Electric Substation Supervisory Control and Data Acquisition (SCADA) System

September 13, 2007

Issued by
Duane Frederick
Buyer Specialist
Facilities Management, Materials Division
Charlottesville, Virginia
Electric Substation Supervisory Control and Data Acquisition (SCADA) System  
Request for Proposal # DF091307  
September 13, 2007

This Request for Proposal (RFP) has been posted on the Facilities Management Materials Division web site for your convenience.  
http://www.fm.virginia.edu/MaterialsDivision/RequestForProposals.aspx/  
Addenda and attachments are posted if issued. It is the firm’s responsibility to ensure that the entire RFP and associated links, in its latest version, is reviewed prior to due date of a proposal. To receive a hard copy of the RFP or addenda, please contact Linda Jett, Office Manager, at (434) 982-5863 or email MatDiv@virginia.edu. For questions about the content of the RFP, contact the buyer listed in Section VI, Proposal Deadline. Additional information can be found on Procurement Services web site:  
http://www.procurement.virginia.edu/main/

The University of Virginia (the “University”) seeks a qualified firm to provide a modular, expandable Supervisory Control and Data Acquisition (SCADA) system (“System”) to serve as the primary interface for 24-hour monitoring, control, and analysis of its electrical distribution system. The System will be able to monitor and record quantitative and qualitative electric system data for temporary and long-term (historical) analysis.

The University is especially interested in issues of power quality, emergency response, identification of service failures, system and distribution feeder capacity, and data interoperability between products or systems of different vendors, such as energy management and building automation systems (EMS/ BAS). The University is interested in products and systems which will provide a homogonous, intuitive web-based interface for system monitoring and alarm reporting, data trending and storage, and broad access to, and analysis and reporting of the information which may be gathered by the SCADA.

It is not the intent of this RFP to completely describe all aspects of the SCADA. Descriptions of the software, hardware, and services associated with the SCADA are outlined within this RFP to insure that the overall goal of the University is achieved. This RFP therefore, serves only as a guideline to solicit proposals from qualified firms.

For ease of reference, each firm or individual receiving this RFP is referred to as a “firm” and the firm or individual selected to provide services for the University is referred to as the “Selected Firm.” This RFP states the instructions for submitting proposals, the procedure and criteria by which a firm may be selected, and the contractual terms by which the University proposes to govern the relationship between it and the Selected Firm.

I. Background Information

When Thomas Jefferson founded the University in 1819, he intended it to be nothing less than a world-class institution of higher learning. Jefferson’s spirit lives on – not only in the Rotunda and Academical Village he designed, and
which remain treasures of American architecture, but in the University’s standing as a leader in education, research, and community service.

The over 20,390 students attending the University work within a true meritocracy and live by an Honor Code unique among American universities. Each student is exposed to the widest spectrum of disciplines – from arts and athletics to humanities and technology. Our students also enjoy a unique connection to the world beyond college through the University’s outstanding professional training, exemplified by its nationally ranked schools of Law, Business, and Medicine. The University as a whole has had a consistently high ranking not only among public schools, where it often heads the list, but among all American universities, public and private.

Over 11,960 permanent University faculty and staff are committed to serving both the local and national community. The University makes a real difference in the world, through its invaluable research, a hospital ranked among the nation’s finest, and graduates who have consistently been among the forefront of our nation’s shapers. At the University, our bright future is the direct result of our great history.

The Energy & Utilities Department at the University of Virginia maintains an electrical distribution system to service most University facilities. This system currently consists of: 34.5kV high voltage main service from its electricity supplier, Dominion Virginia Power; four 15kV and two 5kV University-owned substations including transformers, switches, and feeders; and the University facilities that feed from them. A third University 5kV substation, the East End Substation, is in the process of being retired and no work resulting from this RFP process will be accomplished at this location. Two electric SCADA systems currently exist at the University; a Square D PowerLogic system at the John Paul Jones Arena and; a GE Cimplicity system at Cavalier Substation. The University expects both of these systems to remain but the Selected Firm may propose to replace, re-use, or directly interface to these systems in order to best accomplish meeting the University’s goal for this RFP.

The scope of the SCADA required is described in Attachment 3, General Scope, and Attachment 4, Scope of Required SCADA. The extent and scope of required field monitoring and control points for the project are described in Attachment 5, Scope of Required Monitoring and Control Points and Services.

II. Scope of Services

It is the University's intent to enter into an Agreement with the Selected Firm for those services (“Services”) necessary to help the University achieve its goals as outlined in this RFP. The Selected Firm will provide these Services:
III. **Basis of Selection**

The University will evaluate proposals, and if a firm is to be selected, select the firm on the basis of:

A. The firm's plan to provide the University with the Services as described in Section II, Scope of Services;
B. The firm’s experience in providing Services similar to those described in this RFP, and the experience of the individuals which the firm proposes to provide such Services;
C. The firm’s references from clients which are comparable to the University;
D. The firm’s financial proposal;
E. The contractual terms which would govern the relationship between the University and theSelected Firm;
F. The firm’s plan for the utilization of Small, Women-owned and Minority-owned (SWAM) businesses. (In evaluating the firm’s proposal, the University will assign a minimum of 10 percent of the total selection weight to this individual selection criterion.); and
G. Any other factors relevant to the firm’s capacity and willingness to satisfy the University.

IV. **Contents of Proposal**

Firms should provide this information:

A. **Services**
   1. State the firm’s ability to provide the Services as described in Section II, Scope of Services. Provide a brief history of the firm and its experience, qualifications and success in providing these Services.
   2. Describe the experience of the individual(s) who would be responsible for providing the Services to the University.
   3. Describe in detail how the firm plans to provide the Services detailed in Section II, Scope of Services.
   4. State the firm’s references comparable to the University, including the name and telephone number of a contact person the University may call.
   5. Provide the name of the individual responsible for the firm’s supplier diversity program. This individual is responsible for implementing and reporting on the firm’s Small, Women-owned and Minority-owned (SWAM) program as it will relate to this procurement should the firm be selected.
   6. Provide the Contractor’s Class A license number.
   7. State the Firm's acceptance and understanding, with any proposed modifications, of Attachment 3, General Scope including the “Inferred Quality” statement, and Attachment 4, Scope of
Required SCADA, and Attachment 5, Scope of Required Monitoring and Control Points and Services;

B. Financial Proposal
1. The firm will provide a price proposal to meet the needs of the University as outlined in this RFP including separate pricing information for:
   a. Computer software and any requisite communications interface equipment; and
   b. Field monitoring and control equipment including intelligent devices, current transformers (CT’s), potential transformers (PT’s), or other associated appurtenances.
   c. All cost associated with training to be detailed
2. The University reserves the right to inspect any Firm's audited financial statements or other financial information which may be accessible to the University prior to making an award to that Firm.
3. The proposed fees must include all travel and related expenses.
4. Describe how the University will be charged. Include any additional discounts available for early payment of invoices.
5. Describe how the University will benefit from cost savings by accepting the firm's proposal.
6. State the firm's capability for accepting electronic payments through Electronic Data Interchange (EDI) or Automated Clearing House (ACH) and any additional discounts that may result from paying electronically. Information about the Commonwealth of Virginia’s Financial Electronic Data Interchange (FEDI) program is available on this web site: [http://www.doa.state.va.us/procedures/GeneralAccounting/EDI/edinew.htm](http://www.doa.state.va.us/procedures/GeneralAccounting/EDI/edinew.htm)

C. Product Data
The firm will provide technical data sheets for manufactured components. Sample graphic display must be/should be? sheets in color. The firm will also include computer and peripheral component specifications as well as any and all listed certifications from bodies such as UL, NFPA, ANSI, IEEE, etc.

D. Shop Drawings
The firm will submit specially prepared drawings for this System? Project, including the following information:
1. System architecture drawing showing all devices connected to the monitoring system I/O, the network, and the computer workstations.
2. Interface and connection details at switchgear, at I/O terminals, and at workstations.
3. Any cabling runs required.
E. Other Information

Provide any other information which the University should consider in evaluating the Firm's proposal. This should include information relating to the University’s stated interest in power quality, emergency response, identification of service failures, and broad information access, and analysis and reporting tools. Such information might include provisions for data collection and reporting, over the worldwide web, on issues such as energy trending, power quality fluctuation and anomaly identification.

