



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
600 Fifth Street, NW, Washington, DC 20001-2651

AMENDMENT OF SOLICITATION / MODIFICATION OF CONTRACT

1. AMENDMENT/MODIFICATION A004	2. EFFECTIVE DATE <p style="text-align: center;">(Same as block 17)</p>		
3. ISSUED BY PURCHASING SECTION Daniel G. Smith Department of Procurement 500 6th Street NW Washington, DC 20011	4. ADMINISTERED BY (If other than block 3) Melloney A. Wilson Contract Administrator		
5. CONTRACTOR <small>NAME AND ADDRESS</small> <small>(Street, city, county, state, and Zip Code)</small>	6. FORM TYPE <small>(Check only one)</small> <input type="checkbox"/> AMENDMENT OF SOLICITATION NO. <u> A004 </u> June 21, 2017 <small>DATE (See block 7)</small> <input type="checkbox"/> MODIFICATION OF CONTRACT/ORDER NO. _____ <small>DATE (See block 9)</small>		
7. THIS BLOCK APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS <input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in block 10. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended, <input checked="" type="checkbox"/> is not extended. Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation, or as amended, by one of the following methods; (a) By signing and returning <u> 1 </u> copies of this amendment; (b) by acknowledging receipt of this amendment on each copy of the offer submitted; or (c) by separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE ISSUING OFFICE PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If, by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided such telegram makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.			
8. ACCOUNTING AND APPROPRIATION DATA (If required)			
9. THIS BLOCK APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS (a) <input type="checkbox"/> This Change Order is issued pursuant to _____ The Changes set forth in block 10 are made to the above numbered contract/order. (b) <input type="checkbox"/> The above numbered contract/order is modified to reflect the administrative changes (such as changes in paying office, appropriation data, etc.) set forth in block 10. (c) <input type="checkbox"/> This Supplemental Agreement is entered into pursuant to authority of _____ It modifies the above numbered contract as set forth in block 10.			
10. DESCRIPTION OF AMENDMENT/MODIFICATION Solicitation FQ17101 is amended to : A. Answer questions from the bidders (part 1 and part 2) B. Update the Price Schedule Sheet, the Compliance Checklist, corrections within the IFB document. Please see the continuation sheet on page 2 (Items 1 thru 19) C. Drawings, Attachment 4A, 4B, 4C, 4D and 4E <small>Except as provided herein, all terms and conditions of the document referenced in block 6, as heretofore changed, remain unchanged and in full force and effect</small>			
11. <input checked="" type="checkbox"/> CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS MODIFICATION AND RETURN <u> 1 </u> COPIES TO ISSUING OFFICE.	<input type="checkbox"/> CONTRACTOR/OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT		
12. NAME OF CONTRACTOR/OFFICE BY _____ <small>(Signature of person authorized to sign)</small>	15. WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY BY <u> DGS </u> <small>(Signature of Contracting Officer)</small>		
13. NAME AND TITLE OF SIGNER (Type or print)	14. DATE SIGNED	16. NAME OF CONTRACTING OFFICER (Type or print) Daniel G. Smith	17. DATE SIGNED <u> August 28, 2017 </u>

QUESTIONS FROM BIDDERS FOR IFB FQ 17101 (PART 1)					
#	VENDOR	LOCATION OF QUESTION	QUESTIONS	DEPARTMENT	WMATA RESPONSE
1		MPR BID Compliance Checklist – Spreadsheet – Sheet PQM, Cell 4C	Basis part number states: Siemens - 7SJ6235. This is a Siemens protective relay [MPR]. Please confirm if a protective relay is desired over a digital power quality meter [DPM] which is specified in the specifications.	MOWE / ENGA	Bidders shall provide the Siemens PQM, Model # 9610 complying with the technical specifications. The correct part number shall be provided by the bidder based on the specification requirements. See revised compliance checklist included in Amendment No. 4.
2		MPR BID Compliance Checklist – Spreadsheet – Sheet PQM, Cell 17B	TYPE states "relay", but sheet is for a power quality meter. Please confirm.	MOWE / ENGA	TYPE shall state "Advanced Multifunction Microprocessor-Based Power Quality Meter (PQM)". See revised compliance checklist included in Amendment No. 4.
3		MPR BID Compliance Checklist – Spreadsheet – Sheet PQM, Cell 31A and B Arc Flash	Arc Flash is a protective function not found on power quality meters. Please confirm if this required.	MOWE / ENGA	The Arc Flash requirement has been deleted. See revised compliance checklist included in Amendment No. 4.
4		MPR BID Compliance Checklist – Spreadsheet – Sheet PQM, Cell 48B	States "MPR", which is a relay. Please confirm if this Safety and Security requirement is for a DPM.	MOWE / ENGA	This item has been revised to change "MPR" to "PQM". See revised compliance checklist included in Amendment No. 4.
5		15 IFB MPRs and DPM Final Draft – PDF Document – DPM Specification Section 34 21 11.2	1.04.D – MPR is listed. Presume DPM is what is requested. Please confirm.	MOWE / ENGA	References to "MPR" have been changed to "PQM" in Specification Section 34 21 11.2. See revised Specification Section 34 21 11.2 in Amendment No. 4.
6		IFB page 4, item 1.3, 2.3, 3.3 etc.,	Please change the wording from "Installation and Commissioning Engineering Support" to "Installation, Commissioning, and Engineering Support" to underline that we will support installation, not install.	IRPG	Wording has been changed from "Installation and Commissioning Engineering Support" to "Start-up and Commissioning Engineering Support". See revised IFB pages in Amendment No. 4.
7		IFB page 4, item 1.3	Please confirm that 8 Man Hours support in Installation and commissioning is one 8-hour working day on site and its unit price includes expenses for travelling to and from WMATA site.	IRPG	Start-up and Commissioning Engineering Support shall be considered one, continuous 8-hour working day. Unit price shall include all costs (e.g., travel expenses, multiple personnel, etc.) required to provide the necessary support.
8		IFB page 4, 2.4 etc...	Please confirm that a "Mark-up of Control and Wiring Drawings", is a recommendation document, that WMATA licensed engineer will review, modify if needed, approve and stamp/seal.	MOWE / ENGA	"Mark-up of Control and Wiring Drawings" will be considered manufacturer installation recommendation drawings. WMATA engineers will not modify the provided, mark-up drawings without the manufacturer's recommendation nor stamp/seal the provided, mark-up drawings. The DC MPRs provided under this Contract will be installed per the provided, mark-up drawings by WMATA installers.
9		IFB page 24, item 20 (a)	"sufficient financial resources" and p. 41 item 11. Please confirm that cash on hand at or above \$200,000 is sufficient. If not, please specify the required amount	PRMT	Factually list the cash you have on hand to support this contract.
10			Can WMATA provide the vendors with sample drawings of each type of switchgear that will be part of the MPR installation?	MOWE / ENGA	See sample drawings provided as Attachments 4A through 4D in Amendment No. 4.
11			Are all relays requested in quote already tested by WMATA? If not, will vendor need to provide a test sample as part of this quote?	MOWE / ENGA	All relays specified by manufacturer name and model number have been previously tested and approved by WMATA. The certification test data specified in the technical specifications must still be provided by successful Bidders. For any other relays not previously approved by WMATA, a test sample and first article testing must be provided.
12			Can WMATA extend the time for questions until next Friday, 7/7?	IRPG	The deadline for submission of question was extending until September 13, 2017 by Amendment No. 3. No additional extensions of this deadline will be considered.
13		IFB Section 34 21 11.2 (Power Quality and Revenue Meters for Metal-Enclosed AC Switchgear) 2.01.C.1	Please explain the exact 5 current inputs that are needed?	MOWE / ENGA	Four (4) current inputs [i.e., three (3) phase current inputs plus one (1) Neutral current input] will be sufficient for the PQMs supplied under this procurement. See revised compliance checklist and Specification Section 34 21 11.2 in Amendment No. 4.

QUESTIONS FROM BIDDERS FOR IFB FQ 17101 (PART 1)					
#	VENDOR	LOCATION OF QUESTION	QUESTIONS	DEPARTMENT	WMATA RESPONSE
14		IFB Section 5 of the price schedule for the AC Switchgear Siemens MPRs	I noticed that there is not a line item for the drawings markup as it is in other sections. Can you clarify if this is to be priced as well for the Siemens MPRs? Also if it is to be priced will the as built drawings or any example drawings be provided to adequately provide a quote for the time needed to mark up the drawings?	MOWE / ENGA	No drawing mark-ups are required for AC Switchgear MPRs or PQMs provided under this procurement.
15		IFB Section 5.3 (Installation and Commissioning Engineering Support)	I wanted to know is this 8 man hours at site considered to be one day and only one mobilization? Also will we be responsible to program and test relays before shipment to site for installation or will relays be programmed and tested by WMATA with 8 man hours of support from us on site?	MOWE / ENGA	Start-up and Commissioning Engineering Support shall be considered one, continuous 8-hour working day at site under a single mobilization. Bidder will not be required to provide programming of relays before shipment to WMATA.
16		"MPR BID Compliance Checklist"	does the relay specified have to satisfy every requirement in this list to be considered for the bid? Are we allowed to take exception to some requirements if needed?	MOWE / ENGA / IRPG	Bidders must respond "Yes" or "No" to all compliance checklist questions. Bidders may provide written explanations regarding compliance with any of the product requirement for review and consideration by WMATA. Failure to technically meet a product requirement, as determined by WMATA, will serve as the basis for rejection of the Bidder's proposed product.
17			Please accept NAICS code 423610 for this projects 2% DBE requirement. Code 423610 (Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers). Under this NAICS code 423610, we sell multifunction relays and digital power meters, similar to the items in this RFQ. A wholesaler can access all of the different vendors equipment listed on the price schedule, and supply these items directly to WMATA.	DBE	WMATA will accept any NAICS code for a certified DBE firm so long as the work is associated with the scope of the project and the work performs a commercially useful function.
18			If NAICS Code 423610 is acceptable as a DBE on this project, can the percentage requirement be re-evaluated to offer more than 2% of this contract? 423610 firms are viable and credit worthy businesses that can handle large complex contracts.	DBE	The DBE Goal of 2% is just the minimum. It was decided based on the NAICS Codes responsive to the contract's Statement of Work, the number of all the ready, willing, and able DBEs in WMATA's directory, as well as in the U.S. Census directory available for the Metropolitan Washington DC Area (that includes, Virginia and Maryland). Additional percentage will actually assist WMATA in meeting its DBE Goal Obligation for this contract, but 2% is pegged in this instance.
19			Please accept NAICS code 423610 for this projects 2% MBE requirement. Code 423610 (Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers). Under this NAICS code 423610, we sell multifunction relays and digital power meters, similar to the items in this RFQ. A wholesaler can access all of the different vendors equipment listed on the price schedule, and supply these items directly to WMATA.	DBE	WMATA will accept any NAICS code for a certified DBE firm so long as the work is associated with the scope of the project and the work performs a commercially useful function.
20			How many control and wiring drawings need to be modified for each newly installed relay and digital power monitor? Also, are these drawings to be provided back to WMATA in CAD or some other engineering format?	MOWE / ENGA	No drawing mark-ups are required for AC Switchgear MPRs or DPMs provided under this procurement. Drawing mark-ups shall be provided for the DC Switchgear MPRs only. Three (3) hard copies and one (1), reproducible electronic copy of drawing mark-ups (e.g., PDF, AutoCAD or the like) shall be provided to WMATA.
21			For programming software, are we to supply a quantity of 10 separate licenses for each line item as shown in the price schedule?	MOWE / ENGA	Bidder shall provide licenses for installation of programming software on ten (10) different computers for each type of product provided under this procurement.

