

Tender Notification for Procurement

Centre for Sustainable Technologies, Indian Institute of Science, Bangalore 560012

Quotations are invited for the procurement of a Gas Chromatography with a Mass Spectrometer on CIP Bengaluru Basis. The requirement is towards the identification and quantification of a range of hydrocarbons, particularly in the syngas generated from a cyclone type oxy-steam gasification system. The requirement is for the DST Clean Coal project. The quotation should clearly indicate the terms and conditions of delivery, delivery schedule, entry tax, payment terms, warranty coverage etc. The quotation should be submitted in two parts: Part I (Technical bid) and Part II (Commercial bid).

The venue for all the meetings will be

**Conference room,
CGPL, Indian Institute of Science, Bangalore 560 012, India**

Important dates

Sl.No	Item	Date
1	Pre-Bid meeting	12th May 2020
2	Final Specifications	14th May 2020
3	Two bid tenders last date The tenderer should submit Technical and Financial Bid separately in sealed envelope super scribing the envelope as 'Technical Bid' and 'Financial Bid'. Both these envelopes should again be put in a single envelope supscribed ' TENDER FOR SYNGAS ANALYZER SYSTEM WITH MASS SPECTROMETER ' should reach to the Chaiman, ICER, Indian Institute of Science, Bengaluru 560 012.	18th May 2020
4	Technical Bid opening date The Financial bids of the short listed agencies, qualifying in the technical scrutiny of the Committee set up by the Institute, will be opened at a later date and will be intimated to qualifying bidders to attend the price bid opening.	22nd May 2020 Venue: Conference hall, ICER
	Validity of the quote.	90 Days

Background

A cyclone type gasification system is being designed at IISc to handle high ash Indian coal. The syngas so generated is expected to have a variety of condensable higher hydrocarbons. Subsequent use of the syngas in end utility applications requires conditioning of the gas to reduce the tar content to application specific limits. In the current case, the gas is to be cleaned for gas turbine acceptable quality. Towards cleaning the gas, the contaminants present in the gas must first be identified and subsequently quantified which will permit evolving a strategy for removing them for the syngas.

The specifications of the required GC-MS are identified as below;

<p>General Features of GC-MS</p>	<ul style="list-style-type: none"> • Fully automated with programmable pneumatic control (digital control) for injector, detector and purge gas. • Instrument should be compatible to computer and software should be Window 10. • Basic system with EPC/AFC/PPC control for carrier/detector zone gases. • EPC/ PPC/AFC should provide optimum performance with all types of columns and detectors. • Superior high speed GCMS system with easy access to Ion source for easy maintenance. • All parameters should be stored as a part of method for better analysis reproducibility. • System must have touch screen user interface for easy instrument operation. • There should be future hyphenation facility of this GCMS with Thermogravimetric Analyzer (TGA) from the same vendor. Same GCMS should be upgradable to TGA-FTIR-GCMS or TGA-GCMS Hyphenation for Evolved Gas Analysis Study.
<p>Gas Flow control</p>	<ul style="list-style-type: none"> • Must come standard with programmable pneumatic control. • Digital Pneumatic Control for setting column flow with pressure, flow and linear velocity. • Carrier gas pneumatic program rates 0-100 psi/min or 0-100 ml/min or better. Carrier pressure minimum increment should be 0.1 psi or better. • Three-ramps or better pressure program should be available.
<p>GC Oven Characteristics</p>	<ul style="list-style-type: none"> • Volume: approximately 13 Litres or more for easy fixing and removing different types/dimension of columns without compromising rate of heating or cooling of oven. • All temperature and time functions should be micro-processor controlled and displayed on the screen. • System should have user settable column over-heat protection. • Oven should be settable up to 450°C & set point resolution must be at least 1°C. • Oven cool down time from 450°C to 50°C should be <2.0 min or lesser • Oven must accommodate (at least) upto two capillary columns • Achievable temperature ramp rate should be 140°C/min or more . • Mutiple temperature ramps rates in the same method should be possible. • Time settings: It should be 1 min increments for values 0 to 999 minutes or wider.
<p>Injector</p>	<ul style="list-style-type: none"> • Must be configured with One Programmable split splitless capillary injector. • Injector should be controlled by EPC/PPC/AFC. • Removable glass liner for trapping non-volatile residues.

