDY COVARIANCE FLUX TOWER SYSTEM

Item specifications for EDDY COVARIANCE FLUX TOWER SYSTEM

Sl No	Specification	Value	Compliance	Offered Specification	Remark
1	The system should provide the following:	(i) concentration and vertical fluxes of water vapour and carbon dioxide, (ii) vertical fluxes of latent and sensible heat.	Yes / No / Explain		
2	Open Path CO ₂ /H ₂ O gas analyzers and 3D sonic anemometer	Integrated fast response sensors for measuring both CO ₂ -H ₂ O concentrations (open path) and 3-dimensional wind (sonic anemometer).	Yes / No / Explain		
3	Sampling rate	20 Hz or better.	Yes / No / Explain		
4	Gas analyzer type	Open path sensor	Yes / No / Explain		
5	H ₂ O Gas analyzer range	0 to 75 (mmol/mol) or better	Yes / No / Explain		
6	H ₂ O Gas analyzer accuracy	±2 % of reading or better	Yes / No / Explain		
7	CO ₂ Gas analyzer range	0 to 1000 (µmol/mol) or better	Yes / No / Explain		
8	CO ₂ Gas analyzer accuracy	±2 % of reading or better	Yes / No / Explain		
9	Signal strength details of CO ₂	Nominally 0 to 1 (The strength of the values should be provided)	Yes / No / Explain		
10	Signal strength details of H ₂ O	Nominally 0 to 1 (The strength of the values should be provided)	Yes / No / Explain		

11	3D sonic anemometer wind speed measurement range	0-30 m/s or better.	Yes / No / Explain		
12	Diagnostics	Gas analyzer diagnostic and sonic diagnostics should be provided	Yes / No / Explain		
13	Outputs	Ux, Uy, Uz (3D wind components); sonic temperature; CO2 and H2O concentrations; vertical fluxes of latent heat and sensible heat; fluxes of CO2 and H2O.	Yes / No / Explain		
14	Hardware and Datalogger	The Eddy Covariance system for atmospheric parameters should be mounted on a tripod of 3 m height, with lightning protection. Appropriate data logger and independent solar power (including solar panels and batteries) should be provided for uninterrupted field operations.	Yes / No / Explain		
15	Software for wind corrections	Data acquisition system with operating and processing softwares for field operations should be provided. It should be capable of carrying out corrections for sonic tilt and cross-wind.	Yes / No / Explain		
16	Software for fluxes	Data acquisition system should include software for the analysis of the Eddy Covariance data to derive the vertical fluxes of CO2, H2O, latent heat and sensible heat, with appropriate corrections.	Yes / No / Explain		

17	Data logger	Data logger should support fast response eddy covariance sensors with 20 Hz or better, data storage and processing	Yes / No / Explain		
18	Data logger communication	Data logger should support communication with PC/laptop	Yes / No / Explain		
19	Data logger Outputs	Data values stored in tables with time-stamp and record number	Yes / No / Explain		
20	Data logger operating temperature range	0 deg C to +50 deg. C or better	Yes / No / Explain		
21	Data logger operating relative humidity range	0 to 100 %	Yes / No / Explain		
22	Data logger Enclosure	A Weather resistant enclosure for protecting data logger is required.	Yes / No / Explain		
23	Mounting hardware	For sensor installation : A portable 3 m tripod with fixtures suitable for mounting the fast response sensors	Yes / No / Explain		
24	Mounting Hardware fixtures	All necessary mounting fixtures should be provided	Yes / No / Explain		
25	Tripod	The tripod should be installed on an adequate concrete foundation and the sensors should be mounted. The tripod should withstand severe weather conditions with wind speed up to 50 m/s or more.	Yes / No / Explain		
26	Lightning protection	Lightning protection should be provided with tripod.	Yes / No / Explain		
27	Solar panel mounting	Mounting hardware (if any) for solar panel must be included in the quote.	Yes / No / Explain		
28	Solar power supply	AC power supply with a provision of solar power.	Yes / No / Explain		

29	Compatability of solar panel	Solar panel, regulator should be compatible with data logger and all sensors.	Yes / No / Explain		
30	Battery	100 AH SMF battery or better options.	Yes / No / Explain		
31	Warranty and post warranty support:	Minimum one-year warranty. Vendor must provide a quote for 3 years of AMC, post warranty.	Yes / No / Explain		
32	Installation	Assembling of all sensors, hardware, to the tripod and connect the sensors to the data logger	Yes / No / Explain		
33	Training	Provide training after installation and test the quality of outputs from all the sensors for at least three fair weather days.	Yes / No / Explain		
34	Installation charges if any	Installation, packing, freight /transportation charges (if any) are to be explicitly mentioned.	Yes / No / Explain		

