

**INDIAN INSTITUTE OF TROPICAL METEOROLOGY**  
**PASHAN, PUNE-411008**  
*(An Autonomous Body under the Ministry of Earth Sciences, Govt. of India)*

**CORRIGENDUM-II**

Tender Notice No. **PS/HPC/01/2012**

The date of submission of Expression of Interest (EOI) for setting up High Performance Computing (HPC) Solutions published vide Global NOTICE FOR EXPRESSION OF INTEREST (EOI) No. PS/HPC/01/2012 is hereby extended up to 15:00 hrs on 26 September 2012 and shall be opened on same day at 1530 hrs. Those who have earlier submitted the documents for this HPC Solutions need not submit again. Other terms & conditions shall remain unchanged. Please visit our website [www.tropmet.res.in](http://www.tropmet.res.in) and CPP Portal: [www.eprocure.gov.in](http://www.eprocure.gov.in) for details.

Senior Technical Officer-II, For Director  
Email: [vipin@tropmet.res.in](mailto:vipin@tropmet.res.in)

**INVITATION FOR  
EXPRESSION OF INTEREST  
FOR**

**HIGH PERFORMANCE COMPUTING (HPC) SOLUTIONS  
AT OPERATIONAL & RESEARCH INSTITUTES IN  
MINISTRY OF EARTH SCIENCES  
GOVERNMENT OF INDIA**

**No: PS/HPC/01/2012**



सत्यमेव जयते

**Government of India**

MINISTRY OF EARTH SCIENCES

**INDIAN INSTITUTE OF TROPICAL METEOROLOGY  
(AUTONOMOUS INSTITUTE,  
MINISTRY OF EARTH SCIENCES,  
GOVERNMENT OF INDIA)  
DR. HOMI BHABHA ROAD, PASHAN,  
PUNE 411 008  
MAHARASHTRA, INDIA**

**AUGUST 2012**

## 1. ABOUT MINISTRY OF EARTH SCIENCES (MoES) & ITS UNITS

The **Ministry of Earth Sciences** (MoES) is mandated to provide the nation with best possible services in forecasting the monsoons and other weather/climate parameters, ocean state, earthquakes, tsunamis and other phenomena related to earth systems through well integrated programmes. The Ministry also deals with science and technology for exploration and exploitation of ocean resources (living and non-living), and play nodal role for Antarctic/Arctic and Southern Ocean research. The Ministry mandate is to look after Atmospheric Sciences, Ocean Science & Technology and Seismology in an integrated manner. The various Units under the Ministry of Earth Sciences are: India Meteorological Department (IMD), National Centre for Medium Range Weather Forecasting (NCMRWF), Indian Institute of Tropical Meteorology (IITM) Pune, and Earthquake Risk Evaluation Centre (EREC) under the Atmospheric Sciences and Seismology sector; National Institute of Ocean Technology (NIOT) Chennai, National Centre for Antarctic & Ocean Research (NCAOR) Goa, Indian National Centre for Ocean Information Services (INCOIS) Hyderabad, Integrated Coastal and Marine Area Management Project Directorate (ICMAM-PD) Chennai, and Centre for Marine Living Resources & Ecology (CMLRE) Kochi under the Ocean Science & Technology sector. MoES aims to create a framework for understanding the complex interactions among key elements of the Earth System, namely ocean, atmosphere and solid earth, by encompassing national programmes in Ocean science, meteorology, climate, environment and seismology. Improved and reliable forecast of weather and climate requires routine integrations as well as research & development using very high resolution dynamical models with high complexity (e.g. coupled ocean-atmosphere-biosphere-cryosphere models). Integrations of these models and the necessary R & D to improve them are possible only if we acquire Petascale HPC facility.

The following compute intensive major programmes are being undertaken at various MoES organizations.

