



18 September 2018

SUPPLEMENTAL / BID BULLETIN

Addendum No. 2018-012-04

Subject: “Supply, Delivery, Installation, Testing, Supervision, Training and Commissioning of PAGASA Climate Forecast Computing System” (Reference: PR No. 2018-08-0556IB 2018-012; ABC Php 100,000,000.00)

This Bid Bulletin is being issued to all prospective bidders to clarify, amend and/or modify certain provisions in the Terms of Reference (TOR) and to answer the written clarificatory questions submitted by prospective bidders, to wit:

A. Queries from INTEGRATED COMPUTER SYSTEMS, INC.

QUESTIONS	PAGASA-BAC ANSWERS
1. Do you have a specific Global Climate Model (GCM in mind for initial and boundary conditions?	<p><i>Please refer to Item H. IMPERATIVE NUMERICAL MODELS, bullet #2, page 8 of the Terms of Reference (TOR).</i></p> <p>The 6-hourly forecast and hindcast dataset as initial and boundary conditions shall be from operational Climate Forecast System (CFS) version 2 of National Center for Environmental Predictions (NCEP) which is freely available at its website. This can be collaborated with NCAR through its scientist as part of the implementation of Weather Research and Forecasting Model (WRF - NCAR/UCAR USA) designed for Seasonal Climate Forecast System of PAGASA.</p>
2. Do you require two different GCMs? Which ones? This seems to be implied on Page 8 of the Terms of Reference.	<p>Only input data from GCM, such as CFSv2, is required in the project as described in Item H of the TOR.</p> <p>WRF designed for Seasonal Climate Forecast System of PAGASA is a Regional Climate Model, not a GCM. While the development and installation APCC PRePS will not be part of the project, technical meetings and training shall be charged to the Winning Bidder. <i>Please refer to Item M, page 10 of the TOR.</i></p>
3. How much support will APEC Climate Center require from the Winning Bidder for the installation of APCC-PAGASA Regional Prediction System?	<p><i>Under Item M., par. 5, page 10 of the TOR,</i> the following activities/expenses shall be borne by the Winning Bidder:</p> <ol style="list-style-type: none"> 1. A 5-day Technical Meeting between PAGASA and four (4) APCC Research Fellows to discuss and gain key information to ensure the effectiveness of the APCC-PrePS System; 2. A 4-day Installation Trip where the APCC-PRePS system will be installed into the HPC by two (2) APCC technical staff; and 3. A 5-day Technical Training-Workshop for four (4) PAGASA technical personnel from CAD by two (2) APCC Research Fellows on how to operate and maintain the technical aspects of the system.“ <p>Likewise, the last paragraph of the same item requires that, “All related expenses such as, but not limited to the training materials, round trip airfare, local transportation, lodging/accommodation and allowable travel expense based on the prevailing UNDP-DSA rates in the above 1-3 activities for each APCC or PAGASA personnel shall be borne by the Winning Bidder. Meals during the Technical Meeting, Installation activity and Technical Training Workshop (if on-site) shall also be provided to the participants and APCC personnel by the Winning Bidder.”</p>

<p>4. What is meant by collaboration with NCAR? Does NCAR have to be a bidder? Can the collaboration be informal?</p>	<ul style="list-style-type: none"> - “Collaboration with NCAR” means that the winning bidder shall be required to directly communicate with NCAR via e-mail thru one of its scientists during the implementation of the project. The name and contact details of NCAR’s representative will be provided by PAGASA to the winning bidder. - NCAR should be independent and doesn’t have to be a Bidder. - Collaboration maybe informal or will depend with NCAR’s preference.
<p>5. There are no requirements stated for the display system. What are the general expectations of this system regarding what products should be displayed?</p>	<p><u>Please refer to item I. Visualization Tools, page 9 of the Terms of Reference (TOR) for this specific requirement.</u></p> <p>Open source web apps and visualization tools, such as Grid Analyses and Display System, NCAR’s NCL and/or scripts written in R language are preferred.</p> <p><u>Likewise, item H. par. 3, sentence 2, page 8 of the TOR states that,</u> “All output parameters (temperature, pressure, rainfall, etc.) and formats (for images, station data, etc.) shall be discussed by the Winning Bidder with PAGASA operations and research staff during the technical training and/or technical meeting.”</p> <p>This could also form part of the collaboration of the Winning Bidder with NCAR under “implementation of Weather Research and Forecasting (WRF) for Seasonal Climate Forecast System of PAGASA”.</p>
<p>6. What is the building supply onsite (230 V 3-Phase Delta/400V 3-Phase Wye?)</p>	<p>400V 3-Phase Wye</p>
<p>7. Can we conduct ocular inspection onsite to check the availability and readiness of power onsite? If onsite inspection is not allowed, please provide copy of your floor plan and electrical layout for our reference.</p>	<p>Prospective bidders may conduct ocular/site inspection from Mondays-Fridays at 9AM-4PM until the scheduled deadline for submission of bids.</p> <p><i>Contact Persons: Engr. Diosdado S. Ornum or Mr. Dave Sabado Tel. No.: (02) 928-6117</i></p>
<p>8. Item 1 same as item 2 (Technical Specifications)?</p>	<p>No. Item 1 describes the compute chassis equivalent to at least 15 units and Total System Memory and the number of cabinets; while, Item 2 describes the total number of compute nodes.</p> <p><i>Note: (Typographical error)</i></p> <p>Item G. (#1), bullet #2, TOR is hereby corrected as follows:</p> <p>FROM: 16 TB or higher Total System Memory</p> <p>TO: 13 TB or higher Total System memory</p>
<p>9. On letter D. Qualifications of Prospective Bidders, #3.2 – May we request to relax the requirement to “The manufacturer of the proposed HPC system should have at least 15 systems in the latest top 500 supercomputer list. Manufacturers that have more systems in top 500 have higher technology, resources, experience, and leadership in HPC systems.</p>	<p>The minimum requirement of at least 25 systems on the latest TOP 500 supercomputer list corresponds already to 5% vendor system share. Since weather and climate forecasting is critical in the day-to-day operation of the agency, it is imperative for PAGASA to filter qualification of HPC manufacturer and require a system based on performance, quality, experience and capability, taking into consideration the value for money that the government is investing to acquire the same. The site http://www.top500.org is an independent organization that ranks and details the 500 most powerful computers in the world.</p> <p>Notwithstanding the foregoing and in order to encourage a wider participation among qualified bidders, item D.(#3.2) Qualification of Bidders, is hereby amended as follows:</p> <p>FROM: The manufacturer of the proposed HPC system should have at least 25 systems in the latest top 500 supercomputer list...</p>

	<p>TO: The manufacturer of the proposed HPC system should have at least 20 systems in the latest top 500 supercomputer list...</p> <p>Reference will be the June 2018-released list or the latest Top 500 list prior to the Opening of the Bid.</p>
10. Is the submission of the "Engineering Plan and Block Diagram" under letter F. required during the bid submission?	Yes. The bidders' proposed <u>Engineering Plan and Block Diagram</u> shall form part of their tender documents.
11. Due to the complexity of the project, may we request to extension of the Delivery Period to 150 calendar days upon issuance of the Notice to Proceed?	<p>Item E. <u>DELIVERY PERIOD</u> ... is hereby amended as follows:</p> <p>FROM: ... within one hundred (100) calendar days ...</p> <p>TO: ... <u>within one hundred twenty (120) calendar days</u> ...</p> <p>Note: Delivery period for technical training and meeting related to the implementation of APEC Climate Center-PAGASA Regional Prediction System (APCC-PRePS) shall be maintained.</p>
Other Requirements:	
12. For the Single Largest Completed Contract, will you allow submission of Completed Contract for the Servers and Storage?	Single Largest Completed Contract must have both Server and Storage since the project is basically a computing server in parallel or in clusters and includes storage as a complete system. The value of the bidder's SLCC must be at least 50% of the ABC.
13. May we request approval for payment milestones based for this project? For example, 50% payment for the Upon completion of Delivery of the Hardware and Software, 25% Upon completion of Installation & Testing Procedure and 25% Upon completion of the FAT, SAT and training.	Unless otherwise indicated in the Special Conditions of Contract (SCC) the provisions of General Conditions of Contract (GCC) Clause No. 11 on Advance Payment and Terms of Payment shall be applied.
14. May we request extension of 2 weeks from the original bid submission for the Supply, Delivery, Installation, Testing, Supervision, Training and Commissioning of PAGASA Climate Forecast Computing System, Reference No.: IB 2018-012? Request is being made to have ample time in customizing the Software required for this bid.	Please refer to Supplemental/Bid Bulletin No. 3 issued for this purpose.

B. Queries from MASSIVE INTEGRATED TECH SOLUTIONS INC. (MITS)

QUESTION	PAGASA-BAC ANSWER
15. What will be the Single Largest Completed Contract of the said project? Will it be a combination of server and storage? Or Server only? Since this is a computing system project that compose of server with storage.	Single Largest Completed Contract must have both Server and Storage , not server or storage since the project is basically a computing server in parallel or in clusters, and includes storage as a complete system. It should be a combination of server and storage.

C. Queries from SMS GLOBAL TECHNOLOGIES INC.

QUESTIONS	PAGASA-BAC ANSWERS
<p>16. <i>Item No. 3.2 Additional Requirements for Winning Bidder</i></p> <ul style="list-style-type: none"> Can we request change 25 systems in the latest Top 500 to at least 10 systems in the latest super computer 	Please refer to PAGASA-BAC ANSWER No. 9 above.

<p>list. We believe that this will already show the manufacturer has the ability to deliver the required scope and it will encourage more bidder to participate.</p>	
<p>17. <i>Item No. 1 (page 4 of 13 of the TOR)</i></p> <ul style="list-style-type: none"> • Please check the 16TB total system memory as it does not match the system memory requirement is of at least 14.6 TB 	<p>Please refer to PAGASA-BAC ANSWER No. 8 above.</p>
<p>18. <i>Item No. 2 (page 4 of 13 of the TOR)</i></p> <p>High Performance Computing (HPC) compute nodes)</p> <ul style="list-style-type: none"> • The requirement is 192 GB DDR4 2666 Mhz but each memory is only 2133, does not match, please verify • Since the network switch is only 1 Gb base T, can we change to 1GE 4-ports instead of 10GE ports • LOM ports is not necessary, can we remove it or change to equivalent 	<p>Item No.2, page 4 of the Terms of Reference (TOR) is hereby amended as follows:</p> <p>FROM:</p> <ul style="list-style-type: none"> • At least 192 GB DDR4 2666MHz RAM. Each memory DIMM module must be an ECC 16GB DDR4-2133 RDIMM; • At least 1 x 10Gb 4-port Base-T LOM; <p>TO:</p> <ul style="list-style-type: none"> • <u>At least 192 GB DDR4 2666MHz RAM. Each memory DIMM module must be an ECC 16GB DDR4 or higher;</u> • <u>At least 1 x 10Gb 4-port Base-T LOM or equivalent</u>
<p>19. <i>Item No. 3 (page 4 of 13 of the TOR)</i></p> <p>High Performance Computing (HPC) visualization nodes)</p> <ul style="list-style-type: none"> • Can we use 4U instead of 2U form factor as long as it can (be) installed in 2-3 cabinet • It request 768 GB DDR4 2666Mhz but each memory is only 2133, please verify • For each memory, can we use 32GB instead of 16 GB as long as we can meet your total capacity requirement • LOM parts is(are) not necessary; can we remove it or change to equivalent. • Since this is for HPC and computing node only use 1 OPA card, can it change to at least 1 x Intel OPA single-port PCIe Network card? 	<p>➤ <u>At least 2U form factor</u> – shall be maintained.</p> <p>The following provisions/requirements under the subject item are hereby amended:</p> <p>FROM:</p> <ul style="list-style-type: none"> • At least 768 GB DDR4 2666MHz RAM. Each memory DIMM module must be an ECC 16GB DDR4-2133 RDIMM; • At least 1 x 1Gb 4-port Base-T LOM; <p>TO:</p> <ul style="list-style-type: none"> • <u>At least 768 GB DDR4 2666MHz RAM. Each memory DIMM module must be an ECC 16GB DDR4 or higher;</u> • <u>At least 1 x 1Gb 4-port Base-T LOM or higher</u>
<p>20. <i>Item No. 4 (page 4 of 13 of the TOR)</i></p> <p><u>High Performance Computing (HPC) login master nodes</u></p> <ul style="list-style-type: none"> • It request 384 GB DDR4 2666Mhz but each memory is only 2133, please verify • LOM parts is(are) not necessary; can we remove it or change to equivalent. 	<p>Item No. 4, page 4 of the TOR is hereby amended:</p> <p>FROM:</p> <ul style="list-style-type: none"> • At least 384 GB DDR4 2666MHz RAM. Each memory DIMM module must be an ECC 16GB DDR4-2133 RDIMM; • At least 1 x 1Gb 4-port Base-T LOM; <p>TO:</p> <ul style="list-style-type: none"> • <u>At least 384 GB DDR4 2666MHz RAM. Each memory DIMM module must be an ECC 16GB DDR4 or higher;</u> • <u>At least 1 x 1Gb 4-port Base-T LOM or higher</u>
<p>21. Can we use 8G FC or 16G FC HBA card instead of 12Gb SAS HBA card since FC is more stable?</p>	<p><u>The original requirement under the TOR shall be maintained.</u></p>

<p>22. <i>Item No. 5 (page 4 of 13 of the TOR)</i></p> <p><u>Shared Storage for Log in nodes</u></p> <ul style="list-style-type: none"> • Can we use 8G FC or 16G FC ports instead of 12Gb SAS ports since FC is more stable? 	<p><u>The original requirement under the TOR shall be maintained.</u></p>
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D. Queries from ADVANCE SOLUTIONS INC.

QUESTIONS	PAGASA-BAC ANSWERS
<p>23. May we request if you can extend the delivery period to from 100 calendar days to 120 calendar days for this project consisting of advanced and complicated machines which will be customized and will take time to order and to deliver here in the Philippines, also considering the days of installation, commissioning and training.</p>	<p>Please refer to PAGASA-BAC ANSWER No. 11, above.</p>
<p>24. May we request for an onsite visit to your data center in order for us to check and validate necessary items or equipment needed for your required High-Performance Computing (HPC), this is crucial for us to be able to provide your required "Engineering Plan and Block Diagram" that will be part of your bid submission.</p>	<p>Please refer to PAGASA-BAC ANSWER No. 7, above.</p>
<p>25. For ITEM 2 on the technical Specifications under High Performance Computing (HPC) compute nodes, we would like to clarify based on your requirement that HPC notes should have "192GB DDR4 2666MHz RAM", with that requirement we can only reach a total 11.5TB system Memory for all the required sixty (60) HPC computing nodes. May we request if you can adjust your minimum Total System memory to at least 11.5TB on ITEM no. 1?</p>	<p>Please refer to PAGASA-BAC ANSWER No. 8, above.</p>
<p>26. For ITEM 2, 3 and 4 we would like to request if you can also consider infiniband as an option connectivity with Intel OPA (Omni Path Architecture) for all of the HPC nodes? Considering that in ITEM 6 HPC Storage Subsystem, you allow Omni Path Architecture (OPA) or Infiniband Architecture.</p>	<p>There shall be no changes in the requirements for all HPC nodes as stated in the Terms of Reference.</p> <p>High Performance Computing (HPC) compute nodes</p> <ul style="list-style-type: none"> • At least 1 x Intel OPA 100 series single-port PCIe network card; <p>High Performance Computing (HPC) visualization nodes</p> <ul style="list-style-type: none"> • At least 2 x Intel OPA 100 series single-port PCIe network card; <p>High Performance Computing (HPC) login/master nodes</p> <ul style="list-style-type: none"> • At least 1 x Intel OPA 100 series single-port PCIe network card
<p>27. For ITEM 3 would you allow higher capacity memory module other than "16GB" for as long as we can supply your required "786GB" memory capacity for each HPC Visualization nodes?</p>	<p>Please refer to PAGASA-BAC ANSWER No. 19, above.</p>
<p>28. For item 6, storage subsystem, we would like to clarify is there any minimum performance requirement? In addition to</p>	<p><u>The original requirement under the TOR shall be maintained.</u></p>