QUESTIONS FROM BIDDERS FOR IFB FQ 17101 (PART 1)					
#	VENDOR	LOCATION OF QUESTION	QUESTIONS	DEPARTMENT	WMATA RESPONSE
22			When you reference approved equal for the equipment, do you have an approved equal list, or is there a pre-bid approval process?	PRMT / MOWE / ENGA	WMATA does not currently have an approved equal list. Prior to Contract award, approval of product equals will be made by WMATA based upon review and consideration of the compliance checklists and any additional documents and/or explanations submitted by the Bidder. It is the Bidder's responsibility to provide any additional documents and/or explanations that will help WMATA in the review and approval of the Bidder's proposed product.
23		IFB page 113 under #2 references	It makes mention of the drawings TP-SSI-001, TP-SSI-002, TP-SSI-003, TP-SSI-004 and TP-SSI-005, please provide these drawings for reference.	MOWE / ENGA	See Control Schematics and Wiring Diagrams for DC Switchgear provided as Attachment 4E in Amendment No. 4.
24			How many sites will have the relays and meters from this procurement be installed at? What are the names and addresses of these locations?	MOWE / ENGA	Installation of the relays and meters is not included in this Contract and will be performed separately by WMATA and/or its Contractors. The requested information is not required for this Contract.
25			Please confirm if the 8 Hours required for support of installation and commissioning is 8 continuous hours in the field or if there are multiple days of either 2 hour periods or any other combination of non-continuous field support time.	MOWE / ENGA	Start-up and Commissioning Engineering Support shall be considered one, continuous 8-hour working day at site under a single mobilization.
26			Will an escalation clause of 3% material escalation per year be acceptable for the 2 and 5 year price options?	IRPG	As specified in the IFB documents, Contract award will be evaluated based on the total base price plus all option prices for each specific manufacturer of each specific product. The Bidder will be responsible for determining the amount of material escalation to include in their option prices.
27			Does the warranty in the pricing schedule need to include labor and material or just material?	IRPG	Since installation of the relays and meters is not included in this Contract, the warranty shall include material and associated incidental costs (i.e., shipping, etc.) only.
28			Will the relay provider need to provide engineering support to modify the as built drawings per site? If yes how many drawings approximately will need to be modified?	MOWE / ENGA / IRPG	As-built drawings for each site will be the responsibility of the relay installer; therefore, the relay provider will not be required to provide engineering support for modifying the as-built drawings under this procurement. However, the relay provider will be responsible for providing drawing mark-ups of the typical control and wiring drawings as required in this procurement.
29			Are suppliers allowed to only bid part of this contract, therefore allowing it to be awarded to multiple vendors?	IRPG	As indicated in the Notes for the Price Schedule Continuation Sheet, multiple Indefinite Quantity Indefinite Delivery (IDIQ) Contracts are expected to be awarded based upon this solicitation. Bidders may submit unit price bids for any or all of the above specified manufacturers of multiprocessor based protection relays (MPRs) and/or Power Quality and Revenue Meters (PQMs).
30			Part# A2V000221 is not a complete relay part number and therefore cannot be quoted. Please provide the full relay part number.	MOWE / ENGA	Part numbers are deleted and replaced with model numbers. Contractor shall provide part numbers based on the specification requirements. See revised compliance checklist included in Amendment No. 4.

QUESTIONS FROM OFFER FOR IFB FQ 17101					
#	VENDOR	LOCATION OF QUESTION	QUESTIONS	DEPARTMENT	WMATA RESPONSE
1		Section 34 21 11.2 Power Quality and Revenue Meters for Metal-Enclosed AC Switchgear 2.01.C.1	Please explain the exact 5 current inputs that are needed?	MOWE / ENGA	DUPLICATE OF PART 1, QUESTION #13.
2		Page 45 / 176:	Buy America Act: It is not mentioned whether Buy America Act is mandatory or not. Attached mentioned N/A for the category which applies to us (Rolling Stock)	PRMT	Yes, Buy America Act is required for federally funded manufactured goods.
3			Additional technical information required: Where will the MPRs will be installed and in which cubicle? Manufacturer? Can existing drawings be provided?	MOWE / ENGA	Installation of the relays and meters is not included in this Contract and will be performed separately by WMATA and/or its Contractors. The requested information is not required for this Contract.
4			Regarding quotation for the installation, it is with understanding that WMATA IFB estimates (8) man hours for 8 x sets of MPR installation. From experience, (8) man hours for each installation will not be enough. Who will take the extra costs in the event that contractor is above (8) man hours per installation?	MOWE / ENGA	Per Amendment 4, "Installation and Commissioning Engineering Support" has been revised to "Start-up and Commissioning Engineering Support". Installation of the relays and meters is not included in this Contract and will be performed separately by WMATA and/or its Contractors. The contract includes 8 man-hours start-up and commissioning support for each type of relay and meter provided.
5		Base Year (1 Year) - Item 1.3	There is an asterisk for MH* for which there seems to be no detailed explanation anywhere in the IFB... Can you explain what the asterisk means?	MOWE / ENGA	The asterick was a typographical error and does not have any specific meaning. "MH" is an abbreviation for man-hours. The asterick has been eliminated in the revised "Price Schedule Continuation Sheet" included in Amendment No. 4.
6			In the Bid Compliance Checklist WMATA has referenced for DC MPR as such: Manufacturer: Siemens Basis Part Number (P/N): A2V000221 We are not familiar with this part and DC Traction relays are quoted from Siemens Mobility. The part number looks like a BOM product Identification is there someone available who can define A2V000221?	MOWE / ENGA	DUPLICATE OF PART 1, QUESTION #30.
7			IFB related question: The IFB references the following... <i>Bidders are supposed to provide site installation, and hardware related to perform the MPR intended function. Isolator/amplifiers: the MPR shall include the isolator/amplifiers and other hardware complete to perform its intended functions.</i> For that, we need to know where will the MPRs will be installed. Can you please send to us complete electrical drawings? So we can also prepare which hardware we shall supply on top of the MPRs.	MOWE / ENGA	The DC MPRs provided should be a complete relay system that includes as a minimum a main module, a human machine interface (HMI), a current / voltage isolation amplifier, and interconnection wiring for connection to a 800VDC system bus and a DC current shunt with 50mV output. The drawings submitted are for DC switchgears currently scheduled to be upgraded using the contract MPRs; however, WMATA reserves the right to install the MPR on any DC switchgear that needs to be upgraded. The AC MPRs are standalone units, and therefore do not require any additional hardware.

QUESTIONS FROM OFFER FOR IFB FQ 17101					
#	VENDOR	LOCATION OF QUESTION	QUESTIONS	DEPARTMENT	WMATA RESPONSE
8			<p>Are there engineer estimates for this project? Is the Authority working with an outside engineer on this project? Does the Authority have the site location for this?</p>	MOWE / ENGA	<p>These questions appear to be related to installation of the relays and meters. Installation of the relays and meters is not included in this Contract and will be performed separately by WMATA and/or its Contractors. The requested information is not required for this Contract.</p>
9			<p>Globe Electric is a D/WBE distributor. We are considering making an offer for FQ17101 Multifunction Protection Relays and Digital Power Quality Meters. The DBE Goals are 2%. While we appreciate WMATA's effort to have D/WBE goals, such a small percentage makes it difficult to get the manufactures such as Siemens to consider working with us to meet DBE Goals. All they need to do is hire a D/WBE carrier to deliver the materials. Globe Electric is a distributor. In order to convince Siemens to work with companies like ours, a higher goal needs to be allowed.</p>	DBE	<p>The DBE Goal was established based on consideration of sub-contractible opportunities under the contract scope of work, and sufficient availability of certified DBE firms available to complete work. WMATA does not dictate what work must be subcontracted to DBE firms. WMATA will not consider change of the goal.</p>
10			<p>Question regarding DBE goal of 2% for the Relay supply contract: Why were there only 2 NAICS codes identified for use as a DBE, in the pre-bid meeting, while engineering support for drawings mark up is such a valid small task to meet small DBE goal of 2% ? The NAICS codes for DBE are not identified anywhere in the WMATA official documents. So WMATA is requested to leave it to the prime vendor to meet the DBE goal, which will be fair and equitable to small DBE firms also.</p>	DBE	<p>WMATA will accept any NAICS code for a certified DBE firm so long as the work is associated with the scope of the project and the work performs a commercially useful function.</p>
11			<p>The wording in the RFP document indicates that we must bid all items. Does that mean we have to bid all 4 relay vendors or can we just bid ABB and not be eliminated? Can we replace all relays with ABB relays? (For example where Siemens and VSG are listed)</p>	IRPG/PRMT	<p>Bidder may provide offers for one or multiple different types of equipment (i.e., DC MPRs, AC MPRs, and/or DPM). For each different type of equipment bid, the Bidder may provide offers for one or multiple specific manufacturers (i.e., ABB, Siemens, etc.). The Bidder must provide offers for all items for each specific manufacturer offered. If the Bidder is not providing an offer for a specific manufacturer, Bidder should indicated "NOT BID" on the "Price Schedule Continuation Sheet".</p>
12			<p>For AC switchgear, the specification reads under 2.03 H1 that the MPRs shall be supplied with their own 125VDC control power. Is this to imply a battery system?</p>	MOWE / ENGA	<p>For the AC switchgear, the specification section 2.03 H1 references "Access Control" requirements and does not discuss control power. The 2.03 H1 reference seems to be incorrect. AC MPRs, DC MPRs, and PQMs will be supplied with external 125VDC control power for the existing switchgear.</p>

QUESTIONS FROM OFFER FOR IFB FQ 17101					
#	VENDOR	LOCATION OF QUESTION	QUESTIONS	DEPARTMENT	WMATA RESPONSE
13			Are the options for years 2-5 additional relays or same relays with different price if WMATA wants to buy them?	IRPG	Relays provided in the base year (i.e., Year 1) and the option years (i.e., Years 2-5) will be the same product(s) as proposed in the Bid. If the product(s) proposed in the Bid are not available in the option years, the Bidder will be required to provide an equivalent or better product by the same manufacturer at no additional cost to WMATA.
14			Are all the relays to be pre-programmed?	MOWE / ENGA	Bidder will not be required to provide programming of relays before shipment to WMATA.
15			I do not see a place in the bid sheet for programming and engineering, except 8 hours; 8 hours is for the onsite time. Can you clarify where to put in the programming time? This is where our man-hours are going to be. Also, where do we need to put in project management (PM) time on the bid sheet?	MOWE / ENGA	Start-up and Commissioning Engineering Support shall be considered one, continuous 8-hour working day for each type of relay or meter. Unit price shall include all costs (e.g., travel expenses, multiple personnel, etc.) required to provide the necessary support. This unit price shall include all incidental time for project management and the like. Programming of the relays and meters is not included in the Contract.
16			The quantity sheets are confusing. Are you asking for different bids based on different manufacturers, or are the relays to total them all up? Or is it by specification section? This can change the quantity by a lot.	IRPG/PRMT	Refer to revised "Price Schedule Continuation Sheet" included in Amendment No. 4.
17			What does the asterisk represent next to MH (Unit of Measurement) on pg. 4 in item 1.3 for Installation and Commissioning Engineering Support?	IRPG/PRMT	The asterick was a typographical error and does not have any specific meaning. "MH" is an abbreviation for man-hours. The asterick has been eliminated in the revised "Price Schedule Continuation Sheet" included in Amendment No. 4.
18			Some items do not have an estimated annual quantity or unit of measure listed. For example, Item 1.6 "2 year software maintenance/upgrade package" and Item 1.6.1 "5 year warranty on new MPRs" do not have quantities or units of measure. Should we still quote these items?	IRPG	Refer to revised "Price Schedule Continuation Sheet" included in Amendment No. 4.
19			There are duplicate item numbers listed, for example the following numbers are repeated twice: 1.6, 1.6.1, 1.8, 2.6, 4.5, 5.4, 6.4, and 8.4. Is this intended?	IRPG/PRMT	Refer to revised "Price Schedule Continuation Sheet" included in Amendment No. 4.

QUESTIONS FROM OFFER FOR IFB FQ 17101					
#	VENDOR	LOCATION OF QUESTION	QUESTIONS	DEPARTMENT	WMATA RESPONSE
20		Page 20 / 176: Page 21 / 176:	<p>Question about the scope of supply; I have seen two sentences with different interpretation possible:</p> <p><i>Page 20 / 176: Multiple Indefinite Quantity Indefinite Delivery (IDIQ) Contracts are expected to be awarded based upon this solicitation. Bidders may submit unit price bids for any or all of the above specified manufacturers of multiprocessor based protection relays (MPRs) and/or digital power quality and revenue meters (DPMs).</i></p> <p><i>Page 21 / 176: Failure to offer on all items will necessitate rejection of the offer.</i></p> <p>Could you please confirm we Sécheron can only quote on our Sécheron MPR DC protection relays, or shall we have to propose also in the bid AC Switchgear MPRs & DPMs ?</p>	IPRG/PRMT	Secheron can provide an offer for only their Secheron MPR DC protection relays. Refer to Part 2, Question #11 for additional information and clarification of the bidding requirements.
21			Globe Electric is a D/WBE distributor. We are considering making an offer for FQ17101 Multifunction Protection Relays and Digital Power Quality Meters. The DBE Goals are 2%. While we appreciate WMATA's effort to have D/WBE goals, such a small percentage makes it difficult to get the manufactures such as Siemens to consider working with us to meet DBE Goals. All they need to do is hire a D/WBE carrier to deliver the materials. Globe Electric is a distributor. In order to convince Siemens to work with companies like ours, a higher goal needs to be allowed.	DBE	DUPLICATE OF PART 2, QUESTION #9.
22		Page 4 item 1.3, 2.3,3.3 etc.	Please change the wording from "Installation and Commissioning Engineering Support" to "Installation, Commissioning, and Engineering Support" to underline that we will support installation, not install.	MOWE / ENGA	DUPLICATE OF PART 1, QUESTION #6.
23		Page 4 Item 1.3	Please confirm that 8 Man Hours support in Installation and commissioning is one 8-hour working day on site and its unit price includes expenses for traveling to and from WMATA site.	MOWE / ENGA	DUPLICATE OF PART 1, QUESTION #7.
24		Page 4 Item 1.4, 2.4, etc.	Please confirm that a "Mark-up of Control and Wiring Drawings", is a recommendation document that WMATA licensed engineer will review, modify if needed, approve and stamp/seal.	MOWE / ENGA	DUPLICATE OF PART 1, QUESTION #8.
25		Page 24 Item 20(a) Page 41 Item 11	"Sufficient Financial Resources" Please confirm that cash on hand at or above \$200,000 is sufficient. If not, please specify the required amount.	PRMT	DUPLICATE OF PART 1, QUESTION #9.
26			Can WMATA provide the vendors with sample drawings of each type of switchgear that will be part of the MPR installation?	MOWE / ENGA	DUPLICATE OF PART 1, QUESTION #10.
27			Are all relays requested in quote already tested by WMATA? If not, will vendor need to provide a test sample as part of this quote.	MOWE / ENGA	DUPLICATE OF PART 1, QUESTION #11.