Common Specifications (Applicable for all items)

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Proven record	The open path eddy co-variance sensors need a proven track record of research usage with peer reviewed publications.	Yes / No / Explain		
2	Proof of installation and Commissioning	The quotation should include proof of installation and commissioning of similar unit elsewhere with standard publications if available. Peer reviewed and relevant publications should be submitted as proof	Yes / No / Explain		
3	Sensors and installation	All sensors and full eddy covariance system should be provided and installed.	Yes / No / Explain		

4	Mounting hardwares	All mounting hardware/sensor cables/accessories should be provided for continuous operation of all sensors.	Yes / No / Explain		
5	Software for flux estimation	All software/algorithms should be provided for calculating surface fluxes (latent heat flux, sensible heat flux, CO2 and H2O, evapotranspiration, etc) using the fast sensor data.	Yes / No / Explain		
6	Software for tilt and cross-wind calculation	Essential software/programs for correcting the influence of the sensor tilt and cross-wind for surface flux estimation should be provided.	Yes / No / Explain		
7	Installation at site	Should provide installation support. All sensors should work at mean sea level to 2 km above mean sea level.	Yes / No / Explain		
8	Software charges if any	Software charges if any should be explicitly mentioned	Yes / No / Explain		
9	Manuals	User manuals of all sensors should be given.	Yes / No / Explain		
10	Calibration	Sensors should be calibrated before installation and calibration certificate (including details of calibration) should be provided.	Yes / No / Explain		
11	Tools and utilitites	Essential tools/utilities should be provided for the entire setup for regular operations and maintenance.	Yes / No / Explain		
12	Sensor operating temperature range	0 degrees C to +50 degrees C or better	Yes / No / Explain		
13	Sensor operating relative humidity	0 to 100%	Yes / No / Explain		
14	Tripod	The portable Tripod setup need essential grounding for all sensors.	Yes / No / Explain		

15	Maintenance and validation	Support for regular maintenance and validation.	Yes / No / Explain		
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Supporting Documents required from Vendor

1. Sensors should be calibrated before installation and calibration certificate (including details of calibration) should be provided

2. User manuals of all sensors should be given

3. Local Content Self declaration along with split up and location of value addition details

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	User manuals of all sensors should be given	Yes / No / Explain	
2	Software charges if any should be explicitly mentioned	Yes / No / Explain	
3	The open path eddy co-variance sensors need a proven track record of research usage with peer reviewed publications.	Yes / No / Explain	
4	The quotation should include proof of installation and commissioning of similar unit elsewhere with standard publications if available. Peer reviewed and relevant publications should be submitted as proof.	Yes / No / Explain	
5	Sensors should be calibrated before installation and calibration certificate (including details of calibration) should be provided	Yes / No / Explain	
6	Installation and training required.	Yes / No / Explain	
7	Quotation for 3 years of Non-Comprehensive AMC	Yes / No / Explain	
8	1 year Warranty	Yes / No / Explain	
9	The fast-response Eddy Covariance system should provide research grade data	Yes / No / Explain	
10	Essential tools/utilities should be provided for the entire setup for regular operations and maintenance	Yes / No / Explain	
11	This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote. Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted.	Yes / No / Explain	

12	This is a TWO-PART tender i.e. Techno-Commercial Bid (C1 & C2 of tender document) and Price Bid (C3 of tender document) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno-Commercial Bid while price shall be indicated only in the Price Bid. Uploading price details anywhere else other than the price-bid shall lead to unconditional rejection of the tender. Please make note of the same. Tenderers are advised NOT TO UPLOAD any documents revealing the price in technical & Commercial bid other than area marked as price related documents	Yes / No / Explain	
13	The vendor has to compulsorily submit the compliance statement online otherwise their offer will not be considered for further evaluation. Before entering the compliance statement, vendors are advised to refer the detailed specification provided.	Yes / No / Explain	
14	The Technical Specification/ Drawing/ Product Catalogues/ Works Carried by vendor/ Make offered etc. as a PDF file without any financial details has to be uploaded online mode by the vendor.	Yes / No / Explain	
15	Technical Bids will be opened at the scheduled due date & time. No further intimation will be sent in this regard. The schedule for price bid opening shown is only indicative. Price bids will only be opened in the case of parties who have been techno-commercially accepted, the details of which will be communicated at a later stage.	Yes / No / Explain	
16	Foreign vendors are not permitted to quote 1. Only Class -I and Class-II Local suppliers as per make in India policy are eligible to participate in the bid. 2. The percentage of local content should be specifically mentioned in the offer, without which will be summarily rejected 3. Preference will be given to Class-I Local Supplier and in their absence, class-II Local supplier will be considered.	Yes / No / Explain	