	<p>Programmable Split Splitless Injector (PSSI) – 1no</p> <ul style="list-style-type: none"> • Temperature-programmable inlet. • Operating Temperature range 50°C to 500°C in 1°C increments. • Heating rate of 1°C/min to 200°C/min or better • Two-ramps temperature program. • Split ratio setting range 0 to 6000. • Large-volume injection facility of up to 150 µL. • PPC pneumatics include automatic control of split vent by split flow or split ratio.
<p>Autosampler</p>	<ul style="list-style-type: none"> • Inbuilt autosampler with sample vial capacity 108 or better. • Autosampler should be capable of injecting two injector ports of the same GC without any manual/physical adjustment. • Vial size - 2ml. • Waste and wash vial size - 4 ml. • Sampling volume - Capable to inject from 0.1 µl to 50 µl or better. • Injection speed: Normal, fast, slow. • Viscosity settings: 0 to 15. • Maximum number of injections/vial: 15. • Maximum number of solvent post washes: 15. • Maximum number of sample pumps: 15. • Maximum number of sample prewashes: 15. • Sample pre-rinse - Prepares the autosampler syringe in advance of the GC becoming ready.
<p>Detector - Mass Spectrometer (MS)</p>	<ul style="list-style-type: none"> • Must have EI (Electronic ionization) as standard source & upgradable facility with CI source. • Mass number range: m/z 1.0 to 1200 amu. • Scan rate upto 12,500 amu/sec or better. • EI Sensitivity in Entire Mass range must be 1500:1 (Signal to Noise Performance) or more for 1pg Octafluoronaphthalene (OFN) in entire mass range. • MS must have at least unit mass resolution. • MS must have a linear dynamic range of at least 10⁶. • Ion source can be easily removable and upon reinstallation must make all electrical connections automatically (i.e., not require manually connecting wires) and produce positive pressure which automatically seals the vacuum chambers. • Source operating temperature must be settable from 50°C to 350°C. • Filament should be of best quality. • EI Voltage should be 10-100 eV. • Source emission current should be maximum 200 uA or better. • Ion Source and Filament Must be serviceable without exposing the quadrupole assembly and detector from the vacuum chamber. • GC Transfer line must have independent temperature control over the temp range 50°C to 350°C.

	<ul style="list-style-type: none"> • Quadrupole must be metallic robust enough to allow cleaning of any contaminants. • Pre filters should be there before quadrupole to keep analytical quadrupole clean from deposition. • Pumping system must come standard with single 255 L/sec (nitrogen) air-cooled turbomolecular pump. • Data Acquisition rate should be 100 points/sec. • There should be at least 32 functions or 32 ions per function.
Software	<ul style="list-style-type: none"> • Windows 10 based software performing data analyses at least as per DIN/ISO/US-EPA, calibration, blank correction, data import, export, handling and reporting, quality control protocols, computer-based training. • System must come latest version of NIST library. • Must be able to acquire intermixed and time-overlapping full scan and SIM data for maximum sensitivity. • Must be able to review quantitative peak identification in a single environment. This environment must include quantitation tables, calibration curves, raw spectra, background subtracted spectra, reference spectra from the quantitative method, ion ratios plots and calculations, and peak integration display. • Must be able to library search compounds from a chromatogram (commercially available or user generated) and use the information to construction quantitation methods. • Must have built-in reporting functionality to generate industry-standard reports with the ability to customize report templates as necessary.
Columns	<ul style="list-style-type: none"> • 1no of 30m x 0.25mm x 0.25 um MS column with 100 % dimethyl polysiloxane stationary phase. • 1no of 30m x 0.25mm x 0.25 um MS column with 5% diphenyl/95% dimethyl polysiloxane stationary phase.
General consumables to be quoted with the system	<ul style="list-style-type: none"> • Filament - 1 no extra. • Graphite-Vespel ferrules - 20 no. • Injector ferrules - 20 no. • Injector septa - 50 no. • Autosampler syringe - 1 no. • Autosampler vials with cap and septa - 100 no.
Power Supply	<ul style="list-style-type: none"> • 230 VAC +- 10% @ 50/60 Hz +-1%

Other generic terms of reference are as identified below;

1. Multi-Level Safety Monitoring

A tool for multi-level safety monitoring is required to ensure the optimal safety of operator, unit under test and test bed in all operating states.