CONTINUATION SHEET

AMENDMENT 004 FOR

FQ17101 Multifunction Protection Relays (MPRs) and Digital Power Meters (DPMs)/Power Quality Meters (PQMs)

Item #	Location (Page#, Paragraph, etc.)	Current IFB language	Amendment to change to
1	IFB Cover Page Titling	Multifunction Protection Relays (MPRs) and Digital Power Quality Meters (DPMs)	Multiple Protection Relays (MPRs) and Digital Power Meters (DPMs)/Power Quality Meters (PQMS)
2	Price Schedule Sheet Page 4-13	Price Schedule Sheet Page 4-13	Updated Price Schedule Sheet (17 pages)
3	Page 14 Price Schedule (Continued) #4	Failure to offer on all items will necessitate rejection of the offer	Bidder may provide offers for one or multiple different type of equipment (i.e. DC MPRs, AC MPRs and/or PQMs). For each different type of equipment bid, the bidder may provide offers for one or multiple manufacturers (i.e. ABB, Siemens, etc.). The bidder must provide offers on all items for each specified manufactured offered.
4	Page 22 13a – Bid Acceptance Period and Bidder’s Default	The acceptance period for this solicitation is ninety (120) calendar days.	The acceptance period for this solicitation is one hundred twenty (120) calendar days.
5	Page 45 7b – Order Limitations	Maximum order. The contractor is not obligated to honor: The maximum order which may be ordered by one or more orders shall be for <u>\$20,000,000.00 per contract</u> throughout the life on the contract.	The contractor is not obligated to honor orders that exceed the <u>\$20,000,000.00 per contract</u> throughout the life on the contract. This includes base and option years.
6	Page 73 Exhibit A Titling	FQ17101 MRPs and DPMS Material Supply	FQ17101 MRPs and DPMS Material Supply
7	Page 117 1.05a. 1 – Programming Software	Provide and submit proof that a two-year software maintenance/upgrade package has been purchased for the Owner.	Provide and submit proof that a five-year software maintenance/upgrade package has been purchased for the Owner.
8	Page 124 Titling	Section 34 21 11.2 Power Quality and Revenue Meters for Metal-Enclosed AC Switchgear	Section 34 21 11.2 Digital Power Meters (DPMs)/Power Quality and Revenue Meters (PQMs) for Metal-Enclosed AC Switchgear
9	Page 124 Part 3 – General	Part 3 – General	Part 1 – General
10	Page 124 1.04c.2.a	Design test reports or certified copies of test reports for identical MPR units performed.	Design test reports or certified copies of test reports for identical DPMs and PQMs units performed.

CONTINUATION SHEET

AMENDMENT 004 FOR

FQ17101 Multifunction Protection Relays (MPRs) and Digital Power Meters (DPMs)/Power Quality Meters (PQMs)

11	Page 124 1.04d	Submit the following with each MPR unit.	Submit the following with each PQM unit.
12	Page 125 1.05a.1 Programming Software	Provide and submit proof that the software packages are licensed to WMATA when the software is delivered to WMATA. Provide and submit proof that a two-year software maintenance/upgrade package has been purchased for the Owner.	Provide and submit proof that the software packages are licensed to WMATA when the software is delivered to WMATA. Provide and submit proof that a five-year software maintenance/upgrade package has been purchased for the Owner.
13	Page 126 Part 4 – Products	Part 4 – Products	Part 2 – Products
14	Page 126 2.02.c.1	The power quality meter shall have no less than 4 voltage inputs and 5 current inputs, and shall sample at 1024 or 512 samples per cycle.	The power quality meter shall have no less than 4 voltage inputs and 4 current inputs, and shall sample at 1024 or 512 samples per cycle.
15	Page 129 Part 3 Execution	Part 3 Execution	This section NOT USED
16	Page 130 Part 5 General	Part 5 General	Part 1 General
17	Page 131 1.05.a.1 – Programming Software	Provide and submit proof that a two-year software maintenance/upgrade package has been purchased for the Owner.	Provide and submit proof that a five-year software maintenance/upgrade package has been purchased for the Owner.
18	Page 132 Part 6 – Products	Part 6 – Products	Part 2 – Products
19	Page 132 4.0 Appendices	4.0 Appendices TP – SSI- 001 TP – SSI- 002 TP – SSI- 003 TP – SSI- 004 TP – SSI- 005	Delete this section. Drawings are attached separately



Invitation For Bids

(Federal)

**Multifunction Protection Relays
(MPRs) and Digital Power
Meters (DPMs)/ Power Quality
Meters (PQMs)**

IFB No.: FQ17101

Date: June 21, 2017

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

PRICE SCHEDULE CONTINUATION SHEET

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Siemens MPRs							
BASE YEAR (YEAR 1)							
1.1	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.2	Programming Software Licenses			10	EA		
1.3	Start-up and Commissioning Engineering Support			8	MH		
1.4	Mark-up of Control and Wiring Drawings			1	LS		
1.5	5-year Product Warranty			1	EA		
1.6	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 1.1 THROUGH 1.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Siemens MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
1.7	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.7.1	5-year Product Warranty			1	EA		
1.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
1.8	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.8.1	5-year Product Warranty			1	EA		
1.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
1.9	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.9.1	5-year Product Warranty			1	EA		
1.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
1.10	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.10.1	5-year Product Warranty			1	EA		
1.10.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 1.7 THROUGH 1.10.2 (OPTION YEARS)							
TOTAL FOR 1.1 THROUGH 1.10.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
VG Controls MPRs							
BASE YEAR (YEAR 1)							
2.1	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.2	Programming Software Licenses			10	EA		
2.3	Start-up and Commissioning Engineering Support			8	MH		
2.4	Mark-up of Control and Wiring Drawings			1	LS		
2.5	5-year Product Warranty			1	EA		
2.6	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 2.1 THROUGH 2.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
VG Controls MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
2.7	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.7.1	5-year Product Warranty			1	EA		
2.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
2.8	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.8.1	5-year Product Warranty			1	EA		
2.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
2.9	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.9.1	5-year Product Warranty			1	EA		
2.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
2.10	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.10.1	5-year Product Warranty			1	EA		
2.10.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 2.7 THROUGH 2.10.2							
TOTAL FOR 2.1 THROUGH 2.10.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Secheron MPRs							
BASE YEAR (1 YEAR)							
3.1	Multifunction Protection Relay (MPR)	Secheron		8	EA		
3.2	Programming Software Licenses			10	EA		
3.3	Start-up and Commissioning Engineering Support			8	MH		
3.4	Mark-up of Control and Wiring Drawings			1	LS		
3.5	5-year Product Warranty			1	EA		
3.6	5-year Software Maintenance / Upgrade Package				1	EA	
TOTAL FOR 3.1 THROUGH 3.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

PRICE SCHEDULE CONTINUATION SHEET

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Siemens MPRs							
BASE YEAR (YEAR 1)							
1.1	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.2	Programming Software Licenses			10	EA		
1.3	Start-up and Commissioning Engineering Support			8	MH		
1.4	Mark-up of Control and Wiring Drawings			1	LS		
1.5	5-year Product Warranty			1	EA		
1.6	5-year Software Maintenance / Upgrade Package				1	EA	
TOTAL FOR 1.1 THROUGH 1.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Siemens MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
1.7	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.7.1	5-year Product Warranty			1	EA		
1.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
1.8	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.8.1	5-year Product Warranty			1	EA		
1.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
1.9	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.9.1	5-year Product Warranty			1	EA		
1.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
1.10	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.10.1	5-year Product Warranty			1	EA		
1.10.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 1.7 THROUGH 1.10.2 (OPTION YEARS)							
TOTAL FOR 1.1 THROUGH 1.10.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
VG Controls MPRs							
BASE YEAR (YEAR 1)							
2.1	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.2	Programming Software Licenses			10	EA		
2.3	Start-up and Commissioning Engineering Support			8	MH		
2.4	Mark-up of Control and Wiring Drawings			1	LS		
2.5	5-year Product Warranty			1	EA		
2.6	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 2.1 THROUGH 2.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
VG Controls MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
2.7	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.7.1	5-year Product Warranty			1	EA		
2.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
2.8	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.8.1	5-year Product Warranty			1	EA		
2.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
2.9	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.9.1	5-year Product Warranty			1	EA		
2.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
2.10	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.10.1	5-year Product Warranty			1	EA		
2.10.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 2.7 THROUGH 2.10.2							
TOTAL FOR 2.1 THROUGH 2.10.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Secheron MPRs							
BASE YEAR (1 YEAR)							
3.1	Multifunction Protection Relay (MPR)	Secheron		8	EA		
3.2	Programming Software Licenses			10	EA		
3.3	Start-up and Commissioning Engineering Support			8	MH		
3.4	Mark-up of Control and Wiring Drawings			1	LS		
3.5	5-year Product Warranty			1	EA		
3.6	5-year Software Maintenance / Upgrade Package				1	EA	
TOTAL FOR 3.1 THROUGH 3.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Secheron MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
3.7	Multifunction Protection Relay (MPR)	Secheron		8	EA		
3.7.1	5-year Product Warranty			1	EA		
3.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
3.8	Multifunction Protection Relay (MPR)	Secheron		8	EA		
3.8.1	5-year Product Warranty			1	EA		
3.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
3.9	Multifunction Protection Relay (MPR)	Secheron		8	EA		
3.9.1	5-year Product Warranty			1	EA		
3.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
3.10	Multifunction Protection Relay (MPR)	Secheron		8	EA		
3.10.1	5-year Product Warranty			1	EA		
3.10.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 3.7 THROUGH 3.10.2							
TOTAL FOR 3.1 THROUGH 3.10.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Other MPRs							
BASE YEAR (1 YEAR)							
4.1	Multifunction Protection Relay (MPR)			8	EA		
4.2	Programming Software Licenses			10	EA		
4.3	Start-up and Commissioning Engineering Support			8	MH		
4.4	Mark-up of Control and Wiring Drawings			1	LS		
4.5	5-year Product Warranty			1	EA		
4.6	5-year Software Maintenance / Upgrade Package				1	EA	
TOTAL FOR 4.1 THROUGH 4.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Other MPRs							
BASE YEAR (1 YEAR)							
4.1	Multifunction Protection Relay (MPR)			8	EA		
4.2	Programming Software Licenses			10	EA		
4.3	Start-up and Commissioning Engineering Support			8	MH		
4.4	Mark-up of Control and Wiring Drawings			1	LS		
4.5	5-year Product Warranty			1	EA		
4.6	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 4.1 THROUGH 4.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Other MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
4.7	Multifunction Protection Relay (MPR)			8	EA		
4.7.1	5-year Product Warranty			1	EA		
4.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
4.8	Multifunction Protection Relay (MPR)			8	EA		
4.8.1	5-year Product Warranty			1	EA		
4.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
4.9	Multifunction Protection Relay (MPR)			8	EA		
4.9.1	5-year Product Warranty			1	EA		
4.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
4.10	Multifunction Protection Relay (MPR)			8	EA		
4.10.1	5-year Product Warranty			1	EA		
4.10.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 4.7 THROUGH 4.10.2							
TOTAL FOR 4.1 THROUGH 4.10.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
AC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 11.1							
Siemens MPRs							
BASE YEAR (1 YEAR)							
5.1	Multifunction Protection Relay (MPR)	Siemens		6	EA		
5.2	Programming Software Licenses			10	EA		
5.3	Start-up and Commissioning Engineering Support			8	MH		
5.4	5-year Product Warranty			1	EA		
5.5	5-year Software Maintenance / Upgrade Package				1	EA	
TOTAL FOR 5.1 THROUGH 5.5 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
AC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 11.1							
Siemens MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
5.6	Multifunction Protection Relay (MPR)	Siemens		6	EA		
5.6.1	5-year Product Warranty			1	EA		
5.6.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
5.7	Multifunction Protection Relay (MPR)	Siemens		6	EA		
5.7.1	5-year Product Warranty			1	EA		
5.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
5.8	Multifunction Protection Relay (MPR)	Siemens		6	EA		
5.8.1	5-year Product Warranty			1	EA		
5.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
5.9	Multifunction Protection Relay (MPR)	Siemens		6	EA		
5.9.1	5-year Product Warranty			1	EA		
5.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 5.6 THROUGH 5.9.2							
TOTAL FOR 5.1 THROUGH 5.9.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
AC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 11.1							
ABB MPRs							
BASE YEAR (1 YEAR)							
6.1	Multifunction Protection Relay (MPR)	ABB		12	EA		
6.2	Programming Software Licenses			10	EA		
6.3	Start-up and Commissioning Engineering Support			8	MH		
6.4	5-year Product Warranty			1	EA		
6.5	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 6.1 THROUGH 6.5 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
AC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 11.1							
ABB MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
6.6	Multifunction Protection Relay (MPR)	ABB		12	EA		
6.6.1	5-year Product Warranty			1	EA		
6.6.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
6.7	Multifunction Protection Relay (MPR)	ABB		12	EA		
6.7.1	5-year Product Warranty			1	EA		
6.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
6.8	Multifunction Protection Relay (MPR)	ABB		12	EA		
6.8.1	5-year Product Warranty			1	EA		
6.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
6.9	Multifunction Protection Relay (MPR)	ABB		12	EA		
6.9.1	5-year Product Warranty			1	EA		
6.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 6.6 THROUGH 6.9.2							
TOTAL FOR 6.1 THROUGH 6.9.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
VG Controls MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
2.7	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.7.1	5-year Product Warranty			1	EA		
2.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
2.8	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.8.1	5-year Product Warranty			1	EA		
2.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
2.9	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.9.1	5-year Product Warranty			1	EA		
2.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
2.10	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.10.1	5-year Product Warranty			1	EA		
2.10.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 2.7 THROUGH 2.10.2							
TOTAL FOR 2.1 THROUGH 2.10.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Secheron MPRs							
BASE YEAR (1 YEAR)							
3.1	Multifunction Protection Relay (MPR)	Secheron		8	EA		
3.2	Programming Software Licenses			10	EA		
3.3	Start-up and Commissioning Engineering Support			8	MH		
3.4	Mark-up of Control and Wiring Drawings			1	LS		
3.5	5-year Product Warranty			1	EA		
3.6	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 3.1 THROUGH 3.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

