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June 21, 2018

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JUN 21 2018

PUBLIC SERVICE
COMMISSION

VIA HAND-DELIVERY

Gwen R. Pinson, Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, Kentucky 40602

Re: *In the Matter of: Application of Cumberland Valley Electric, Inc. for Commission Approval for a Certificate of Public Convenience and Necessity to Install an Advanced Metering Infrastructure (AMI) System Pursuant to 807 KAR 5:001 and KRS 278.020*
Case No. 2018-00056 – Response to Staff's Post-Hearing Request for Information

Executive Director Pinson:

Please find enclosed and accept for filing in the above-styled matter on behalf of Cumberland Valley Electric, Inc. ("Cumberland Valley"), a redacted original and six (6) redacted copies of its Response to Commission Staff's First Post-Hearing Request for Information propounded June 1, 2018, (including seven (7) identical compact discs containing electronic information). Also enclosed is a sealed envelope marked "Confidential" containing a highlighted copy of the confidential information contained in Cumberland Valley's Response, as well as an original and six (6) copies of a Motion for Confidential Treatment. Please return file-stamped copies of these submissions to me.

I appreciate your assistance with this matter, and please do not hesitate to contact me with any questions or concerns.

Respectfully submitted,

Mark David Goss

Enclosures

RECEIVED

JUN 21 2018

PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

APPLICATION OF CUMBERLAND VALLEY
ELECTRIC, INC. FOR COMMISSION APPROVAL
FOR A CERTIFICATE OF PUBLIC CONVENIENCE
AND NECESSITY TO INSTALL AN ADVANCED
METERING INFRASTRUCTURE (AMI) SYSTEM
PURSUANT TO 807 KAR 5:001 AND KRS 278.020

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Case No.
2018-00056

CUMBERLAND VALLEY ELECTRIC, INC.'S RESPONSE TO
COMMISSION STAFF'S POST-HEARING REQUEST FOR INFORMATION

Filed: June 21, 2018

Cumberland Valley Electric, Inc.
Case No. 2018-00056
Commission Staff's First Post-Hearing Request for Information

1. Identify the number of meters that would be subject to periodic testing pursuant to 807 KAR 5:041, Section 15(3) during the period beginning July 1, 2018, and ending December 31, 2020. Provide the total estimated cost of testing those meters, including the cost of any third party testing provided and any costs incurred directly by Cumberland Valley and explain how Cumberland Valley determined or estimated those costs.

Response:

Please see Page 2 of this Response for a detailed summary showing meters to be tested from July 1, 2018 through December 31, 2020 and the associated costs.

Cumberland Valley Electric, Inc.
Meters Subject to Periodic Meter Testing

Item 1
Page 2 of 2
Witness: Brian Chaney

2018							
<u>Meter Type</u>	<u>Quantity to be Tested</u>	<u>Test Fee (Per Meter) ³</u>	<u>CVE Expense to Change Meter (Per Meter) ¹</u>	<u>Programming TSII Endpoint (96% of Residential Meters) ⁴</u>	<u>Endpoint Firmware Update (43% of Residential Meters) ⁵</u>	<u>Total Expense</u>	
Self Contained Residential Meters	3,280	\$ 5.99	\$ 15.05	\$ 2,657.58	\$ 4,358.14	\$	76,026.91
Self Contained Polyphase Meters ²	49	\$ 85.00	\$ -	\$ -	\$ -	\$	4,165.00
Instrument Rated Meters ²	98	\$ 137.21	\$ -	\$ -	\$ -	\$	13,446.58
						\$	93,638.49

2019							
<u>Meter Type</u>	<u>Quantity to be Tested</u>	<u>Test Fee (Per Meter) ³</u>	<u>CVE Expense to Change Meter (Per Meter) ¹</u>	<u>Programming TSII Endpoint (96% of Residential Meters) ⁴</u>	<u>Endpoint Firmware Update (43% of Residential Meters) ⁵</u>	<u>Total Expense</u>	
Self Contained Residential Meters	3,089	\$ 5.99	\$ 15.05	\$ 2,402.01	\$ 4,104.35	\$	71,498.92
Self Contained Polyphase Meters ²	11	\$ 85.00	\$ -	\$ -	\$ -	\$	935.00
Instrument Rated Meters ²	16	\$ 137.21	\$ -	\$ -	\$ -	\$	2,195.36
						\$	74,629.28

2020							
<u>Meter Type</u>	<u>Quantity to be Tested</u>	<u>Test Fee (Per Meter) ³</u>	<u>CVE Expense to Change Meter (Per Meter) ¹</u>	<u>Programming TSII Endpoint (96% of Residential Meters) ⁴</u>	<u>Endpoint Firmware Update (43% of Residential Meters) ⁵</u>	<u>Total Expense</u>	
Self Contained Residential Meters	2,416	\$ 5.99	\$ 15.05	\$ 1,878.68	\$ 3,210.14	\$	55,921.46
Self Contained Polyphase Meters ²	18	\$ 85.00	\$ -	\$ -	\$ -	\$	1,530.00
Instrument Rated Meters ²	27	\$ 137.21	\$ -	\$ -	\$ -	\$	3,704.67
						\$	61,156.13

Total Expense for 2018 - 2020 **\$ 229,423.91**

¹ CVE Expense to Change Meter totals \$56.45/hr. which is calculated by adding Labor (\$31.08/hr.), Overhead (\$16.54/hr.) and Transportation expenses (\$8.83/hr.).

CVE's assumption is 30 meter changes performed per employee per day (\$56.45 X 8 Hours = \$451.60) (\$451.60/30 Meters= \$15.05/meter)

² Self Contained Polyphase Meters and Instrument Rated Meters are field tested by Luthan Electric Meter Testing, LLC ("Luthan") with no CVE expense to change meter

³ Meter Test Fee is current cost provided by Luthan

⁴ CVE used the past 3 years of historical Luthan invoice data to arrive at the percentage of TSII Endpoints that are programmed each year.

Programming of endpoints includes changes made to software, such as settings. The formula used to arrive at the total program meter cost of residential TSII endpoint is: (Quantity of Residential Meters to be Tested X Historical Programming Rate) X Luthan Program Fee (\$0.81).

⁵ CVE used the past 3 years of historical Luthan invoice data to arrive at the percentage of meters that undergo Endpoint Firmware Updates each year.

The formula used to arrive at the Total Endpoint Firmware Update Cost for residential TSII endpoints is:
(Quantity of Residential Meters to be Tested X Historical Firmware Update Rate) X Luthan Firmware Update Fee (\$3.09).

Cumberland Valley Electric, Inc.
Case No. 2018-00056
Commission Staff's First Post-Hearing Request for Information

2. Provide all documentation from the manufacturer regarding the useful life of the meters, relays, access points, or other physical assets that are a part of, or make up the advanced metering infrastructure for which a Certificate of Public Convenience and Necessity ("CPCN") is requested in this matter.

Response:

Please see Page 2 and Page 3 of this Response for documentation regarding the estimated useful life of the relevant Aclara meters, Network Interface Card ("NIC"), Gen5 Relay, Ethernet Access Point and Cellular Access Point. These documents were provided by Aclara and Itron, respectively, and transmitted to Cumberland Valley for purposes of this Response.

Previously, Cumberland Valley proposed to depreciate its new AMI system over a 12-year period (*see* Cumberland Valley's Response to Commission Staff's First Request for Information, Item 9). At that time, Cumberland Valley believed that an estimated useful life of 12 years was reasonable due to the cooperative's experience with equipment failure with its existing Landis & Gyr TSII system. However, in light of new information provided from the manufacturers, Cumberland Valley believes depreciating its proposed AMI system (including both meters and communication equipment) over a 15-year period is reasonable and appropriate.



ACLARA Meter - Statement of Longevity

Aclara Electronic Meter types I210+, I-210+c and kV2c platforms are designed to have a life expectancy of at least 15 years. The I-210+, I-210+c and kV2c platform designs have followed all Aclara metering product development "Best Practices" with a strong focus on high reliability and strict design reviews to ensure the product meets all design requirements. The design team and sourcing supply chain worked closely with circuit board manufacturers to ensure the use of industrial grade components that are designed with in accordance with higher performance characteristics across a broader environmental range than consumer grade components. Components used in the I210+ I-210+c and kV2c are considered long life components in accordance with Aclara component specifications. Although designed for minimum life expectancy of 15 years, given the historical in-service experience with previous Aclara meter product designs, Aclara believes that I210+, I-210+c and kV2c meters are high quality, robustly designed products that can achieve a 20 year operating life.

NOTE: This statement is not and should not be construed as a warranty or performance guaranty.

Itron Gen 5 Useful Life Expectancy

Itron Gen5 products are designed to meet the extended system life requirements necessary of advanced metering infrastructure (AMI) systems. All components use industrial grade components that operate within wide ranges of temperatures, humidity, vibration, and other factors. Every generation of product has been designed with high reliability in mind and through continuous process improvements; each generation has performed better than the prior generation. Achieving the reliability expectations of our customers is a combination of robust design reviews, extensive reliability qualification testing, and field performance. For Gen5 Relays, Ethernet APs, and NICs, our design process and qualification testing supports a useful life expectation of 20 years. For cellular APs, the cellular modem reduces the useful life prediction to 13 years, which is still well beyond a typical refresh cycle given the advancements in cellular networking protocols.

NOTE: This statement is not and should not be construed as a warranty or performance guaranty.


Cumberland Valley Electric, Inc.
Case No. 2018-00056
Commission Staff's First Post-Hearing Request for Information

3. Provide all contracts and other documents indicating an agreement between Cumberland Valley and the National Rural Telephone Cooperative or other vendors regarding or relating to the CPCN requested in this matter along with any and all other documents that are incorporated therein, including any and all portions of the Master Purchase and Services Agreement not previously provided as part of the record in this matter.

Response:

Please see Page 2 through Page 70 of this Response for the requested documentation, which consists of the complete Master Purchase and Services Agreement between Cumberland Valley and NRTC. Please note that portions of this Response are subject to a Motion for Confidential Treatment filed contemporaneously herewith.

At the hearing in this matter on May 30, 2018, Vice Chairman Cicero requested that Cumberland Valley specifically identify that portion or those portions of the contract documents that reflect the parties' agreement with respect to responsibility for additional infrastructure costs not initially anticipated but that may be necessary as the project is implemented. This information is not explicitly detailed in the Master Purchase and Service Agreement, so the parties have clarified and memorialized their agreement in this respect by subsequent document—please see Cumberland Valley's Response to Item 4 of this Request for Information.

	MASTER PURCHASE AND SERVICES AGREEMENT

This Master Purchase and Services Agreement ("**Agreement**"), effective [Redacted] ("**Effective Date**"), is between National Rural Telecommunications Cooperative ("**NRTC**"), a District of Columbia cooperative association with a principal place of business at 2121 Cooperative Way, Suite 600, Herndon, VA 20171 and Cumberland Valley Rural Electric Cooperative, an entity organized under the laws of Kentucky, having an address at US 25 East, Gray, KY 40734 ("**Member**"). NRTC and Member, collectively referred to as the **Parties** or a **Party**, as applicable, agree as follows:

- A. Member is a rural electric cooperative servicing end users in the territory set forth on Exhibit B.

[Redacted]

- C. The Master Purchase and Services Agreement is contingent on Kentucky Public Service Commission Approval.

1. Definitions. The following additional terms are used through-out this Agreement. Terms used in a single section are defined in that section.

Confidential Information means any confidential, trade secret or other proprietary information disclosed under this Agreement that is designated as "confidential" or which a reasonable person would assume is confidential, but excludes information that: (i) is now or becomes generally available to the public through no fault or breach of the receiving Party; (ii) is rightfully in the receiving Party's possession, or known by it, prior to its receipt from the disclosing Party; (iii) is rightfully disclosed to the receiving Party by a third-party, free of any obligation of confidentiality; or (iv) is developed by the receiving Party independently and without reference to the disclosing Party's Confidential Information.

Member Data means all Member data that is (i) transmitted through Integrated Devices, (ii) stored on a Server; or (iii) processed by Products.

Documentation means an electronic version of the then-current Product installation instructions and user manuals NRTC customarily provides to its Members.

Equipment means all SSN hardware (and the Firmware embedded therein) and related accessories (excluding Integrated Devices or any other third-party provided equipment or products) NRTC provides to Member under this Agreement that is identified as "Equipment" in an SOW or pricing exhibit to this Agreement.

Fees means all amounts payable to NRTC by Member for Products and Services under this Agreement or an SOW.

[Redacted]

Force Majeure means any cause that is beyond a Party's reasonable control and without a Party's fault or negligence, including, but not limited to, accidents, riots, insurrections, acts of terrorists or any public enemy, acts of civil or military authorities, war, epidemics, fires, floods, earthquakes, severe weather, lightening, power outages, denial of service/virus/hacking attacks, disruptions in the flow of data to or from networks, embargoes, strikes, the inability to obtain required materials, qualified labor, or transportation, or the denial of or delays in processing of export licenses.

Integrated Device means a device into which a NIC has been integrated in accordance with applicable specifications.

[REDACTED]

Managed Services means the service by which SSN operates Software licensed by Member and hosted on Member-owned Servers at a Member data center, as more particularly described in an SOW.

Product(s) means Equipment, Software and Documentation.

Project Management Services means SSN's and/or NRTC's services for project coordination, network design, configuration, installation and optimization of the network, as more particularly described in an SOW.

Purchase Order means a written document by which Member orders for Products and/or Services, and that complies with and references this Agreement.

Purchase Order Lead Time means the required minimum amount of time between NRTC's receipt of a Purchase Order and the scheduled Delivery Date or commencement date for Services, as described in an SOW or pricing exhibit to this Agreement.

[REDACTED], where SSN operates or provides access to Software on SSN Servers at a SSN data center as more particularly described in an SOW.

Server(s) means the physical machine or computer on which Software will be installed.

Services means Project Management Services, Solution Services, Support Services and any other services described in an SOW as Services.

Software means any (i) SSN proprietary software identified as "Software" in an SOW or Exhibit to this Agreement; [REDACTED]

[REDACTED]

Support Services means any technical, informational and maintenance support services for Software and/or Firmware provided by NRTC under an SOW.

Statement of Work or **SOW** means a document referencing this Agreement, which is signed by the Parties and describes Products, Services or other deliverables that NRTC and/or SSN will provide.

