

BATH COUNTY SCHOOL BOARD

AGENDA ITEM: INFORMATION { X } ACTION { X } CLOSED MEETING { }

SUBJECT: **SUPERINTENDENT’S REPORT - ACTION**

Approval of Solar Project Agreements

BACKGROUND: **Documents associated with the Solar Project follow. Included are the Engineering, Procurement and Construction (EPC) Agreement, Promissory Note, Security Agreement, UCC-1 Financing Statement, and Operating and Maintenance (O&M) Agreement.**

Mike Keyser, CEO, BARC, will be available to answer any questions you might have.

RECOMMENDATION: **With Board approval, these documents need to be executed to get the Solar Project underway.**



ENGINEERING, PROCUREMENT AND CONSTRUCTION
("EPC")

AGREEMENT

WITH



ENGINEERING, PROCUREMENT & CONSTRUCTION (“EPC”) AGREEMENT

This Engineering, Procurement and Construction (“EPC”) Agreement (the “Agreement”) is entered into by and between Bath County Public Schools, duly organized, existing under and by virtue of the laws of the state of Virginia, its successors and assigns (“BCS”), and Reliable Energy, LLC, a limited liability company duly organized, created, and existing under and by virtue of the laws of the state of Virginia, its successors and assigns (“REL”) on this ___ day of _____, 2017.

WITNESSETH:

WHEREAS, on December 6, 2016, at its regular monthly school board meeting, REL presented the directors of the BCS school board with a turnkey proposal to engineer, procure and construct a combination of rooftop and ground-mounted solar arrays to serve the energy needs of BCS at Millboro Elementary (“Millboro”), Valley Elementary (“Valley”) and Bath County High School (“BCHS”);

WHEREAS, on January 9, 2017, at its regular school board meeting, REL presented a revised proposal incorporating a ground-mounted array located at Valley to address issues raised regarding the flat roof at BCHS;

WHEREAS, on February 7, 2017, at its regular school board meeting, REL presented a final proposal, and the BCS directors approved the proposal, recognizing the unique educational opportunity to all students enrolled in the BCS system, and recognizing the long-term energy savings that can be achieved through solar energy; and

WHEREAS, REL will engineer, procure and construct the solar arrays pursuant to the terms of this Agreement;

NOW, THEREFORE, in consideration of the mutual covenants, agreements, and benefits stated in this Agreement, and for other good and valuable consideration, the receipt and sufficiency of which is hereby recognized, BCS and REL agree as follows:

1. **Incorporation of Recitals.** The above stated recitals are incorporated into this Agreement and made part of this Agreement by this reference to the same extent as if these recitals were set forth in full at this point.
2. **Definitions.** All terms with initial capital letters textually defined in this section and used in this Agreement or any other document incorporated by reference herein, and not otherwise defined by capitalization or otherwise elsewhere herein, shall have the definitions ascribed to them in this section.
 - a. “Days,” unless otherwise specifically stated, will be understood to mean calendar days.
 - b. “Owner’s Engineer” means BCS’s engineer, should BCS choose to engage such engineer. Owner’s Engineer may be referred to herein as the inspector.

c. "Project Engineer" means BCS's project manager, or his designee.

d. "Work" means all design, engineering, labor, tools, supplies, equipment, materials, and all appliances, machinery, transportation and appurtenances necessary to perform and complete the Agreement, and such additional items not specifically indicated or described which can be reasonably inferred as belonging to the project described or indicated as required by good practice to provide a complete and "turnkey" solar PV system. As used herein, "provide" shall be understood to mean "provide complete in-place," that is, to "furnish and install." Work does not mean the Guaranteed Performance Period, as that term is defined later in this Agreement.

3. Intent. This Agreement and any documents incorporated herein are intended to be complementary, and what is called of by one shall be as binding as if called for by all.

4. Term. REL shall commence the Work upon the parties' execution of this Agreement, and shall complete construction and commissioning of the solar PV system, and receive Final Acceptance, on or before **August 31, 2017** (the "Term"). In the event that REL fails to complete construction and commissioning, and receive Final Acceptance, prior to August 31, 2017, BCS shall be entitled to liquidated damages as more fully described in the section entitled "Liquidated Damages."