PRICE SCHEDULE CONTINUATION SHEET

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Siemens MPRs							
BASE YEAR (YEAR 1)							
1.1	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.2	Programming Software Licenses			10	EA		
1.3	Start-up and Commissioning Engineering Support			8	MH		
1.4	Mark-up of Control and Wiring Drawings			1	LS		
1.5	5-year Product Warranty			1	EA		
1.6	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 1.1 THROUGH 1.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Siemens MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
1.7	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.7.1	5-year Product Warranty			1	EA		
1.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
1.8	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.8.1	5-year Product Warranty			1	EA		
1.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
1.9	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.9.1	5-year Product Warranty			1	EA		
1.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
1.10	Multifunction Protection Relay (MPR)	Siemens		8	EA		
1.10.1	5-year Product Warranty			1	EA		
1.10.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 1.7 THROUGH 1.10.2 (OPTION YEARS)							
TOTAL FOR 1.1 THROUGH 1.10.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
VG Controls MPRs							
BASE YEAR (YEAR 1)							
2.1	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.2	Programming Software Licenses			10	EA		
2.3	Start-up and Commissioning Engineering Support			8	MH		
2.4	Mark-up of Control and Wiring Drawings			1	LS		
2.5	5-year Product Warranty			1	EA		
2.6	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 2.1 THROUGH 2.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
VG Controls MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
2.7	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.7.1	5-year Product Warranty			1	EA		
2.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
2.8	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.8.1	5-year Product Warranty			1	EA		
2.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
2.9	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.9.1	5-year Product Warranty			1	EA		
2.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
2.10	Multifunction Protection Relay (MPR)	VG Controls		8	EA		
2.10.1	5-year Product Warranty			1	EA		
2.10.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 2.7 THROUGH 2.10.2							
TOTAL FOR 2.1 THROUGH 2.10.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Secheron MPRs							
BASE YEAR (1 YEAR)							
3.1	Multifunction Protection Relay (MPR)	Secheron		8	EA		
3.2	Programming Software Licenses			10	EA		
3.3	Start-up and Commissioning Engineering Support			8	MH		
3.4	Mark-up of Control and Wiring Drawings			1	LS		
3.5	5-year Product Warranty			1	EA		
3.6	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 3.1 THROUGH 3.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Secheron MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
3.7	Multifunction Protection Relay (MPR)	Secheron		8	EA		
3.7.1	5-year Product Warranty			1	EA		
3.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
3.8	Multifunction Protection Relay (MPR)	Secheron		8	EA		
3.8.1	5-year Product Warranty			1	EA		
3.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
3.9	Multifunction Protection Relay (MPR)	Secheron		8	EA		
3.9.1	5-year Product Warranty			1	EA		
3.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
3.10	Multifunction Protection Relay (MPR)	Secheron		8	EA		
3.10.1	5-year Product Warranty			1	EA		
3.10.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 3.7 THROUGH 3.10.2							
TOTAL FOR 3.1 THROUGH 3.10.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Other MPRs							
BASE YEAR (1 YEAR)							
4.1	Multifunction Protection Relay (MPR)			8	EA		
4.2	Programming Software Licenses			10	EA		
4.3	Start-up and Commissioning Engineering Support			8	MH		
4.4	Mark-up of Control and Wiring Drawings			1	LS		
4.5	5-year Product Warranty			1	EA		
4.6	5-year Software Maintenance / Upgrade Package				1	EA	
TOTAL FOR 4.1 THROUGH 4.6 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
DC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 14							
Other MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
4.7	Multifunction Protection Relay (MPR)			8	EA		
4.7.1	5-year Product Warranty			1	EA		
4.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
4.8	Multifunction Protection Relay (MPR)			8	EA		
4.8.1	5-year Product Warranty			1	EA		
4.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
4.9	Multifunction Protection Relay (MPR)			8	EA		
4.9.1	5-year Product Warranty			1	EA		
4.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
4.10	Multifunction Protection Relay (MPR)			8	EA		
4.10.1	5-year Product Warranty			1	EA		
4.10.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 4.7 THROUGH 4.10.2							
TOTAL FOR 4.1 THROUGH 4.10.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
AC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 11.1							
Siemens MPRs							
BASE YEAR (1 YEAR)							
5.1	Multifunction Protection Relay (MPR)	Siemens		6	EA		
5.2	Programming Software Licenses			10	EA		
5.3	Start-up and Commissioning Engineering Support			8	MH		
5.4	5-year Product Warranty			1	EA		
5.5	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 5.1 THROUGH 5.5 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
AC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 11.1							
Siemens MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
5.6	Multifunction Protection Relay (MPR)	Siemens		6	EA		
5.6.1	5-year Product Warranty			1	EA		
5.6.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
5.7	Multifunction Protection Relay (MPR)	Siemens		6	EA		
5.7.1	5-year Product Warranty			1	EA		
5.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
5.8	Multifunction Protection Relay (MPR)	Siemens		6	EA		
5.8.1	5-year Product Warranty			1	EA		
5.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
5.9	Multifunction Protection Relay (MPR)	Siemens		6	EA		
5.9.1	5-year Product Warranty			1	EA		
5.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 5.6 THROUGH 5.9.2							
TOTAL FOR 5.1 THROUGH 5.9.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
AC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 11.1							
ABB MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
6.6	Multifunction Protection Relay (MPR)	ABB		12	EA		
6.6.1	5-year Product Warranty			1	EA		
6.6.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
6.7	Multifunction Protection Relay (MPR)	ABB		12	EA		
6.7.1	5-year Product Warranty			1	EA		
6.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
6.8	Multifunction Protection Relay (MPR)	ABB		12	EA		
6.8.1	5-year Product Warranty			1	EA		
6.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
6.9	Multifunction Protection Relay (MPR)	ABB		12	EA		
6.9.1	5-year Product Warranty			1	EA		
6.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 6.6 THROUGH 6.9.2							
TOTAL FOR 6.1 THROUGH 6.9.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
AC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 11.1							
Other MPRs							
BASE YEAR (1 YEAR)							
7.1	Multifunction Protection Relay (MPR)			6	EA		
7.2	Programming Software Licenses			10	EA		
7.3	Start-up and Commissioning Engineering Support			8	MH		
7.4	5-year Product Warranty			1	EA		
7.5	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 7.1 THROUGH 7.5 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
AC Switchgear - Multifunction Protection Relays (MPRs) - Specification Section 34 21 11.1							
Other MPRs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
7.6	Multifunction Protection Relay (MPR)			6	EA		
7.6.1	5-year Product Warranty			1	EA		
7.6.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
7.7	Multifunction Protection Relay (MPR)			6	EA		
7.7.1	5-year Product Warranty			1	EA		
7.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
7.8	Multifunction Protection Relay (MPR)			6	EA		
7.8.1	5-year Product Warranty			1	EA		
7.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
7.9	Multifunction Protection Relay (MPR)			6	EA		
7.9.1	5-year Product Warranty			1	EA		
7.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 7.6 THROUGH 7.9.2							
TOTAL FOR 7.1 THROUGH 7.9.2 (BASE YEAR PLUS OPTION YEARS)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
AC Switchgear - Digital Power Quality and Revenue Meters (DPMs / PQMs) - Specification Section 34 21 11.2							
DPMs / PQMs							
BASE YEAR (1 YEAR)							
8.1	Power Quality Meters (DPMs / PQMs)			16	EA		
8.2	Programming Software Licenses			10	EA		
8.3	Start-up and Commissioning Engineering Support			8	MH		
8.4	5-year Product Warranty			1	EA		
8.5	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 8.1 THROUGH 8.5 (BASE YEAR)							

PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Item	Description	Equipment Manufacturer	Product Model # or Version #	Estimated Annual Quantity	Unit of Measure	Unit Price	Total Cost
AC Switchgear - Digital Power Quality and Revenue Meters (DPMs / PQMs) - Specification Section 34 21 11.2							
DPMs / PQMs (Continued)							
OPTION YEARS (YEARS 2 THROUGH 5)							
Option Year 1 (YEAR 2)							
8.6	Power Quality Meters (DPMs / PQMs)			16	EA		
8.6.1	5-year Product Warranty			1	EA		
8.6.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 2 (YEAR 3)							
8.7	Power Quality Meters (DPMs / PQMs)			16	EA		
8.7.1	5-year Product Warranty			1	EA		
8.7.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 3 (YEAR 4)							
8.8	Power Quality Meters (DPMs / PQMs)			16	EA		
8.8.1	5-year Product Warranty			1	EA		
8.8.2	5-year Software Maintenance / Upgrade Package			1	EA		
Option Year 4 (YEAR 5)							
8.9	Power Quality Meters (DPMs / PQMs)			16	EA		
8.9.1	5-year Product Warranty			1	EA		
8.9.2	5-year Software Maintenance / Upgrade Package			1	EA		
TOTAL FOR 8.6 THROUGH 8.9.2							
TOTAL FOR 8.1 THROUGH 8.9.2 (BASE YEAR PLUS OPTION YEARS)							


PRICE SCHEDULE CONTINUATION SHEET (CONTINUED)

Notes:

1) Price shall include delivery and other handling costs, orders shall be F.O.B.

2) All material shall be shipped to WMATA's Farrington Warehouse located at 6100 Farrington Ave., Alexandria, VA. The hours of operation for this location are Monday - Friday 6am- 12pm. All delivery shall be scheduled during these operating hours.

3) Multiple Indefinite Quantity Indefinite Delivery (IDIQ) Contracts are expected to be awarded based upon this solicitation. Bidders may submit unit price bids for any or all of the above specified manufacturers of multiprocessor based protection relays (MPRs) and/or digital power quality and revenue meters (DPMs / PQMs).

4)  = Information provided by Bidder.