2. Services to be supplied on various aspects related to the installation:

i. Electrical Engineering:

- Electrical integration of all test system components at IISc test cell environment.
- The electrical engineering has to be carried out according to EN-60204-1 - Safety of machinery.
Electrical Equipment of machines
- All documents listed are to be provided.

ii. Mechanical Engineering:

Mechanical / physical integration of the test system components at IISc test cell environment comprising of the following but not limited to:

- Creation of a 3D layout of the test cell, the operator area and –if applicable – the technical area. Note: Drawings of the concerned part of the building will be provided in a suitable digital format by IISc.
- Detailed Engineering and specification of specific components and subsystems as specified in the technical specifications.
- Arrangement of the equipment / components / devices to be supplied and incorporation of them into the 2D-layout.
- Design drawings are to be delivered.
- Fuel storage guidelines must be clearly specified for a variety of liquid and gaseous fuels along with safety aspects.

iii. Mechanical Installation and Commissioning:

Ensuring correct erection of the mechanical parts of the system (according to the scope of supply) and to guarantee compliance to installation specifications prior to test system commissioning and productive operation.

- Positioning and mounting of all equipment in cooperation (if necessary with local subcontractor)
- Removal of protection coatings and transport locking device(s)
- Alignment of equipment at designated location
- Commissioning of mechanical system elements

iv. Commissioning:

Well trained, qualified and certified engineers shall perform all required steps to get the single equipment and complete test system ready for the acceptance test as defined in the particular agreement. Following activities are to be included:

- Check of power & media supply, data, measurement and sampling connections.
- Installation, configuration and parameterization of all software.
- Allocation and verification of used I/O and measurement channels according to engineering.
- Interfacing of peripheral equipment based on scope of supply.
- Commissioning work is carried out with one fully functional single cylinder research engine.
- Controller set-up and basic tuning for the given UUT/Load System combination as a preparation for the Final Acceptance Test.

3. Documentation:

Includes a compilation of following documents (digital format); user manuals included typically:

- Operating manual.

- Maintenance instructions and schedules.
- Spare and wear parts lists as well as a list of consumables, safety instructions and a troubleshooting guide.
- Emergency measures according to the safety matrix.
- Documentation of third party products (language as available).
- System engineering drawings.
- Description of the test bed layout and functionality.
- Trouble shooting and emergency measures.

The documentation shall be provided in English language.

4. Other Items

- The cost of the Syngas Analyzer Upgradation and each equipment/accessory to be quoted separately.
- The vendor must submit a signed compliance document mentioning whether their equipment meets each and every specification detailed above.
- The award of the tender will be decided by the institute as per price of the complete system. All insurance charges shall be borne by the vendor.
- Technical and financial bids should be submitted separately.
- All prices of the Syngas Analyzer Upgradation and accessories should be quoted in currency of respective country of origin of the equipment.
- The specifications mentioned shall be understood to be the minimum required. Additional technical and research features suitable to our requirements shall be given due reference.
- Vendors that submit qualifying technical and financial bids are required to send competent representatives from the sales and technical divisions for further negotiations.

All the communication in this regard should be addressed to:

The Chairman
ICER,
Indian Institute of Science
Bangalore 560 012
India

With attention to Prof. S Dasappa.

The email communication should be to dasappa@iisc.ac.in.

SPECIFIC TERMS AND CONDITIONS

The following requirements should be specifically adhered to by the vendor, and express indication should be given regarding adherence.

1. GUARANTEE PERIOD

- The equipment should be guaranteed for a period of 12 months from the date of handing over the fully functional unit to the Institute, against manufacturing defects of material and workmanship.
- Separate list of spares desirable for an R and D lab along with costs to be provided separately with individual costs.

2. POST GUARANTEE ANNUAL MAINTENANCE CONTRACT(AMC)

Annual maintenance contract (AMC) for the complete system will be start after expiry of the warranty period as per agreed terms and conditions. The contract will also include the recommissioning of the system for what so ever reasons.

- Costs for the post-guarantee 3 years of annual maintenance contract for the complete system which includes all the accessories supplied during the installation. One annual visit by relevant subject expert(s) must be scheduled during the period of AMC.
- The amount due every year on account of the AMC will be paid at the beginning of theyear to the vendor.

3. WARRANTY

- The complete system is to be under warranty period of 36 months including free supply of spare parts, and labour from the date of functional installation, commissioning and acceptance.
- During the period of warranty the supplier is required to take full responsibility to recommissionthe system in the event of failure whatsoever reasons.