Updates mean any release of Software that provides error fixes, improved functionality and enhancements. Updates do not include stand-alone, plug-in or add-on software products or modules licensed separately that contain new features and functionality for which NRTC charges separate license fees.

List of Exhibits

Exhibit A – Pricing

Exhibit B – Service Territory

Exhibit C – Statement of Work

Attachment 1 – Software Licensed by NRTC Subcontractor (Silver Spring)

Attachment 2 – Acceptance Test Criteria

Attachment 3 – Service Levels

Attachment 4 – Support Services

Attachment 5 – Change Management Process

Exhibit D – EULA (End User License agreement)

The foregoing Exhibits are incorporated into this Agreement by this reference.

2. Purchase Orders. NRTC will provide Products and Services (through NRTC or SSN) described in Purchase Orders or SOWs. Except for part numbers, Product descriptions, quantities, bill-to and ship-to locations and requested delivery dates, this Agreement will take precedence over any conflicting or additional terms contained in any Purchase Order or other Member order document, to which NRTC hereby objects. NRTC's or SSN's performance of any Services or the delivery of any Product will not be construed as acceptance of Member's other or additional terms. Member may not cancel or modify a Purchase Order after NRTC's acceptance without NRTC's prior written consent.

3. Equipment.

(a) **Inspection and Acceptance.** Member will be deemed to have accepted Equipment, unless it provides NRTC with written notice that the Equipment is damaged or does not meet the requirements of the Purchase Order [REDACTED]. Within a reasonable period after NRTC's receipt of Member's notice, NRTC will deliver [REDACTED], Equipment to (i) replace damaged Equipment and (ii) meet the Purchase Order requirements.

(b) **Limited Equipment Warranty.** [REDACTED] from delivery of the Equipment (or for any extended warranty period purchased by Member), the Equipment will conform in all material respects to its Documentation. As Member's sole and exclusive remedy, NRTC and/or SSN will, at its option and expense, repair or replace the non-conforming Equipment during the warranty period described in this Section. A replacement may not be new but will be in good working order and will be subject the remaining term of the warranty for the Equipment being replaced [REDACTED] from delivery of the replacement Equipment, [REDACTED]

(c) **Exclusions.** This warranty does not cover Equipment in poor operating condition due to: (a) changes made to the Equipment without NRTC's and manufacturer's prior written consent; (b) use with cables, mounting kits, antennas, battery backups and other devices, third party software or firmware that NRTC has not provided to Member or approved in writing for use with Equipment; (c) Member's or a third party's misuse, abuse, negligence, intentional acts or failure to install, test, handle or operate the Equipment in accordance with its Documentation; (d) fire originating outside of the Equipment, accident or a Force Majeure event; (e) incorrect data, or data entry or output by Member or a third party not under NRTC's control; (f) Member's failure to reasonably assist NRTC or manufacturer in verifying, reproducing and correcting conditions producing the failure

in performance or defect, or NRTC or manufacturer is unable to verify and reproduce such failure or defect condition reported by Member; or (g) any failure of the computer operating systems, hardware environment, and/or third-party software utilized by Member. NRTC will repair Equipment damaged by any of the foregoing only upon Member's payment of additional Fees.

(d) **Returns.** Member is required to send all defective Equipment directly to the manufacturer of the Equipment. [REDACTED]

[REDACTED] Prior to returning a unit of Equipment to manufacturer for repair or replacement, Member shall obtain from manufacturer an RMA number, which must be included on all packaging, labelling, and other communications relating to the return. NRTC may require that the Equipment be evaluated prior to issuing an RMA number. Once manufacturer confirms the nonconformity or defect and determines that it cannot be repaired at Member's site, manufacturer will accept return of such Equipment and provide repaired or replacement Equipment in accordance with manufacturer's RMA policy. [REDACTED]

(e) **Changes and End of Life.** NRTC may, upon notice, add, replace, or change Equipment it offers for sale and, without prior notice, implement engineering changes needed to satisfy governmental requirements, protect Equipment or system security and integrity, or for environmental, health or safety reasons. NRTC may cease production of [REDACTED] before the last delivery date for such Equipment (**Last Order Date**). Member may issue a final Purchase Order for the discontinued Equipment prior to the Last Order Date. Member may not cancel any portion of a Purchase Order issued for the discontinued Equipment.

(f) **Forecasts.** Company must provide NRTC with [REDACTED] forecasts of expected Product purchases in a form and frequency as the Parties mutually agree.

4. Project Management Services. NRTC will provide Project Management Services according to an applicable SOW. Project Management Services will be deemed accepted upon completion. NRTC warrants solely to Member that, during the term that Services are performed, the Project Management Services will be performed in a competent and professional manner, in accordance with common industry standards, using skilled employees, subcontractors or other agents having the appropriate background and skills. Member's sole and exclusive remedy, and NRTC's entire liability for any breach of this warranty will be for NRTC, at its expense, to correct or re-perform any non-conforming Services during the term that Services are provided. NRTC will have no obligation to re-perform any non-conforming Services if this Agreement has terminated or expired.

5. Solution Services. NRTC will provide Solution Services according to an applicable SOW. Subject to Member's compliance with this Agreement and Documentation and payment of all applicable Fees, [REDACTED], SSN (pursuant to the EULA between SSN and Member) grants to Member, a non-exclusive, non-transferable, non-assignable, limited right to access and use, for its internal business purposes, the Software, any third party applications identified in the SOW and any related Documentation [REDACTED]. Member may only access and use the Software on the Server.

6. Software.

(a) **Software License.** NRTC may [REDACTED] licenses to the Software identified in Attachment 1 to the Member under the terms and conditions of the EULA attached as Exhibit D. NRTC shall obtain the Member's written acceptance of the EULA or incorporate the EULA's terms in NRTC's written agreement with the Member. [REDACTED]

(b) **Software Warranty.** SSN's warranty for Software licensed by SSN shall be as set forth in the applicable SSN Software license and support agreement between SSN and Member.

(c) **Support Services and Updates.** Support Services and Updates will be provided under an applicable SOW. SSN reserves the right to modify the database design and structure with any subsequent Software release. Such subsequent releases will provide Member with full access to all database content created under previous releases and associated updated Documentation.







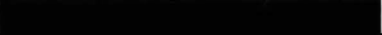

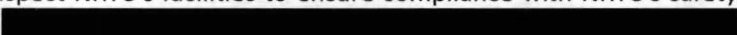
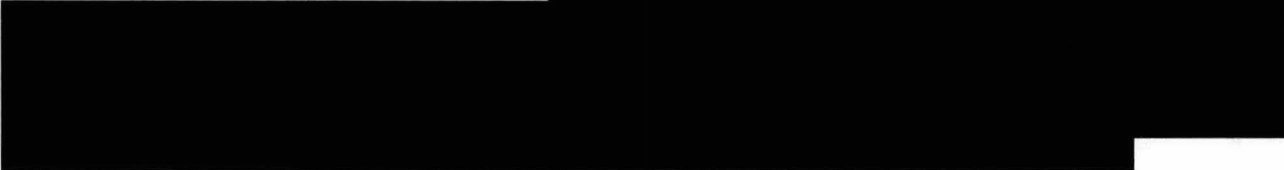
7. Restrictions on Use.

(a) Generally. Member is responsible for its employees', contractors' and agents' (collectively, *Authorized Users*): (i) compliance with the terms of this Agreement, and (ii) use of any Product or Service. Member and its Authorized Users may not: (a) modify, translate or create derivative works of any Product or Service; (b) copy, reproduce, distribute, republish, download, display, post or transmit any portion of the Product or Services in any form or by any means; (c) sell, assign, transfer, lease or sublicense any Software or Service; (d) allow any third party, other than Authorized Users, to access any Software, Service or the network created by the Products and Services without NRTC's prior written consent; (e) use any Software or Service to provide processing services to third parties, or otherwise use any Software or Service on a "service bureau" or "timesharing" or subscription basis; (f) reverse engineer, disassemble, decrypt, extract or otherwise reduce any Product or Service to a human perceivable form or otherwise attempt to determine the source code or algorithms of any Product or Service (except to the extent the foregoing restriction is expressly prohibited by applicable law); (g) infringe any of NRTC's or SSN's intellectual property rights; (h) publicly publish the results of any benchmark tests run on the any Product or Service; (i) use any Product or Service to engage in any fraudulent, illegal or unauthorized act; (j) introduce into or transmit through any Product or Service any material containing software viruses, worms, trap doors, back doors, Trojan horses or other harmful or malicious computer code, files, scripts, agents or programs; (k) remove, alter or obscure any titles, product logo or brand name, trademarks, copyright notices, proprietary notices or other indications of SSN's intellectual property rights, whether such notice or indications are affixed on, contained in or otherwise connected to the Services or Product; (l) attempt to gain unauthorized access to the Services or SSN's systems or networks; or (m) merge any Product or Service with any other product or service without NRTC's prior written consent [REDACTED]

(b) **Content.** Member may not distribute, download, or place on any NRTC or SSN website or Server or use with Software or any Service, any content that: (a) Member knows or has reason to believe infringes the intellectual property rights of any third party or violates any rights of publicity or privacy; (b) violates any applicable law, statute, ordinance; (c) is defamatory, trade libelous, unlawfully threatening or unlawfully harassing; or (d) is obscene, pornographic or indecent (items (a) – (d) are collectively referred to as **Prohibited Content**). NRTC and SSN reserve the right to remove any Prohibited Content from the Server without prior notice to Member. Member will indemnify, defend and hold NRTC and SSN harmless for any claims [REDACTED]

8. Intellectual Property. Except as specifically provided for in this Agreement, no Intellectual Property is assigned to Member hereunder. NRTC or SSN, as the case may be, shall own or continue to own all Intellectual Property used or created in the course of performing this Agreement. To the extent, if any, that any ownership interest in and to such Intellectual Property does not automatically vest in NRTC or SSN by virtue of this Agreement or otherwise, and instead vests in Member, Member agrees to grant and assign and hereby does grant and assign to NRTC and SSN all right, title, and interest that Member may have in such Intellectual Property.

9. Pricing; Payment Terms; Taxes; Audit.(a) 


(c) Audit Promptly, upon NRTC's written request,  Member must furnish NRTC with a letter signed by an officer of Member, verifying that the Software is being used in compliance with this Agreement, and confirming the number, identification, type and location of devices being managed by Member using the Software.  NRTC may,  have an independent auditor reasonably acceptable to Member, during normal business hours at a mutually agreeable location,  conduct an audit of the appropriate records of Member to verify the number of devices being managed by Member using the Software and otherwise to confirm Member's compliance with license restrictions and Fee obligations of this Agreement. 
Member shall have the right,  to have an independent auditor reasonably acceptable to NRTC, during normal business hours at a mutually agreeable location  conduct an audit of NRTC's appropriate  Upon reasonable written notice, Member may also inspect NRTC's facilities to ensure compliance with NRTC's safety and security obligations under this Agreement. 


10. 

11. Third-Party Products and Integrated Devices. Any standalone third-party products or software that NRTC provides to Member under this Agreement are sold, licensed, warranted and maintained under the contractual terms provided by the third-party vendors, except (a) as otherwise expressly provided in an SOW, or (b) Integrated

Devices purchased from NRTC. Integrated Device provider(s), and not NRTC, will provide all warranties, liabilities and other terms [REDACTED]

12 [REDACTED]

14. Confidentiality. Each Party receiving, possessing, accessing or otherwise acquiring Confidential Information of the other Party acknowledges that the disclosing Party's Confidential Information is the property of and confidential to, or a trade secret of, the disclosing Party. The receiving Party: (a) must keep the disclosing Party's Confidential Information confidential and may not directly or indirectly disclose, divulge or communicate that Confidential Information to, or otherwise place that Confidential Information at the disposal of, any other person without the disclosing Party's prior written approval; (b) must take all reasonable steps to secure and keep secure all disclosing Party's Confidential Information coming into its possession or control; (c) may not disclose any Confidential Information to anyone other than the receiving Party's employees, agents, contractors or subcontractors who need to know such Confidential Information; and (d) must ensure that any person to whom it discloses Confidential Information in accordance with this provision is subject to binding confidentiality obligations that are at least as restrictive as those set forth in this Agreement. These obligations of confidentiality do not apply to any information that is required to be disclosed by any applicable law; *provided, however*, that the

receiving Party must provide prior written notice of a request for such disclosure to the disclosing Party with as much notice as possible.

15. Effective Date and Termination. This Agreement is effective as of the Effective Date [REDACTED] provided, however, that unless this Agreement is terminated prior to its expiration as provided below, this Agreement will remain in effect for any in-process SOWs, Purchase Orders pending as of the expiration date and Member's renewal of Support Services, in which case, the term of this Agreement will be extended solely for those purposes until completion. Either Party may terminate this Agreement if the other Party fails to perform any of its material obligations under this Agreement [REDACTED] receipt of written notice of a breach of this Agreement from the non-defaulting Party. Any notice of breach must specify (a) the nature of the breach, and (b) the specific act or acts that the non-breaching Party contends would correct such breach. [REDACTED]

Unless otherwise expressly agreed in writing, all of the licenses granted, and Services provided to Member will immediately terminate upon termination of this Agreement for any reason. Member acknowledges that certain lead times are required to provide certain Equipment and Services, and that, upon termination of this Agreement, in addition to all amounts owed for Product and Services, [REDACTED] as a result of any such termination (including those related to Integrated Devices). Each Party must return to the other Party any and all Confidential Information received from the other Party.

15.1 [REDACTED]

16 [REDACTED]

17. Disputes. Any dispute arising under this Agreement or relating to Products or Services will be escalated to each Party's applicable project manager (**Manager**). The appropriate Manager will then notify the other Party's Manager of the issue and meet as soon as reasonable considering the nature and impact of the issue. If a dispute cannot be resolved by the Managers within a time period that is satisfactory to the Party raising the issue and, in any event, [REDACTED] the Managers will refer the dispute to their respective

vice presidents. If such vice presidents cannot resolve the dispute within a time period that is satisfactory to the Party raising the issue and, in any event [REDACTED] after such referral, either Party may pursue any other remedy available to it in law or equity. These dispute resolution procedures are not intended to be used for disputes concerning actual, alleged or threatened violations of a Party's confidential information or other intellectual property rights, for which the Parties may immediately bring an action, including one seeking injunctive relief without posting a bond.