Legend:

MH - Man Hours

EA - Each

LS- Lump Sum

PRICE SCHEDULE (Continued)

1. This is an Indefinite Delivery, Indefinite Quantity (IDIQ) type contract for the items listed in the Price Schedule. Each price for each item shall be firm fixed. All items will be ordered by the Contracting Officer, or Authority Representative and based on the items in the Price Schedule Sheet. Note that there is no guarantee that Orders will be issued for the total amount of the initial contract award or the total proposed price.
2. All quantities are estimates for pricing purposes only. The offeror is notified that there will be no adjustment of unit prices for variations in quantities between the estimated quantities and the final quantities ordered in this contract.
3. The guaranteed minimum which will be required under this contract, and which will be initiated by one or more orders during any contract period shall be **\$100,000.00 per contract**. The maximum which may be ordered by one or more orders under this contract shall be for **\$20 million dollars per contract for the life of the contract**.
4. Bidder may provide offers for one or multiple different type of equipment (i.e. DC MPRs, AC MPRs and/or PQMs). For each different type of equipment bid, the bidder may provide offers for one or multiple manufacturers (i.e. ABB, Siemens, etc.). The bidder must provide offers on all items for each specified manufactured offered.
5. Any offer that is materially unbalanced as to prices for the various items may be rejected as non-responsive. A materially unbalanced offer is one that is based on prices that are understated for some items of work and are materially overstated for other items of work.
6. The total offered price will be the sum of all price extension amounts for the listed items. All extensions of the unit prices shown will be subject to verification by the Authority. In case of variation between the unit prices and the extension, the unit price will be considered the offer.
7. The unit price shown on the Price Schedule shall constitute full compensation for all costs of performance under this contract.
8. The contract price will be evaluated based on the total base price plus all option prices. The Authority retains the right to award based on total base price only, total base plus options or any combination of base price plus options.
9. The Authority's obligation under this Contract is limited to the amount of the orders placed and the availability of funds as described herein.
10. The offeror is placed on notice that it may not be paid for the estimated quantities listed on the Price Schedule Sheet. The final amount of the Contract and payment will be based on actual quantities ordered that may total more or less than the estimated quantity for each of the individual items.
11. The Offeror is further notified that an Order may not include all listed items and some items may not be ordered from this Contract by any order.
12. Invoices for payment shall be arranged to correspond to each order.

- (3) Was sent by U.S. Postal Service, Express Mail Next Day Service not later than 5:00 p.m. at the place of mailing at least two (2) business days prior to the date specified for opening of bids. The term "business days" excludes weekends and U.S. federal holidays; or
- (4) Is the only bid received.
- b. Any modification or withdrawal of a bid is subject to the same conditions as set forth in subparagraphs (a) (1) through (a) (3) above.
- c. The only acceptable evidence to establish the time of the Authority's receipt is the time/date stamp of that event on the bid wrapper or other documentary evidence of receipt maintained by the Authority.
- d. Notwithstanding subparagraph (a), a late modification of any otherwise successful bid that makes its terms more favorable to the Authority will be considered at any time it is received and may be accepted.
- e. Bids may be withdrawn by written notice, received by the Authority before the opening of bids. Bids may be withdrawn in person by a bidder, or its authorized representative, if the representative's identity is established to the Contracting Officer's satisfaction and the representative signs a receipt for the return of the bid, before the opening of bids. The attempted withdrawal of a bid, received subsequent to bid opening and during the acceptance period set forth in paragraph 12, will not be honored and will be without effect.

13. BID ACCEPTANCE PERIOD AND BIDDER'S DEFAULT

- a. The acceptance period for this solicitation is one hundred twenty (120) calendar days.
- b. By submission of its bid, the bidder agrees that it shall be irrevocable and shall remain available to WMATA to award a Contract pursuant to this solicitation for not less than the acceptance period. The bidder's failure to furnish required documents and/or to execute a Contract from WMATA in accordance with its bid, during the acceptance period shall constitute a bidder's default.
- c. In the event of a bidder's default, the bidder shall be liable to WMATA for all associated damages and costs, including without limitation, WMATA's "cost to cover." The "cost to cover" is the difference between the bid price and the price WMATA ultimately pays for the work encompassed in this solicitation, whether through award of a Contract to another bidder, pursuant to this solicitation or otherwise.
- d. In the event of a bidder's default as described in paragraph (c), the bidder agrees that WMATA may retain or otherwise proceed against the bid guarantee furnished pursuant to paragraph 13 below as a means of recovering such damages and costs. In the event that the bid guarantee is insufficient to compensate WMATA for all such damages and costs, the bidder shall remain liable to WMATA for the remaining sum.

14. BID GUARANTEE- N/A

- (a) the Price Schedule as the “maximum.” The Authority shall order at least the quantity of supplies and/or services designated in the Price Schedule as the “minimum.”
- (b) There is no limit on the number of orders that may be issued other than any limitations imposed by the “Order Limitations” clause. The Authority may issue orders requiring delivery to multiple destinations or performance at multiple locations.
- (c) Any order issued during the effective period of this Contract and not completed within that period shall be completed by the Contractor within the time specified in the order. This Contract and WMATA’s Procurement Procedures Manual (PPM) shall govern the parties’ rights and obligations regarding that order to the same extent that they would have governed the order had it been completed during the Contract’s effective period. The Contractor will not be required to make any deliveries under this Contract after effective period.

6. ORDERING

- (a) The Contracting Officer shall order any supplies and/or services to be furnished under this Contract by the issuance of delivery orders or task orders. Such orders may be issues throughout the Period of Performance.
- (b) All delivery orders or task orders are subject to the terms and conditions of this Contract. In the event of a conflict between a delivery order or task order and this Contract, this Contract shall control.
- (c) If mailed, a delivery order or task order is considered “issued” when the Authority places the order in the mail. Orders may be issued electronically, if authorized by the Price Schedule.

7. ORDER LIMITATIONS

- (a) *Minimum order.* When the Authority requires supplies and/or services covered by this Contract in an amount less than **\$100,000.00 per contract**, the Authority is not obligated to purchase, nor is the Contractor obligated to furnish those supplies and/or services under this Contract.
- (b) *Maximum order.* The contractor is not obligated to honor orders that exceed the **\$20,000,000.00 per contract** throughout the life on the contract. This includes base and option years.

8. AUDIT, AVAILABILITY, AND INSPECTION OF RECORDS- FTA

- (a) Authorized persons. The Contracting Officer and his or her representatives, including representatives of the Authority’s governing jurisdictions and any other Federal, state, or local entity providing funding for this Contract and the U.S. Comptroller General shall have access and inspection rights described in this article.
- (b) Examination of costs. The Contractor shall maintain, and the Contracting Officer shall have the right to examine and audit, all records sufficiently to properly reflect all costs incurred or anticipated to be incurred directly or indirectly in performance of this Contract. This right of examination shall include inspection of the Contractor’s facilities engaged in performing this Contract at all reasonable times.

EXHIBIT A

FQ 17101 MPRs and DPMs Material Supply

(NOTE TO BIDDERS: If you do not currently carry all of the required insurance for this IFB, a current certificate of insurance (COI) evidencing the insurance you do carry and a letter from your insurance agent/broker stating that 'if our client (you) are awarded the contract, the required coverage will be provided' will suffice.)

I. MINIMUM REQUIRED INSURANCE: MINIMUM LIMITS OF INSURANCE

INSURANCE TYPE	LIMITS	BASIS
Workers' Compensation	Statutory	
Employers' Liability	\$500,000	Each Accident
	\$500,000	Disease Policy Limit
	\$500,000	Disease Each Employee
Commercial General Liability		
	\$2,000,000	Each Occurrence Limit
	\$4,000,000	General Aggregate Limit
	\$2,000,000	Products-Completed Operations Limit
Business Auto Liability		
	\$1,000,000	Combined Single Limit
Professional Liability		
	\$2,000,000	Each Claim

II. MINIMUM REQUIRED INSURANCE: MINIMUM INSURANCE COVERAGES AND COVERAGE PROVISIONS

- 1) Contractor is required to maintain the prescribed insurance outlined in this Exhibit A during the entire period of performance under this contract. A Notice to Proceed (NTP) will not be issued until all required insurance has been approved by WMATA.
- 2) The prescribed insurance coverage and limits of insurance are minimum required coverages and limits. Contractor is encouraged, at its sole cost and expense, to purchase any additional insurance coverages and/or limits of insurance that Contractor deems prudent and necessary to manage risk in the completion of this Contract.
- 3) Upon written request from WMATA, contractor shall provide copies of any requested insurance policies, including applicable endorsements, within five (5) business days of such request.
- 4) Receipt, review or communications regarding certificates of insurance (COI), insurance policies, endorsements, or other materials utilized to document compliance with these Minimum Insurance Requirements does not constitute acceptance by WMATA.
- 5) Insurance companies must be acceptable to WMATA and must have an A. M. Best rating of at least A- VII.
- 6) Unless otherwise noted, "Claims Made" insurance policies are not acceptable.
- 7) Any insurance policy utilizing a Self-Insured Retention (SIR) requires written approval from WMATA.

1. Operating and maintenance manual.

1.05 SOFTWARE AND DOCUMENTATIONS

A. Programming Software:

1. For each type of microprocessor-based multifunction protection relay, provide configuration software, and manuals on licensed discs. Provide and submit proof that the software packages are licensed to WMATA when the software is delivered to WMATA. Provide and submit proof that a five-year software maintenance/upgrade package has been purchased for the Owner.
2. All configuration files shall be in their native formats, shall become property of WMATA and shall not include any copyrighted licenses or any license terms that require permissions from the vendor for modifications to the files.
3. Software Licenses: Ten (10) fully licensed versions of programming software. This software shall allow for the modification, the re-programming and the reinstallation of the manufacturer version that is the most current on the day of System commissioning.

B. Chain of Custody

1. A chain of custody shall be used and maintained for all software and documentations listed above in this specification. The chain of custody shall be maintained at all times to ensure these items reach WMATA's engineering group. The contractor shall be responsible for ensuring that the above documentation and software are conveyed to the WMATA COTR. The WMATA COTR shall ensure that the deliverables get submitted to the WMATA engineering.

1.06 QUALITY ASSURANCE

A. Design Testing (Documents to be provided with bid package):

- (1) The manufacturer shall provide copies of the MPR design test reports, as supporting evidence of a "test-certified design", as defined in IEEE C37.100.1.
- (2) All test reports shall be provided in electronic format.

B. Production Testing (Documents to be provided before delivery of the first unit):

- (1) Certified test reports shall be provided prior to granting a release for shipment.
- (2) All test reports shall be provided in electronic format.

1.07 DELIVERY STORAGE AND HANDLING

A. Delivery and Acceptance Requirements:

1. Equipment for each facility shall be delivered in accordance with the Contract and shall be coordinated with the Authority.

SECTION 34 21 11.2

DIGITAL POWER METERS (DPMs)/ POWER QUALITY AND REVENUE METERS (PQMs) FOR METAL-ENCLOSED AC SWITCHGEAR

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

1.02 SUMMARY

- A. This section specifies requirements for microprocessor-based power quality and revenue meters with a combination of recording, automation, and communications capabilities or 34.5kV and 13.8 kV metal-clad switchgear at WMATA's Traction Power Substations.

1.03 REFERENCES

B. Reference Standards:

1. IEEE 1159 -Recommended Practice for Monitoring Electric Power Quality.
2. ANSI C12.20 standard- Physical aspects and acceptable performance criteria for 0.2 and 0.5 accuracy class electricity meters.
 3. ANSI, NEMA and IEEE standards
 4. IEEE C37.100 – Standard Definitions for Power Switchgear
 5. ISO 9001 – Quality Management Systems – Requirements
 6. IEC61000- 4-30
 7. ANSI C 39.1 – Requirements for Electrical indicating instruments

1.04 SUBMITTALS

C. Submit the following with the bid package.

1. Product Data.
 - a. Catalog descriptions and data sheets for each type of metering equipment.

2. Certification.

- a. Design test reports or certified copies of test reports for identical MPR units performed.
 - 1) Tests shall conform to the most recent applicable standards requirements prior to submittal to the Authority.
 - 2) Certified test reports of conformance to the applicable design and testing standard.

D. Submit the following with each MPR unit.

1. Certified test reports of factory production testing.
2. Factory design and production test data.

SECTION 34 21 11.2

POWER QUALITY AND REVENUE METERS FOR METAL-ENCLOSED AC SWITCHGEAR

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

1.02 SUMMARY

- A. This section specifies requirements for microprocessor-based power quality and revenue meters with a combination of recording, automation, and communications capabilities or 34.5kV and 13.8 kV metal-clad switchgear at WMATA's Traction Power Substations.

1.03 REFERENCES

B. Reference Standards:

1. IEEE 1159 -Recommended Practice for Monitoring Electric Power Quality.
2. ANSI C12.20 standard- Physical aspects and acceptable performance criteria for 0.2 and 0.5 accuracy class electricity meters.
 3. ANSI, NEMA and IEEE standards
 4. IEEE C37.100 – Standard Definitions for Power Switchgear
 5. ISO 9001 – Quality Management Systems – Requirements
 6. IEC61000- 4-30
 7. ANSI C 39.1 – Requirements for Electrical indicating instruments

1.04 SUBMITTALS

C. Submit the following with the bid package.

1. Product Data.
 - a. Catalog descriptions and data sheets for each type of metering equipment.
2. Certification.
 - a. Design test reports or certified copies of test reports for identical DPMs and PQMs units performed.
 - 1) Tests shall conform to the most recent applicable standards requirements prior to submittal to the Authority.
 - 2) Certified test reports of conformance to the applicable design and testing standard.