4. DOCUMENTATION

- Two sets of operational/service/application manuals are to be provided along with the Equipment in English.
- Detailed documentation on various sequences, application software and evaluation software etc. are to be provided and the same must be updated regularly for next 10 years as and when these are released.
- Supplier is required to ensure mailing of product/research newsletters released from their R&D sites to the our site on a regular basis. This is to keep this centre abreast of the latest developments taking place in system technology and research techniques.
- The vendor is to provide a tender compliance sheet by giving all the necessary specifications, which should be supported by printed documentation sheets and certification of each item. In the absence of such documentation, a letter from the principals of the company should be provided.
- The vendor must provide at least one USER SATISFACTION CERTIFICATE for equivalent / similar kind of supply and installations.

5. SOFTWARE UPGRADATION

Software upgrades for the core system and all related applications for next 10 years to be provided free by the firm as a matter of routine as and when these are released, inclusive of minor hardware changes.

6. RESEARCH COOPERATION (Optional)

- The vendor is required to provide work in progress packages to us for research trial as for their other research sites. The firm should provide an exhaustive list of performance of various engines which will help the research and cooperation.
- The vendor should extend demonstrated cooperation regarding design and implementation of novel hardware and software inputs as required by the user, such as newer analysis techniques, emissions standards, post-processing, synthesis of data.
- Specific proposal regarding research collaboration will be submitted subsequently for consent and counter signatures of the principals on the research proposal.

7. DELIVERY, INSTALLATION & COMMISSIONING OF THE SYSTEM

The facility should be built and the Gas Chromatography with Mass Spectrometer system should be delivered, installed and functionally commissioned within 6 months from the date of receipt of confirmed supply order. The supply of the items will be considered as effected only on satisfactory commissioning and inspection of the system by the institute. After successful installation and inspection, the date of taking over of the entire complete running of the Syngas Analyzer Upgradation by the institute shall be taken as the start of the warranty period.

8. CUSTOM CLEARANCE

The Institute will furnish the necessary papers for the import of items into India, necessary custom duty exemption certificate and other supporting documents to facilitate the import of the items.

Note: Institute has got into an agreement with M/S FEI Cargo for custom clearance of all imported equipments to the Institute.

9. TRAINING

The supplier, at their expense, will arrange for an application specialist, immediately after the installation and commissioning of the Syngas Analyzer Upgradation, to demonstrate the capabilities/features of the system and also to impart training to staff members. The supplier, at their expense, shall provide initial specialized training at our site by a research scientist and a research engineer from the supplier's international R&D Centre or from an internationally renowned centre; the training shall cover the state of art research application, together with system operation and first line maintenance of the system, system and application software, along with developmental aspects for modifications and development of user defined sequences, for various application purposes, etc. The travel, boarding and lodging expenses of the above personnel, scientist and engineer shall be borne by the vendor and this training should be completed before handing over the Syngas Analyzer System to us.

10. MODE OF SHIPMENT

The consignment must be air-lifted, insured and transported to the installation site by the supplier.

11. PAYMENT TERMS

A confirmed irrevocable and divisible letter of credit will be opened with the bank designated by the vendor with 80% of the total cost payable against confirmed proof of dispatch and the remaining 20% balance on successful installation against a bank guarantee of 10% of the total cost for the 3 years warranty period.

TERMS AND CONDITIONS FOR SUBMISSION OF BIDS

Both the Technical and Commercial bid should be put in separate sealed envelopes and both the envelopes should be put in another cover subscribing “**Gas Chromatography with a Mass Spectrometer**” and should reach “*The Chairman, Interdisciplinary centre for Energy Research, IISc, Bangalore-560012*” on or before **Monday, 18th May 2020**.

The Technical bid must include all the details of technical specifications of the equipment, compliance certificate along with commercial terms and conditions, **however, without the price component**. The bill of materials, printed technical brochure and any other documents to help the technical evaluation of the bid may be enclosed.

1. The commercial bid must include the price of the item(s) in Indian/Foreign currency indicating the breakup of

a) For Goods manufactured within India

- (i) The price of the goods quoted Ex-works including taxes already paid.
- (ii) GST and other taxes like excise duty, entry tax and other applicable taxes which will be payable on the goods if the contract is awarded.
- (iii) The charges for inland transportation, insurance and other local services required for delivering the goods to IISc, Bangalore.
- (iv) The installation, commissioning and training charges including any incidental services, if any with applicable service taxes.