- Monsoon Mission
- Global and regional data assimilation
- Climate Change modeling
- Operational Short & Medium Range forecasting
- Ocean process modelling & Ocean State Forecasting
- South Asian Regional Reanalysis
- Advance Training School

The practical impact of weather, climate and ocean prediction on the world's population and economy drives this community's usage of high performance computing (HPC). HPC requirement at MoES organizations shall increase from year to year as new programmes are initiated and existing programs are updated. The following Table-1 shows the Institute-wise HPC requirement in 2012, 2013 and 2016. This table is given only to sensitize the bidder on the future requirement of MoES. The current procurement is for the first phase requirement of the respective institutes as mentioned in Table 1.

**Table 1: Stage wise requirements**

| MoES Institutes   | Compute Power in TF |                 |                  | Storage in Terabytes |                 |                  |
|-------------------|---------------------|-----------------|------------------|----------------------|-----------------|------------------|
|                   | Stage I (2012)      | Stage II (2013) | Stage III (2016) | Stage I (2012)       | Stage II (2013) | Stage III (2016) |
| IITM, Pune        | 300                 | 750             | 1250             | 3000                 | 10000           | 30000            |
| NCMRWF, NOIDA     | 200                 | 450             | 700              | 2500                 | 5000            | 10000            |
| IMD, New Delhi    | ----                | 150             | 350              | -----                | 3000            | 5000             |
| INCOIS, Hyderabad | 50                  | -----           | -----            | 1000                 | -----           | ----             |

The above computing power in Teraflop is only an indication of peak performance requirement of HPC system based on the theoretical peak of the existing MoES HPC systems. Exact requirement and selection of the systems shall be based on actual performance of the HPC systems while running a benchmark basket suite of weather and climate models within a specified time and producing correct results which shall be mentioned in the final tender document. Therefore, actual peak performance of the systems may vary according to system architecture, memory bandwidth, and interconnect switch etc.

### 3.0 SCOPE OF WORK

The scope of this HPC procurement will cover the following tasks:

- a. Supply and installation of **Stage-1 compute & storage requirements based on benchmark suite** for different Institutes under MoES with the latest hardwares, softwares and best practices of building Top Super Computers across the globe suited for weather and climate modeling applications.
- b. Supply and Installation of latest Standardized Softwares, Scientific Libraries, compilers for High Performance Computing Systems at different Institutes of MoES without much of model/application re-reporting overheads.
- c. Providing 24x7 on site operational support for hardware, Systems software, Storage, Maintenance, Systems Administration by the Originals Equipments Manufacturer/ Principle companies of HPC for a period of three years post Installation and Acceptance. The number of manpower required to carry out this task need to be provided by the bidder in response to this EOI.
- d. The bidder should deploy Application specialists at each site of MoES for tuning, porting and optimization of application programs /models during the contract period. The number of such specialists will vary with institute.

- e. Providing onsite and on systems training to all concerned users at periodic interval as per the Service Level Agreement(SLA)
- f. Supply and Support of any intermediate latest Softwares, Scientific libraries, compilers etc. for weather and climate applications at par with any other international/global research center( viz: NCEP, ECMWF, JMA, KMA, UKMO etc).
- g. It is highly desirable that all the software licenses that are supplied within the scope of work are right-to-use perpetual licenses for an unlimited number of concurrent users and should be supported by respective OEM's in the name of respective MoES Institutes. For eg: compilers, libraries, parallel file system etc.