D. Submit the following with each MPR unit.

1. Certified test reports of factory production testing.
2. Factory design and production test data.

SECTION 34 21 11.2

POWER QUALITY AND REVENUE METERS FOR METAL-ENCLOSED AC SWITCHGEAR

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

1.02 SUMMARY

- A. This section specifies requirements for microprocessor-based power quality and revenue meters with a combination of recording, automation, and communications capabilities or 34.5kV and 13.8 kV metal-clad switchgear at WMATA's Traction Power Substations.

1.03 REFERENCES

B. Reference Standards:

1. IEEE 1159 -Recommended Practice for Monitoring Electric Power Quality.
2. ANSI C12.20 standard- Physical aspects and acceptable performance criteria for 0.2 and 0.5 accuracy class electricity meters.
 3. ANSI, NEMA and IEEE standards
 4. IEEE C37.100 – Standard Definitions for Power Switchgear
 5. ISO 9001 – Quality Management Systems – Requirements
 6. IEC61000- 4-30
 7. ANSI C 39.1 – Requirements for Electrical indicating instruments

1.04 SUBMITTALS

C. Submit the following with the bid package.

1. Product Data.
 - a. Catalog descriptions and data sheets for each type of metering equipment.
2. Certification.
 - a. Design test reports or certified copies of test reports for identical MPR units performed.
 - 1) Tests shall conform to the most recent applicable standards requirements prior to submittal to the Authority.
 - 2) Certified test reports of conformance to the applicable design and testing standard.

D. Submit the following with each PQM unit.

1. Certified test reports of factory production testing.
2. Factory design and production test data.

1. Factory calibration report. All meters shall be tested in factory for accuracy at quarter, half, three quarters and full range points.
2. Operating and maintenance manual.

1.05 SOFTWARE AND DOCUMENTATIONS

A. Programming Software:

1. For each type of power quality and revenue meter, provide configuration software, and manuals on disks that will be licensed to WMATA. Provide and submit proof that the software packages are licensed to WMATA when the software is delivered to WMATA. Provide and submit proof that a five-year software maintenance/upgrade package has been purchased for the Owner.
2. All configuration files shall be in their native formats, shall become property of WMATA and shall not include any copyrighted license or any license terms that require permissions from the vendor for modifications to the files.
3. Software Licenses: Ten (10) fully licensed versions of programming software. This software shall allow for the modification, the re-programming and the reinstallation of the manufacturer's version that is the most current on the day of system commissioning.

B. Chain of Custody

1. A chain of custody shall be used and maintained for all software and documentation listed above in this specification. The chain of custody shall be maintained at all times to ensure these items reach WMATA's engineering group. The contractor shall be responsible for ensuring that the above documentation and software are conveyed to the WMATA COTR. . The WMATA COTR shall ensure that the deliverables get submitted to the WMATA engineering.

1.06 QUALITY ASSURANCE

A. Design Testing (Documents to be provided with bid package):

- (1) The manufacturer shall provide copies of the design test reports, as supporting evidence of a "test - certified design"
- (2) All test reports shall be provided in electronic format.

B. Production Testing (Documents to be provided before delivery of the first unit):

- (1) Certified test reports shall be provided prior to granting a release for shipment.
- (2) All test reports shall be provided in electronic format.

1.07 DELIVERY STORAGE AND HANDLING

SECTION 34 21 11.2

POWER QUALITY AND REVENUE METERS FOR METAL-ENCLOSED AC SWITCHGEAR

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

1.02 SUMMARY

- A. This section specifies requirements for microprocessor-based power quality and revenue meters with a combination of recording, automation, and communications capabilities or 34.5kV and 13.8 kV metal-clad switchgear at WMATA's Traction Power Substations.

1.03 REFERENCES

B. Reference Standards:

1. IEEE 1159 -Recommended Practice for Monitoring Electric Power Quality.
2. ANSI C12.20 standard- Physical aspects and acceptable performance criteria for 0.2 and 0.5 accuracy class electricity meters.
 3. ANSI, NEMA and IEEE standards
 4. IEEE C37.100 – Standard Definitions for Power Switchgear
 5. ISO 9001 – Quality Management Systems – Requirements
 6. IEC61000- 4-30
 7. ANSI C 39.1 – Requirements for Electrical indicating instruments

1.04 SUBMITTALS

C. Submit the following with the bid package.

1. Product Data.
 - a. Catalog descriptions and data sheets for each type of metering equipment.

2. Certification.

- a. Design test reports or certified copies of test reports for identical MPR units performed.
 - 1) Tests shall conform to the most recent applicable standards requirements prior to submittal to the Authority.
 - 2) Certified test reports of conformance to the applicable design and testing standard.

D. Submit the following with each MPR unit.

1. Certified test reports of factory production testing.
2. Factory design and production test data.

A. Delivery and Acceptance Requirements:

1. Equipment for each facility shall be delivered in accordance with the Contract and shall be coordinated with the Authority.
2. Ship each meter securely packaged, braced and labeled for safe handling in shipment and to avoid damage or distortion.
3. Store meters in secure and dry storage facility per manufacturer's recommendations.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer: The PQM manufacturer's shall have a technical services assistant available within USA who can provide technical assistance, in person or via telephone within 24 hours.

2.02 PERFORMANCE REQUIREMENTS

A. Standards compliance

1. The power monitoring instrument shall provide 4-quadrant metering and meet ANSI C12.20 accuracy class 0.2. The power monitoring instrument shall be UL and CSA listed and CE marked.
2. The power monitoring instrument shall have a third-party compliance certification for IEC62053-22: Electricity metering equipment (AC) – particular requirements –part 22: static meters for active energy, accuracy class 0.2S and for IEC61000-4-30 Class A Edition 2 for power quality measurements.
3. The power monitoring instrument with the standard power supply shall operate over a temperature range of -20° C to 70° C, and the remote mounted, color display shall operate over a range of 0° C to 50° C.

B. Accuracy

1. Accuracy shall exceed ANSI and IEC Class 0.2 with a $\pm 0.06\%$ Wh guarantee at unity power factor and a Class 0.2 accuracy guarantee for at least 10 years.

C. Current/voltage inputs and display

1. The power quality meter shall have no less than 4 voltage inputs and 4 current inputs, and shall sample at 1024 or 512 samples per cycle.
2. The power quality meter in its standard configuration shall be able to accept 600VAC LL / 347VAC LN without using potential transformers.
3. The power quality meter shall have an integrated, graphical LCD display to display all measured values plus advanced features including phasor diagrams and trending charts. It shall also support a separately mounted, color, touch screen display, capable of supporting all of the display screens available on the integrated display. The power meter shall be able to meet all accuracy specifications after withstanding 2500 VAC RMS for 1 minute (with internal protection disabled).

D. Measured values

1. The power quality meter shall provide 4 quadrant metering, and a have third-party certification for revenue accuracy. It shall provide basic metering plus minimum/maximum, demand, and time of use.

A. Delivery and Acceptance Requirements:

1. Equipment for each facility shall be delivered in accordance with the Contract and shall be coordinated with the Authority.
2. Ship each meter securely packaged, braced and labeled for safe handling in shipment and to avoid damage or distortion.
3. Store meters in secure and dry storage facility per manufacturer's recommendations.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer: The PQM manufacturer's shall have a technical services assistant available within USA who can provide technical assistance, in person or via telephone within 24 hours.

2.02 PERFORMANCE REQUIREMENTS

A. Standards compliance

1. The power monitoring instrument shall provide 4-quadrant metering and meet ANSI C12.20 accuracy class 0.2. The power monitoring instrument shall be UL and CSA listed and CE marked.
2. The power monitoring instrument shall have a third-party compliance certification for IEC62053-22: Electricity metering equipment (AC) – particular requirements –part 22: static meters for active energy, accuracy class 0.2S and for IEC61000-4-30 Class A Edition 2 for power quality measurements.
3. The power monitoring instrument with the standard power supply shall operate over a temperature range of -20° C to 70° C, and the remote mounted, color display shall operate over a range of 0° C to 50° C.

B. Accuracy

1. Accuracy shall exceed ANSI and IEC Class 0.2 with a $\pm 0.06\%$ Wh guarantee at unity power factor and a Class 0.2 accuracy guarantee for at least 10 years.

C. Current/voltage inputs and display

1. The power quality meter shall have no less than 4 voltage inputs and 5 current inputs, and shall sample at 1024 or 512 samples per cycle.
2. The power quality meter in its standard configuration shall be able to accept 600VAC LL / 347VAC LN without using potential transformers.
3. The power quality meter shall have an integrated, graphical LCD display to display all measured values plus advanced features including phasor diagrams and trending charts. It shall also support a separately mounted, color, touch screen display, capable of supporting all of the display screens available on the integrated display. The power meter shall be able to meet all accuracy specifications after withstanding 2500 VAC RMS for 1 minute (with internal protection disabled).

D. Measured values

1. The power quality meter shall provide 4 quadrant metering, and a have third-party certification for revenue accuracy. It shall provide basic metering plus minimum/maximum, demand, and time of use.

- a. The power quality meter firmware shall be field upgradeable.

P. Communication.

- 1. The meter shall support up to ten simultaneous communications sessions via 100BASE-FX Ethernet.
- 2. **Protocols.**
 - a. The meter shall support simultaneous DNP3 and IEC 61850 GOOSE communications protocols.
 - b. The DNP3, and IEC 61850 protocols shall support at least 2,000 simultaneous analog quantities with user-configurable mapping and scaling.
 - c. **IEC 61850 Ethernet Communications.** The meter shall incorporate IEC 61850 MMS and GOOSE with up to 24 GOOSE subscriptions and 6 simultaneous MMS sessions.

Q. Mechanical Construction.

- 1. The meter case shall be aluminum with a front-panel international protection (IP) rating of 65 when installed in a panel. Mounting provisions shall include rack, panel flush and surface-mounted options.

R. Software.

- 1. The meter shall allow settings configurations, data retrieval, and analysis free of charge. The software shall retrieve, display, and store text and graphical reports including VSSI, Load Profile, TOU, and waveform events data without erasing stored meter data. Standard event analysis software shall support waveform event playback and harmonic reporting. The software shall export data in .CSV, .TXT, .HHF, COMTRADE, .CEV, and .BIN file formats.

S. Reliability.

- 1. The manufacturer shall supply the actual measured mean time between failures (MTBF).

T. Conformal Coating.

- 1. The circuit boards in the device shall include conformal coating for harsh environments.

PART 3 EXECUTION

-----This section NOT USED-----

SECTION 34 21 14

MICROPROCESSOR-BASED MULTIFUNCTION PROTECTION RELAY (MPR) FOR METAL-ENCLOSED DC SWITCHGEAR

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. .

1.02 SUMMARY

A. This section specifies requirements for the Microprocessor based, DC Multipurpose Protection Relays (MPR). Under this Contract, the Contractor shall be responsible for the delivery of MPR and related components/ sub-assemblies that are designed, tested and ready for installation.

1.03 REFERENCES

B. Reference Standards:

1. IEEE 242-2001 – Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems – IEEE Buff Book
2. IEEE C37.1 – Standard for SCADA and Automation Systems
3. IEEE C37.14 – Standard for Low-Voltage DC Power Circuit Breakers Used in Enclosures
4. IEEE C37.20.1 – Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
5. IEEE C37.90 – Standard for Relays and Relay Systems Associated with Electric Power Apparatus
6. IEEE C37.100 – Standard Definitions for Power Switchgear
7. ISO 9001 – Quality Management Systems – Requirements
8. NFPA 70 National Electric Code

1.04 SUBMITTALS

C. Submit the following with the bid package.

1. Product Data.
2. Certification.
 - a. Design Tests reports or certified copies of tests reports for identical MPR units performed.
 - 1) Test shall conform to the most recent applicable standards requirements prior to submittal to the Authority.
 - 2) Certified test reports of conformance to the applicable design and testing standard

- A. Submit the following with each MPR unit.
 - 1. Certified test reports of factory production testing
 - 2. Factory design and production test data.
 - 3. Factory calibration report.
 - 4. Operating and maintenance manual.

1.05 SOFTWARE AND DOCUMENTATION

A. Programming Software:

- 1. For each type of microprocessor-based multifunction protection relay, provide configuration software, configuration files and manuals on licensed discs. Provide and submit proof that the software packages are licensed to WMATA when the software is delivered to WMATA. Provide and submit proof that a five-year software maintenance/upgrade package has been purchased for the Owner.
- 2. Relay configuration files shall be submitted to WMATA for review and approval prior to the delivery of MPRs.
- 3. All configuration files in their native formats, shall become property of WMATA and shall not include any copyrighted licenses or any license terms that require permissions from the vendor for modifications to the files.
- 4. Software Licenses: Ten (10) fully licensed versions of programming software. This software shall allow for the modification, re-programming and reinstallation of the manufacturer's version that is the most current on the day of System commissioning.