18. Governing Law. This Agreement will be governed by, construed and enforced in accordance with the internal laws of the Commonwealth of Kentucky without regard to conflicts of law provisions. The parties hereby irrevocably consent to exclusive venue in the Federal courts of Kentucky for any and all disputes arising under, out of, or in relation to this Agreement, its negotiation, performance or termination. The United Nations Convention on Contracts for the International Sale of Goods (and in the U.S., the Uniform Computer Information Transactions Act (UCITA)) will not apply to this Agreement or to the Products or Services.

19. Legal Compliance. Each Party must comply with all applicable laws. No export rights are granted under this Agreement, and Member must not directly or indirectly provide, export or re-export, or otherwise make available (in any form, including visual access), NRTC products or technology in violation of any such laws or regulations, without all necessary approvals or licenses. Products and technology may not be provided or made available either directly or indirectly, (i) into Cuba, Iran, North Korea, Sudan, Syria or any other country subject to United States trade sanctions, or to individuals or entities controlled by such countries or to nationals or residents of such countries (other than nationals who are lawfully admitted permanent residents of countries not subject to such sanctions); or (ii) to anyone on any denied, prohibited, or unverified list maintained by the United States Government, including the Office of Foreign Assets Control (OFAC) Specially Designated Nationals (SDN) List. The Parties must comply with all anti-bribery laws and may not make any payments or transfer any item of any value for the purpose of bribing any individual or group, or accepting or participating in any extortion, kickbacks, or other unlawful or improper means to obtain business related to this Agreement or the Products and Services.

20. Publicity. Neither Party may issue a press release related to this Agreement or their relationship without the other Parties' prior written consent. The Parties will create and approve for publication a press release announcing their relationship under this Agreement. NRTC may use Member's name and logo as a part of NRTC's normal marketing materials.

21. Miscellaneous. Neither Party will be responsible for any failure to perform due to any Force Majeure event. If any provision of this Agreement is found to be unenforceable by a court of competent jurisdiction, such provision will be deleted, and the remaining terms will be construed so as to give maximum lawful effect to any such deleted terms. No waiver by either Party of any breach under this Agreement will constitute a waiver of any other breach. This Agreement is not made for the benefit of any third parties. All notices under this Agreement must be sent in writing to the addresses identified in this Agreement or to such other address as such Party has notified the other in writing, will be effective on the date received (unless the notice specifies a later date) and must be sent by a courier service that confirms delivery in writing, or by certified or registered mail [REDACTED] return receipt requested. This Agreement is in the English language only, which will be the governing language and controlling in all respects. All versions of this Agreement in any other language will be for accommodation only and are not binding upon the Parties. All communications and notices to be made or given pursuant to this Agreement must be in English. Member may not assign this Agreement or any of its rights hereunder without NRTC's prior written consent. Subject to the foregoing, this Agreement will bind and inure to the benefit of the Parties and their respective successors and permitted assigns, but any assignment in violation of this provision will be void. This Agreement may be executed and delivered in counterparts, including by a facsimile or an electronic transmission, each of which will be deemed an original. Any document generated by the

Parties related to this Agreement may be imaged and stored electronically and introduced as evidence in any proceeding as if original business records. This Agreement contains the complete and entire agreement between the Parties as to its subject matter, and replaces and supersedes any prior or contemporaneous communications, representations, or agreements, whether oral or written with respect to such subject matter. This Agreement may not be modified except by mutual written agreement signed by the Parties' authorized representatives expressly modifying this Agreement. Electronic communications do not constitute a "written agreement" under this provision.


The Parties have caused this Agreement to be executed by their duly authorized representatives.

Member

By: Ted Hampton
Name: Ted Hampton
Title: President + CEO
Date: 12-15-2017

NRTC

By: [Signature]
Name: BRYAN
Title: CEO
Date: 12-15-2017

	MASTER PURCHASE AND SERVICES AGREEMENT
	<p align="center">Exhibit A</p> <p align="center">to Master Purchase and Services Agreement, dated as of the 15 th day of December, 2017, by and between National Rural Telecommunications Cooperative and Cumberland Valley Electric, Inc.</p> <p align="center">Pricing</p>

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	MASTER PURCHASE AND SERVICES AGREEMENT
	<p align="center"> Exhibit B to Master Purchase and Services Agreement, dated as of the 15 th day of December, 2017, by and between National Rural Telecommunications Cooperative and Cumberland Valley Electric, Inc. </p> <p align="center">Service Territory</p>

Cumberland Valley, a member-owned electric distribution cooperative, serves in excess of 23,000 households, commercial enterprises and industries along more than 2,600 miles of line in all or portions of 9 eastern Kentucky counties and 2 Tennessee counties. They include Bell, Clay, Knox Laurel, Harlan, Leslie, Letcher, McCreary, Whitley, Campbell (TN) and Claiborne (TN). Cumberland Valley was an early adopter of AMR technology and has had some form of AMR/AMI since 1996.

Cumberland Valley Headquarters is located at 6219 North US Hwy 25E, Gray, KY. Cumberland Valley has one district office located in Cumberland, KY. The following map details the Cumberland Valley service area:



	MASTER PURCHASE AND SERVICES AGREEMENT
	<p align="center">EXHIBIT C</p> <p align="center">TO MASTER PURCHASE AND SERVICES AGREEMENT, DATED AS OF THE 15TH DAY OF DECEMBER, 2017, BY AND BETWEEN NATIONAL RURAL TELECOMMUNICATIONS COOPERATIVE AND CUMBERLAND VALLEY ELECTRIC, INC.</p> <p align="center">STATEMENT OF WORK - AMI SOW FULL DEPLOYMENT STATEMENT OF WORK # [_1_]</p>

This Statement of Work ("SOW") is entered between National Rural Telecommunications Cooperative ("NRTC") and Cumberland Valley Electric, Inc. ("Cumberland Valley" or "Member"). This SOW will be effective upon the date of the last signature by either Party ("SOW Effective Date"). [Redacted]

Capitalized terms used but not defined in this SOW have the meaning assigned them in the Master Agreement [Redacted]

For purposes of this SOW, NRTC will execute the tasks and responsibilities set forth in this SOW with its subcontractor Silver Spring Networks, Inc ("Silver Spring"). NRTC acknowledges and agrees that it will be responsible for the tasks outlined in this SOW.

Definitions

"Access Points" means Equipment that acts as an interface between the NAN and the WAN that allows the SilverLink Software to communicate with the Integrated Meter.

"AMI" means advanced metering infrastructure, including hardware and software that, along with communications services, enable automated meter reading and other capabilities defined in the Specifications.

"AMI Project" means the AMI project undertaken by Member under this SOW. The AMI Project comprises all responsibilities assigned to the Parties under this SOW. AMI Project does not include materials, equipment, software or services provided by third parties not under NRTC direction or control.

"AMI System" means the combination of Silver Spring technologies providing the AMI, including without limitation: [Redacted]

"AMI Traffic" means (i) communications between and among the SilverLink System and Access Points, Relays and Integrated Meters associated with routine network management and diagnostic functions; and (ii) data and communications flowing between the SilverLink System and Integrated Meters through the Silver Spring RF mesh network, provided that the same are related to meter reading, meter configuration, meter maintenance, meter status, and remote disconnect switch operation or status.

"Anchor Read" means the "register value" stored once daily in a register in the Communication Module as installed in the Integrated Meter [Redacted]

"Back Office" means Silver Spring's SilverLink system, including without limitation, [Redacted]

"Communications Module" means Silver Spring's network interface card (sometimes also referred to as a "NIC"), that is installed in Equipment and meters.

"Endpoints" means and includes Integrated Meters.

"Enhanced Field Network Design " has the meaning specified in Task 2.1.1.1.

"Initial Field Network Design" has the meaning specified in Task 2.1.1.1.

"Instance" means a copy of SilverLink installed on a Silver Spring server.

"Integrated Meter" means an electricity metering endpoint provided by the meter provider into which the NIC has been integrated in accordance with applicable specifications.

"Interval Read" means, for Integrated Meters, the "interval values" stored in the channels in the Communication Module, which are recorded on the Communication Module on a periodic basis [Redacted]

"IP" means Internet Protocol.

"NAN" means a Neighborhood Area Network.

"Non-AMI Traffic" means any network communication or information that does not constitute AMI Traffic.

[REDACTED]

[REDACTED]

[REDACTED]

Software

Silver Spring will license the Software listed in Attachment 1 to this SOW under the terms of the Master Agreement and the EULA.

Tools

For the AMI Project, NRTC assumes that Cumberland Valley will purchase or license (for Software tools) the following quantities of tools:

[REDACTED]

[REDACTED]

Services

Services outlined in this SOW will be provided by NRTC and NRTC subcontractor Silver Spring Network. Silver Spring services are for a period to not exceed [REDACTED]

[REDACTED]

Task 1 – Program Management

- 1.1. **Project Management.** NRTC directly, in coordination with or by Silver Spring (under the direction and control of NRTC) will provide the following Program Management tasks (defined throughout as “NRTC/Subcontractor (Silver Spring)”).

- 1.1.1. **NRTC/Subcontractor (Silver Spring) Responsibilities.** NRTC Subcontractor (Silver Spring) will prime initial management [REDACTED] of the AMI Project described in this SOW, including all corresponding products and services by its employees and its subcontractors, for a maximum [REDACTED]

[REDACTED] These services will include the following activities:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1.1.2. **Cumberland Valley Responsibilities.** Cumberland Valley will perform each of the following tasks:

- a. Supply a project manager to coordinate all Cumberland Valley activities related to AMI Project.
- b. Cumberland Valley's project manager will work to create efficient paths of communication with NRTC/Subcontractor (Silver Spring), including prioritizing communication requests made to the NRTC/Subcontractor (Silver Spring) team.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

2.1.2. **Cumberland Valley Responsibilities.** Cumberland Valley will perform each of the following tasks.

- 2.1.2.1. Provide/confirm polling frequency and other data collection / communication requirements that will affect RF Mesh bandwidth requirements.
- 2.1.2.2. Provide the most accurate data reasonably available that can be used to determine where Access Points and Relays should be attached, including without limitation, the furnishing of documents, maps and other such material that depict the location, address (including zip code, if available), height above ground (if available), and latitude and longitude position coordinates (required) of all meter locations, Cumberland Valley facilities, transmission and distribution rights of way, substations and administrative buildings.
- 2.1.2.3. Help NRTC/Subcontractor (Silver Spring) understand the specific placement criteria and installation techniques acceptable to Cumberland Valley for the installation of Access Points and Relays on Cumberland Valley facilities.
- 2.1.2.4. Complete a site survey of the deployment area to validate the Initial Field Network Design and recommended installation locations and testing the location during the site survey to assess the preferred carrier's or carriers' coverage. Provide NRTC/Subcontractor (Silver Spring) the site survey results through lat/long coordinates.
- 2.1.2.5. Following the site survey, review the recommended installation locations and propose changes to these locations.

[REDACTED]

[REDACTED]

- 2.1.2.8. If necessary, install poles that are in addition to those currently available in the service area in order to satisfy the Enhanced Field Network Design.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- 2.2.2.5. Identify a principal representative to communicate any Access Point or Relay issues identified by NRTC/Subcontractor (Silver Spring).
- 2.2.2.6. Provide NRTC/Subcontractor (Silver Spring) with electronic updates to the following information at the frequency noted below, and provide cumulative lists of the same information upon NRTC's/Subcontractor (Silver Spring's) reasonable request:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

2.3. Endpoint Installation.

[REDACTED]

- 2.3.1. **Joint Responsibilities.** The Parties will work together to perform the following tasks during the Endpoint Installation Phase.
 - 2.3.1.1. Collaborate to establish the meter deployment plans for each area. Plans will include the areas of deployment, timing of deployment, deployment activities by area, and other items required to coordinate deployment activities between the Parties. Parties will agree upon schedules to order devices to ensure adequate inventory levels prior to deployment.

[REDACTED]

2.3.2. **Cumberland Valley Responsibilities.** Cumberland Valley will perform each of the following tasks:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[illegible]

2.5.2.1. **Joint Responsibilities.** NRTC/Subcontractor (Silver Spring) and Cumberland Valley will mutually agree upon the plan to conduct Acceptance Testing leveraging the testing criteria identified in Attachment 2 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Task 3 – Application Deployment

[REDACTED]

[REDACTED]

- 3.1.1.1. Cumberland Valley will ensure that appropriate Cumberland Valley staff and its contractors participate in relevant technology planning sessions, so that Cumberland Valley can make appropriate design decisions as an outcome of the technology planning sessions.

[REDACTED]

[illegible]

[REDACTED]

[REDACTED]

- a. Adopt, or modify as agreed, NRTC's/Subcontractor (Silver Spring's) standard change management process as described in Attachment 5.
- b. Adopt, or modify as agreed, NRTC's/Subcontractor (Silver Spring's) standard incident management process as described in Attachment 4.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3.1.2. Design/Setup of Back Office

3.1.2.1. **Joint Responsibilities.** NRTC/Subcontractor (Silver Spring) and Cumberland Valley will work together to perform each of the following tasks:

[REDACTED]

[REDACTED]

3.1.2.2. **NRTC/Subcontractor (Silver Spring) Responsibilities.** NRTC/Subcontractor (Silver Spring) will perform each of the following tasks:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3.1.2.3. **Cumberland Valley Responsibilities.** Cumberland Valley will perform each of the following tasks:

[REDACTED]

- b. Provide input regarding the configuration of SilverLink including user accounts and any Cumberland Valley-specific configuration elements (e.g., batch job schedule and frequency, import/export process and interfaces).
- c. Confirm application reachability and access/authorization functionality of the SilverLink environments.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3.2.1. Assessment Phase – Assessment of the Impact of SilverLink on Cumberland Valley’s Processes and Systems.

3.2.1.1. Joint Responsibilities. NRTC/Subcontractor (Silver Spring) and Cumberland Valley will work together to perform each of the following tasks:

- a. Agree on complete list of Cumberland Valley's business requirements for SilverLink and the impact of the SilverLink System on Cumberland Valley operations and processes, including gap analysis of current against desired capabilities and identifying in-scope systems and vendors for integration requirements.

[REDACTED]

3.2.1.2. NRTC/Subcontractor (Silver Spring) Responsibilities. NRTC/Subcontractor (Silver Spring) will perform each of the following tasks:

[REDACTED]

- b. Work with NRTC to implement Cumberland Valley's business requirements in SilverLink configurations.
- c. Answer questions, if any, regarding product documentation and training.