17	Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: (a) Equal to or more than 50% - Class I Local Supplier (b) More than 20% but less than 50% - Class II Local Supplier (c) Less than or equal to 20% - Non-Local Supplier Mention your category.	Yes / No / Explain	
18	Local content means the amount of value added in India, (i.e. indigenous items / services added in the offered products / services / works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties / IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate the extent of Minimum local content in offered products / services and location and breakup / details of such value additions	Yes / No / Explain	
19	Self-declaration on local content percentage and location of value addition: The Class I and II Local Supplier shall provide a Self-Declaration along with your bid in PDF format indicating the item offered meets the minimum local content as called for in the tender as mentioned above and provide the Percentage (%) of the local content along with the details of the location(s) at which the local value addition is made. In case of Two-part tenders, it is mandatory to indicate compliance to Minimum Local Content (MLC) in the technical bid itself. Confirm attachment of Self declaration as stated above along with the offer.	Yes / No / Explain	
20	Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India. The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.	Yes / No / Explain	

21	In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content. False Declarations will be in breach of the Code of Integrity under Rule 175 (1) (i) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.	Yes / No / Explain	
22	1.GST extra as applicable. Please quote applicable G.S.T rates with HSN code. Your GST Reg.No. and details shall be furnished in your quotation	Yes / No / Explain	
23	Delivery Terms [Normal delivery terms - FOR VSSC]	Yes / No / Explain	
24	Delivery Period [Please Specify the period, LD shall be applicable in case of delayed delivery]. Mention the time required for supply and installation wherever applicable.	Yes / No / Explain	
25	Payment [Within 30 days after receipt and acceptance of Item at our Stores].	Yes / No / Explain	
26	Liquidated Damages @ 0.5% per week subject to maximum of 10% of order value is applicable beyond the promised delivery schedule.	Yes / No / Explain	
27	Warranty [Minimum one year required.]	Yes / No / Explain	
28	Quote for Non Comprehensive AMC for 3 years in the price bid template	Yes / No / Explain	
29	Performance Bank Guarantee for 3% of order value valid 2 months beyond the Warranty Period to be provided.	Yes / No / Explain	

30	<p>Security Deposit: Successful Tenderer shall submit Security Deposit equivalent to 3% of the order value valid for a period of 60 days beyond the date for completion of the Purchase Order. This security deposit is collected towards the performance of the Contract. The said Security Deposit shall be submitted either in the form of Bank Guarantee or Fixed Deposit receipts from Nationalised/Scheduled Banks. No exemption is applicable for MSE vendors from submission of Security Deposit. In case PSU/Autonomous bodies/Central Government organizations, Indemnity Bond shall be accepted. Wherever SD and PBG are involved, the same can be submitted in consolidated SD cum PBG, valid till completion of warranty obligations under the contract. Necessary formats will be issued to the successful tenderer along with Purchase order.</p>	Yes / No / Explain	
31	Country of Origin	Yes / No / Explain	
32	GeM Seller Unique ID	Yes / No / Explain	
33	Quote Validity: Minimum 180 days [for Two part Tender] from the date of Tender opening.	Yes / No / Explain	
34	PO ordering address in full with Contact Persons Name, E-mail id, Phone No. [also attach your Quotation in PDF format].	Yes / No / Explain	
35	Confirm the percentage of local content in the item and attach documentary proof for the same.	Yes / No / Explain	
36	<p>As per the provisions of Office Memorandum No. F. No. 6/18/2019-PPD dtd. 23.07.2020 (i.e., Rule No. 144 (xi) of GFR) and its Amendments, issued by Department of Expenditure, Ministry of Finance. I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered.</p>	Yes / No / Explain	

37	If any of the bidders submit any forged or false documents along with the Tender, such tenders will be summarily rejected and such bidders will be blacklisted for all future tenders.	Yes / No / Explain	
38	Any other terms.	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Packing & Forwarding	Freight	Other costs	Remark
1	EDDY COVARIANCE FLUX TOWER SYSTEM	2.00 Nos.		-					

Common charges (Applicable for all items)

AMC Charges for 1st Year after warranty period	
AMC Charges for 2nd Year after warranty period	
AMC Charges for 3rd Year after warranty period	
Optional Accessories-Lumpsum	
Optional Spares Cost (lumpsum)	