F. Contractual Arrangements

1. State the firm’s acceptance of Attachment 1, Mandatory Contractual Provisions;
2. State the firm’s acceptance, with any proposed modifications, of Attachment 2, Preferred Contractual Provisions; and
3. Provide any contract the firm will request that the University sign.
4. Provide a written statement with the firm’s proposal that its principals or legal counsel has reviewed Attachment 1, Mandatory Contractual Provisions, and Attachment 2, Preferred Contractual Provisions, and agrees that these provisions will become a part of any final agreement.

G. Virginia Freedom of Information Act

Except as provided below, once an award is announced, all proposals submitted in response to this RFP will be open to the inspection of any interested person, firm or corporation, in accordance with the Virginia Freedom of Information Act. Trade secrets or proprietary information submitted by firms as part of its proposal will not be subject to public disclosure under the Virginia Freedom of Information Act; however, the firm must invoke the protections of this section prior to or upon submission of its proposal, and must identify the specific data or other materials to be protected and state the reasons why protection is necessary. Firms may not request that its entire proposal be treated as proprietary information.

H. Small, Women-owned and Minority-owned (SWAM) Business

Specify whether the firm is a SWAM. Firms can only be considered a Small, Women-owned or a Minority-owned Business Enterprise, if certified by the Commonwealth of Virginia’s Department of Minority Business Enterprise (DMBE). All certified SWAM firms will be assigned a specific identification number. No SWAM firm is required to certify under this program and no SWAM firm will be excluded from doing business with the Commonwealth because of their failure to certify as a SWAM firm.
The Commonwealth’s definitions are:

- **Minority-owned Business Enterprise** means a business concern which is at least 51 percent owned by one or more minorities or in the case of a corporation, partnership or limited liability company or other entity, at least 51 percent of the equity ownership interest in which is owned by one or more minorities and whose management and daily business operations are controlled by one or more of such individuals.

- **Minority Individual** means a person who is a citizen of the United States or a legal resident alien and who satisfies one or more of the following definitions:
  - "Asian Americans" means all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands, including but not limited to Japan, China, Vietnam, Samoa, Laos, Cambodia, Taiwan, Northern Marinas, the Philippines, U. S. territory of the Pacific, India, Pakistan, Bangladesh and Sri Lanka and who are regarded as such by the community of which these persons claim to be a part.
  - "African Americans" means all persons having origins in any of the original peoples of Africa and who are regarded as such by the community of which these persons claim to be a part.
  - "Hispanic Americans" means all persons having origins in any of the Spanish speaking peoples of Mexico, South or Central America, or the Caribbean Islands or other Spanish or Portuguese cultures and who are regarded as such by the community of which these persons claim to be a part.
  - "Native Americans" means all persons having origins in any of the original peoples of North America and who are regarded as such by the community of which these persons claim to be a part or who are recognized by a tribal organization.
  - "Eskimos and Aleuts" means all persons having origins in any of the peoples of Northern Canada, Greenland, Alaska, and Eastern Siberia and who are regarded as such in the community of which these persons claim to be a part.

- **Small Business Enterprise** means an independently owned and operated business which, together with affiliates, has 250 or fewer employees, or average annual gross receipts of $10 million or less averaged over the previous three years. Nothing in this provision prevents a program, agency, institution or subdivision from complying with the qualification criteria of a specific state program or a federal guideline to be in compliance with a federal grant or program.
• **Woman-owned Business Enterprise** means a business concern which is at least 51 percent owned by one or more women who are U.S. citizens or legal resident aliens, or in the case of a corporation, partnership or limited liability company or other entity, at least 51 percent of the equity ownership interest in which is owned by one or more women, and whose management and daily business operations are controlled by one or more of such individuals.

If the firm is not a SWAM firm, describe the firm’s partnering relationships with SWAM firms and how it plans to support the University’s goal to increase business annually by 5% with these firms in accordance with Attachment 4, Executive VP and COO’s Request for Commitment letter.

V. **Preproposal Conference**

An attendance optional conference for firms receiving this RFP will be held on Wednesday, October 3, 2007 @ 10:00 a.m. in the Facilities Management Annex Conference Room #111, Charlottesville, Virginia (map viewed at this web site: [http://www.virginia.edu/Map/](http://www.virginia.edu/Map/)). Attendance at this conference is advised if your firm wishes to raise any questions in connection with this RFP. Please print a copy of the RFP and bring it with you, as no additional copies will be provided at the conference. The University intends to present general information which maybe helpful in the preparation of proposals and to offer firms the opportunity to ask questions concerning this RFP. No firm may have more than two representatives present at the conference. Firms planning to attend the Preproposal Conference should notify Linda Jett either by email (MatDiv@virginia.edu) or telephone (434-982-5863), no later than 2:00 p.m. EST on Tuesday, October 2, 2007 of the names, titles, and phone numbers of the individuals who will attend.

VI. **Proposal Deadline**

All proposals must be received at the University of Virginia, Facilities Management, Materials Division, 575 Alderman Road, Charlottesville, VA 22903 (physical location) or P.O. Box 400726 Charlottesville, VA 22904-4726 (mailing location) by 3:00 p.m., Wednesday, October 24, 2007. Four copies of each proposal must be provided.

Any questions concerning this RFP will be directed to Duane Frederick as listed below and not to any other person at the University, with the exception of issues directly related to SWAM business and SWAM subcontracting opportunities. Such SWAM issues may be alternately directed to Bill Cooper, the University’s Director of Supplier Diversity, at (434) 924-7174 or wsc6ja@virginia.edu. The University will determine whether any addenda should be issued as a result of any questions raised or other matters raised.

The Issuing Office for this RFP is:
University of Virginia
Facilities Management
Materials Division
575 Alderman Road
Charlottesville, Virginia 22903
Attention: Duane Frederick
Buyer Specialist
Telephone: (434) 243-5191
Fax: (434) 982-2564
TDD: (434) 982-HEAR
Email: djf4b@virginia.edu

VII. Procurement Schedule

Here is a brief schedule for this procurement, specifying the important dates and milestones:

- Issue Date of RFP: 09/13/07
- Preproposal Conference: 10/03/07
- Deadline for Receipt of Proposals: 10/24/07
- Oral Presentations (week of): 11/26/07
- Negotiations (week of): 12/03/07
- Contract Award (week of): 01/28/08
Attachment 1
Mandatory Contractual Provisions

A. Nondiscrimination
During the performance of this Agreement, the Selected Firm will comply with the contract provisions contained in Section 2.2-4311 (1) & (2) of the Code of Virginia or any successor provisions which may be applicable to this Agreement. Also, in accordance with Section 2.2-4343.1, the University does not discriminate against faith-based organizations.

B. Conflict of Interests
The Selected Firm represents to the University that its entering into this Agreement with the University and its performance through its agents, officers and employees does not and will not involve, contribute to nor create a conflict of interest prohibited by the Virginia State and Local Government Conflict of Interests Act (Va. Code 2.2-3100 \textit{et seq}), the Virginia Ethics In Public Contracting Act (Va. Code 2.2-4367 \textit{et seq}), the Virginia Governmental Frauds Act (Va. Code 18.2-498.1 \textit{et seq}) or any other applicable law or regulation.

C. Assignment
Neither party to this Agreement will have the right to assign this Agreement in whole or in part without the prior written consent of the other.

D. Amendments
No amendment of this Agreement will be effective unless it is reduced to writing and executed by the University's Director of Procurement Services and by the individual signing the Selected Firm's proposal or by other individuals named by either party as specified in Section E, Notices below. If the Selected Firm deviates from the terms of this Agreement without a written amendment, it does so at its own risk.