3.2.1.3. Cumberland Valley Responsibilities. Cumberland Valley will perform each of the following tasks:

- a. Coordinate meetings with vendors and internal resources, as needed, to provide the optimal flow of information.
- b. Provide written documentation of SilverLink configurations necessary to meet Cumberland Valley's business requirements.
- c. Provide timely resolution of business requirement and project scope issues.

3.2.2. Planning Phase – SilverLink Integration and Test Planning

3.2.2.1. **Joint Responsibilities.** NRTC/Subcontractor (Silver Spring) and Cumberland Valley will work together to perform each of the following tasks:

- a. Develop system context diagrams and interactions.
- b. Map high-level data flow and requirements with each in-scope system.

[REDACTED]

- d. Establish project plan and sequencing of integration for the in-scope SilverLink components.

3.2.2.2. **NRTC/Subcontractor (Silver Spring) Responsibilities.** NRTC/Subcontractor (Silver Spring) will perform each of the following tasks:

- a. Develop the preliminary design for the SilverLink that the Parties have described as the "SilverLink High Level Design" document.
- b. Develop the SilverLink Integration Blueprints for each identified business use-case.
- c. Identify and catalog SilverLink application configurations.
- d. Work with Cumberland Valley to document the functional test plan and environments requirements.
- e. Document integration use-cases and sequence diagrams.

3.2.2.3. **Cumberland Valley Responsibilities.** Cumberland Valley will perform each of the following tasks:

- a. Articulate requirements for testing and work with NRTC/Subcontractor (Silver Spring) to develop the SilverLink test plan.
- b. Identify which of Cumberland Valley's back-office systems requires integration with SilverLink to fulfill AMI Project requirements.
- c. Determine the number and type of simulated meters needed for testing.
- d. Provide NRTC/Subcontractor (Silver Spring) with access to vendors and application subject matter experts as needed to complete SilverLink High Level Design.
- e. Timely sign-off on NRTC/Subcontractor (Silver Spring) High Level Design in accordance with the Master Agreement.

3.2.3. **Design Phase – SilverLink Integration Design**

3.2.3.1. **NRTC/Subcontractor (Silver Spring) Responsibilities.** NRTC/Subcontractor (Silver Spring) will perform each of the following tasks:

[REDACTED]

- b. Create the detailed design for the SilverLink, which shall be materially complete and accurate at the time of implementation, which the Parties have described as the "SilverLink Low Level Design" document.

[Redacted] Provide subject matter expertise on [Redacted]

- d. Work with Cumberland Valley to configure SilverLink to meet the SilverLink integration and configuration requirements.

3.2.3.2. Cumberland Valley Responsibilities. Cumberland Valley will perform each of the following tasks:

- a. Identify system data
- b. Review data mapping analysis from end-to-end perspective.
- c. Provide timely response to NRTC/Subcontractor (Silver Spring) inquiries for information or clarification of requirements.
- d. Sign-off on SilverLink Low Level Design Document.

3.2.4. Execution Phase – SilverLink Integration Execution

3.2.4.1. NRTC/Subcontractor (Silver Spring) Responsibilities. NRTC/Subcontractor (Silver Spring) will perform each of the following tasks:

- a. Configure the Instances of SilverLink to meet Cumberland Valley's requirements, according to the SilverLink Low Level Design document, and revise the document as necessary pursuant to further discussions and work with Cumberland Valley.
- b. Provide documentation about the configuration of SilverLink.
- c. Enable Cumberland Valley's resources to understand how SilverLink has been configured.
- d. Validate the SilverLink installation and configuration.
- e. Assist in troubleshooting and resolving SilverLink environment issues.
- f. Assist with early stage prototyping and testing of component integration.
- g. Provide sample request/response web services for in-scope integration use cases.
- h. Guide Cumberland Valley on how to create test plans for SilverLink.

3.2.4.2. Cumberland Valley Responsibilities. Cumberland Valley will perform each of the following tasks:

- a. Develop system interfaces, if any, between SilverLink and Cumberland Valley's back office systems.
- b. Develop test cases.
- c. Assign resources to work with NRTC/Subcontractor (Silver Spring) to configure SilverLink.

- d. Track project issues and resolution.

3.2.5. Testing Phase – SilverLink Integration Testing

3.2.5.1. **Joint Responsibilities.** NRTC/Subcontractor (Silver Spring) and Cumberland Valley will work together to perform each of the following tasks:

- a. Participate in coordinated test activities.
- b. Execute integration test plans and scenarios involving SilverLink.

NRTC/Subcontractor (Silver Spring) Responsibilities.

- a. Provide guidance to Cumberland Valley on how to execute test plans for integration points between SilverLink and Cumberland Valley's back-office systems.
- b. Provide support to Cumberland Valley during the execution of the test plans (via troubleshooting and remediation).
- c. Develop the SilverLink Configuration Guide regarding operations and support issues.

3.2.5.3. **Cumberland Valley Responsibilities.** Cumberland Valley will perform each of the following tasks:

- a. Create the test plans.
- b. Execute the test plans.
- c. Provide NRTC/Subcontractor (Silver Spring) with documentation of the test plans.
- d. Schedule coordinated test cases to include NRTC/Subcontractor (Silver Spring) participation.
- e. Review test case results with NRTC/Subcontractor (Silver Spring).

3.3. Operations Training

Basic Training. NRTC/Subcontractor (Silver Spring) can provide training and workshop support to Cumberland Valley's staff

End User Application Training. NRTC/Subcontractor (Silver Spring) will deliver end user application

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Task 4 – Ongoing Maintenance and Management

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4.4. Other Tasks and Provisions regarding Ongoing Maintenance and Management

Cumberland Valley Access to SilverLink data. SilverLink AMM provides the following standard reports, details of which can be found in the AMM Users' Guide:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

General Assumptions

[REDACTED]

[REDACTED]

[REDACTED]

Approvals

IN WITNESS WHEREOF, the parties hereto have caused this SOW to be executed by their duly authorized representatives as of the SOW Effective Date.

National Rural Telecommunications Cooperative

By:

Name:

Title:

Date:

[Signature]
BRYAN
CEO
12-15-2017

Cumberland Valley Electric, Inc.

By:


Name:

Title:

Date:

Ted Hampton
Ted Hampton
President + CEO
12-15-2017

[End]

	MASTER PURCHASE AND SERVICES AGREEMENT
	<p align="center"> ATTACHMENT 1 TO EXHIBIT C STATEMENT OF WORK - AMI SOW FULL DEPLOYMENT STATEMENT OF WORK # [1] SOFTWARE LICENSED BY NRTC SUBCONTRACTOR (SILVER SPRING) </p>

The following Software Products/modules and operating environments are licensed to Cumberland Valley under the terms of the Master Agreement [REDACTED]

[illegible]

[Redacted]

[Redacted]

[Redacted]

Environments: For each operating environment, the Parties will check the cell in Table 1 below for a particular Software Product/module if NRTC Subcontractor (Silver Spring) is to install it in the specified environment. NRTC Subcontractor (Silver Spring) will provide [Redacted] described in Task 4 of this SOW, for each environment for the term listed in Table 1. The term is further described in the next section of this Attachment.

[Redacted]

	Software Products:						Size of env'ts (# Meters)			
	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]		
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

	Residential (non-interval read)	Residential (interval read)	C & I
Endpoints (%):	■	■	■
Interval Size (Minutes):	■	■	■
Number of days of online data retention (disk) stored in the SilverLink database:	■	■	■

■


■

■

■

■

■

	MASTER PURCHASE AND SERVICES AGREEMENT
	ATTACHMENT 2 TO EXHIBIT C STATEMENT OF WORK - AMI SOW FULL DEPLOYMENT STATEMENT OF WORK # <u>1</u> ACCEPTANCE TEST CRITERIA

This Attachment contains the criteria for the Acceptance Testing described in this SOW. This testing will be completed following the completion of Optimization of the first Optimization Area.

REQUIREMENTS AND ASSUMPTIONS

[Redacted]

- All Lab and Production Environment Tests will be performed using a NRTC/Subcontractor (Silver Spring)-approved NAN, WAN, and back office environment.

[Redacted]

[Redacted]

[Redacted]

- All network equipment to be tested shall be deployed and functional prior to the start of testing.

[Redacted]

- For those tests which indicate mean performance criteria, the test results will be calculated using the data from successful transactions. Mean performance will be calculated based on data from [Redacted]

[Redacted]

- Field Tests have standard Test Procedures associated with them. If changes to the Test Procedures, or Acceptance Test Criteria, are required, pricing for Acceptance Testing may change.
- Tests and/or Performance Criteria may be updated, at any time, to reflect deployment challenges

and/or updates to NAN, WAN, back office environment or other elements.

As used in the following chart, "Meter" means Integrated Meter and "AP" means Access Point.


Item #	Parameter	Test Description	Performance Criteria	Test Type	Notes
Meter Provisioning / Communication Tests					
[Redacted]					
1	[Redacted]	[Redacted]	—	—	
1	[Redacted]	[Redacted]	—	—	
1	[Redacted]	[Redacted]	—	—	
[Redacted]					
1	[Redacted]	[Redacted]	—	—	T
1	[Redacted]	[Redacted]	—	—	T
[Redacted]					
[Redacted]					
1	[Redacted]	[Redacted]	—	T	T
1	[Redacted]	[Redacted]	—	T	T
1	[Redacted]	[Redacted]	—	T	T
1	[Redacted]	[Redacted]	—	T	T

[Redacted]					
■	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
■	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]					
[Redacted]					
■	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
■	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
■	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]					
■	[Redacted]	[Redacted]	[Redacted]	[Redacted]	
■	[Redacted]	[Redacted]	[Redacted]	[Redacted]	
■	[Redacted]	[Redacted]	[Redacted]	[Redacted]	
■	[Redacted]	[Redacted]	[Redacted]	[Redacted]	
■	[Redacted]	[Redacted]	[Redacted]	[Redacted]	
■	[Redacted]	[Redacted]	[Redacted]	[Redacted]	
■	[Redacted]	[Redacted]	[Redacted]	[Redacted]	

■	—	[Redacted]	—	—	
■	+	[Redacted]	—	—	
[Redacted]					
[Redacted]					
■	—	[Redacted]	—	—	[Redacted]
■	—	[Redacted]	[Redacted]	—	
[Redacted]					
■	—	[Redacted]	[Redacted]	—	+
■	—	[Redacted]	[Redacted]	—	[Redacted]
■	—	[Redacted]	—	—	
[Redacted]					
[Redacted]					
■	—	[Redacted]	+	—	
■	—	[Redacted]	+	—	

[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	
Reports / Diagnostics					
Reports					
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	

[End]

	MASTER PURCHASE AND SERVICES AGREEMENT
	ATTACHMENT 3 TO EXHIBIT "C"
	STATEMENT OF WORK - AMI SOW FULL DEPLOYMENT STATEMENT OF WORK # [1] SERVICE LEVELS

1. **Service Level Triggers.** Each Service Level listed below will start to be enforceable, and to be reported on, upon the satisfaction of the condition noted below (each a "Service Level Trigger").

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]


[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[End]

	MASTER PURCHASE AND SERVICES AGREEMENT
	<p>ATTACHMENT 4 TO EXHIBIT C</p> <p>STATEMENT OF WORK - AMI SOW FULL DEPLOYMENT</p> <p>STATEMENT OF WORK # [1]</p> <p>SUPPORT SERVICES</p>

1. SUPPORT SERVICES. NRTC Subcontractor (Silver Spring) will provide the services described in this Attachment (**Support Services**) to Cumberland Valley for the term for which Cumberland Valley has purchased Solution Services, Software Support Services or Firmware Support Services, as applicable.

- 1.1. Access to Customer Support.** NRTC Subcontractor (Silver Spring) will provide 24x7x365 secure access to a web-based Cumberland Valley portal containing NRTC Subcontractor (Silver Spring) product documentation, Updates, and other "self-service" materials, including a ticketing system that allows Cumberland Valley to open and track the status of issues. NRTC Subcontractor (Silver Spring) Customer Support will be available to provide the Support Services, [Redacted]

Table 1 – NRTC Subcontractor (Silver Spring) Support Business Hours and Contact Information

Customer Support Location	Customer Support Business Hours	Email Support	Telephone Support
North America	[Redacted]	[Redacted]	[Redacted]

- 1.2. Incidents and Questions.** NRTC Subcontractor (Silver Spring's) Customer Support personnel will provide Tier 2 Support and receive and respond to Incidents and Questions. [Redacted]



- 1.3. **Classification of Incidents and Questions.** When Cumberland Valley submits an Incident or a Question, Cumberland Valley will reasonably assess its urgency according to the appropriate Priority Levels defined in Table 2 below. NRTC Subcontractor (Silver Spring) will confirm the Priority Level and the Parties will resolve any disagreement regarding the Priority Level designation as soon as is reasonably practical.