(b) For Goods manufactured abroad

- (i) The price of the goods should be quoted on CIF/DAP Bangalore, India basis.
- (ii) The charges for insurance and transportation of the goods by Air/Sea up to Bangalore India.
- (iii) The agency commission charges, if any.
- (iv) The installation, commissioning and training charges including any incidental services, if any.

2. The invoice to be billed at applicable GST and for concessional GST rates, GST concession certificate(s) shall be provided.

3. Please indicate the import code of the items.

4. Goods found to be defective by the committee during installation and warranty have to be replaced / rectified. Items found not acceptable or missing have to be replaced / rectified. Replacement of parts to be at the cost of the supplier (including all incidental charges), within 15 days from the date of receipt of written communication from us. If there is any delay in replacement / rectification, the warranty period should be correspondingly extended.

5. The terms FOB, FCA, CIF, CIP, etc., shall be governed by the rules prescribed in the current edition of the Incoterms published by the International Chambers of Commerce, Paris.

6. The purchases made by the purchaser for scientific purpose are exempt from excise duty and Custom Duty at a concessional rate is leviable.
7. Conditional tenders shall not be accepted.
8. Bids shall remain valid for minimum of 90 days after the date of bid opening prescribed by the Purchaser.
9. The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders.
10. The bidder should have established track record of Design, Manufacturing and supply of Rotor Balancing Machines.
11. Technical support for 3 years must be provided.
12. Onsite inspection of the machine will be done by IISc before the dispatch at IISc cost.

Annexure-I

Note: Compliance Certificate to be enclosed with the technical bid

Description	Comply	Non-comply	Deviation from specifications	Remarks
General Features of GC-MS				
<ul style="list-style-type: none"> • Fully automated with programmable pneumatic control (digital control) for injector, detector and purge gas. • Instrument should be compatible to computer and software should be Windows 10. • Basic system with EPC/AFC/PPC control for carrier/detector zone gases. • EPC/PPC/AFC should provide optimum performance with all types of columns and detectors. • Superior high speed GCMS system with easy access to Ion source for easy maintenance. • All parameters should be stored as a part of method for better analysis reproducibility. • System must have touch screen user interface for easy instrument operation. • There should be future hyphenation facility of this GCMS with Thermogravimetric Analyzer (TGA) from the same vendor. Same GCMS should be upgradable to TGA-FTIR-GCMS or TGA-GCMS Hyphenation for Evolved Gas Analysis Study. 				
Gas Flow control				
<ul style="list-style-type: none"> • Must come standard with programmable pneumatic control. • Digital Pneumatic Control for setting column flow with pressure, flow and linear velocity. • Carrier gas pneumatic program rates 0-100 psi/min or 0-100 ml/min or better. 				

<ul style="list-style-type: none"> Carrier pressure minimum increment should be 0.1 psi or better. Three-ramps or better pressure program should be available. 				
GC Oven Characteristics				
<ul style="list-style-type: none"> Volume: approximately 13 Litres or more for easy fixing and removing different types/dimension of columns without compromising rate of heating or cooling of oven. All temperature and time functions should be micro-processor controlled and displayed on the screen. System should have column over-heat protection. Oven should be settable up to 450°C & set point resolution must be at least 1°C. Oven cool down time from 450°C to 50°C should be < 2.0 min or lesser. Oven must accommodate upto two capillary columns. Maximum achievable temperature ramp rate should be 140°C/min or more. Temperature ramps should be 9 or more. Time settings: It should be 1 min increments for values 0 to 999 minutes or wider. 				
Injector				
<ul style="list-style-type: none"> Must be configured with One Programmable split splitless capillary injector. Injector should be controlled by EPC/PPC/AFC. Removable glass liner for trapping non-volatile residues. <p>Programmable Split Splitless Injector (PSSI) - 1no</p> <ul style="list-style-type: none"> Temperature-programmable inlet. Operating Temperature range 50°C to 500°C in 1°C increments. 				