B. Chain of Custody

- 1. A chain of custody shall be used and maintained for all software, configuration files and documentation listed above in this specification. The chain of custody shall be maintained at all times to ensure these items reach WMATA's engineering group. The contractor shall be responsible for ensuring that the above documentation, configuration files, and software are conveyed to the WMATA COTR. The WMATA COTR shall ensure that the deliverables get submitted to the WMATA engineering.

1.06 QUALITY ASSURANCE

A. Design Testing (Documents to be provided with bid package):

- (1) The manufacturer shall provide copies of the MPR design test reports, as supporting evidence of a "test - certified design", as defined in IEEE C37.100.
- (2) All test reports shall be provided in electronic format.

B. Production Testing (Documents to be provided before delivery of the first unit):

- (1) Certified test reports shall be provided prior to granting a release for shipment.
- (2) All test reports shall be provided in electronic format.

1.07 DELIVERY STORAGE AND HANDLING

A. Delivery and Acceptance Requirements:

1. Equipment for each facility shall be delivered in accordance with the Contract and shall be coordinated with the Authority.
2. Ship each MPR unit securely packaged, braced and labeled for safe handling in shipment and to avoid damage or distortion.
3. Store MPRs in secure and dry storage facility per manufacturer's recommendations.

B. Operation and Maintenance Manuals: Provide manufacturer's standard O&M manual including the Preventive Maintenance Instructions as applicable.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturer: The relay manufacturer's technical services assistant shall be readily available within USA or shall can be contacted to provide telephone support within 24 hours.

2.02 PERFORMANCE REQUIREMENTS

A. Under extremely harsh environmental (dusty, humid) conditions, the MPR and the associated components shall perform protective, measurement, monitoring and control functions for the DC switchgear feeder and cathode breakers.

B. Multi-function protective relays shall communicate with the substation RTU and computers using DNP3 OR Modbus TCP OR IEC 61850 protocol. Each relay shall be connected to the substation network switch by fiber optic cable.

C. The MPR flawless operation shall be guaranteed for a minimum of five years. Any software upgrades during the guaranteed period shall be provided at no additional costs.

2.03 GENERAL REQUIREMENTS FOR MPR EQUIPMENT

D. MPR Protective Functions include:

1. Bi-directional overcurrent/fault protection to the equipment from high current, instantaneous and low level current faults
2. Protection of the cable against thermal over loads.
3. Ability to distinguish fault currents from the train start and switching of the train auxiliaries to avoid nuisance tripping of the feeder breakers.
4. Reverse current protection for rectifiers.

E. Measurement Functions:

1. The MPRs shall provide current measurement.
2. The MPRs shall have line and load side voltage measurements.
3. The MPRs shall have load side impedance measurements.

AC MICROPROCESSOR BASED PROTECTION RELAY (MPR)
Specification Section: 34 21 11.1
(Microprocessor-Based Multifunction Power Relay for Metal-Enclosed AC Switchgear)
TECHNICAL REQUIREMENTS COMPLIANCE CHECKLIST

Manufacturer: Siemens Basis Model Number: Siprotec 7SJ series Quoted Part Number (P/N): _____	Manufacturer: ABB Basis Model Number: REF615 series Quoted Part Number (P/N): _____	Brand Name or Equal Manufacturer: _____ Basis Model Number: See technical specifications Quoted Part Number (P/N): _____
Quoted Model Information:		
1. Are you quoting the basis Model Number listed above? (Yes / No) If not, please refer to Note 1. below	1. Are you quoting the basis Model Number listed above? (Yes / No) If not, please refer to Note 1. below	Please refer to Note 1. below
Delivery:		
2. Number of days required for delivery: ____ ARO	2. Number of days required for delivery: ____ ARO	2. Number of days required for delivery: ____ ARO
3a. Delivery lead time for first shipment: ____ ARO	3a. Delivery lead time for first shipment: ____ ARO	3a. Delivery lead time for first shipment: ____ ARO
3b. Product quantity in first shipment: ____ EACH	3b. Product quantity in first shipment: ____ EACH	3b. Product quantity in first shipment: ____ EACH
4a. Delivery lead time for next shipment(s): ____ ADFS	4a. Delivery lead time for next shipment(s): ____ ADFS	4a. Delivery lead time for next shipment(s): ____ ADFS
4b. Product quantity in next shipment(s): ____ EACH	4b. Product quantity in next shipment(s): ____ EACH	4b. Product quantity in next shipment(s): ____ EACH

TECHNICAL REQUIREMENTS	WMATA REQUIREMENTS	Complies with Requirements Yes / No	Complies with Requirements Yes / No	Complies with Requirements Yes / No
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GENERAL

TYPE	Advanced multifunction microprocessor-based relay	YES or NO	YES or NO	YES or NO
MOUNTING TYPE	Flush Mounting, screw type terminals; The relay design shall include "draw-out" and "draw-in" components where the draw-out unit can be withdrawn or inserted to a fixed mounted case.	YES or NO	YES or NO	YES or NO
DISPLAY	GRAPHIC DISPLAY HMI. The relay shall be provided with easy to use Human-Machine-Interface (HMI) front-panel display, user-interface functionality with menu navigation and menu views.	YES or NO	YES or NO	YES or NO
INPUTS/OUTPUTS	4 Voltage Inputs	YES or NO	YES or NO	YES or NO
	4 Current Inputs	YES or NO	YES or NO	YES or NO
	8 Binary Inputs	YES or NO	YES or NO	YES or NO
	8 Binary Outputs	YES or NO	YES or NO	YES or NO
CONTROL POWER	4 Controls	YES or NO	YES or NO	YES or NO
FRONT MAINTENANCE PORT	125V DC	YES or NO	YES or NO	YES or NO
ENVIRONMENT AND CABINET INFORMATION	RJ-45 Ethernet connector	YES or NO	YES or NO	YES or NO
ARC FLASH	Unit shall be packaged in a steel case for transient immunity and structural integrity that is suitable for conventional panel flush mounting or semi flush mounted.	YES or NO	YES or NO	YES or NO
	Three arc sensors	YES or NO	YES or NO	YES or NO

MONITORING & CONTROL FUNCTIONS

INTEGRATED POWER QUALITY METER	Includes power quality function to continuously measures the phase currents and voltages, calculate the maximum demand value over selected preset time frame, the thermal overload of the protected equipment, the unbalance values and power factor.	YES or NO	YES or NO	YES or NO
ACCURACY	Meet ANSI C12.20 accuracy class 0.2.			
EVENT RECORDER	The relay shall collect sequence of events information, incorporates memory with a capacity of storing 50 events with associated time stamps.	YES or NO	YES or NO	YES or NO
DISTURBANCE RECORDER	The relay shall be provided with disturbance recorder featuring up to eight analog and 32 binary signal channels. The analog channels can be set to record ether waveform or the trend of the currents and voltage measured. Waveform Recording- up to 512 sample/cycle	YES or NO	YES or NO	YES or NO
TRIP/CLOSE CONTROL	The relay shall offer control of one circuit breaker with dedicated push-buttons for opening and closing.	YES or NO	YES or NO	YES or NO
FUSE FAILURE SUPERVISION	REQUIRED	YES or NO	YES or NO	YES or NO
CIRCUIT SUPERVISION	The relay shall include trip-circuit supervision continuously monitoring the availability and operability of the trip circuit.	YES or NO	YES or NO	YES or NO
CONTROL FUNCTIONS	REQUIRED	YES or NO	YES or NO	YES or NO
OPERATION TRACEABILITY	REQUIRED	YES or NO	YES or NO	YES or NO
SELF-SUPERVISION	The relay's built-in self-supervision system continuously monitors the state of the relay hardware and the operation of the relay software. Any fault or malfunction detected will be used for alerting the operator through a fail safe contact.	YES or NO	YES or NO	YES or NO
ACCESS CONTROL	To protect the relay from unauthorized access and to maintain information integrity, the relay shall be provided with a four-level access control. The access control shall apply to the front-panel user interface, the web-browser based user interface.	YES or NO	YES or NO	YES or NO
CIRCUIT BREAKER CONDITION MONITORING	The relay shall constantly monitor the performance and the condition of the circuit breaker.	YES or NO	YES or NO	YES or NO

PROTECTIVE FUNCTIONS

PHASE OVER CURRENT	50/51 THREE PHASE OVERCURRENT PROTECTION	YES or NO	YES or NO	YES or NO
GROUND FAULT	50N/51N GROUND-FAULT PROTECTION	YES or NO	YES or NO	YES or NO
FAILURE PROTECTION	50BF BREAKER FAILURE PROTECTION	YES or NO	YES or NO	YES or NO
TRIP CIRCUIT	74TC TRIP CIRCUIT SUPERVISION	YES or NO	YES or NO	YES or NO
LOCKOUT	86 LOCKOUT	YES or NO	YES or NO	YES or NO
UNDER /OVER VOLTAGE	27/59 THREE PHASE UNDER-/OVERVOLTAGE	YES or NO	YES or NO	YES or NO
FREQUENCY	81O/U UNDER-/OVER FREQUENCY	YES or NO	YES or NO	YES or NO
SYNCHRO-CHECK	25 SYNCHRO-CHECK	YES or NO	YES or NO	YES or NO
ANSI RI-9 PROTECTIONS	Three Phase Relay 51A function to protect against overloads beyond the 300 percent, one minute capability of the units.	YES or NO	YES or NO	YES or NO
	Three Phase Relay 51B functions to protect against overloads beyond the 450 percent, 15 second capability of the units and coordinated with relay 51A.	YES or NO	YES or NO	YES or NO

COMMUNICATION & SECURITY FUNCTIONS

COMMUNICATION PROTOCOLS	DNP3 & IEC61850	YES or NO	YES or NO	YES or NO
COMMUNICATION MODULE	100BASE-FX with a fiber optic LC or ST	YES or NO	YES or NO	YES or NO
WEB INTERFACE	Web server functionality for remote monitoring; remote access via Ethernet interface using standard web browser	YES or NO	YES or NO	YES or NO
RELAY TIME SYNCHRONIZATION	Relay shall include Network Time Protocol to be configured to time synchronize with WMATA network time servers.	YES or NO	YES or NO	YES or NO
SAFETY AND SECURITY	Access to the MPR parameters shall be time stamped, code protected and shall initiate an alarm on any un-authorized attempt to the set parameters.	YES or NO	YES or NO	YES or NO

SOFTWARE & CONFIGURATION

CONFIGURATION SOFTWARE	Programming software shall be provided with each relay	YES or NO	YES or NO	YES or NO
SOFTWARE LICENSES	Ten (10) fully licensed versions of the programming software shall be provided under this contract.	YES or NO	YES or NO	YES or NO

OTHER REQUIREMENTS

TECHNICAL SUPPORT	Relay manufacturer's technical services assistance shall be readily available within USA	YES or NO	YES or NO	YES or NO
QUALITY ASSURANCE	Certified design tests completed. Tests as defined in IEEE C37.100.1.	YES or NO	YES or NO	YES or NO
OPERATION MTBF	MEAN TIME BETWEEN FAILURES: FIVE YEARS	YES or NO	YES or NO	YES or NO

Notes:
1.If the model number quoted differs from the model number requested, please provide a letter explaining why; include technical specifications for the quoted product (cut sheet, shop drawing, test results, etc.); also a signed memorandum in PDF format stating you are an authorized distributor for this model. An example memorandum can be provided upon request.