Table 2 –Priority Levels, Response and Resolution Process for Incidents and Questions

Priority	Description	Response Time and Continuing Communication	Resolution Process*	Escalation
I	[REDACTED]	[REDACTED] [REDACTED]	[REDACTED] [REDACTED]	[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

Priority	Description	Response Time and Continuing Communication	Resolution Process*	Escalation
1	[Redacted]	[Redacted]	[Redacted]	[Redacted]
1	[Redacted]	[Redacted]	[Redacted]	[Redacted]

Priority	Description	Response Time and Continuing Communication	Resolution Process*	Escalation
1	[REDACTED]	[REDACTED]	[REDACTED]	

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Table 3 – Software and Firmware Error Management with Severity Levels, Response and Target Resolution Times

Severity	Technical (System) Error	Operational Error	Target Resolution Time and Continuing Communication preceding Resolution
I	[Redacted]	[Redacted]	[Redacted]

Severity	Technical (System) Error	Operational Error	Target Resolution Time and Continuing Communication preceding Resolution
I	[Redacted]	[Redacted]	[Redacted]
I	[Redacted]	[Redacted]	[Redacted]

Severity	Technical (System) Error	Operational Error	Target Resolution Time and Continuing Communication preceding Resolution
I	[Redacted]	[Redacted]	[Redacted]

1.6. **On-Site Support.** NRTC Subcontractor (Silver Spring) will provide on-site support at a mutually agreed [Redacted]

1.7. **Remote Support.** NRTC Subcontractor (Silver [Redacted]

1.9. **Updates.** NRTC Subcontractor (Silver Spring) will provide Updates to Cumberland Valley, [Redacted]

NRTC Subcontractor (Silver Spring) will install Firmware Updates [Redacted]

[REDACTED]

[REDACTED]

[REDACTED]

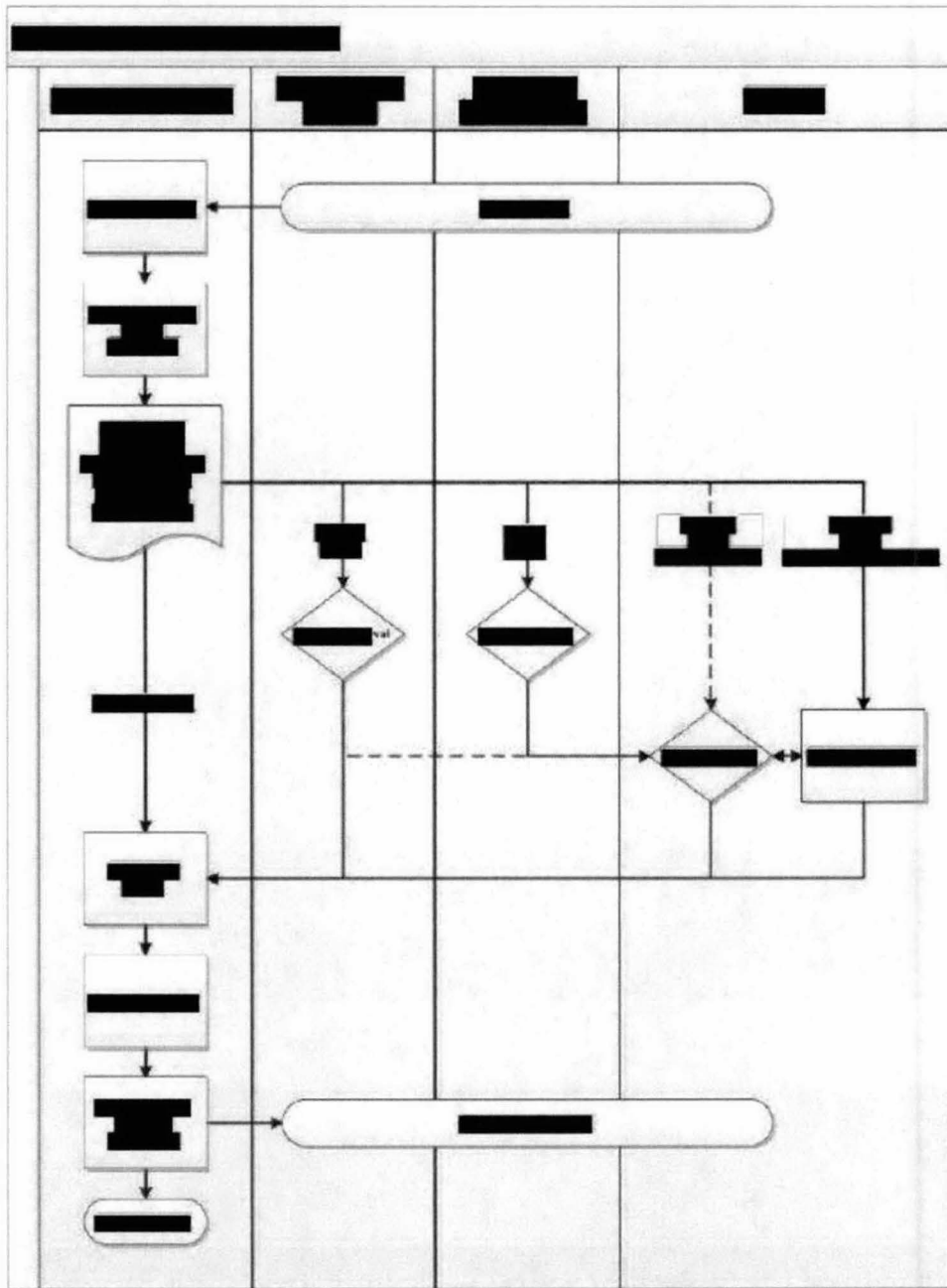
- 1.12. Cumberland Valley's Responsibilities.** Cumberland Valley will provide Tier 1 Support and Tier 2 Support. Cumberland Valley is responsible for acting on and implementing the support solutions that NRTC Subcontractor (Silver Spring) recommends or provides, including


[REDACTED]

- 2. TERM AND TERMINATION.** Support Services will commence on the initial Delivery Date of the Software and remain in full force and effect

[REDACTED]

nrtc	[Redacted]
	[Redacted] [Redacted] [Redacted]



	MASTER PURCHASE AND SERVICES AGREEMENT
	<p>EXHIBIT D</p> <p>TO MASTER PURCHASE AND SERVICES AGREEMENT, DATED AS OF THE 15 TH DAY OF DECEMBER, 2017, BY AND BETWEEN NATIONAL RURAL TELECOMMUNICATIONS COOPERATIVE AND CUMBERLAND VALLEY ELECTRIC, INC.</p> <p>EULA – END USER LICENSE AGREEMENT</p>



End User License Agreement

This End-User License Agreement ("**Agreement**") is made by and between Silver Spring Networks, Inc. and its affiliates (collectively, "**Silver Spring**") and the end-user ("**Customer**") of Silver Spring software ("**Software**"). By clicking the acceptance button or accessing, installing or downloading the Software onto a computer, cell phone, PDA or other product intended for use with the Software, Customer agrees to be bound by all of the following terms and conditions, including the use restrictions, warranty disclaimer and limitation of liability below.

[Redacted]

1. License Grant. Silver Spring hereby grants to Customer a non-exclusive, personal and non-transferable license, without right to sublicense, to (a) install (unless the Software is made available to Customer through a SaaS offering), access, operate and use for the term purchased solely for its internal business purposes in the country of its incorporation, the Software for which Customer has paid all applicable fees, and (b) use the documentation provided with the Software ("**Documentation**").

[Redacted]

2. Ownership and Intellectual Property Rights.

[Redacted]

[REDACTED]

3. Limited Warranty. Silver Spring warrants that the Software will substantially conform in all material respects to the Documentation

[REDACTED]

4.

[REDACTED]

5. **Term and Termination.** This Agreement shall remain in full force and effect for the term for which Customer has purchased license(s), except that this Agreement

[REDACTED]

6 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

9. Disputes/Governing Law. Any dispute in the meaning, effect or validity of these terms will be resolved in accordance with the laws of the State of California, U.S.A., without regard to the conflict of laws provisions. The United Nations Convention on Contracts for the International Sale of Goods and the Uniform Computer Information Transactions Act (UCITA) shall not apply to this Agreement or to the transactions processed hereunder.

10. Export Control/Deemed Exports. No export rights are granted to Customer under this Agreement. Customer shall comply with all applicable export laws (including U.S. export laws) and acknowledges that Software and technology may not be provided or made available either directly or indirectly, (i) into Cuba, Iran, North Korea, Sudan, Syria or any other country subject to United States trade sanctions, or to individuals or entities controlled by such countries or to nationals or residents of such countries (other than nationals who are lawfully admitted permanent residents of countries not subject to such sanctions); or (ii) or (ii) to anyone on any denied, prohibited, or unverified list maintained by the United States Government, including the Office of Foreign Assets Control (OFAC) Specially Designated Nationals (SDN) List.

11. General. If any provision of this Agreement is held invalid or unenforceable by a court of competent jurisdiction, such provision shall be deleted, and the remaining terms shall be construed so as to give maximum lawful effect to any such deleted terms. No waiver by Silver Spring of any provision of this Agreement will constitute a waiver of any other breach of that or any other provision. This Agreement is not made for the benefit of any third parties. Customer may not assign this Agreement or any of its rights hereunder without Silver Spring's prior written consent and any such assignment shall be void. This Agreement is in the English language only, which shall be the governing language and controlling in all respects. All versions of this Agreement in any other language will be for accommodation only and shall not be binding upon Silver Spring. All communications and notices to be made or given pursuant to this Agreement must be in the English language. Subject to the terms and limitations (if any) of any agreement between Reseller and Customer, this Agreement contains the complete and entire agreement as to the subject matter hereof, and replaces and supersedes any prior or contemporaneous communications, representations, or agreements, whether oral or written with respect to such subject matter.



Member driven. Technology focused.

This Agreement may not be modified except in a writing signed by Silver Spring's authorized representatives. Silver Spring and the Customer recognize that if there is a breach or threatened breach by the Customer of this Agreement, damages alone may not necessarily be an adequate remedy. Accordingly, Silver Spring will have the right to enforce the terms and conditions of this Agreement by equitable relief where applicable, including injunctive relief and specific performance, without the necessity of posting a bond.

CUSTOMER NAME NRTC
PLACE OF INCORPORATION: _____
By: [Signature]
Name: JTBRYAN
Title: CEO
Date: 12/21/17

Cumberland Valley Electric, Inc.
Case No. 2018-00056
Commission Staff's First Post-Hearing Request for Information

4. Provide all amendments and change orders to any contract or agreement between Cumberland Valley and the National Rural Telephone Cooperative or other vendors regarding or relating to the CPCN requested in this matter, including any amendment or change order regarding or relating to the potential that additional meters, relays, access points, and other advanced metering infrastructure not initially anticipated in the contract or agreement may be necessary as the project is implemented.

Response:

Please see Page 2 of this Response for the requested documentation, which consists of an agreement (coverage commitment) between Cumberland Valley and NRTC addressing cost allocation for additional AMI equipment that may be necessary as the project progresses. According to this coverage commitment agreement, NRTC will be responsible for the first approximately \$40,000 in costs incurred for additional equipment required to achieve satisfactory system functionality (*i.e.*, the 99.5% meter reading commitment).¹ If even more investment is necessary to successfully implement the project, Cumberland Valley has agreed to assume up to the next approximately \$40,000 in additional equipment costs. Thereafter, all additional equipment costs incurred to achieve system functionality will be borne by NRTC.

While the parties remain confident that the ultimate scope and investment related to the project will be within projections, NRTC's coverage commitment further minimizes Cumberland Valley's risk and reflects the parties' dedication to a successful and efficient project implementation.

¹ The parties' Master Purchase and Services Agreement, and particularly Exhibit A thereto, details the networking equipment expected to be utilized in implementing Cumberland Valley's proposed AMI system as well as the expected costs. For purposes of network coverage, the total equipment cost anticipated by the Master Purchase and Services agreement (*i.e.*, the Initial Equipment Quote) is \$812,179.46. Thus, NRTC has agreed to pay for the first \$40,608.97 in equipment overages, Cumberland Valley has agreed to pay for the next \$40,608.97, and NRTC will cover any remaining equipment costs.

J. Timothy Bryan
Chief Executive Officer

Item 4
Page 2 of 2
Witness: Mark Abner

June 20, 2018

Mr. Ted Hampton
President and CEO
Cumberland Valley Rural Electric Cooperative
US 25 East
Gray, KY 40734

RE: NRTC Coverage Commitment for AMI Project

Dear Mr. Hampton:

Pursuant to the Master Agreement and Services Agreement dated as of December 15, 2017, between National Rural Telecommunications Cooperative (NRTC) and Cumberland Valley Rural Electric Cooperative (the "Agreement"), NRTC hereby agrees to undertake the following coverage commitment:

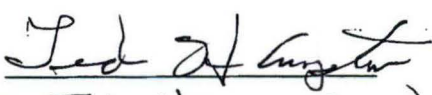
NRTC agrees that the Equipment necessary for the Initial Field Network Design as defined in Task 2.1.1.1 contained in Exhibit C to the Agreement, will provide meter reading coverage of 99.5% of Member's Integrated Devices. The Equipment quote in Exhibit A (Pricing) is based on such Initial Field Network Design (the "Initial Equipment Quote"). To the extent additional Equipment is required after Network Optimization to meet the meter reading commitment of 99.5%, NRTC shall pay for additional Equipment up to five percent (5%) of the Equipment cost set forth in the Initial Equipment Quote. If the meter reading commitment of 99.5% is still not met, Member shall pay for additional equipment up to five percent (5%) of the Equipment cost set forth in the Initial Equipment Quote. If the meter reading commitment of 99.5% is still not met, NRTC will be responsible for acquiring all additional Equipment to meet such meter reading commitment. This coverage commitment shall be measured one time only after the Optimization pursuant to Section 2.5 is completed (that is, after 98% of the Integrated Devices have been installed).

Our commitment hereunder is conditioned upon a field visit to confirm proper power levels and proper firmware for Integrated Devices. In addition, NRTC shall not be responsible for the installation or backhaul cost of any Equipment provided hereunder.

If you agree with the foregoing, will you please so indicate below. We look forward to getting started on your AMI project!

Best regards,



Agreed and Accepted: 
By: Ted Hampton
Title: President & C.E.O.
Date: 6-20-18

nrtc

Member driven. Technology focused.

2121 Cooperative Way, Suite 600, Herndon, VA 20171 | 703.787.7282 | ejtbryan@nrtc.coop | nrtc.coop

Cumberland Valley Electric, Inc.
Case No. 2018-00056
Commission Staff's First Post-Hearing Request for Information

5. Provide a net cost-benefit analysis of implementing the advanced metering infrastructure on July 1, 2018, versus July 1, 2019, using actual data when available and reasonable estimates when necessary. Provide supporting details for the cost-benefit analysis, including but not limited to spreadsheets with formulas and variables intact, an explanation of the variables when necessary to understand what is represented by the variables, an explanation of the source of information used to perform the cost-benefit analysis; an explanation of the manner in which any estimates were made, and any further explanation or information that Cumberland Valley contends is necessary to understand or provide context to the cost-benefit analysis. The net cost-benefit analysis should include all costs and all benefits associated with implementing the advanced metering system in July 1, 2018, versus July 1, 2019, with the supporting details described above.

Response:

Cumberland Valley has undertaken a quantitative cost-benefit analysis of postponing the beginning of implementation of the new AMI system by one year, as requested. This analysis is contained at Page 5 through Page 22 of this Response. Additionally, at Page 2 through Page 4 of this Response, Cumberland Valley provides a detailed narrative explaining why it does not believe it would be a prudent management decision to postpone the beginning of the AMI project by one year. Cumberland Valley's intent is to clarify and give further detail in order to provide the Commission and Commission Staff with all the information needed to make a determination on the approval of the new AMI system.

Supporting Narrative

Cumberland Valley wishes to highlight why delaying the beginning of the implementation of the new AMI system would not be the best decision for our cooperative. Management appreciates the Commission's point of view that delaying implementation of the new AMI system would lessen the financial impact on Cumberland Valley and its members. Yet, Cumberland Valley has postponed this AMI implementation to the point where it is no longer comfortable in continuing to do so.

Management has a directive that it takes seriously and that is to provide safe, reliable and affordable energy to its membership. Cumberland Valley has met its directive of providing affordable energy to its members. Cumberland Valley has historically had some of the lowest rates of cooperatives in the State of Kentucky and currently has the 5th lowest cost to residential members among cooperatives in the State of Kentucky.¹ Our cost to residential members is also lower than Kentucky Power and Kentucky Utilities.² Cumberland Valley is very proud of our affordability to our members especially considering the challenging economic conditions that have faced Eastern Kentucky over the past 8 years. Keeping our rates affordable to our members is a main focus of management and we compare very favorably to other electric utilities in Kentucky.

The other directive that is particularly important to Cumberland Valley is reliability. The term reliability has a much different meaning in today's environment than it did 50 years ago. For today's member reliability not only means "keeping the lights on" but also having daily, if not hourly, readings. Providing this information to our members has become a necessity in recent years, especially to our prepaid members. Members expect to be able to track their usage, adjust their usage habits, and manage their energy usage. They expect to be able to do so at a moment's notice utilizing instant notification, internet tools and smartphone apps.

Delaying the beginning of deployment of the new AMI system by one year extends the time Cumberland Valley will need to continue operating the obsolete TSII System. The risks involved in supporting the TSII system for that length of time are many. This narrative will examine the primary risks in more detail in the following sections.

Endpoint Failure

Landis + Gyr will no longer sell new TSII endpoints after October 31st, 2019 according to their TSII End of Sales FAQ sheet. Cumberland Valley has experienced on average 1,995 endpoint failures per year since 2010. If the Commission orders Cumberland Valley to delay one year before beginning implementation that will force Cumberland Valley to rely on the secondary market for up to four years while making the transition to a new AMI system.

¹ Based on a monthly average usage of 1,000 kWh and current residential rates as published on the PSC website.

² *Id.*

Based on a survey³ conducted with industry professionals knowledgeable of the metering market, it is clear that the secondary market is unreliable and diminishing. Chuck Book, President of Luthan Electric Meter Testing LLC, had this to say, *"I have been inquiring about legacy, [surplus], TSII equipment. The availability of this equipment is declining. It's becoming more difficult to locate. Many utilities that had the system has already moved to other systems and have either liquidated what they had or are simply disposing of it. I will continue to look for sources, but it may be difficult to locate equipment as needed. I will continue the search."*

Cumberland Valley expects there to be a significant risk in relying on the secondary market to obtain replacement endpoints for a TSII system that in Cumberland Valley's experience has had significant levels of failures in the past.

Communication Equipment Failure

Transformer Control Units (TCUs) and Substation Processing Units (SPUs) are the backbones of communication with the TSII system. These devices allow for upstream and downstream communication to and from the TSII meters. They are essential pieces of equipment but unfortunately have proven over the past few years not to be very reliable. Over the past 4 years, Cumberland Valley has experienced 7 TCU failures and 15 SPU failures. If either the TCU or SPU fails at a substation, the AMI capabilities at that location will be either impaired or completely terminated.

Cumberland Valley currently has 4 spare TCUs and 1 spare SPU. Cumberland Valley obtained all spare inventory from other cooperatives on the secondary market in used condition. Cumberland Valley cannot attest to their reliability or expected operating life of used equipment. This coupled with the actual failures experienced in previous years gives Cumberland Valley great concern about its ability to consistently gather readings in the near term using the TSII system.

Lead times on new TCUs and SPUs from Landis + Gyr are currently 16 weeks and have been as long as 40 weeks. Furthermore, as has already been mentioned for endpoints, relying on the secondary market for equipment can be a risky proposition. It is important to note that any additional new equipment that Cumberland Valley will purchase will be for a 12-year-old system considered obsolete and unlikely to retain much (if any) resale value.

Cumberland Valley would also like to take the opportunity to update the Commission on a TCU that is currently failing at our Oven Fork substation. This particular TCU has two heat sinks that appear to have failed and the metering technician will be replacing the failing TCU with a rebuilt

³ The Survey was sent to three cooperatives in the State of Kentucky transitioning away from the Landis + Gyr TSII system, as well as a phone interview with personnel at Luthan Electric Meter Testing, LLC of Owensboro, KY.

TCU that Cumberland Valley has in inventory. After use of this TCU Cumberland Valley will have only 3 spare TCUs remaining, none of which are compatible with the Oven Fork substation. Thus the metering department will be tasked with either finding a replacement on the secondary market or ordering a new TCU for inventory. This highlights the challenges of operating an obsolete AMI system.

Equipment Failure Triggering Manual Readings

Cumberland Valley would like to explore the outcome of a scenario in which an equipment failure occurs and replacements are not available. Such a scenario becomes a very real possibility based on the volatility of the secondary market for used TSII equipment and the long lead times for new equipment from Landis + Gyr. In such a scenario substation equipment failure is a much more significant threat than the failure of individual endpoints. While endpoint failures only affect the individual meter and its ability to send and receive commands, TCU and SPU failures will cause thousands of meters to be unable to send and receive commands and readings.

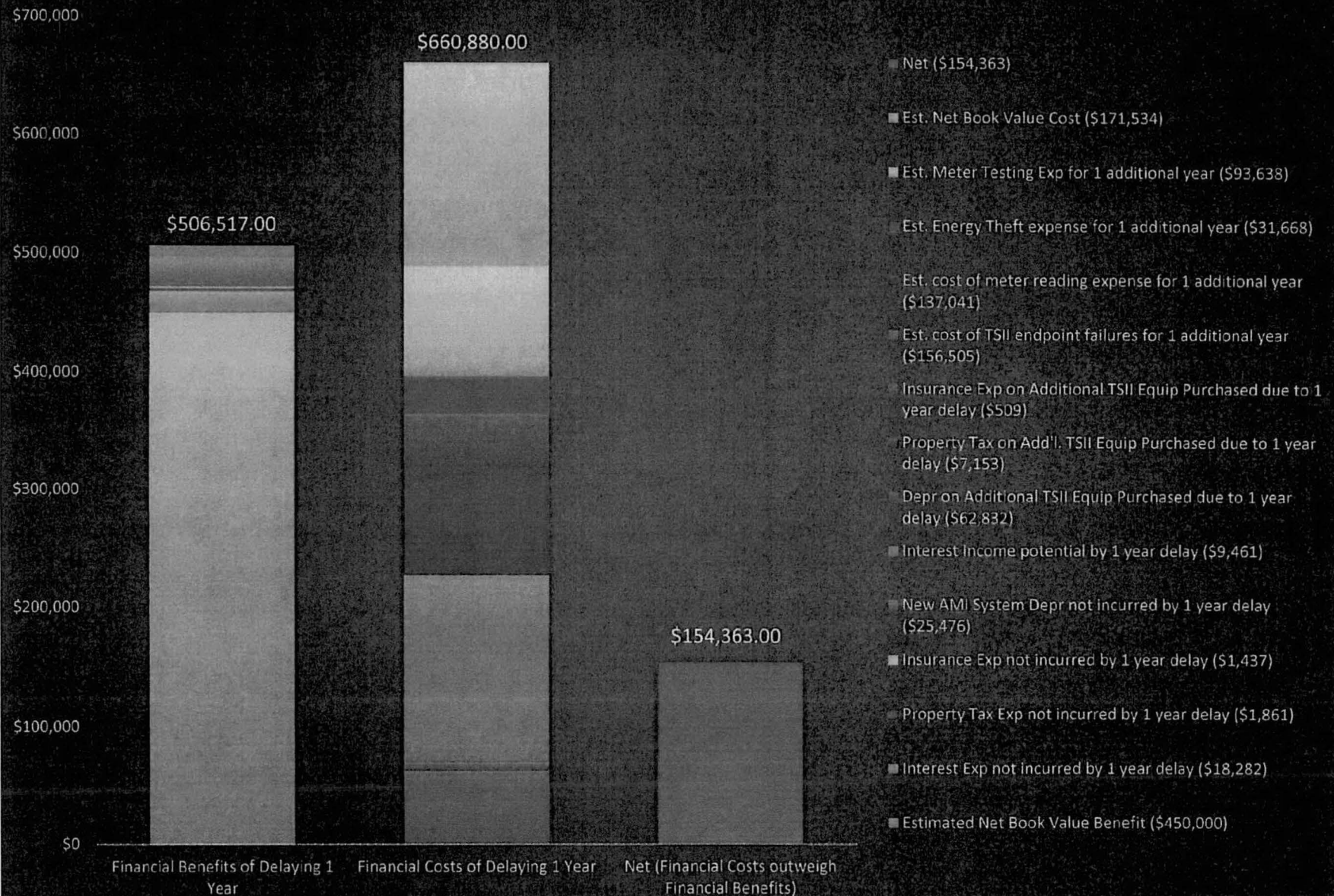
In the event that Cumberland Valley does not have a replacement for a failed TCU or SPU, the aftermath would be catastrophic to our daily operations. Meter readings would not exist to perform billing and prepaid accounts would no longer receive daily readings, in effect ending the prepaid program on that substation. Obtaining readings for monthly billing purposes would be an expensive and labor intensive process. Depending on the timing of the equipment failure Cumberland Valley could be put under significant time constraints in obtaining manual readings. This scenario is one that Cumberland Valley believes it must avoid if possible.

Any further delay in implementation of a new AMI system will increase the likelihood that Cumberland Valley will be facing these undesirable outcomes. Cumberland Valley would like to reiterate that if this was purely a financial decision, management would not oppose delaying implementation by a year. However, there are significant risks to daily operations and impact to members' quality of service due to continued operation of a failing and obsolete technology. Additional TSII equipment will need to be acquired to maintain the TSII system for one additional year. If the equipment is not available on the secondary market, new equipment will need to be purchased while it is available.⁴ This additional purchase of TSII equipment will increase the net book value remaining in the TSII system.

In summary, while there are some financial benefits to postponing AMI deployment for one year, Cumberland Valley's analysis of all relevant factors—financial as well as reliability and customer service—demonstrates that immediate deployment of the AMI system is in the overall best interest of Cumberland Valley and its owner-members.

⁴ See Page 8 of this Response.

Benefits vs. Costs of Implementation Delay



Cumberland Valley Electric, Inc.
Summary of Estimated Financial Benefits of Postponing
AMI Implementation by One Year

Estimated Financial Benefits

Interest Expense not incurred by delaying implementation 1 year (See Page 11)	\$18,282
Property Tax Expense not incurred by delaying implementation by 1 year (See Page 14)	\$1,861
Insurance Expense not incurred by delaying implementation by 1 year (See Page 15)	\$1,437
Interest Income potential by delaying implementation by 1 year (See Page 21)	\$9,461
New AMI system depreciation not incurred by delaying implementation 1 year (See Page 9)	<u>\$25,476</u>
Subtotal	\$56,517

Estimated Net Book Value Benefit ¹

Reduction in Net Book Value resulting from additional 1 year of depreciation on existing TSII System by delaying implementation by 1 year (See Page 8)	<u>\$450,000</u>
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Total Estimated Financial Benefits	\$506,517
------------------------------------	-----------

¹ Estimated net book value benefit will result over a period of years by amortizing the remaining net book value after the new AMI system is completed. If the project is delayed by 1 year, the remaining net book value will decrease by approximately \$450,000. See Page 8.

Cumberland Valley Electric, Inc.
Summary of Estimated Financial Costs of Postponing
AMI Implementation by One Year

Estimated Financial Costs

Estimated Depreciation on Additional TSII Equipment Purchased due to 1 year delay (48 months) ¹ (See Page I0)	\$62,832
Estimated Property Tax on Additional TSII Equipment Purchased due to 1 year delay (48 months) ¹ (See Page I2)	\$7,153
Estimated Insurance Expense on Additional TSII Equipment Purchased due to 1 year delay (48 months) ¹ (See Page I3)	\$509
Estimated cost of TSII endpoint failures for 1 additional year (See Page 16)	\$156,505
Estimated cost of meter reading expense for 1 additional year (See Page 18)	\$137,041
Estimated Energy Theft expense for 1 additional year (See Page 19)	\$31,668
Estimated Meter Testing Expense for 1 additional year (See Page 20)	<u>\$93,638</u>
Subtotal	\$489,346

Estimated Net Book Value Cost ²

Additional Net Book Value resulting from estimated additional assets needed for 1 additional year assuming 48 months depreciation ¹ (See Page I0)	<u>\$171,534</u>
Total Estimated Financial Costs	\$660,880

¹ Assumption made that the additional TSII equipment needed to extend the life of the existing TSII system will be depreciated for 48 months while the new AMI system is being installed. The undepreciated cost remaining will increase the Net Book Value and will be amortized after the new AMI system has been completed. See Page I0.

² Estimated net book value cost will result over a period of years by amortizing the remaining net book value after the new AMI system is completed. If the project is delayed by 1 year, the undepreciated cost will increase the remaining net book value.

**Cumberland Valley Electric, Inc.
Estimated 1 Year Depreciation Expense Calculation**

CVE Book Value & Accumulated Depreciation of Total Distribution Plant & Meters as of April 2018

Total distribution plant	\$98,040,258
Accumulated depreciation	\$36,999,187
Net Plant	\$61,041,071
Reserve Ratio	37.7%
 Meters & Equipment	 \$6,974,448
Accumulated depreciation	\$2,629,367
Net Book Value	\$4,345,081

Calculation for Estimating 1 year of Depreciation Expense on TSII System

<u>Asset Description</u>	<u>Original Cost</u>	<u>Depreciation Rate</u>	<u>Monthly Depreciation</u>
Station Equipment	\$717,690	6.70%	\$4,007
Meters-Electromechanical	\$492,590	3.40%	\$1,396
Meters-Solid State/TSII/ Remote Service Switch	\$5,764,168	6.70%	\$32,183
Monthly depreciation			\$37,586 ¹

**Estimated Add'l Assets
Needed for 1 Additional**

<u>Year</u>	<u>Original Cost</u>	<u>Depreciation Rate</u>	<u>Monthly Depreciation</u>
4 SPU's ³	\$67,200	6.70%	\$375
2 TCUs ³	\$23,760	6.70%	\$133
786 Meters ⁴	\$143,406	6.70%	\$801
			\$1,309 ²

	<u>Monthly Depreciation</u>	<u>Number of months</u>	<u>Yearly Depreciation</u>
Existing TSII System	\$37,500	12	\$450,000
Additional TSII Equipment	\$1,309	12	\$15,708
Total			\$465,708

¹ In response to Commission Staff's Second Request for Information \$37,500 was used as approximate monthly depreciation for existing TSII system.

² This represents depreciation on estimated additional new equipment that would need to be purchased to extend the life of the existing TSII System an additional year.

³ Quantity and cost is obtained from Page 17.

⁴ Quantity and cost is obtained from Page 16 plus meter installation labor of \$56.45 per meter. Average TSII failures are 1,995 per year. 39.4% of existing meters are electromechanical and 60.6% are solid state. Electromechanical meters cannot have endpoints replaced due to the manufacturer no longer producing endpoints for them. When endpoints fail in those meters a new endpoint and meter would need to be purchased at a cost of \$126. Solid State meter can have the endpoint replaced when they fail, the cost of a replacement endpoint is \$73. (1,995 endpoints X 39.4%=786 meters; 1,995 endpoints X 60.6%=1,209)

Cumberland Valley Electric, Inc.
Estimated 1 Year Depreciation Expense Calculation Including New AMI System

CVE Book Value & Accumulated Depreciation of Total Distribution Plant & Meters as of April 2018

Total distribution plant	\$98,040,258
Accumulated depreciation	\$36,999,187
Net Plant	\$61,041,071
Reserve Ratio	37.7%

Meters & Equipment	\$6,974,448
Accumulated depreciation	\$2,629,367
Net Book Value	\$4,345,081

Calculation for Estimating 1 year of Depreciation Expense on TSII System

<u>Asset Description</u>	<u>Original Cost</u>	<u>Depreciation Rate</u>	<u>Monthly Depreciation</u>
Station Equipment	\$717,690	6.70%	\$4,007
Meters-Electromechanical	\$492,590	3.40%	\$1,396
Meters-Solid State/TSII/ Remote Service Switches	\$5,764,168	6.70%	\$32,183
Monthly depreciation			<u>\$37,586¹</u>

Calculation for Estimating Depreciation Expense on New AMI System

<u>Asset Description</u>	<u>Original Cost</u>	<u>Depreciation Rate</u>	<u>Monthly Depreciation</u>
Meters ²	\$751,051	6.70%	\$4,193
Hardware/Other ²	\$769,945	6.70%	\$4,299

	<u>Monthly Depreciation</u>	<u>Number of months</u>	<u>Yearly Depreciation</u>
Existing TSII System	\$37,500	12	\$450,000
New AMI System	\$8,492	3	\$25,476

¹ In response to Commission Staff's Second Request for Information Item 1, \$37,500 was used as approximate monthly depreciation for existing TSII system.

² Assets and cost information obtained from year 1 projected time line for implementation of new AMI system schedule.

Cumberland Valley Electric, Inc.
Estimated Net Book Value Resulting from Additional TSII Equipment Needed for 1 Additional Year

Additional net book value remaining resulting from estimated additional assets needed for 1 additional year

Estimated Add'l Assets
Needed for 1 Additional

<u>Year</u> ¹	<u>Original Cost</u>	<u>Depreciation Rate</u>	<u>Monthly Depreciation</u>
4 SPU's	\$67,200	6.70%	\$375
2 TCUs	\$23,760	6.70%	\$133
786 Meters	\$143,406	6.70%	\$801
	<u>\$234,366</u>		<u>\$1,309</u> ²

	<u>Monthly Depreciation</u>	<u>Number of months</u> ³	<u>Yearly Depreciation</u>
Additional TSII Equipment	\$1,309	48	\$62,832
Total			<u><u>\$62,832</u></u>

	<u>Original Cost</u>	<u>Accumulated Depreciation</u>	<u>Net book value</u>
Additional TSII Equipment	\$234,366	\$62,832	\$171,534

¹ Estimated additional assets needed for 1 additional year and associated quantity and cost are included on Page 8. This

² represents depreciation on estimated additional new equipment that would need to be purchased to extend the life of the TSII System 1 additional year.

³ Used 48 months assuming the additional TSII Equipment purchased is in use for 48 months before being replaced by New AMI System.

Cumberland Valley Electric, Inc.
Estimated 1 Year Interest Rate Expense Attributable to New AMI System

Estimated Interest Expense

Estimated Cost (Per contract time line) of New AMI System during 1st 6 months	\$490,201
Estimated Cost (Per contract time line) of New AMI System during 2nd 6 months	<u>\$1,044,670</u>
Total Anticipated Cost - AMI - Year 1	\$1,534,870
 Anticipated Cost paid with general funds Year 1	 <u>-\$490,201</u> ¹
 Anticipated Cost paid with loans funds Year 1	 \$1,044,669
 Anticipated Long-Term Interest Rate	 <u>3.50%</u> ²
 Anticipated Interest Expense during Year 1	 <u><u>\$18,282</u></u> ³

¹ It is anticipated that the first six months of the AMI System will be paid with general funds. Cumberland Valley's revenue is weather dependent and other factors such as storms will affect funds available for the AMI System. Cumberland Valley may have additional general funds available for the AMI System and these funds will be used.

² Rural Utilities Services Federal Financing Bank 30 year rate has increased by .44% from January 2, 2018 to June 12, 2018. Interest rates are forecasted to continue increasing and an anticipated rate of 3.50% was used for January 2019 reflecting an additional .355% increase.

³ Anticipate loan funds for 2nd 6 months of expenses would be obtained in January 2019. Interest expense during year one is only for 6 months.

Cumberland Valley Electric, Inc.
Estimated 1 Year Property Tax for Additional TSII Equipment

Estimated 1 Year Property Tax Attributable to Additional TSII Equipment (due to waiting 1 year)

	<u>Anticipated Cost</u>
Additional TSII	
Equipment ¹	\$234,366
Tax rate based on 2017	<u>0.763% ²</u>
	<u><u>\$1,788</u></u>

¹ Includes SPUs, TCU's and meters. Cost information obtained from 1 year projected time line for implementation of new AMI system schedule. See Page 10.

² Property tax rate based on 2017 property tax rates

Cumberland Valley Electric, Inc.
Estimated 1 Year Insurance for Additional TSII Equipment

Estimated 1 Year Insurance Attributable to Additional TSII Equipment (due to waiting 1 year)

	<u>Anticipated Cost</u>
SPUs and TCUs ¹	\$90,960
Insurance rate	<u>0.0014 ²</u>
Cost of insurance	<u><u>\$127</u></u>

¹ Cost for SPU's and TCU's obtained from year 1 projected time line for implementation of new AMI system schedule.

² Insurance rate provided by insurance carrier (\$35 insurance cost /\$25,000 plant value). See Page 10 for anticipated cost of SPU's (\$67,200) and TCU's (\$23,760).

Cumberland Valley Electric, Inc.
Estimated 1 Year Property Tax Expense with New AMI System

Estimated 1 Year Property Tax Attributable to New AMI System

<u>July - December 2018</u> ¹	<u>Anticipated Cost</u>
WIP (first 6 mo.) ²	\$487,730 ³
Taxed at 50% ²	50%
	<hr/> \$243,865
Tax rate based on 2017	0.763%
	<hr/> \$1,861 <hr/>

¹ July - December 2018 is used since the December 31, 2018 value is used for property tax calculations for 2019.

² Work in progress ("WIP") assessed at 50% for property taxes by Commonwealth of Kentucky Department of Revenue.
WIP is estimated based on year 1 projected timeline for implementation of new AMI system.

³ WIP anticipated cost does not include \$2,471 for annual maintenance expense that is included at Page 11. (\$490,201 - \$2,471 = \$487,730)

Cumberland Valley Electric, Inc.
Estimated 1 Year Insurance Expense with New AMI System

Estimated 1 Year Insurance Attributable to New AMI System

<u>July-December 2018</u> ¹	<u>Anticipated Cost</u>
AMI Hardware ²	\$239,511
Insurance rate	0.006 ³
Cost of insurance	<u>\$1,437</u>

¹ July - December 2018 is used since the December 31, 2018 value is used for insurance calculations for 2019 premium. Additions after Dec. 31, 2018 will be included for insurance calculations for 2020 premiums.

² Infrastructure including access points and relays installed. Installed meters are not insurable. AMI hardware cost obtained from year 1 projected time line for implementation on new AMI system schedule.

³ Insurance rate provided by insurance carrier (\$9 insurance cost /\$1,500 plant value).

**Cumberland Valley Electric, Inc.
Estimated TSII Endpoint Failures Per Year**

Verified Endpoint Failures by Year

<u>Year</u>	<u>Failures</u> ¹
2017	483
2016	1,980
2015	3,990
2014	1,944
2013	2,448
2012	1,645
2011	623
2010	2,844

Calculation for Average Endpoint Failures Per Year

Average Endpoint Failures per Year 1,995

Cost of Replacing Failed Endpoints

	Endpoint Replacements	Meter Replacements
Average Endpoint Failures per Year		
Solid State Endpoint Replacement (1,995 X 60.6%)	1,209	-
Electromechanical Meter Replacement (1,995 X 39.4%)	-	786
Cost of Replacing Endpoint or Meter	\$73	\$126
Cost to Replace Failed Endpoints or Meters	\$88,257	\$99,036
CVE Cost to perform Meter Exchanges ³	\$68,248	\$44,370
Total Cost of Replacing Failed Endpoints	\$156,505	\$143,406

¹ Failure data obtained from Landis + Gyr Customer RMA Analysis Report

² Composite rate based on plant records showing 39.4% of meters being electromechanical meters and 60.6% being solid state. Electromechanical meters cannot have endpoints replaced due to the manufacturer no longer producing endpoints for them. When endpoints fail in those meters a new endpoint and meter would need to be purchased at a cost of \$126. Solid State meters can have the endpoint replaced when endpoints fail, the cost of a replacement endpoint is

³ \$73.

Cost to perform Meter Exchanges includes Labor (\$31.08/hr), Overhead (\$16.54/hr.) and Transportation expense (\$8.83/hr). Based on Cumberland Valley's service area it was estimated to take one hour on average to travel to and exchange a failing endpoint/meter.

Cumberland Valley Electric, Inc.
Estimated TSII Substation Equipment Failures Per Year

TSII Substation Equipment Failures¹

SPU Failures over past 4 years	15
TCU Failures over past 4 years	7

Calculation for Average Substation Equipment Failures Per Year

Average SPU failures per year (15/4)	4
Average TCU failures per year (7/4)	2

Cost of Replacing Failed Substation Equipment²

Cost of SPU from Landis + Gyr (16 week lead time)	\$16,800
Cost of TCU from Landis + Gyr (16 week lead time)	\$11,880

Estimated Annual Cost of Equipment Replacement

SPU replacements due to failures	\$67,200
TCU replacements due to failures	\$23,760
Total Equipment Replacement Cost	<hr/> \$90,960

¹ Failures experienced by Cumberland Valley over the past 4 years

² Prices of equipment obtained from Irby Utilities (the Landis + Gyr Reseller in Kentucky)

**Cumberland Valley Electric, Inc.
Internal Meter Reading Expense**

Internal Meter Reading Expense for 2013 - 2017 ¹				
Year	Hours	Labor & Overheads	Transportation	Total
2017	2,249.50	\$ 113,540.79	\$ 13,515.78	\$ 127,056.57
2016	2,521.50	\$ 124,178.05	\$ 17,054.15	\$ 141,232.20
2015	2,244.00	\$ 109,995.50	\$ 20,203.08	\$ 130,198.58
2014	2,319.00	\$ 109,478.15	\$ 21,261.55	\$ 130,739.70
2013	2,845.50	\$ 128,392.93	\$ 27,585.68	\$ 155,978.61

Average 1 Year Meter Reading Expense

Total Meter Reading Expense for previous 5 years (2013 - 2017)	\$685,206
Number of Years (2013 - 2017)	5
Average Meter Reading Expense Per Year	\$137,041

¹ Labor & Overheads gathered from Labor Distribution History Report for account 902.00 (Meter Reading Expense). Transportation Expense gathered from transportation expense charged to the 902.00 account.

**Cumberland Valley Electric, Inc.
Estimated 1 Year Cost of Energy Theft**

Energy Theft Statistics

Known incidents of energy theft within CVE's service area ¹	593
Number of years energy theft incidents spans (2002-2018) ²	16
Estimated incidents per year ³	37

Theft Data (Based on January-May 2018)

Estimated lost revenue due to energy theft ⁴	\$19,964
Number of energy theft incidents ⁵	21
Lost revenue due per incident ⁶	\$951

Projected Revenue Loss Per Year Due to Energy Theft

Lost Revenue Due per Incident	\$951
Estimated Incidents per year	37
Projected Loss Per Year Due to Energy Theft	<u>\$35,187</u>

Projected Reduction in Energy Theft due to new AMI system

Current Projected Loss Per Year Under Current AMI System	\$35,187
Anticipated Reduction in Theft due to Early Detection (90%)	<u>\$31,668</u>
Projected Annual Energy Theft under new AMI System	\$3,519

¹ Energy theft incidents gathered from notes in billing software detailing theft on account

² Information previous to 2002 on energy theft is not readily available in CVE's billing software

³ Number arrived at by taking known incidents (593) and dividing it by years (16)

⁴ Estimated lost revenue from known incidents of theft through the first 5 months of 2018, lost revenue is calculated by looking at monthly historical usage patterns and applying this amount to similar time periods the theft was estimated to have occurred.

⁵ Known incidents of theft during the first 5 months of 2018

⁶ Number arrived at by dividing Estimated lost revenue (\$19,963.91) by Number of energy theft incidents (21)

⁷ Cumberland Valley anticipates a 90% reduction in energy theft due to earlier detection of incidents. The new AMI system will generate an outage alert to the metering department when it detects a meter has lost power or been removed from the meter socket. At that time Cumberland Valley will dispatch an employee to go investigate. This early detection capability is expected to significantly reduce lost revenue due to energy theft.