#### **4.0 Pre-qualification for Participation**

- a) For the purpose of this EOI, “vendor” or “tenderer” or “bidder” means the tenderer who is Original Equipment Manufacturer (OEM) of HPC system. While OEM's may take support from System Integrators, the final Sales, Support and Services must be provided directly from OEM.
- b) The bidder must have executed supply/system integration of similar (architecture similar to quoted in this bid) HPC solutions in the past 3 years including High Performance Computers running operational weather, climate and ocean models. Duly certified documents authenticating this aspect should be enclosed in the bid document such as acceptance certificate etc without which the proposals shall not be considered.
- c) The bidder should have been in existence for at least five years and should have well established service/support centre in India with trained manpower in maintaining the solution and capable of deputing these personnel at NCMRWF, INCOIS and IITM. Bidder should provide details on technical support infrastructure.
- d) The bidder should have experience in running the global atmospheric and ocean models on at least 100TF system operationally for at least one year. Duly certified documents authenticating this aspect should be enclosed in the bid document without which the proposal shall not be considered
- e) The bidder should have executed collaborative contracts with Weather forecasting organization nationally/internationally
- f) The Bidder should be listed in Top 100 of world's top 500 super computing (November 2011) list. Should submit details of the ranks for the latest list on the same.
- g) Participation in the EOI is an essential and necessary condition to participate in tendering process.

## 5.0 Benchmark Tests

A benchmark suite has been prepared and is available with the EOI on a CD/DVD/USB device along with the readme, which has instruction to run these benchmarks. The interested bidder should bring a device and collect the benchmark suite from, The Computer Division, IITM, Pune. There are a set of programs which each bidder has to run on an appropriate size of the system and provide the purchaser with the outputs along with relevant logs. This is to only demonstrate the bidders' capability to port and run the benchmarks. The benchmarks should be run by the OEM only who is responding to this EOI. Benchmark submitted by any third party will not be accepted.

The following are the benchmark programs

**NEMO** ocean model

**UM atmospheric** model

**GFS** T764L91 atmospheric model

**CFS** T382L64 coupled model

**NCAR WRF** atmospheric model

### 5.1 Benchmark Requirements

Bidders must submit benchmark results. The configurations used for the above benchmarks must be provided along with the response to this EOI. The bidders are not allowed to do code level optimization of the benchmark programs. If the codes are modified to run on vendor's machine, the modified codes should be submitted along with this EOI to test the benchmark details supplied by the vendor. MoES reserves the right to re-run the modified codes, if required.

## 6.0 EVALUATION PROCESS:

- Step1: Interested bidders may express their willingness in writing by responding to all the points mentioned in Section 4 and Section 5 above with documentary evidence before **26 September 2012 at 15:00 hrs.**
- Step2: MoES shall review the proposal and call the bidders for a presentation or clarification if required.
- Step3: MoES will short list the bidders based on section 4 and 5 above.
- Step4: The short listed bidders will only be allowed to participate in the next stage of tendering process.

## 7.0 Instructions to Bidder

- a) The MoES reserves the right to cancel the EOI/tendering process at any time without assigning any reason thereof. MoES will not be held liable for any loss which may incur to any bidder because of this cancellation.
- b) An undertaking (self certificate) is to be submitted that the Organization has not been blacklisted by any Central/State Government Department/Organization.
- c) Please note that all the pages of the EOI documents should be signed with date and seal of the Organization.
- d) The covering letter and the Proforma given in this document should be submitted on bidder's company Letter Head, along with the technical proposal.
- e) Canvassing in any form would disqualify the bidder from further participation.
- f) All the submitted proposals will be scrutinized on the basis of documents and information furnished by company/ industry along with the prescribed form as in section
- g) MoES may obtain clarifications wherever required from the company or from the referred client list in the profile. Based upon the scrutiny, officers of those companies / industries that fulfill the pre qualification criteria presentation / interaction on proposed methodology and other conditions as stated above would be shortlisted.
- h) Tender document for all the above requirements will be issued only to technically and financially qualified potential bidders.
- i) The Bidders should fill the Proforma-I as attached and sign on all pages.
- j) The bidders should sign on each page in their response to this EOI.