ARO - After Receipt of Order
ADFS - After Delivery of First Shipment

DC MICROPROCESSOR BASED PROTECTION RELAY (MPR)
Specification Section: 34 21 14
(Microprocessor-Based Multifunction Protection Relay for Metal-Enclosed DC Switchgear)
TECHNICAL REQUIREMENTS COMPLIANCE CHECKLIST

Manufacturer: Siemens		Manufacturer: VG Controls		Manufacturer: Secheron		Brand Name or Equal	
Basis Model Number: Sitras Pro series		Basis Model Number: MPR E32VG8 series		Basis Model Number: SEPCOS series		Basis Model Number: <i>See technical specifications</i>	
Quoted Part Number (P/N):		Quoted Part Number (P/N):		Quoted Part Number (P/N):		Quoted Part Number (P/N):	
Quoted Model Information:							
1. Are you quoting the basis Model Number listed above? (Yes / No) If not, please refer to Note 1. below		1. Are you quoting the basis Model Number listed above? (Yes / No) If not, please refer to Note 1. below		1. Are you quoting the basis Model Number listed above? (Yes / No) If not, please refer to Note 1. below		Please refer to Note 1. below	
Delivery:							
2. Number of days required for delivery: ARO		2. Number of days required for delivery: ARO		2. Number of days required for delivery: ARO		2. Number of days required for delivery: ARO	
3a. Delivery lead time for first shipment: ARO		3a. Delivery lead time for first shipment: ARO		3a. Delivery lead time for first shipment: ARO		3a. Delivery lead time for first shipment: ARO	
3b. Product quantity in first shipment: EACH		3b. Product quantity in first shipment: EACH		3b. Product quantity in first shipment: EACH		3b. Product quantity in first shipment: EACH	
4a. Delivery lead time for next shipment(s): ADFS		4a. Delivery lead time for next shipment(s): ADFS		4a. Delivery lead time for next shipment(s): ADFS		4a. Delivery lead time for next shipment(s): ADFS	
4b. Product quantity in next shipment(s): EACH		4b. Product quantity in next shipment(s): EACH		4b. Product quantity in next shipment(s): EACH		4b. Product quantity in next shipment(s): EACH	
TECHNICAL REQUIREMENTS	WMATA REQUIREMENTS	Complies with Requirements Yes / No	Complies with Requirements Yes / No	Complies with Requirements Yes / No	Complies with Requirements Yes / No	Complies with Requirements Yes / No	Complies with Requirements Yes / No
GENERAL							
TYPE	Advanced multifunction microprocessor-based relay	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
MAIN MODULE MOUNTING TYPE	Surface Mounting, connected to transducer by Fiber glass cable.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
DISPLAY	GRAPHIC DISPLAY HMI: The relay shall be provided with easy to use Human-Machine-Interface (HMI) front-panel display or LCD, user-interface functionality with menu navigation and menu views. Flush Mounting.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
INPUTS/OUTPUTS	2 Voltage Inputs Through voltage transducer: Line Side & Load Side	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	1 Current Input : From DC shunt thorough Current transducer	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	Minimum of 16 Input Contacts	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	Minimum of 16 Output Contacts	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
CONTROL POWER	Minimum of 6 Control Contacts	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
MAINTENANCE PORT	125 Volts dc +/- 10%, 10 VA (Max)	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
ENVIRONMENT INFORMATION	RJ-45 Ethernet connector	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	MPR and the associated components shall be designed for extremely harsh environmental (dusty, humid) conditions.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	Temperature Test: Per IEEE 37.90. Temperature Range : -5°C to + 55°C	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	Humidity Test: Per IEEE 37.90.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
ACCURACY	All MPR relays, associated components and ancillary equipment shall be rated for continuous operation in this environment.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	Equipment shall function as intended when subjected to all electromagnetic interference present in the vicinity of 750 V DC power circuits and traction power equipment.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	+ 0.5% Rated Output @ 25°C	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
MONITORING & CONTROL FUNCTIONS							
MEASUREMENT FUNCTIONS	The MPR shall provide current measurement.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	The MPR shall provide Line and load side voltage measurements.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	The MPR shall provide Load side impedance measurement.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
CONTROL FUNCTIONS	The MPR shall provide for closing and opening of the breakers when commanded.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	The MPR shall trip the feeder breaker on detection of the faults	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	The MPR shall initiate automatic reclosing of the tripped circuit breaker upon detection of acceptance impedance and voltage conditions.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	The relays shall be capable to received and execute controls	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
MONITORING FUNCTIONS	The MPR shall have transfer trip capability.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	The MPR shall have self –diagnostics capability	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	The MPR shall monitor circuit breaker health	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	The MPR shall monitor and provide breaker status	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	Shall be capable of streaming breaker line voltage, load voltage and current to SCADA	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	The relay shall include webserver for remote access via standard web browser.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	The relay shall include digital output connected to	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
	The MPR shall monitor Under and over voltage conditions.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
The relay shall constantly monitor the performance and the condition of the circuit breaker.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	
PROTECTIVE FUNCTIONS							
INSTANTANEOUS FAULTS	Shall provide bi-directional instantaneous fault protection to the equipment.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
REVERSE CURRENT FAULTS	Shall provide reverse current protection for rectifiers	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
LOW LEVEL FAULTS	Shall provide bi-directional Low Level fault protection to the equipment.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
TIMED OVERCURRENT FAULTS	Shall provide bi-directional Timed Overcurrent fault protection to the equipment.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
RATE OF RISE FAULTS	Shall be capable to as distinct the faults current from the train start and switching of the train auxiliaries to avoid nuisance tripping of the feeder breakers	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
LONG TIME OVERCURRENT FAULTS	3. Shall provide protection to the cable against thermal over loads.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
TRANSFER TRIP INITIATE	shall include capability for transfer trip due to forward and Reverse faults	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
COMMUNICATION & SECURITY FUNCTIONS							
COMMUNICATION PROTOCOLS	DNP3 or Modbus or IEC61850	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
COMMUNICATION MODULE	100BASE-FX with a fiber optic LC or ST	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
WEB INTERFACE	Web server functionality for remote monitoring; remote access via Ethernet interface using standard web browser	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
SYSTEM FAILURE ALARM	The relay's built-in self-supervision system continuously monitors the state of the relay hardware and the operation of the relay software. Any fault or malfunction detected will be used for alerting the operator through a fail safe dry contact.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
RELAY TIME SYNCHRONIZATION	Relay shall include Network Time Protocol to be configured to time synchronize with WMATA network time servers.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
SAFETY AND SECURITY	Access to the MPR parameters shall be time stamped, code protected and shall initiate an alarm on any unauthorized attempt to the set parameters.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
ADDITIONAL FEATURES							
RELAY SYSTEM	The MPR System shall include all hardware, software, and ancillary circuits connecting between the various equipment modules so as to implement the protection, indication, load measuring, automatic reclosing functions and monitoring functions	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
EVENT RECORDER	The MPR shall include an Event Time Recorder to record peak current values prior to and during the operation of relay during fault conditions.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
ISOLATOR/ AMPLIFIERS	The MPR shall include the isolator/ amplifiers and other hardware complete to perform its intended functions.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
SYSTEM FAILURE ALARM	The relay's built-in self-supervision system continuously monitors the state of the relay hardware and the operation of the relay software. Any fault or malfunction detected will be used for alerting the operator through a fail safe dry contact.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
EVENT LOGGER	The relay shall include event log with time stamp for all protective functions and critical alarm monitoring functions included in the relay	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
SAFETY AND SECURITY	Access to the MPR parameters shall be time stamped, code protected and shall initiate an alarm on any unauthorized attempt to the set parameters.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
SOFTWARE & CONFIGURATION							
CONFIGURATION SOFTWARE	Programming software shall be provided with each relay	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
SOFTWARE LICENSES	Ten (10) fully licensed versions of the programming software shall be provided under this contract.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
OTHER REQUIREMENTS							
TECHNICAL SUPPORT	Relay manufacturer's technical services assistance shall be readily available within USA	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
QUALITY ASSURANCE	Certified design tests completed. Tests as defined in IEEE C37.100.1.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO
OPERATION MTBF	MEAN TIME BETWEEN FAILURE: 100000 HRS.	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO	YES or NO

Notes:
1. If the **model** number quoted differs from the **model** number requested, please provide a letter explaining why; include technical specifications for the quoted product (cut sheet, shop drawing, test results, etc.); also a signed memorandum in PDF format stating you are an authorized distributor for this **model**. An example memorandum can be provided upon request.
ARO - After Receipt of Order
ADFS - After Delivery of First Shipment

POWER QUALITY AND REVENUE METERS (DPMs / PQMs)
Specification Section: 34 21 11.2
(Power Quality and Revenue Meters for Metal-Enclosed AC Switchgear)
TECHNICAL REQUIREMENTS COMPLIANCE CHECKLIST

Manufacturer: _____
Basis Model Number: Siemens - 9610 series
Quoted Part Number (P/N): _____
Quoted Part Information:
1. Are you quoting the basis Model Number listed above? (Yes / No) If not, please refer to Note 1. below
Delivery:
2. Number of days required for delivery: ARO
3a. Delivery lead time for first shipment: ARO
3b. Product quantity in first shipment: EACH
4a. Delivery lead time for next shipment(s): ADFS
4b. Product quantity in next shipment(s): EACH

TECHNICAL REQUIREMENTS	WMATA REQUIREMENTS	Complies with Requirements Yes / No
GENERAL		
TYPE	Advanced multifunction microprocessor-based Power Quality Meter	YES or NO
MOUNTING TYPE	The meter case shall be aluminum with a front-panel International Protection (IP) rating of 65 when installed in a panel. Mounting provisions shall include rack-, panel-, flush and surface-mount options.	YES or NO
Conformal Coating.	The circuit boards in the device shall include conformal coating for harsh environments.	YES or NO
DISPLAY	GRAPHIC DISPLAY HMI . Integrated liquid crystal display (LCD) shall report all available analog quantities including power, energy, voltage, current, frequency, harmonics, phase angle, and maximum/minimum values Programmable LEDs shall indicate status, alarms, and the presence of voltage.	YES or NO
INPUTS/OUTPUTS	4 Voltage Inputs	YES or NO
	4 Current Inputs	YES or NO
	Shall sample at 1024 or 512 samples per cycle.	YES or NO
	Shall be able to accept 600VAC LL / 347VAC LN without using potential transformers.	YES or NO
	Three electromechanical outputs	YES or NO
	Two digital inputs	YES or NO
CONTROL POWER	125V DC	YES or NO
FRONT MAINTENANCE PORT	RJ-45 Ethernet connector	YES or NO
ENVIRONMENT AND CABINET INFORMATION	Shall operate over a temperature range of -20° C to 70° C	YES or NO
	Unit shall be packaged in a steel case for transient immunity and structural integrity that is suitable for conventional panel flush mounting or semi flush mounted.	YES or NO
Deleted		
MONITORING & CONTROL FUNCTIONS		
ACCURACY	Meet ANSI C12.20 accuracy class 0.2.	YES or NO
MINIMUM/MAXIMUM RECORDING	Each phase voltage and current shall have the date and time of the last maximum and minimum value since resetting the maximum/minimum.	YES or NO
SEQUENTIAL EVENTS RECORDER	A chronological report shall record the most recent 16,000 events with 1 ms time-stamp accuracy.	YES or NO
VOLTAGE SAG/SWELL/INTERRUPTION RECORDING	Shall capture excursions with 1 ms time-stamp accuracy. At least 11,000 record samples shall adapt sampling rates from a quarter cycle to daily	YES or NO
Waveform Capture	The meter shall simultaneously capture 512 samples-per-cycle events for a total of 35 seconds from each phase.	YES or NO
Harmonic Metering	Shall report individual harmonics up to the 63rd order, including voltage, current, phase angles, and power magnitudes	YES or NO
Logging and alarming	The power quality meter shall log measured parameters, PQ disturbances, events and alarms, and input status. It shall have an event log, time-stamped to the millisecond.	YES or NO
Time-of-Use (TOU) Metering	The meter shall record demand and energy consumption during different time periods based on a user-defined calendar.	YES or NO
Analog and Math Logic	Binary and analog meter data shall be available for Boolean logic calculations and mathematical functions	YES or NO
ACCESS CONTROL	To protect the relay from unauthorized access and to maintain information integrity, the relay shall be provided with a four-level access control. The access control shall apply to the front-panel user interface, the web-browser based user interface.	YES or NO
COMMUNICATION & SECURITY FUNCTIONS		
COMMUNICATION PROTOCOLS	DNP3 & IEC61850	YES or NO
COMMUNICATION MODULE	100BASE-FX with a fiber optic LC or ST	YES or NO
WEB INTERFACE	Web server functionality for remote monitoring; remote access via Ethernet interface using standard web browser	YES or NO
TIME SYNCHRONIZATION	Relay shall include Network Time Protocol to be configured to time synchronize with WMATA network time servers.	YES or NO
SAFETY AND SECURITY	Access to the PQM parameters shall be time stamped, code protected and shall initiate an alarm on any unauthorized attempt to the set parameters.	YES or NO
SOFTWARE & CONFIGURATION		
CONFIGURATION SOFTWARE	Programming software shall be provided with each Power Quality Meter	YES or NO
SOFTWARE LICENSES	Ten (10) fully licensed versions of the programming software shall be provided under this contract.	YES or NO
OTHER REQUIREMENTS		
TECHNICAL SUPPORT	Relay manufacturer's technical services assistance shall be readily available within USA	YES or NO
FACTORY CALIBRATION REPORT	All meters shall be tested in factory for accuracy at quarter, half, three quarters and full range points.	YES or NO
compliance certification for IEC62053-22	The power monitoring instrument shall have third-party compliance certification for IEC62053-22: Electricity metering equipment (AC)	YES or NO
QUALITY ASSURANCE	Certified design tests completed. Tests as defined in IEEE C37.100.1.	YES or NO
OPERATION MTBF	MEAN TIME BETWEEN FAILURES: FIVE YEARS	YES or NO

Notes:
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