<ul style="list-style-type: none"> • Heating rate of 1°C/min to 200°C/min or better. • Two-ramps temperature program. • Split ratio setting range 0 to 6000. • Large-volume injection facility of up to 150 µL. • PPC pneumatics include automatic control of split vent by split flow or split ratio. 				
Autosampler				
<ul style="list-style-type: none"> • Inbuilt autosampler with sample vial capacity 108 or better. • Autosampler should be capable of injecting two injector ports of the same GC without any manual/physical adjustment. • Vial size - 2ml. • Waste and wash vial size - 4 ml. • Sampling volume - Capable to inject from 0.1 µl to 50 µl or better. • Injection speed: Normal, fast, slow. • Viscosity settings: 0 to 15. • Maximum number of injections/vial: 15. • Maximum number of solvent post washes: 15. • Maximum number of sample pumps: 15. • Maximum number of sample prewashes: 15. • Sample pre-rinse - Prepares the autosampler syringe in advance of the GC becoming ready. 				
Detector - Mass Spectrometer (MS)				
<ul style="list-style-type: none"> • Must have EI (Electronic ionization) as standard source & upgradable facility with CI source • Mass number range: m/z 1.0 to 1200 amu. • Scan rate upto 12,500 amu/sec or better. • EI Sensitivity in Entire Mass range must be 1500:1 (Signal to Noise Performance) or more for 1pg Octafluoronaphthalene (OFN) in entire mass range. • MS must have at least unit mass resolution. • MS must have a linear dynamic 				

<p>range of at least 10⁶.</p> <ul style="list-style-type: none"> • Ion source can be easily removable and upon reinstallation must make all electrical connections automatically (i.e., not require manually connecting wires) and produce positive pressure which automatically seals the vacuum chambers. • Source operating temperature must be settable from 50°C to 350°C. • Filament should be of best quality • EI Voltage should be 10-100 eV. • Source emission current should be maximum 200 uA or better. • Ion Source and Filament Must be serviceable without exposing the quadrupole assembly and detector from the vacuum chamber. • GC Transfer line must have independent temperature control over the temp range 50°C to 350°C. • Quadrupole must be metallic robust enough to allow cleaning of any contaminates. • Pre filters should be there before quadrupole to keep analytical quadrupole clean from deposition. • Pumping system must come standard with single 255 L/sec (nitrogen) air-cooled turbomolecular pump. • Data Acquisition rate should be 100 points/sec. • There should be at least 32 functions or 32 ions per function. 				
Software				
<ul style="list-style-type: none"> • Windows 10 based software performing data analyses at least as per DIN/ISO/US-EPA, calibration, blank correction, data import, export, handling and reporting, quality control protocols, computer-based training. • System must come latest version of NIST library. 				

<ul style="list-style-type: none"> • Must be able to acquire intermixed and time-overlapping full scan and SIM data for maximum sensitivity. • Must be able to review quantitative peak identification in a single environment. This environment must include quantitation tables, calibration curves, raw spectra, background subtracted spectra, reference spectra from the quantitative method, ion ratios plots and calculations, and peak integration display. • Must be able to library search compounds from a chromatogram (commercially available or user generated) and use the information to construction quantitation methods. • Must have built-in reporting functionality to generate industry-standard reports with the ability to customize report templates as necessary. 				
Columns				
<ul style="list-style-type: none"> • 1 no of 30m x 0.25mm x 0.25 um MS column with 100 % dimethyl polysiloxane stationary phase. • 1no of 30m x 0.25mm x 0.25 um MS column with 5% diphenyl/95% dimethyl polysiloxane stationary phase. 				
General consumables to be quoted with the system				
<ul style="list-style-type: none"> • Filament - 1 no extra. • Graphite-Vespel ferrules - 20 no. • Injector ferrules - 20 no. • Injector septa - 50 no. • Autosampler syringe - 1 no. • Autosampler vials with cap and septa - 100 no. 				
Power Supply				
<ul style="list-style-type: none"> • 230 VAC +- 10% @ 50/60 Hz +- 1%. 				

Annexure-II

MANUFACTURERS' AUTHORIZATION FORM

[The bidder shall require the manufacturer to fill in this form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by the person with the proper authority to sign documents that are binding on the Manufacturer.]

Date: [insert date (as day, month and year) of Bid Submission]

Tender No.: [insert number from Invitation for Bids]

To: **The Chairman, Interdisciplinary Centre for Energy Research, IISc, Bangalore-560012.**

WHEREAS

We [insert complete name of Manufacturer], who are official manufacturers of [insert full address of Manufacture's factories], do hereby authorize [insert complete name of Bidder] to submit a bid the purpose of which is to provide the following Goods, manufactured by us [insert name and or brief description of the Goods], and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty with respect to the Goods offered by the above firm.

Signed: [insert signature(s) of authorized representative(s) of the Manufacturer]

Name: [insert complete name(s) of authorized representative(s) of the Manufacturer]

Title: [insert title]

Duly authorized to sign this authorization on behalf of: [insert complete name of Bidder]