## 8.0 EOI Documents: EOI shall contain the following documents:

- a. Company profiles including organizational structure with details of ownership and evidence of incorporation;
- b. Evidence of technical & financial capability, including annual audited accounts for the past five (05) years ending March 31, 2011. Certificate from Chartered Accountant for the Net worth Criteria.
- c. Detailed information on key technical Strengths in understanding Weather & Climate applications and codes and deployed HPC solutions for the same.
- d. Suggestions and views, if any for HPC Solution requirements of MoES.
- e. Submission of EOI: EOI should be submitted in a sealed envelope clearly marked **“EOI for High Performance Computing Solution Systems.”** And Addressed to

The Director,  
Indian Institute of Tropical Meteorology  
Dr. Homi Bhabha Road, Pashan,  
Pune 411 008  
Maharashtra  
India  
Phone: +91-20-2590-4200  
Fax : +91-20-2586-5142

- f. The benchmark details along with configuration of the of the system used
- g. Modified codes in a separate media (e.g. CD/Tape, USB disk etc.)
- h. Technology (Compute nodes, network, Storage, Operating System etc) development roadmap of the bidder for the next five years.
- i. Details of the manpower required to maintain the system on 24x7 basis at 99.99 % uptime.
- j. Last date of submission is **26 September 2012 at 15:00 hrs**

Note:

1. For any clarification the bidders are advised to contact Dr. A K Sahai, Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, Pashan, Pune- 411 008, Maharashtra, India, Phone: +91-20-2590-4200 Fax : +91-20-2586-5142 email: sahai@tropmet.res.in



## PROFOMA I

### INDIAN INSTITUTE OF TROPICAL METEOROLOGY (AUTONOMOUS INSTITUTE, MINISTRY OF EARTH SCIENCES, GOVERNMENT OF INDIA)

E.O.I. NO. PS/HPC/01/2012

| 1. Particulars of Applicant Company |             |          |                           |           |                 |
|-------------------------------------|-------------|----------|---------------------------|-----------|-----------------|
| Name of the Company                 |             |          |                           |           |                 |
| Registration No.                    |             |          |                           |           |                 |
| Address                             |             |          |                           | STD Code  |                 |
|                                     |             |          |                           | Tel. No.1 |                 |
|                                     |             |          |                           | Tel. No.2 |                 |
|                                     |             |          |                           | Fax No.   |                 |
|                                     | City        |          |                           | Pin       |                 |
| State                               |             | E-mail * |                           |           |                 |
| Website Address                     |             |          |                           |           |                 |
| Type of company                     | Government  |          | Public Sector Undertaking |           | Private Limited |
|                                     | Partnership |          | Public Limited            |           | Proprietorship  |

\* Email sent on this address will be treated as valid communication. Add a separate sheet, if necessary

| 2. Particulars of Managing Director/CEO/Proprietor/Managing Partner |         |  |     |           |        |
|---|---------|--|-----|-----------|--------|
| Name & Designation  | Address |  |     | STD Code  |        |
|   |         |  |     | Tel. No.1 |        |
|   |         |  |     | Tel. No.2 |        |
|   |         |  |     | Fax No.   |        |
|   | City    |  |     | Mobile    |        |
|   | State   |  | Pin |           | E-mail |
|   |         |  |     |           |        |

| <b>3. Particulars of Contact Persons</b> |                    |           |          |  |
|--|--------------------|-----------|----------|--|
| S No.                                    | Name & Designation | Address   | Numbers  |  |
| 1.                                       |                    |           | STD Code |  |
|  |                    |           | Tel. No. |  |
|  |                    |           | Fax No.  |  |
|  |                    | City:     | Mobile   |  |
|  |                    | Pin Code: | E-mail   |  |

|    |  |                 |               |  |
|----|--|-----------------|---------------|--|
| 2. |  |                 | STD Code      |  |
|    |  |                 | Tel. No.      |  |
|    |  |                 | Fax No.       |  |
|    |  | City:           | Mobile        |  |
|    |  | Pin Code:       | E-mail        |  |
| 3. |  |                 | STD Code      |  |
|    |  |                 | Tel. No.      |  |
|    |  |                 | Fax No.       |  |
|    |  | City: Pin Code: | Mobile E-mail |  |

