

Scope of Work

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I. SCOPE OF SOLICITATION

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

AWARD

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21 Award will be made to one Offeror. Award will be made to the lowest responsible and
22 responsive bidder; however, only one lot will be awarded. Lot A, Lot B, Lot C, or Lot D will be
23 awarded, whichever is most advantageous to Clemson University. The contract will be a one-
24 time purchase of the hardware, software, and all external components, a one year contract for
25 software and support, a one year contract for system warranty, and professional services for
26 implementation. However, if Lot B or D is awarded, there will be an annual contract for an
27 extended system warranty with the option to renew for four additional years at one-year
28 intervals. If Lot C or D is awarded, there will be an annual contract for Software Maintenance
29 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:

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33 Initial Contract Period: 11/05/2012 – 11/04/2013

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35 Maximum Contract Period: 11/05/2012 - 11/04/2017. Dates provided are estimates only. Any
36 resulting contract will begin on the date specified in the notice of award.

42 II. INSTRUCTIONS TO OFFERORS

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

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51 III. SCOPE OF WORK / SPECIFICATIONS

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53 Overall Description

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

63 Hardware Description

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

- 66 1) provide a real time solution for simulating a ninety-six (96) bus three-phase power grid,
67 with sufficient cabinet space and ancillary support items to allow for future expansion of
68 model complexity by 50%
- 69 2) provide forty-eight (48) analog output interconnection channels that are represented from
70 the computer by a minimum of 16-bit digital signals that convert to a ± 10 V analog value
- 71 3) provide twenty-four (24) differential analog input interconnection channels that receive \pm
72 10V analog signals
- 73 4) provide one hundred and twenty eight (128) digital output interconnection channels that
74 can source up to 100 mA at a voltage ranging 5 to 24 V
- 75 5) provide one hundred and twenty eight (128) digital input interconnection channels that
76 are current driven inputs
- 77 6) all data input and output must be capable of being sampled once every 10 μ s
- 78 7) provide a method for synchronizing the computing system clock to a GPS clock
- 79 8) provide a method for interfacing the computing system with an external computer
80 platform (laptop or desktop)

81 9) the hardware platform must be capable of being subdivided into two separate systems,
82 each fully capable of rated system performance at half of the specified capacity and when
83 separated, each subsystem must have at least one Ethernet connection for interfacing with
84 other external equipment
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86 Must include one year system warranty in the initial cost as specified in Section VI, Bidding
87 Schedule. Clemson University is requesting an option for an annual contract for an extended
88 system warranty. Pricing is being requested for years 2-5 in Section VI, Bidding Schedule.
89 If this option is awarded, extended system warranty will be renewed on an annual basis for
90 up to four additional years at one-year intervals.

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92 **Software Description**

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

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

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

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

109 **Pricing**

110 A breakdown of pricing must be reflected in Section VI, Bidding Schedule. This Bidding
111 Schedule may be found in online bidding system under "Bid Attachments" Section as an Excel
112 Spreadsheet. This Excel Spreadsheet must be completed and re-attached under the "Response
113 Attachments" Section of the online bidding system. The highlighted totals from this Bidding
114 Schedule must be transferred to Line Item #1, #2, #3, and #4 in online bidding system for
115 evaluation purposes. In addition to completing and re-attaching Section VI, Bidding Schedule,
116 vendors must also complete a breakdown of each cost component that is referenced in attached
117 Bidding Schedule to include detailed descriptions, quantities, etc. and attach under "Response

118 Attachments” Section of online bidding system as “Appendix A” so that we can see exactly what
119 comprises each cost component.
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IV. TERMS AND CONDITIONS – SPECIAL

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

128 **Intentionally Omitted – Not Applicable**
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VI. BIDDING SCHEDULE

132 See Excel Spreadsheet for Section VI Bidding Schedule under “Bid Attachments” Section of
133 online bid document. Section VI, Bidding Schedule must be completed and re-attached to
134 “Response Attachments” section in online bid document with your response. The highlighted
135 totals from this Bidding Schedule must be transferred to Line Item #1, #2, #3, and #4 in online
136 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. ***

Line Item	Cost Component	Total Cost
1	Initial Cost of all Hardware	
2	Initial Cost of all Software to include first year of software maintenance and support	
3	Initial cost of all necessary interconnection and ancillary support items (mounting racks, cooling system, power supplies, connection cables, etc.)	
4	One Year System Warranty	
5	Implementation/Installation	
6	Onsite Support for Initial Setup and Training to include travel, meals, lodging and all expenses.	
7	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.	

Total \$0.00

Option for Extended System Warranty for Years 2-5:

Line Item	Cost Component	Cost				
		Year 2	Year 3	Year 4	Year 5	Total
8	One Year Extended System Warranty (Years 2 - 5)					\$0.00

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

					Cost

Line Item	Cost Component	Year 2	Year 3	Year 4	Year 5	Total
9	Software Maintenance and Support (Years 2-5)					\$0.00

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.**