E. Notices
Any notice required or permitted to be given under this Agreement shall be in writing and shall be deemed duly given: (1) if delivered personally, when received; (2) if sent by recognized overnight courier service, on the date of the receipt provided by such courier service; (3) if sent by registered mail, postage prepaid, return receipt requested, on the date shown on the signed receipt: or (4) if sent by facsimile, when received (as verified by sender’s machine) if delivered no later than 4:00 p.m. (receiver’s time) on a business day or on the next business day if delivered (as verified by sender’s machine) after 4:00 p.m. (receiver’s time) on a business day or on a non-business day. All such notices shall be addressed to a party at such party’s address or facsimile number as shown below.
If to the University:
Eric N. Denby
Director of Procurement Services
University of Virginia
Carruthers Hall
1001 North Emmet Street
P. O. Box 400202
Charlottesville, Virginia 22904-4202
Fax: (434) 924-6154

If to the Selected Firm:

The person signing the Selected Firm's proposal in response to the University's RFP, at the Selected Firm's address indicated in such proposal; or to such other person or address as either may designate for itself in writing and provide to the other.

F. Independent Contractor
The Selected Firm is not an employee of the University, but is engaged as an independent contractor. The Selected Firm will indemnify and hold harmless the Commonwealth of Virginia, the University, and its employees and agents, with respect to all withholding, Social Security, unemployment compensation and all other taxes or amounts of any kind relating to the Selected Firm's performance of this Agreement. Nothing in this Agreement will be construed as authority for the Selected Firm to make commitments, which will bind the University, or to otherwise act on behalf of the University, except as the University may expressly authorize in writing.

G. Workers' Compensation and Employers' Liability
The Selected Firm will (i) maintain Employers Liability coverage of at least $100,000 and (ii) comply with all federal or state laws and regulations pertaining to Workers' Compensation Requirements for insured or self-insured programs.

H. Drug-Free Workplace
The Selected Firm, its agents and employees are prohibited, under the terms of this Agreement, Code of Virginia Section 2.2-4312, and the Commonwealth of Virginia, Department of Human Relations Management Policy Number 1.05, from manufacturing, distributing, dispensing, possessing, or using any unlawful or unauthorized drugs or alcohol while on University property.

During the performance of this Agreement, the Selected Firm agrees to 1) provide a drug-free workplace for the Selected Firm's employees; 2) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Selected Firm's workplace and specifying the actions that will be
taken against employees for violations of such prohibition; 3) state in all solicitations or advertisements for employees placed by or on behalf of the Selected Firm that it maintains a drug-free workplace; and 4) include the provisions of the foregoing clauses in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific agreement awarded to a Selected Firm, the employees of whom are prohibited from engaging in the unlawful manufacturing, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the agreement.

I. Information Technology Access Act

In accordance with § 2.2-3504 of the Code of Virginia, the following will apply to all information technology Agreements:

NON-VISUAL ACCESS TO TECHNOLOGY: All information technology (the "Technology") which is purchased or upgraded by the University will comply with the following non-visual access standards from the date of purchase or upgrade until the expiration of the Agreement:

• Effective, interactive control and use of the Technology will be readily achievable by non-visual means;
• Technology equipped for non-visual access will be compatible with information technology used by other individuals with whom any blind or visually impaired user of the Technology interacts;
• Non-visual access technology will be integrated into any networks used to share communications among employees, program participants or the public; and
• Technology for non-visual access will have the capability of providing equivalent access by non-visual means to telecommunications or other interconnected network services used by persons who are not blind or visually impaired.

Compliance with the foregoing non-visual access standards will not be required if the Director of Procurement Services, University of Virginia determines that 1) the Technology is not available with non-visual access because the essential elements of the Technology are visual and 2) non-visual equivalence is not available.

Installation of hardware, software, or peripheral devices used for non-visual access is not required when the Technology is being used exclusively by individuals who are not blind or visually impaired, but applications programs and underlying operating systems (including the format of the data) used for the manipulation and presentation of information will permit the installation and effective use of non-visual access software and peripheral devices.
If requested, the Agreement must provide a detailed explanation of how compliance with the foregoing non-visual access standards is achieved and a validation of concept demonstration.

J. Intellectual Property Rights/Disclosure
Unless expressly agreed to the contrary in writing, all goods, products, materials, documents, reports, writings, video images, photographs or papers of any nature including software or computer images prepared or provided by the Selected Firm (or its subcontractors) for the University will not be disclosed to any other person or entity without the written permission of the University. The Selected Firm warrants to the University that the University will own all rights, title and interest in any and all intellectual property rights created in the performance or otherwise arising from any Agreement resulting from this RFP and will have full ownership and beneficial use free and clear of claims of any nature by any third party including without limitation copyright infringement claims. The Selected Firm will execute any assignments or other documents needed for the University to perfect such rights. Notwithstanding the foregoing, for research collaboration pursuant to subcontracts under sponsored research agreements administered by the University's Office of Sponsored Programs, intellectual property rights will be governed by the terms of the grant or contract to the University to the extent such grant or contract requires intellectual property terms to apply to subcontractors.

K. eVA Business To Government Registration
The eVA Internet electronic procurement solution, web site portal [www.eva.state.va.us](http://www.eva.state.va.us), is the Commonwealth of Virginia's comprehensive electronic procurement system. The portal is the gateway for firms to conduct business with state agencies and public bodies. All agencies and public bodies are expected to utilize eVA. All firms desiring to provide goods and/or services in the Commonwealth are encouraged to participate in the eVA Internet e-procurement solution. The Selected Firm is required to register in the eVA Internet e-procurement solution prior to an award being made.

L. eVA Transaction Fee
The Selected Firm agrees, by accepting an award as a result of this RFP, that it is a registered eVA vendor and will be subject to an eVA transaction fee, for which the Selected Firm will be invoiced by Commonwealth of Virginia, Department of General Services. Additional information is available at [www.eva.state.va.us](http://www.eva.state.va.us).

M. Contractor License Requirements
State statutes and regulatory agencies require that some firms be properly registered and licensed, or hold a permit, prior to performing specific types of services. If firms provide removal, repair, improvement, renovation or construction-type services they, or a qualified individual employed by the firm, must possess and maintain an appropriate State of Virginia Class A, B, or C Contractor License (as required by applicable regulations and value of services to be performed) for the duration of the Agreement. It is the firm’s responsibility to
comply with the rules and regulations issued by the appropriate State regulatory agencies.

License #______________  Type___________________

A copy of the license must be furnished upon request to the University or VASCUPP member institution.
Attachment 2
Preferred Contractual Provisions

A. Goods and Services
During the term of this Agreement, the Selected Firm will provide for the
University the goods and services offered to the University by the firm in its
proposal and/or any addenda to its proposal which has been approved in writing
by the University and as may be further specified by the University in writing
when it selected the firm.

B. Term of the Agreement
The term of this Agreement will be for two years, with the ability to renewal on
the same terms and conditions, for five additional one-year periods if mutually
agreeable to the University and the Selected Firm. The Selected Firm and the
University will mutually agree at least 180 days prior to each renewal period
whether to renew the terms of the Agreement.

C. Contract Administrator
The University will identify a Contract Administrator for any Agreement which
results from this RFP. The individual will be the point of contact at the
University for day-to-day operations, but cannot approve amendments to the
Agreement or price changes.

D. Waiver
No waiver of any right will be deemed a continuing waiver, and no failure on the
part of either party to exercise wholly or in part any right will prevent a later
exercise of such or any other right.

E. Indemnification
The Selected Firm will indemnify and hold harmless The Commonwealth of
Virginia, The Rector and Visitors of the University of Virginia, and their agents,
employees and officials from any and all costs, damage or loss, claims, liability,
 DAMAGES, expenses (including, without limitation, attorneys' fees and expenses)
caused by or arising out of the performance or non performance of the Agreement
by the Selected Firm or its agents or subcontractors, including the provision of
any services or products. The Selected Firm warrants that the products, goods
and services provided the University may be used by the University without being
in violation of any copyright, patent or similar property right or claim by others
and will defend, indemnify and hold harmless the University (its employees and
agents) from and against any such claim.
F. Governing Law
This Agreement will be governed in all respects by the laws of the Commonwealth of Virginia.

G. Termination
If the Selected Firm fails to provide quality goods or services in a professional manner, solely as determined by the University, and, upon receipt of notice from the University, does not correct the deficiency, to the University's satisfaction within a reasonable period of time, not to exceed five calendar days unless otherwise agreed to by both parties in writing, the University reserves the right to terminate this Agreement upon written notice to the Selected Firm.

H. Non-Appropriation
Funding for any Agreement between the University and a Selected Firm is dependent at all times upon the appropriation of funds by the Virginia General Assembly and/or any other organization of the Commonwealth authorized to appropriate such funds. In the event that funding to support this Agreement is not appropriated, whether in whole or in part, then the Agreement may be terminated by the University effective the last day for which appropriated funding is available.

I. Right of Audit
The University reserves the right to audit or cause to be audited the Selected Firm's books and accounts regarding the University's account at any time during the term of this Agreement and for five years thereafter. The Selected Firm will make available to the University all books and records relating to performance of this Agreement as may be requested during said period.

J. Contractual Claims
This Agreement is subject to the University's policy on Contractual Claims which is provided as Attachment 3, Procedure for Resolution of Contractual Claims.

K. Insurance
Listed below is the insurance the Selected Firm must maintain under any Agreement resulting from this RFP. In no event should the Selected Firm construe these minimum required limits to be their limit of liability to the University. The Selected Firm will maintain insurance which meets or exceeds the requirements of the University with insurance companies that hold at least an A- financial rating with A.M. Best Company. No Agreement will be executed by the University until the Selected Firm satisfies the insurance requirements of the University. The Selected Firm may be required to provide the University with a valid Certificate of Insurance before providing any goods or services to the University. The University reserves the right to approve any insurance proposed by the Selected Firm.
Comprehensive Commercial General Liability:
The Selected Firm and any Subcontractor will provide a minimum combined
single Limit of Liability for bodily injury and property damage of $2,000,000 per
occurrence with coverage for the following coverage:
{X} Premises/Operations  {X} Products/Completed Operations
{X} Contractual        {X} Additional Insured*

Automobile Insurance:
The Selected Firm and any Subcontractor will provide a minimum combined
single Limit of Liability for bodily injury and property damage of $1,000,000 per
occurrence with the following coverages for vehicles operated by their
employees.
{X} Any Automobile

*Additional Insured:
The University will be named as an Additional Insured, and the proper name is:
"The Commonwealth of Virginia, and the Rector and Visitors of the University of
Virginia, its officers, employees, and agents."

L. Use of Agreement by Third Parties
In accordance with Section 2.2-4304 of the Code of Virginia, these organizations
may have access to any Agreement resulting from this RFP to allow for
cooperative purchasing by only the Virginia Association of State College and
University Purchasing Professionals (VASCUPP) and all other Commonwealth of
Virginia public institutions of higher education (to include four-year, two-year
and community colleges). Current VASCUPP member institutions include:
College of William and Mary, George Mason University, James Madison
University, Old Dominion University, Radford University, University of Virginia,
Virginia Commonwealth University, Virginia Military Institute, and Virginia
Polytechnic Institute and State University. A list of all other Virginia Public
Colleges and Universities is available at

In addition, access to the Agreement may also be extended to 1) Any University
related foundation, and 2) City of Charlottesville and County of Albemarle.
Potentially, other member schools of the Atlantic Coast Conference (ACC) may
also have access to any Agreement resulting from this RFP if such access is
confirmed by the University. The other ACC member schools which may
potentially participate are: Boston College, Clemson University; Duke
University; Florida State University; Georgia Institute of Technology, University
of Miami, North Carolina State University; University of Maryland, Virginia
Tech, University of North Carolina; Wake Forest University, and Wake Forest
University Health Sciences. Other institutions which may participate include
Emory University.
Participation in this cooperative procurement is strictly voluntary. If authorized by the Selected Firm, the Agreement will be extended to the public bodies indicated above to purchase at the fees in accordance with the terms of the Agreement. The Selected Firm will notify the University in writing of any such institutions accessing the Agreement. No modification of the Agreement or execution of a separate agreement is required to participate. The Selected Firm will provide semi-annual usage reports for all VASCUPP member institutions and public institutions accessing the Agreement. Participating public bodies will place their own orders directly with the Selected Firm and will fully and independently administer use of the Agreement to include contractual disputes, invoicing and payments without direct administration from the University. The University will not be held liable for any costs or damages incurred by any other participating public body as a result of any authorization by the Selected Firm to extend the Agreement. It is understood and agreed that the University is not responsible for the acts or omissions of any VASCUPP member institution, or of any other entity accessing the Agreement under this section, and will not be considered in default of the Agreement no matter the circumstances.

Use of this Agreement does not preclude any participating public body from using other agreements or competitive procurement processes as required by law.

M. Favorited Nations
The Selected Firm represents that the prices, terms, warranties, and benefits specified in its proposal are comparable to or better than the equivalent terms being offered by the firm to any present customer.

N. Payment Terms
Invoices submitted to the University for Services will be paid Net 30 days after receipt and University approval of invoice.

O. Purchasing Manual
This Agreement is subject to the provisions of the Commonwealth of Virginia "Purchasing Manual for Institutions of Higher Education and Their Vendors" and any subsequent revisions, which is available on Procurement Services web site at: [http://www.virginia.edu/procurement/about/PurchasingManual.html](http://www.virginia.edu/procurement/about/PurchasingManual.html)

P. Cancellation of Agreement
The University reserves the right to cancel a resulting Agreement, in part or in whole, without penalty, upon 30 days written notice to the Selected Firm. Any Agreement cancellation notice will not relieve the Selected Firm of the obligation to deliver and/or perform on all outstanding issues prior to the effective date of cancellation.

Q. Small, Women-owned and Minority (SWAM) Business Reporting
The Selected Firm will identify and fairly consider SWAM firms for subcontracting opportunities when qualified SWAM firms are available to perform a given task in performing for the University under the resulting Agreement. The Selected Firm will submit a quarterly SWAM business report to the University by the 8th of the month following each calendar quarter, specifically the months of April, July, October, and January. The Selected Firm will submit the quarterly SWAM business reports to:

Nancy Noblette
Administrative Assistant to the Director of Procurement Services
E-mail: nmr9g@virginia.edu

The quarterly SWAM business reports will contain this information:

• SWAM firms name, address and phone number with which the Selected Firm has contracted over the specified quarterly period.
• Contact person at the SWAM firm who has knowledge of the specified information.
• Type of goods and/or services provided over the specified period of time.
• Total amount paid to the SWAM firm as it relates to the University’s account.

The Selected Firm’s failure to provide SWAM reports on a quarterly basis which contain the information required by this section and/or the Selected Firm’s failure to comply with the plan for utilizing SWAM businesses submitted by the Selected Firm as part of its proposal and/or negotiation response may be grounds for debarment pursuant to Section 4.M. of the “Purchasing Manual for Institutions of Higher Education and their Vendors.”
Attachment 3

Procedure for Resolution of Contractual Claims

The Virginia Acts of Assembly of 2006, Chapter 943, Chapter 3, Exhibit P and its attachments requires contractors with the University to submit any claims, whether for money or other relief, in writing no later than 60 days after final payment; however, written notice of the contractors intention to file such a claim must be given at the time of the occurrence or beginning of the work upon which the claim is based.

The University's procedure for deciding such contractual claims is:

A. The Selected Firm must provide the written claim to:
   Assistant Director of Procurement Services
   University of Virginia
   1001 North Emmet Street
   P. O. Box 400202
   Charlottesville, Virginia 22904-4202

B. Although the Selected Firm may, if it chooses, attempt to resolve its claim by dealing with a University department other than the one stated in Section A above, the Selected Firm must submit any unresolved claim in writing no later than 60 days after final payment to the Assistant Director of Procurement Services if it wishes to pursue its claim.

C. Upon receiving the written claim, the Assistant Director of Procurement Services will review the written materials relating to the claim and decide whether to discuss the merits of the claim with the Selected Firm. If such discussion is to be held, the Assistant Director of Procurement Services will contact the Selected Firm and arrange such discussion. The manner of conducting such discussion will be as the Assistant Director and the Selected Firm mutually agree.

D. The Assistant Director of Procurement Services will mail his or her decision to the Selected Firm within 60 days after receipt of the claim. The decision will state the reason for granting or denying the claim.

E. The Selected Firm may appeal the decision to:
   Director of Procurement Services
   University of Virginia
   Carruthers Hall
   1001 North Emmet Street
   P.O. Box 400202
   Charlottesville, Virginia 22904-4202
by providing a written statement explaining the basis of the appeal, within 15 days after the Selected Firm's receipt of the decision.

F. Upon receiving the written appeal, the Director of Procurement Services will review the written materials relating to the claim and decide whether to discuss the merits of the claim with the Selected Firm. If such discussion is to be held, the Director of Procurement Services will contact the Selected Firm and arrange such discussion. The manner of conducting such discussion will be as the Director of Procurement Services and the Selected Firm mutually agree.

G. The Director of Procurement Services will mail his or her decision to the Selected Firm within 60 days after the Director of Procurement Services receipt of the appeal. The decision will state the reasons for granting or denying the appeal.
Attachment 3
General Scope

A. General

The University intends to select a Firm to provide a SCADA system capable of metering, monitoring, and controlling its existing electric distribution system at its three primary substations: Cavalier, Alderman (West End), and North Grounds. The University seeks initially to meter and monitor the primary (main) feeds at these substations and individual feeders at each of the substations. Metering of individual facilities may be accomplished in the future on an “as needed” basis. The Selected Firm will seek to provide the University a high-quality modular, expandable, and serviceable SCADA system to achieve the stated general intent.

B. Construction and Service Requirements

1. The Selected Firm will provide a high quality of SCADA system work. This includes prompt response to requests for information or proposals and completion of projects in a timely fashion once schedules are established. Work in progress will be inspected periodically for adherence to the University’s quality standards, and compliance with project specifications.

2. The Selected Firm should provide SCADA system work to meet the needs of the University with minimum disruption to the educational, patient care, research, and public service mission of the University.

3. As part of Selected Firm’s service, the Selected Firm will respond to emergency calls from Facilities Management within four hours. This emergency service will be provided during the entire term of the Agreement, 24 hours per day. The Selected Firm will furnish contact information for qualified service personnel who can be reached to respond to an emergency call. Emergency service will be defined as response to failure of the System or any of its component parts where such failure may result in hazard to life or property. Such service will include, but is not limited to:
   a. Failure of the system to communicate with, monitor and control as appropriate any connected electric system, service, or device.
   b. The above emergency service will apply to projects where the Selected Firm has been assigned to a General Contractor as well as University work.

4. The Selected Firm will provide a competent, well-trained and experienced staff that exhibits professionalism and service excellence.

5. The Selected Firm will be required to work under the same conditions as does the University’s Facilities Management. This includes, but is not limited to: parking arrangements arranged through the University’s Department of Parking and Transportation, adhering to Commonwealth of
Virginia and University building or safety codes and standards, and scheduling work around University special events and holidays.

**Inferred Quality:** On some projects, drawings and specifications may be limited. Under these circumstances, the quality of materials and workmanship should be in conformance with the highest quality control standards and the total scope of work would be that which can be reasonably implied and inferred from the construction documents.

All work will meet the standards specified by the equipment manufacturer, and all applicable state, and federal standards as well as applicable building and safety codes. All parts furnished under this contract will be new and genuine manufacturer’s recommended or authorized replacement parts. Use of used parts is strictly prohibited. Use of manufacturer rebuilt parts and components may be authorized by the Owner provided these parts and components carry the same warranty and meet the current specification for new parts. Prior approval by the University is required on case by case basis.

6. The Selected Firm will furnish all necessary labor, supervision, travel, tools, supplies, parts and materials to provide a complete and functional system.

7. The Selected Firm will maintain a sufficient quantity of material or repair parts on hand or have ready access to material and parts in order to prevent unnecessary downtime.

8. The Selected Firm will guarantee all material and workmanship for a period of at least one year or the Manufacturer’s warranty period, whichever is longer.

9. The Selected Firm may be required to provide a plan of operation on future projects to demonstrate to the University how the Selected Firm plans to accomplish the projects. This should include personnel to be allocated to the project, inspection by the Selected Firm, provisions for warranty and maintenance integrity, and a schedule.

10. The Selected Firm work force will be staffed with appropriately trained personnel with demonstrated experience in their respective fields of work.

11. The Selected Firm will maintain a clean worksite on a daily basis. The University may inspect the finished project and approve or disapprove the completed work. If the University does not approve the completed project, final payment or a portion of final payment may be withheld until the Selected Firm finishes the project in a manner acceptable to the University.

12. The Selected Firm will work with the University to clarify plans and/or specifications provided to the Selected Firm by the University. The University will endeavor to supply the Selected Firm with the most complete documents possible. The Selected Firm may be requested to make site visits and schedule meetings to obtain clarifications on the scope of work on projects.
13. All employees of the Selected Firm must wear uniforms or other appropriate attire at all times to designate their affiliation with the Selected Firm. The University requires such identification for security purposes and access may be prohibited if University personnel do not recognize the identification provided.

14. After completion of any SCADA system work, the Selected Firm will be required to supply the University with all documents, drawings, and blueprints as deemed necessary by the University for record keeping or other purposes by the University.

15. The Selected Firm will take proper safety and health precautions to protect at the minimum, all work, the Selected Firm employees, the public, and the property of others.

16. All projects will be performed in a manner that will not adversely affect the integrity of a building’s structural, mechanical, electrical, fire protection and life safety systems or any other building systems or utilities that may overload or render useless any portion of the building without first seeking approval by the University’s designated representative. Utilities shutdowns must be coordinated in advance with the University’s designated representative. All shutdowns require a minimum ten days notice for utility shutdowns.

17. The Selected Firm must supply the University with any and all warranty or other manuals after the completion of each project.

18. The Selected Firm will provide the University with current manuals and other documentation as required to insure that all equipment and software is operated in accordance with appropriate manufacturers’ recommendations.

19. The Selected Firm will provide the name, and contact information for, the individual who will act as the single point of contact for the University for any project.
Attachment 4

Scope of Required SCADA

Part 1: General

1.2 Summary

A. This Section describes the computer and network requirements for collecting data from the switchgear and feeder levels of the system hierarchical structure, and for processing, storing, and displaying information that is relevant to the monitoring (and future control) of University substation supply, main, tie, and feeder circuits.

1.3 Definitions

A. In addition to any other definitions, the following definitions apply to this Section:
   1. EIA: Electronic Industries Alliance
   2. I/O: input / output
   3. IED: intelligent electronic device
   4. IT: information technology
   5. LAN: local area network
   6. LCD: liquid crystal display
   7. NARA: U.S. National Archives and Records Administration
   8. PVT: Performance Verification Test
   9. UPS: uninterruptible power supply
   10. THD: total harmonic distortion
   11. System Supplier: the switchgear manufacturer’s power monitoring system integrator

1.4 Environmental Conditions

1. All SCADA field equipment will operate without damage or degradation under the ambient conditions in the installed environments, either outdoors, indoors in unconditioned space, or indoors in conditioned space as appropriate.

1.5 System Description

A. System Requirements:
   1. The SCADA system, consisting of commercial, off-the-shelf intelligent electronic devices (IEDs), communication channels, and PC-based workstation or server equipment (to be furnished by the Owner), is intended to be used by the University to monitor the operation of the Switchgear and feeders at its three primary 15 kV
substations and, in the future, to its facilities. The SCADA system will be modular in nature, and should utilize the University’s Ethernet local area network (LAN). The system will provide for remote web-based monitoring and analysis of current and historical information.

B. System Accuracy and Display:

1. The system will maintain the specified end-to-end accuracy from sensor to all workstation displays, including the effects of transmitters, transducers, and engineering units conversions, for one year for the applications specified and will report and display changes in sensed values as specified. The system accuracy and display will be as follows:
   a. Current: with a range for the specific application 1% of reading; display and print to nearest ampere.
   b. Voltage: with a range for the specific application 1% of reading; display and print to nearest volt.
   c. Power Factor: 1% of reading; display and print to nearest hundredth.
   d. kWh: with a range for the specific application 1% of reading; display and print to nearest kWh.
   e. KW: with a range for the specific application 1% of readings.
   f. KVA: with a range for the specific application 1% of reading; display and print to nearest KVA.
   g. KVAR: with a range for the specific application 1% of reading; display and print to nearest KVAR.
   h. Frequency: 0.5 Hz; display and print to nearest 1 Hz.
   i. Total Harmonic Distortion (THD) in percent for current and voltage, each phase.
   j. K-Factor (dimensionless ratio based on harmonic content of current waveform).

C. Electrical Transients and Electromagnetic Interference:

1. Power Line Surge Protection: Workstation equipment connected to AC circuits will be protected from power line surges while the equipment is operating. Fuses will not be used for surge protection.
2. Sensor Wiring Surge Protection: All digital and analog inputs of all IEDs will be protected against surges induced on sensor wiring while the equipment is operating. Fuses will not be used for surge protection.
3. Communications Channels Surge Protection: Communications equipment will be protected against surges induced on its communications channels while the equipment is operating. Fuses will not be used for surge protection. Metallic cables and
conductors which serve as communications channels between buildings will have surge protection installed at equipment and additional triple electrode gas surge protectors rated for the application installed at each end, within three feet of the building cable entrance.

D. Protocols: The workstation equipment will include software allowing it to communicate with field equipment using one of the following protocols, at a minimum. Preferably, communications should be available using at least two of the listed protocols:
   1. BACnet
   2. MODBUS/TCP
   3. MODBUS RTU/ASCII
   4. Other open protocols

E. Utility Demand Interval Synchronization: An interface for utility demand interval synchronization signals should be provided. The synchronization signal should be used in calculating and displaying demand.

PART 1. - Products

1.1 Field Equipment

A. Basic Intelligent Electronic Device (IED)

All IED devices will have resident memory sufficient to retain alarm and trend information for a period of two days in the event that communications to any permanent server or historical archive (database) is interrupted.

1. Basic IED: Basic IEDs will be microprocessor based devices providing multiple measurements for 60 Hz single phase or three phase electric systems. Basic IEDs will utilize a communication protocol in accordance with other descriptions contained herein: Protocols for display and transmission of the following parameters should be as described previously plus other parameters as shown below:
   a. Voltage line-to-neutral plus or minus 1% of reading  
   b. Voltage line-to-line: plus or minus 1% of reading  
   c. Current: plus or minus 1% of reading  
   d. kVA: plus or minus 1% of reading  
   e. kVAR: plus or minus 1% of reading  
   f. Power factor: plus or minus 1% of reading  
   g. kW: plus or minus 1% of reading  
   h. kWh: plus or minus 1% of reading

2. Mounting: Basic IEDs will accommodate mounting in or on switchgear enclosures as required for installation.
3. KWH Value Retention: Basic IEDs will retain the accumulated KWH value for 72 hours minimum during power outages.

B. IED Communication Equipment: Repeaters will be provided where required for extension of communication channel physical media.

C. Enhanced IED:
1. Enhanced IEDs will provide all functions specified for Basic IEDs, and will provide the following additional functions:
   a. Frequency: Plus or minus 0.5 Hz
   b. THD in percent, for current and voltage, each phase
   c. K Factor (dimensionless ratio based on harmonic content of current waveform)
   d. Sag/Swell Detection
   e. Waveform Capture
2. Enhanced IEDs will maintain the ten most recent captured waveforms in memory and will retain captured waveforms for 72 hours minimum during power outages. Enhanced IEDs will be certified to meet the accuracy requirements of ANSI C116 for utility revenue metering.

1.2 Instrument Transformers

A. Potential Transformers: Potential transformers will be compatible with IEDs furnished. The switchgear manufacturer and System Supplier will be responsible for determining the actual voltage ratio of each transformer.
   1. Type: indoor, dry type, of two-winding construction
   2. Frequency: Nominal 60Hz
   3. Accuracy: plus or minus 1% at 60Hz

B. Multi-Ratio Current Transformers: Current transformers will be compatible with the IEDs furnished.
   1. Insulation Class: BIL rating will be equal or greater than the equipment being connected to.
   2. Frequency: Nominal 60Hz
   3. Accuracy: plus or minus 1% at 60Hz
   4. Burden: Burden class will be selected for the load
   5. Phase Angle Range: 0 to 60 degrees

1.3 Command Software

A. General Features: Command software will be provided and will request, receive, and process all real-time values acquired from periodic scans of field equipment and manual data and command entries from operator workstations. The software will effectively coordinate the field equipment scanning and database updating with the workstation/server interface,
report and event software, and other related calculation and data processing software.

B. Database Management

1. Real-Time Database: A real-time database will be provided to store and manage the most current calculated, and scanned values. The database will be ODBC compliant, and should be Microsoft SQL Server®.

2. Database Editor: The database editor will enable the operator to add, modify, and delete system IED's via interactive procedures. The editing software will dynamically resize tables and files as IEDs are added or deleted. The system will provide "fill-in-the-blank" displays for editing.

3. Calculated Value: This value will be created by calculating it from any combination of monitored values and parameters, and other data. The results of the calculation will be a value having all the properties of monitored values without the associated hardware. The calculated point will be available for use in any display or report.

C. Error Detection and Retransmission: An error detection algorithm will be used for data between IED and workstation or server which will detect errors. The system will retransmit all messages with detected errors.

D. User Interface Software:

1. General Display Requirements: Displays will contain any combination of graphic and tabular information. A display will contain any combination of monitored data from all IEDs, and all displayed data will be updated as specified in Paragraph: System Response Times.

2. Display Editor: The display editor will enable an operator with proper password to create, modify, and delete displays. The primary use should be for adding and modifying one-line diagrams, station status displays, system summaries, and system directories, as field equipment or new data are added.

3. Specific Displays: Provide the following graphic and tabular displays:
   a. System Menu (menu of all tabular, reports, graphical displays, active trends, and other displays provided on the system). Hot buttons should be provided to allow an operator with an appropriate password, to select and go to any display from this index.
   b. Station Index (a list of all IEDs). Hot buttons should be provided to allow an operator to select and go to the graphic displays and tabular displays for the selected IED.
c. Site index (a list of sites such as substations or switching stations). Hot button should be provided to allow an operator to select and go to the graphic displays and tabular displays for the selected site.

d. Graphic displays based on the information shown.

e. Waveform displays with adjustable time and magnitude scales and graphical means to analyze data at any point in the captured waveform.

E. System Access Control: The system will include software security provisions to prevent inadvertent or unauthorized change of the password. The password will not be displayed or printed.

F. Trending:

1. Software General Requirements:
   
a. The trending software will maintain data files for a minimum of 64 data trends but should be limited only by workstation/server and database hardware capacity. Any monitored or calculated value will be trendable. Each data trend file will retain a minimum of 500 data samples. The time rate of sampling will be selectable on an individual trend basis. The data files will be maintained with new data "pushed" in and the oldest data overwritten. The system will enable data to be written to a configurable Microsoft SQL Server®, or other ODBC compliant database for permanent archival.

b. The monitor should display at least four trend values per window with separately selectable amplitude scales and time scales for each window. The time line programming should allow for time scale references to be presented in a visual format that is representative of the application. As each new data line is written on the display, all previous entries should be advanced to the next sequential element position. Time lines should automatically move with each data point such that the time reference is always correct.

c. An operator should be able to enter upper and lower limits for each trend.

d. The system should provide for dynamic line and bar graphs, illustrating an analog value through a horizontal or vertical bar. The color of the bar graph should be user-specified.

e. The trending software should allow at least eight colors to be used for different trends.

f. The trending system should include indication of alarm conditions.
g. The system should support the presentation of data with time on the X-axis (horizontal) and amplitude on the Y-axis (vertical). A minimum of 24 one-hour divisions and 31 one-day divisions should be displayed on the X-axis. The start and end date/time should be operator definable.

2. Trend Description Fields: Each trend display will include the following trend user-definable description fields.
   a. Variable name
   b. Amplitude scale
   c. Amplitude designation (engineering units)
   d. Time units per division

3. Trend Functions: The trending system software will support the following trend functions.
   a. Trend data from history file without active update.
   b. Trend data with active update and trend history from time of request to present (no prior history).
   c. Trend data with active update and with prior history from a trend history file.

4. Storage of Trend Files: A user will be able to select any combination of trend files for storage on hard disk. The files will be automatically saved after a user-selectable number of trend values.

G. Report Generator:

1. Required Software Features: Software will be provided with commands to generate and format both tabular and graphical reports (including bar charts, pie charts and curve plots) for displaying, printing, and storing on hard disk. Reports will be stored by type, date, and time. The destination of each report will be selectable by the user. Reports will use database dynamic values and parameters, values calculated using the database, and reports stored on disk or tape. Reports will be spooled allowing the printing of one report to be complete before the printing of another report commences. Parameters used in reports will be assignable by the user. Reports will be processed to avoid interference with normal workstation computer tasks. The report will contain the time and date when the sample was taken, and the time and date when the report was printed. Reports will be user-definable to show information in the system database. The system will allow for the operator to request an immediate printout of any report at any time.

2. Creation of Reports:
   a. Status Report: The system will include software to produce reports on the current status of any equipment or parameters in the data base, including:
      1. An individual IED.
2. A list of equipment or monitored values, by category, such as substation, building, unit, and type of monitored value.

b. Profile Reports: The software will provide for generating profile reports by sampling and storing defined parameters on an operator assignable and selectable time interval basis such as an interval of 15 minutes for a period of one month and will include:
   1. Power consumption (value vs. time).
   2. Average power demand (value vs. time).
   3. Equipment subsystem profiles (value vs. value or value vs. time).
   4. Provide for 32 profile reports each having up to 1,000 samples of up to eight parameters.

c. Standard Reports: The following standard reports will be provided (for each substation):
   1. Electrical Power Utilization Report: An electrical power utilization summary, user selectable for individual meters or transducers, any group of meters or transducers, and all meters or transducers on a daily and a monthly basis. The report will include:
      a. Total daily kWh consumption.
      b. Total monthly kWh consumption for period beginning on user selectable day of the month.
      c. Demand interval kWh peak for the month and day, with time of occurrence.
      d. kWh consumption over each demand interval.
      e. Average kW demand during the interval containing the utility company’s peak demand.
      f. Average kW demand during the interval containing the base’s peak demand.
      g. Time-of-use peak, semi-peak, off-peak, or baseline total kWh consumption.
   2. Alarm Report: All current alarms or all alarms occurring within a user-specified period by IED, building, substation, installation, and the entire system, including time of occurrence.
   3. Analog Limit Report: An analog limit and differential summary selectable to describe a single analog value, all analog values within an IED, all analog values within a building, and all analog values for the project.
a. Analog value.
b. Engineering units.
c. High limit.
d. Low limit.
e. Analog value change differentials.

4. Static Database Reports: A listing of the values of fixed parameters and constraints defining the characteristics of the system. Provide operator commands to list the entire static database or to list an operator selected building, substation, unit, or IED. Each value listed will be identified in English.

3. Real-Time Database Reports: A list of the values of dynamic variables including all measured values and calculated values. These variables will include year, month, day, hour, and minute on the report. Operator commands will allow for listing the entire real-time database or to list a user selected building, substation, unit, or IED. Each value listed will be identified in English.

4. Waveform Reports: Graphical displays of captured waveform data, tagged by location (substation or IED), date and time.

H. Alarm Processing: The alarm processing software will recognize excursions of monitored or calculated values beyond operator assigned limits. Alarms will be stored in the database and will be retrieved for display or reporting as alarms.

I. Historical Data Processing:

1. DDE Data Export: Software will be provided to implement Dynamic Data Exchange (DDE) for export of historical data to an Excel spreadsheet or other application. Data will be stored in an Open Data Base Connectivity (ODBC) compliant format, and should be Microsoft SQL Server®.

2. Waveform Data Processing: The system will store waveform data for display and printing.

1.4 FIELD EQUIPMENT SOFTWARE

A. The System Supplier will provide software necessary to accomplish the following functions, fully implemented and operational, within the field equipment.

1. Scanning of inputs.
2. Averaging or filtering of inputs.
3. Display of values.
4. Report to workstation of values.
5. IED diagnostics.
General

It is the University’s intent that the Selected Firm will provide a monitoring system that monitors each main breaker, selected tie breakers, and each feeder breaker for Cavalier, Alderman (West End), and North Grounds substations. The University expects that existing PT's (potential transformers) and CT’s (current transformers) may be re-used or shared for this project. If necessary, current transformers and potential transformers will be provided by the Selected Firm. If existing PT’s and CT’s are not re-used, the Selected Firm will ensure that the accuracy for any new devices provided meets or exceeds that of the existing devices.

Maintenance and Service

General Requirements
Provide all maintenance services required and equipment necessary to maintain the entire system operational, as specified, for a period of one year after system acceptance. Maintenance will include preventive maintenance in addition to repairs, replacements, and adjustments and software updates. Written permission will be obtained from the University prior to performing any service work or adjustments which have any impact on facility operations. A complete set of operations and maintenance (O & M) manuals will be provided at the beginning of the project and will be updated to reflect “as-built” conditions at the end of the project.

Description of Work
The adjustment and repair of the system includes all workstation equipment and field equipment including software updates. The System Supplier will perform each manufacturer's required adjustments and all other work necessary for proper operation as specified.

Service Calls
The University will initiate service calls when the system is not functioning properly. The University will be furnished with a telephone number where the service supervisor can be reached at all times. Service personnel will be at the site within two business days hours after receiving a request for service. The system will be restored to proper operating condition within seven working days after receiving a request for service.

Records and Logs
The Selected Firm will keep records and logs of each maintenance and service
task, and will organize cumulative records for each major component, and for the complete system chronologically. A continuous log will be maintained for all devices on a site-by-site basis. The log will contain all initial analog span and zero calibration values and testing of all digital points. Complete logs will be kept and will be available for inspection onsite, demonstrating that planned and systematic adjustments and repairs have been accomplished for the system. Provide the University with a summary report of the maintenance and service performed during each previous month.

System Modifications
The Selected Firm will make any recommendations for system modification as part of maintenance and service in writing to the University. No system modifications, including operating parameters and control settings, will be made without prior approval of the University. Any modifications made to the system will be incorporated into the system documentation including drawings and manuals.

Software
Provide notices of all software updates and verify operation in the system, if the University chooses to incorporate the update. These updates will be accomplished in a timely manner, fully coordinated with system operators, and will be incorporated into the manuals and software documentation. The System Supplier will install and validate the latest released version of the software, upon receiving written approval by the University.

Telephone Consultation
The Selected Firm will provide up to 10 hours per year of telephone consultation to University personnel. The System Supplier will keep a log by month, identifying caller, date and length of call, and results of call.

Materials and Equipment

General
Units of the same type of equipment will be products of a single manufacturer. Each major component of equipment will have the manufacturer's name and address, with model and serial number in a conspicuous place. All materials and equipment will be currently in production at time of delivery to the University and will represent the manufacturer’s latest commercially available technology. All materials should be listed for their intended use by UL, NFPA, or others as appropriate. Submittal information will include all equipment listings.

Nameplates
Laminated plastic nameplates will be provided for each equipment enclosure and device furnished. Nameplates for devices smaller than one by three inches will be attached by a non-ferrous metal chain. All other nameplates will be attached to
the device. The nameplate for each equipment enclosure or device will include the designator or number as shown, and the site name. Site names will be provided after order placement.

**Field Wiring, Cabling, and Terminal Blocks:**

Internal wiring in factory pre-wired enclosures will be installed according to the System Supplier's standard wire size, insulation, and method of termination on internal equipment. The individual conductors of the interconnecting cables will meet the flame resisting test requirements of NEMA WC 74. Each individual conductor in individual enclosures will be uniquely identified in accordance with NEMA ICS. Splices will not be permitted.

Rail mounted compression clamp terminal blocks will be provided for conductors requiring connection to circuits external to the specified equipment, and will be suitable for up to 12 AWG wire. Terminal blocks for analog circuits will be knife switch disconnecting type. Terminal blocks will be grouped for easy accessibility unrestricted by interference from structural members and internal devices. Sufficient space will be provided on each side of each terminal block to allow an orderly arrangement of all leads to be terminated on the block. Plastic wiring duct or other factory mounted cable support devices will be provided to support cables for external circuit wiring.

Terminal blocks, interposing relays, switches, or similar devices will be readily accessible. The equipment will be located in compartments, enclosures, or junction boxes in such arrangement that maintenance personnel will have direct access to the equipment without removal of barriers, cover plates, or wiring. Grouped terminal blocks for all external connections will be provided. All wiring leaving an enclosure will leave from terminal blocks or prefabricated connectors and not from other devices in the enclosure. Terminal blocks and jumpers will be permanently and uniquely marked in conformance with NEMA ICS.

**Power Supplies:** Field equipment will be powered from the 125 VDC battery system located inside the substation.

Enclosures should conform to the requirements of NEMA 250. Damaged surfaces will be repaired and refinished using original type finish. Enclosures installed outdoors will be type 4X stainless steel, unless otherwise shown, and will contain a thermostatically controlled space heater to maintain the enclosure above the dew point, if required by the equipment installed. Enclosures will have removable hinged, key-locked front doors. All enclosure locks will be keyed alike. A total of 5 keys will be turned over to the University.

**EMI/RFI Compliance:** Equipment will be designed to minimize the generation of electromagnetic and radio frequency interference. Workstation equipment will be in compliance with 47 CFR 15, for Class B computing devices.
Performance Verification Test

General Requirements for Testing
The Selected Firm will provide a detailed Performance Verification Test (PVT) plan for review prior to testing and a detailed PVT report at the conclusion of the testing. The System Supplier will perform testing of the workstation and field equipment, at the site, including adjustments of the completed system as specified. The Selected Firm will provide all personnel, test equipment, instrumentation, and supplies necessary to perform all testing. Written notification will be given to the University at least 21 days prior to the PVT, and in no case will notice be given until after The Selected Firm have received written University approval of the specific testing procedures.

Test Procedures and Reports
The procedures will consist of detailed instructions for test setup, execution, and evaluation of test results. The test reports will be used to document results of the tests. Reports will be delivered to the University within 7 days after completion of test.

Execution

Installation

The Selected Firm will start installation after the University’s written approval of all submittals to include manufacturer’s cut sheets, data sheets, drawings, etc. All work on-site will be coordinated through the University’s Electrical Distribution Manager.

Existing Condition Survey
Connect to and utilize existing cabling and devices as directed by the University. Devices that are usable in their original configuration without modification may be reused. The Selected Firm will perform a field survey, including inspection of all existing cabling and devices intended to be incorporated into the system and furnish an existing conditions report to the University. The report will identify those items considered nonfunctioning or unusable. Provide (with the report) specification sheets, or written functional requirements to support the findings and the estimated cost to correct the deficiency. If a device fails after commencing work on that device, diagnose the failure and report the failure to the University. The Selected Firm will be held responsible for repair costs due to negligence or abuse of University equipment.

Scheduling of Work and Outages: See Attachment 3.

Installation of Field Equipment:
Installation General Requirements
The Selected Firm will install all field equipment as specified and required for a fully functional and operational system. Exercise caution when drilling holes in panels housing energized equipment. When mounting field equipment, do not allow metal shavings to fall into energized equipment.

Grounding
Provide grounding in accordance with manufacturer's recommendations. Provide an adequate ground for all enclosure circuits and cable shields to prevent ground loops and electrical noise from adversely affecting operation of the system.

Communications Equipment
The Selected Firm will be responsible for installing and testing communications equipment.

Installation of Workstation Equipment
Install all Workstation and peripheral equipment as specified and shown, or necessary, for an operational system.

Installation of Current Transformers
Each terminal of each current transformer will be connected to a short circuiting terminal block.

Installation of Software:

General
Install all software as specified and required for an operational system including databases, operational parameters, LAN, system, command, application, and Workstation programs. Upon successful completion of the PVT, provide original and backup copies of object modules for all accepted software including diagnostics, on each type of media utilized.

Site Testing

General
The Contractor and the Selected Firm will provide all personnel, equipment, instrumentation, and supplies necessary to perform all site testing. The University will witness all PVT testing. Original copies of all data produced, including results of each test procedure, during the PVT will be turned over to the University prior to approval of the test.
Field Testing
The Contractor and the Selected Firm will test, adjust, and calibrate all field equipment and verify system communications before the system is placed on line. Verify operation of all systems as specified upon loss of power, and that all systems return to proper operation automatically upon resumption of power. Deliver a report describing results of functional tests, diagnostics, and system calibrations including written certification to the University that the installed complete system has been tested, adjusted, and calibrated, and is ready to begin the PVT. The report will also include a copy of the approved PVT procedure.

PVT
Demonstrate compliance of the completed system. Using approved test procedures, all physical and functional requirements of the project will be demonstrated and shown. The PVT as specified will not be started until after receipt by the Selected Firm of written permission by the University, based on the Selected Firm's written report including certification of successful completion of Field Testing as specified, and upon successful completion of training as specified. The PVT will be performed as an integrated test with the data transmission system, and with all equipment specified operating and exchanging actual data under fully loaded conditions.

Training

General
After all systems and equipment installed as a result of this RFP have been confirmed to operate correctly, through the PVT, the Selected Firm will conduct training courses for designated personnel in the maintenance and operation of the system as specified. The training will be oriented to the specific system being installed under this Contract. Training manuals will be delivered for each trainee with two additional copies delivered for archival at the project site. Furnish all audiovisual equipment and all other training materials and supplies. Where presentation of portions of the course material is by audiovisuals, copies of those audiovisuals will be delivered to the University either as a part of the printed training manuals or on the same media as that used during the training sessions. A training day is defined as eight hours of classroom instruction, including two 15-minute breaks and excluding lunchtime, Monday through Friday, during the daytime shift in effect at the training facility. For guidance in planning the required instruction, assume that attendees have a high school education or equivalent, and are familiar with utility systems. Approval of the planned training schedule will be obtained from the University at least 30 days prior to the training.

Operator's Training I
The first course will be taught at the project site, for before commencing the PVT. A maximum of four personnel will attend the course. No part of the training given during this course will be counted toward completion of the PVT. The
course will include instruction on the specific hardware configuration of the installed system and specific instructions for operating the installed system. Upon completion of this course, each student will be able to start the system, operate the system, recover the system after a failure, and describe the specific hardware architecture and operation of the system. This course will include:

- System architecture.
- Functional operation of the system.
- User commands.
- Display generation.
- Database entry.
- Reports generation.
- Diagnostics.
- LAN operation, if required.

Operator's Training II
The second course will be taught at the project site for a period of one training day approximately one month after completion of the PVT. The University will determine the specific date of the training session. A maximum of 4 personnel will attend the course. The course will be structured to address specific topics that the students need to discuss and to answer questions concerning the operation of the system. Upon completion of the course, the students should have no unanswered questions regarding operation of the installed system.

Maintenance Training
The maintenance course will be taught at the project site within thirty days after completion of the PVT for a period of two training days. A maximum of four personnel will attend the course. The training will include:

- Physical layout of each piece of hardware.
- Troubleshooting and diagnostics procedures.
- Repair instructions.
- Preventive maintenance procedures and schedules.
- Calibration procedures.
Attachment 4

Executive Vice President and Chief Operating Officer’s Request for Commitment

Greetings:

The quality of service the University of Virginia is able to deliver to its customers is directly related to the excellent support we receive from you and many other outstanding suppliers of goods and services. Without you, we would not be able to fulfill our educational, health care and research missions. An important part of our procurement program involves our commitment to doing business with small, women- and minority-owned (SWAM) businesses. As one of our most important vendors, we look to you to help us achieve this objective.

We conduct substantial business with small firms. We have been less effective in securing long-term business relationships with minority-and women-owned businesses. We are determined to improve our record.

I seek your assistance in two areas. First, to the extent practical, I ask that you involve small, women-and minority-owned businesses in the delivery of services you provide to UVa. Second, I seek your help in reporting your results through our quarterly subcontracting reports. The terms and conditions previously provided to your organization outlined this process.

This effort is important to us. We depend on you in so many ways – this is another way that we can partner with your company to make things better.

Sincerely,

Leonard W. Sandridge Executive Vice President and Chief Operating Officer

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