Cumberland valley Electric, Inc.
Meter Testing for 2018

2018

<u>Meter Type</u>	<u>Quantity to be Tested</u>	<u>Test Fee (Per Meter) ³</u>	<u>CVE Expense to Change Meter (Per Meter) ¹</u>	<u>Program TSII Endpoint (96% of Residential Meters) ⁴</u>	<u>Endpoint Firmware Update (43% of Residential Meters) ⁵</u>	<u>Total Expense</u>
Self Contained Residential Meters	3,280	\$ 5.99	\$ 15.05	\$ 2,657.58	\$ 4,358.14	\$ 76,026.91
Self Contained Polyphase Meters ²	49	\$ 85.00	\$ -	\$ -	\$ -	\$ 4,165.00
Instrument Rated Meters ²	98	\$ 137.21	\$ -	\$ -	\$ -	\$ 13,446.58
						<u>\$ 93,638.49</u>

¹ CVE Expense to Change Meter includes Labor (\$31.08/hr.), Overhead (\$16.54/hr.) and Transportation expenses (\$8.83/hr.).

CVE's assumption is 30 meter changes performed per day/per person (\$56.45 X 8 Hours = \$451.60) (\$451.60/30 Meters= \$15.05)

² Self Contained Polyphase Meters and Instrument Rated Meters are field tested by Luthan Electric Meter Testing, LLC ("Luthan") with no CVE expense to change meter

³ Meter Test Fee is current cost provided by Luthan

⁴ CVE used the past 3 years of historical Luthan Invoice data to arrive at the percentage of TSII Endpoints that are programmed.

Programming of endpoint is changes made to software such as settings. The formula used to arrive at the total program meter cost of residential TSII endpoint is: (Quantity of Residential Meters to be Tested X Historical Programming Rate) X Program Fee (\$0.81).

⁵ CVE used the past 3 years of historical Luthan invoice data to arrive at the percentage of Endpoint Firmware Updates. The formula used to arrive at the Total Endpoint Firmware Update Cost for residential TSII endpoints is:
(Quantity of Residential Meters to be Tested X Historical Firmware Update Rate) X Firmware Update Fee (\$3.09).

Cumberland Valley Electric, Inc.
Estimated 1 Year Interest Income (due to waiting 1 year)

Estimated Interest Income

Estimated Cost of New AMI System during 1st 6 months	\$490,201
Estimated Cost of New AMI System during 2nd 6 months	<u>\$1,044,670</u>
Total Anticipated Cost - AMI - Year 1	\$1,534,870
Anticipated Cost paid with loan funds Year 1	<u>-\$1,044,669</u>
Anticipated Cost paid with general funds Year 1	\$490,201 ¹
Interest rate	<u>1.93% ²</u>
Anticipated Interest Income during Year 1	<u><u>\$9,461</u></u>

¹ It is anticipated that the first six months of the AMI System will be paid with general funds. If Cumberland Valley did not use the general funds on the new AMI System, those funds would be invested to earn interest income.

² Interest rate used was rate effective on June 12, 2018. This rate was used for 1 year assuming the funds would be available for a year.

Cumberland Valley Electric, Inc.

Estimated Cost Savings on Accounts that Currently do not have Remote Disconnect/Reconnect Capabilities

This information is included for informational purposes and has not been included in the cost/benefit analysis.

<u>Disconnects/Reconnects for Non-Payment (2017)</u>			
	<u>Total Individuals on Cutoff List</u>	<u>Cost to Manually Disc/Rec ³</u>	<u>Total Expense</u>
Disconnects	3,001	\$56.45	\$169,406.45
Reconnects ²	2,701	\$56.45	\$152,471.45
			<u>\$321,877.90</u>

<u>Member Requested Disconnects/Reconnects (Estimated 12 months based on March & April 2018)</u>			
	<u>Service Orders</u>	<u>Cost to Manually Disc/Rec ³</u>	<u>Total Expense</u>
Disconnects	810	\$56.45	\$45,724.50
Reconnects	690	\$56.45	\$38,950.50
			<u>\$84,675.00</u>

Total Expense			<u><u>\$406,552.90</u></u>
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Total # of Disc. 3,811

Total # of Rec. 3,391

¹ Cumberland Valley expects that the remote disconnect and reconnect functionality of the new AMI system will result in the need for fewer servicemen in the future. This reduction in workforce will be achieved through attrition.

² Estimated that 90% of Disconnects for Non-Pay will Reconnect based on historical patterns.

³ Cost of Manual Disc/Rec includes Labor (\$31.08/hr), Overheads (\$16.54/hr) and Transportation Expense (\$8.83).

Cumberland Valley Electric, Inc.
Case No. 2018-00056
Commission Staff's First Post-Hearing Request for Information

6. State whether Cumberland Valley surveyed or communicated with Landis + Gyr user groups, vendors, utilities, or other industry groups regarding the availability of a secondary market for TSII parts and components.
- a. If yes, describe all surveys and communications regarding the availability of a secondary market, and provide copies of Cumberland Valley's findings regarding the availability of a secondary market for TSII equipment.
 - b. If no, conduct a brief survey of Landis + Gyr user group members and other utilities in Kentucky who are replacing their TSII meters for the purpose of determining the disposition of TSII equipment after it is taken out of service and the availability of a secondary market.

Response:

Cumberland Valley is aware that a secondary market for TSII components exists, but the availability of TSII components in that market is limited. Typically, components are available because the utility is engaged in the process of deploying a replacement system. Cumberland Valley has in the past made secondary market purchases of used TSII components such as substation transformer coupling units (TCU's), substation processing units (SPU's) and meters with TSII endpoints installed, all at lower cost than retail. Such purchases have been made to acquire spare substation equipment and to obtain meters/endpoints for active use. Once any such surplus equipment is disposed of by selling utilities, that particular segment of the secondary market ceases to exist.

Cumberland Valley issued a written survey directed to the three cooperatives in Kentucky that were transitioning or had transitioned from TSII to a new AMI system. The survey and responses by respondents are provided at Page 3 through Page 8 of this Response. Based on the responses there does not seem to be a robust market for used TSII equipment. None of the three cooperatives currently have used equipment for sale. Based on surveys and conversations with our third party

meter tester, Luthan Electric Meter Testing LLC, the secondary market in Kentucky is not reliable and is currently diminishing to the point it is almost non-existent. CVE assumes that a similar situation exists nationally.

Cumberland Valley requested additional information about TSII users from IRBY, Landis + Gyr's vendor in the State of Kentucky. No listing of such users was received from IRBY. They did, however, respond with the name of a meter brokering firm that is in the business of buying and reselling functioning used meters with endpoints. This company was contacted and a request was made for a price list for meters for purchase. No price list was afforded because the company had no TSII meters available for sale. This company made offers for specific solid state/digital meters they will purchase from Cumberland Valley; these offers were found to be approximately 2% of retail cost. They have no interest in electromechanical meters and thus made no offer for those.

Cumberland Valley Electric Landis & Gyr TSII Survey

Cooperative No. 1

Purpose of Survey

The questionnaire below is meant to help Cumberland Valley in determining the availability of TSII equipment on the secondary market. While also helping gather additional useful information in regards to the selling and/or purchasing of used TSII equipment. If you have any questions or need clarification on specific questions please contact Brian Chaney at 606-528-2677 ext. 323. Thank you for your assistance.

General Questions

1. When did you begin changing out your TSII equipment?
☐ 2013 ☒ 2014 ☐ 2015 ☐ 2016 ☐ 2017 ☐ 2018
2. Is your new AMI system fully deployed?
☒ Yes ☐ No
3. What was the targeted timeframe for your new system to be fully deployed?
☐ 1 Year ☒ 2 Years ☐ 3 Years ☐ 4 Years ☐ by attrition

TSII Equipment for Resale

1. Does your utility currently have any new or used TSII equipment available for resale?
☐ Yes ☒ No (If no please skip to the next section) This utility sold 100% of our TS2 meters that were useable, and about 50% of our substation equipment. The other 50% was not reliable or was not supported with software and did not have value.
2. How many and what type of equipment do you have available for resale?
Click here to enter text.
3. Has your TSII equipment already been promised to another utility or third party?
☐ Yes ☐ No
4. What is the price you would sale your TSII equipment? Please give individual equipment prices if possible.
Click here to enter text.

TSII Secondary Market

1. In your experience what type of demand has there been for the TSII equipment when trying to resale used equipment?
☒ High ☐ Moderate ☐ Low ☐ None ☐ N/A
2. Over the next year what do you think the resell value of the TSII equipment in the secondary market will do? **Supply and demand.....**
☐ Decline ☒ Increase ☐ Same ☐ Don't Know
3. If needed how confident would you feel on your ability to secure all the TSII equipment you might need in the secondary market over the next 3 years?
☐ Very Confident ☐ Somewhat Confident ☒ Not Confident ☐ Don't Know
4. Have you purchased used TSII equipment before?
☒ Yes ☐ No (If no skip question #5)
5. Did you feel confident that the equipment you purchased would last beyond 4 years?
☐ Very Confident ☐ Somewhat Confident ☒ Not Confident ☐ Don't Know **Expecting used TS2 equipment to last 4 years when this equipment may already be 16 years old is unreasonable.**

NOTE. The secondary market is about exhausted for used TS2 equipment. The used TS2 equipment that this utility sold was in high demand because L&G no longer manufactures TS2 equipment and it is no longer supported. Also, the used equipment is sold with no warranty and is costing as much or more as new modern AMI metering. Example, used meters with out of date technology can be as expensive as new meters with new technology with warranty attached.

Cumberland Valley Electric Landis & Gyr TSII Survey

Cooperative No. 2

Purpose of Survey

The questionnaire below is meant to help Cumberland Valley in determining the availability of TSII equipment on the secondary market. While also helping gather additional useful information in regards to the selling and/or purchasing of used TSII equipment. If you have any questions or need clarification on specific questions please contact Brian Chaney at 606-528-2677 ext. 323. Thank you for your assistance.

General Questions

1. When did you begin changing out your TSII equipment?
☐ 2013 ☐ 2014 ☒ 2015 ☐ 2016 ☐ 2017 ☐ 2018
2. Is your new AMI system fully deployed?
☐ Yes ☒ No
3. What was the targeted timeframe for your new system to be fully deployed?
☐ 1 Year ☐ 2 Years ☒ 3 Years ☐ 4 Years ☐ by attrition

TSII Equipment for Resale

1. Does your utility currently have any new or used TSII equipment available for resale?
☐ Yes ☒ No (If no please skip to the next section)
2. How many and what type of equipment do you have available for resale?
Click here to enter text.
3. Has your TSII equipment already been promised to another utility or third party?
☐ Yes ☐ No
4. What is the price you would sale your TSII equipment? Please give individual equipment prices if possible.
Click here to enter text.

TSII Secondary Market

1. In your experience what type of demand has there been for the TSII equipment when trying to resale used equipment?
☐ High ☐ Moderate ☐ Low ☐ None ☒ N/A
2. Over the next year what do you think the resell value of the TSII equipment in the secondary market will do?
☐ Decline ☐ Increase ☒ Same ☐ Don't Know
3. If needed how confident would you feel on your ability to secure all the TSII equipment you might need in the secondary market over the next 3 years?
☐ Very Confident ☐ Somewhat Confident ☐ Not Confident ☒ Don't Know
4. Have you purchased used TSII equipment before?
☐ Yes ☒ No (If no skip question #5)
5. Did you feel confident that the equipment you purchased would last beyond 4 years?
☐ Very Confident ☐ Somewhat Confident ☐ Not Confident ☐ Don't Know

Cumberland Valley Electric Landis & Gyr TSII Survey

Cooperative No. 3

Purpose of Survey

The questionnaire below is meant to help Cumberland Valley in determining the availability of TSII equipment on the secondary market. While also helping gather additional useful information in regards to the selling and/or purchasing of used TSII equipment. If you have any questions or need clarification on specific questions please contact Brian Chaney at 606-528-2677 ext. 323. Thank you for your assistance.

General Questions

1. When did you begin changing out your TSII equipment?
☐ 2013 ☐ 2014 ☐ 2015 ☐ 2016 ☒ 2017 ☐ 2018
2. Is your new AMI system fully deployed?
☐ Yes ☒ No
3. What was the targeted timeframe for your new system to be fully deployed?
☐ 1 Year ☐ 2 Years ☐ 3 Years ☐ 4 Years ☒ by attrition

TSII Equipment for Resale

1. Does your utility currently have any new or used TSII equipment available for resale?
☐ Yes ☒ No (If no please skip to the next section)
2. How many and what type of equipment do you have available for resale?
Click here to enter text.
3. Has your TSII equipment already been promised to another utility or third party?
☐ Yes ☐ No
4. What is the price you would sale your TSII equipment? Please give individual equipment prices if possible.
Click here to enter text.

TSII Secondary Market

1. In you experience what type of demand has there been for the TSII equipment when trying to resale used equipment?
☐ High ☐ Moderate ☐ Low ☐ None ☒ N/A
2. Over the next year what do you think the resell value of the TSII equipment in the secondary market will do?
☐ Decline ☐ Increase ☐ Same ☒ Don't Know
3. If needed how confident would you feel on your ability to secure all the TSII equipment you might need in the secondary market over the next 3 years?
☐ Very Confident ☐ Somewhat Confident ☒ Not Confident ☐ Don't Know
4. Have you purchased used TSII equipment before?
☐ Yes ☒ No (If no skip question #5)
5. Did you feel confident that the equipment you purchased would last beyond 4 years?
☐ Very Confident ☐ Somewhat Confident ☐ Not Confident ☐ Don't Know

IN THE MATTER OF:

VERIFICATION OF MARK D. ABNER

Karen Dale Miller
NOTARY PUBLIC, Notary # 596762
Commission expiration: 4-11-2022

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

APPLICATION OF CUMBERLAND VALLEY)	
ELECTRIC, INC. FOR COMMISSION APPROVAL)	
FOR A CERTIFICATE OF PUBLIC CONVENIENCE)	Case No.
AND NECESSITY TO INSTALL AN ADVANCED)	2018-00056
METERING INFRASTRUCTURE (AMI) SYSTEM)	
PURSUANT TO 807 KAR 5:001 AND KRS 278.020)	

VERIFICATION OF BRIAN P. CHANEY


STATE OF KENTUCKY)
)
COUNTY OF KNOX)

Brian P. Chaney, being duly sworn, states that he has supervised the preparation of certain of the responses of Cumberland Valley Electric, Inc., to Commission Staff's First Post-Hearing Request for Information in the above-referenced case and that the matters and things set forth in his responses are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.



Brian P. Chaney, Accountant

Subscribed and sworn to before me on this 21 day of June, 2018.



NOTARY PUBLIC, Notary # 596762
Commission expiration: 4-11-2022