| <b>4. Location of Offices in India</b> |              |           |          |  |
|--|--------------|-----------|----------|--|
| S No.                                  | Name of Head | Address   | Numbers  |  |
| 1.                                     |              |           | STD Code |  |
|  |              |           | Tel. No. |  |
|  |              |           | Fax No.  |  |
|  |              | City:     | Mobile   |  |
|  |              | Pin Code: | E-mail   |  |
| 2.                                     |              |           | STD Code |  |
|  |              |           | Tel. No. |  |
|  |              |           | Fax No.  |  |
|  |              | City:     | Mobile   |  |
|  |              | Pin Code: | E-mail   |  |
| 3.                                     |              |           | STD Code |  |
|  |              |           | Tel. No. |  |
|  |              |           | Fax No.  |  |
|  |              | City:     | Mobile   |  |
|  |              | Pin Code: | E-mail   |  |

| <b>5. Turnover for last three years</b> (All amounts in Indian Rupees and in Crores only) |  |  |  |
|---|--|--|--|
| <b>Year</b>   | <b>Period (Month/Year)<br/>From To</b> | <b>Total Turnover of the<br/>Company</b> | <b>Turnover from HPC<br/>Projects.</b> |
| 2010-2011   |  |  |  |
| 2009-2010   |  |  |  |
| 2008-2009   |  |  |  |

| <b>6. Certifications</b>               | <b>Yes/No (Indicate the<br/>level wherever it is<br/>applicable)</b> | <b>Valid up to</b> |
|--|--|--------------------|
| ISO-9001: 2000 in software development |  |                    |
| SEI-CMM Level                          |  |                    |
| P-CMM Level                            |  |                    |
| Any other (Please specify)             |  |                    |

| <b>7. Experience in deploying HPC Solutions</b> | <b>Site</b> | <b>Details &amp; Date of<br/>Installation</b> |
|---|-------------|---|
|   |             |   |
|   |             |   |
|   |             |   |

Add a separate sheet, if necessary

| <b>8. Details of sites/customers where similar solutions deployed</b>  |                            |                         |             |                            |                                    |                      |
|--|----------------------------|-------------------------|-------------|----------------------------|------------------------------------|----------------------|
| Sr. no   | Name & Address of Customer | Contact Person & Tel.No | HPC details | Value in crores (optional) | Applications being used (optional) | Date of Installation |
| <b>8.1 Projects completed during last 3 years</b>  |                            |                         |             |                            |                                    |                      |
| 1.   |                            |                         |             |                            |                                    |                      |
| 2.   |                            |                         |             |                            |                                    |                      |
| 3.   |                            |                         |             |                            |                                    |                      |
| <b>8.2 Projects completed prior to last 3 years</b>  |                            |                         |             |                            |                                    |                      |
| 1.   |                            |                         |             |                            |                                    |                      |
| 2.   |                            |                         |             |                            |                                    |                      |
| 3.   |                            |                         |             |                            |                                    |                      |
| Add a separate sheet, if necessary<br>Note: Attach explanatory note for each project in not more than two pages. |                            |                         |             |                            |                                    |                      |

**9.0 Any other information that Applicant Company wants to give**

Add a separate sheet, if necessary

| <b>12. List of Enclosures</b> |  |
|-------------------------------|--|
| (i)                           |  |
| (ii)                          |  |
| (iii)                         |  |
| (iv)                          |  |
| (v)                           |  |
| (vi)                          |  |

**Undertaking**

This is to certify that I have gone through all the pages of the document. The applicant company undertakes to abide by all the terms & conditions mentioned in the EOI tender document. It is further certified that the information furnished in the EOI documents is true and correct.

In the Event of any of above information found to be false, we understand that own EOI proposal can be rejected and not considered.

Date:

Signatures:

Place:

Name:

**Seal**

Designation: