I. SCOPE OF SOLICITATION

Clemson University is seeking bids for a computing system that is capable of real-time solutions for three-phase power systems analysis of electromagnetic transient phenomena as outlined below along with on-site support for initial setup and training and one year system warranty. Clemson University is requesting an option to purchase an extended system warranty plan as well as software maintenance and support on an annual basis with four one-year renewal options.

AWARD

Award will be made to one Offeror. Award will be made to the lowest responsible and responsive bidder; however, only one lot will be awarded. Lot A, Lot B, Lot C, or Lot D will be awarded, whichever is most advantageous to Clemson University. The contract will be a one-time purchase of the hardware, software, and all external components, a one year contract for software and support, a one year contract for system warranty, and professional services for implementation. However, if Lot B or D is awarded, there will be an annual contract for an extended system warranty with the option to renew for four additional years at one-year intervals. If Lot C or D is awarded, there will be an annual contract for Software Maintenance and Support with the option to renew for four additional years at one-year intervals.

MAXIMUM CONTRACT PERIOD - ESTIMATED

Software Product and Extended System Warranty:
Initial Contract Period: 11/05/2012 – 11/04/2013
Maximum Contract Period: 11/05/2012 - 11/04/2017. Dates provided are estimates only. Any resulting contract will begin on the date specified in the notice of award.
II. INSTRUCTIONS TO OFFERORS

Regardless of specific requirements below or in this document, Offerors are required to submit their proposal electronically through the Clemson University online bidding system. To do so you must login (registering first) at https://sciquest.ionwave.net/prod/default.aspx?company=clemson, and follow specific instructions for this solicitation. You should register several days in advance of the bid closing date so you can be approved and login in time to submit a response.

III. SCOPE OF WORK / SPECIFICATIONS

Overall Description

Purchase a computing system that is capable of real-time solutions for three-phase power systems analysis of electromagnetic transient phenomena. This simulation system must perform and complete analysis in a fixed and known time step, not to exceed 50 µs. The system will be comprised of software and computing hardware equipment as well as all necessary interconnection and ancillary support items (mounting racks, cooling system, power supplies, connection cables, etc.). The vendor shall provide at least a one year system warranty with the option to purchase an extended warranty plan. The vendor shall provide on-site support for initial setup and training for the system with the hardware and software characteristics specified below.

Hardware Description

The computing hardware platform must be capable of meeting or exceeding the following requirements:

1) provide a real time solution for simulating a ninety-six (96) bus three-phase power grid, with sufficient cabinet space and ancillary support items to allow for future expansion of model complexity by 50%
2) provide forty-eight (48) analog output interconnection channels that are represented from the computer by a minimum of 16-bit digital signals that convert to a ± 10V analog value
3) provide twenty-four (24) differential analog input interconnection channels that receive ± 10V analog signals
4) provide one hundred and twenty eight (128) digital output interconnection channels that can source up to 100 mA at a voltage ranging 5 to 24 V
5) provide one hundred and twenty eight (128) digital input interconnection channels that are current driven inputs
6) all data input and output must be capable of being sampled once every 10 µs
7) provide a method for synchronizing the computing system clock to a GPS clock
8) provide a method for interfacing the computing system with an external computer platform (laptop or desktop)
9) the hardware platform must be capable of being subdivided into two separate systems, each fully capable of rated system performance at half of the specified capacity and when separated, each subsystem must have at least one Ethernet connection for interfacing with other external equipment.

Must include one year system warranty in the initial cost as specified in Section VI, Bidding Schedule. Clemson University is requesting an option for an annual contract for an extended system warranty. Pricing is being requested for years 2-5 in Section VI, Bidding Schedule. If this option is awarded, extended system warranty will be renewed on an annual basis for up to four additional years at one-year intervals.

Software Description

The computing software platform must be capable of meeting or exceeding the following requirements:

1) provide routine software updates
2) provide sufficient software training to equip at least five (5) individuals to be deemed as intermediately proficient users/programmers

Since Clemson is an educational and research institution the expense of the software platform should be minimal. However, commercial use of this system is feasible. Therefore, the vendor shall provide a remittance plan that would facilitate Clemson’s ability to dilute any additional costs for commercial use of the system.

The first year of software maintenance and support must be included in the initial cost of the software as specified in Section VI, Bidding Schedule. Clemson University is requesting an option for an annual contract for the software maintenance and support. Pricing is being requested for years 2-5 in Section VI, Bidding Schedule. If this option is awarded, software maintenance and support will be renewed on an annual basis for up to four additional years at one-year intervals.

Pricing

A breakdown of pricing must be reflected in Section VI, Bidding Schedule. This Bidding Schedule may be found in online bidding system under “Bid Attachments” Section as an Excel Spreadsheet. This Excel Spreadsheet must be completed and re-attached under the “Response Attachments” Section of the online bidding system. The highlighted totals from this Bidding Schedule must be transferred to Line Item #1, #2, #3, and #4 in online bidding system for evaluation purposes. In addition to completing and re-attaching Section VI, Bidding Schedule, vendors must also complete a breakdown of each cost component that is referenced in attached Bidding Schedule to include detailed descriptions, quantities, etc. and attach under “Response
Attachments” Section of online bidding system as “Appendix A” so that we can see exactly what comprises each cost component.

IV. TERMS AND CONDITIONS – SPECIAL
Intentionally Omitted – Not Applicable

V. APPENDICES TO SCOPE OF WORK
Intentionally Omitted – Not Applicable

VI. BIDDING SCHEDULE
See Excel Spreadsheet for Section VI Bidding Schedule under “Bid Attachments” Section of online bid document. Section VI, Bidding Schedule must be completed and re-attached to “Response Attachments” section in online bid document with your response. The highlighted totals from this Bidding Schedule must be transferred to Line Item #1, #2, #3, and #4 in online bidding system for evaluation purposes.
Section VI. Bidding Schedule

*** Please note that you must complete this spreadsheet and re-attach to online bid document under "Response Attachments" section. **

You must also transfer Lot A, B, C and D (highlighted in yellow) below to Line Item #1, #2, #3, and #4 in online bid document for evaluation purposes. ***

<table>
<thead>
<tr>
<th>Line Item</th>
<th>Cost Component</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>Initial Cost of all Hardware</td>
<td></td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>Initial Cost of all Software to include first year of software maintenance and support</td>
<td></td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>Initial cost of all necessary interconnection and ancillary support items (mounting racks, cooling system, power supplies, connection cables, etc.)</td>
<td></td>
</tr>
<tr>
<td><strong>4</strong></td>
<td>One Year System Warranty</td>
<td></td>
</tr>
<tr>
<td><strong>5</strong></td>
<td>Implementation/Installation</td>
<td></td>
</tr>
<tr>
<td><strong>6</strong></td>
<td>Onsite Support for Initial Setup and Training to include travel, meals, lodging and all expenses.</td>
<td></td>
</tr>
<tr>
<td><strong>7</strong></td>
<td>Costs for additional hardware, software, equipment, supplies, professional services, etc. and/or any additional costs that are required to complete system but are not identified above.</td>
<td></td>
</tr>
</tbody>
</table>

Total $0.00

Option for Extended System Warranty for Years 2-5:

<table>
<thead>
<tr>
<th>Line Item</th>
<th>Cost Component</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8</strong></td>
<td>One Year Extended System Warranty (Years 2 - 5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$0.00</strong></td>
</tr>
</tbody>
</table>

Option for Software Maintenance/Support for Years 2-5:

<table>
<thead>
<tr>
<th>Line Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Item</td>
<td>Cost Component</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------</td>
</tr>
<tr>
<td>9</td>
<td>Software Maintenance and Support (Years 2-5)</td>
</tr>
</tbody>
</table>

Lot A - Initial Cost of Hardware/Software/Services  $0.00
Lot B - Initial Cost of Hardware/Software/Services including Extended Warranty Option for years 2-5  $0.00
Lot C - Initial Cost of Hardware/Software/Services including Software Maintenance and Support Option for years 2-5  $0.00
Lot D - Initial Cost of Hardware/Software/Services including Extended Warranty Option and Software Maintenance and Support for years 2-5  $0.00

*** Please transfer Lot A, B, C, and D Costs above to Line Item #1, #2, #3, and #4 in online bidding system for evaluation purposes only. Only one lot will be awarded (Lot A, B, C, or D), whichever is most advantageous to Clemson University.***