<p>scaling-out, will it be preferred to have the ability to scale-up (e.g. double the capacity just by adding disks and enclosures)?</p> <p>Will it be preferred to have battery backed mirrored-cache to protect against controller failures?</p> <p>Will it be preferred to have the flexibility to mix SSD and NL-SAS in same enclosure?</p>	
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E. Queries from FUJITSU

QUESTIONS	PAGASA-BAC ANSWERS
29. Can we use less than 60 compute nodes if we meet or surpass the 180TFlops requirement or higher?	No. <u>The original requirement under the TOR shall be maintained.</u>
30. Can we use different memory module sizes instead as long as the total ram capacity and ddr4 speed are met?	Please refer to PAGASA-BAC ANSWER No. 8, above.
31. Will the HPC interconnect be the 10g or 100g	<u>The original requirement under the TOR shall be maintained.</u>
32. For the 1x10gb 4 port card / LOM in the compute node, are all 4 ports to be used or only one?	Please refer to PAGASA-BAC ANSWER No. 20, above.
33. How are the 5x units of 100gbps 48 port switches connected to the servers? Can we use less than 5 if this is for HPC interconnect?	No. <u>The original requirement under the TOR shall be maintained.</u> The system assumes to have a “spine-leaf” configuration network for high availability between nodes with 100gbps speed.
34. Is the cluster going to be connected to any other cluster/storage and or management network? Or, the storage to be integrated into any other file system?	Only the storage will have an integrated connectivity to the existing storage solution. The end-user unit would prefer the same manufacturer for both compute nodes and storage sub-system for the efficient environment and provision of support services.
35. Are the APCC Research fellows part of PAGASA or from elsewhere? (APEC?)	APCC Research Fellows are from APEC Climate Center. Please refer to PAGASA-BAC ANSWER Nos. 3 & 4, above for further discussion on the matter.
36. On page 11 of the TOR document, “The 5 day technical training workshop for 4 PAGASA technical personnel from CAD is to be conducted by 2 APCC Research fellows?” Or the total trainees would be 6 (4 from PAGASA and 2 APCC fellows)?	The requirement is self explanatory.
37. On page 11 of the TOR, does the training have to be in South Korea or can it be in out factory in Japan?	The training should be conducted in South Korea, the country’s model origin, since APCC-PRePS will be developed by APCC (i.e., Imperative model system software)
38. Just to confirm, warranty is for 5 yrs and not 3.	Items ‘O’ and ‘P’ of the Terms of Reference (TOR) is hereby reiterated as: <u>“O. WARRANTIES</u> <u>All workmanship, system parts, accessories, other materials and equipment and services shall be warranted by the Winning Bidder for THREE (3) YEARS.”; and,</u>

	<p><u>“P. AFTER SALES SUPPORT</u></p> <p>The Winning Bidder shall include in its bid <u>A COMMITMENT FOR AT LEAST FIVE (5) YEARS SUPPORT</u> to PAGASA for the repair and maintenance of the equipment to be supplied.”</p>
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This shall form an integral part of the Bid Documents.

Please be guided accordingly.

(Sgd.) ENGR. CATALINO L. DAVIS
Chairperson, PAGASA-BAC