5. Duties and Responsibilities. Within the term provided, and in accordance with the provisions of this Agreement, REL shall faithfully and competently be responsible for accomplishing the duties and tasks (the "Work") as set forth in the Scope of Work and Technical Specifications ("Scope of Work"). The Scope of Work is attached hereto as Exhibit B, and is incorporated herein and made a part of this Agreement by this reference to the same extent as if it were set forth in full at this point. Work shall not include the Guaranteed Performance Period.

REL shall provide and pay for all labor, materials, supplies, equipment, tools, transportation, and other facilities or incidentals necessary for the performance, execution, and completion of the Work. REL shall additionally furnish and/or be responsible for the costs of all temporary facilities, including, but not limited to, temporary fencing and materials storage.

6. Prosecution and Progress. Time is of the essence in completing the Work. Except as otherwise provided for in this Agreement, delays and extensions will not be allowed by BCS.

a. Commencement of the Work. Work shall commence upon the parties' execution of this Agreement.

b. Schedules and Progress. The prosecution and progress of the Work shall be governed by a milestone and payment schedule (the "Payment Schedule"), a true and correct copy of which is attached hereto as Exhibit C and which is incorporated herein as if fully set forth.

c. Character of Workers, Methods, and Equipment. REL shall, at all times, employ sufficient labor and equipment for prosecuting the Work to full completion in the manner and time required by the Agreement. All workers shall have sufficient skill and experience to properly perform the Work as it is assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the

Work satisfactorily. All equipment which is proposed to be used in accomplishing the Work shall be of sufficient size and in such mechanical condition as to meet requirements of the Work and to produce a satisfactory quality of Work. Equipment used on any portion of the Work shall be such that no injury to previously completed work, adjacent property, or existing facilities will result from its use.

When methods and equipment to be used by REL in accomplishing the Work are not prescribed in the Agreement, REL is free to use any methods or equipment that will accomplish the Work in conformity with the requirements of this Agreement. When this Agreement specifies the use of certain methods or equipment, such methods or equipment shall be used unless others are authorized in writing by BCS. If REL desires to use a differing method or type of equipment other than specified in this Agreement, it may request authority from BCS to do so in writing. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that REL will be fully responsible for producing the Work in conformity with this Agreement. BCS's consent under this section shall not be unreasonably withheld nor shall it be provided in an untimely manner.

d. Suspension of the Work. BCS shall have the authority to suspend the Work wholly, or in part, for such period or periods as it may deem necessary, due to (i) the failure on the part of REL to carry out orders given by BCS or (ii) REL's failure to perform any or all of its obligations of this Agreement (collectively all of the above shall constitute a "Foreseeable Suspension"). There shall be no extension of the term of the Agreement for situations where REL is ordered by BCS to suspend the Work for a Foreseeable Suspension.

In the event that REL is prohibited from prosecuting the Work due to an unforeseen cause beyond the control of REL, such as an act of God, unreasonably long material lead times, or unreasonable material delivery delays, or is otherwise ordered by BCS to suspend the Work for some unforeseen cause not otherwise provided for in this Agreement and over which REL has no control (an "Unforeseen Suspension"), the period of suspension shall be computed from the effective date of BCS's order to suspend work to the effective date of BCS's order to resume the Work (the "Suspension Period"). In the event of an Unforeseen Suspension, BCS and REL shall execute an appropriate contract amendment extending the term of this Agreement to account for the Suspension Period.

Except as provided in this section, no provision of this section shall be construed as entitling REL to compensation for delays due to inclement weather, for suspension made at the request of REL, or for any other delay.

7. Payment. In consideration of the faithful performance of the Work prosecuted in accordance with the provisions of this Agreement, and except as otherwise provided herein, BCS promises to pay to REL a total of One Million, Seven Hundred and Seventy-Three Thousand, One Hundred and Eighty Dollars (\$1,773,180) (the "Total Payment") as established in the Payment Schedule. BCS shall retain ten percent (10%) from each progress payment as security for REL's successful performance and completion of the Work (the "Retainage Funds"). Only after BCS provides Final Acceptance will BCS remit to REL in full the Retainage Funds withheld. BCS shall be entitled to keep the Retainage Funds only in the event that REL fails to successfully receive Final Acceptance, which shall not be unreasonably withheld.

8. Liquidated Damages. In the event that REL fails to complete the Work within the Term of this Agreement, BCS shall be entitled to daily liquidated damages. Liquidated damages shall be One Hundred Dollars (\$100.00) per day. In the event liquidated damages apply, REL shall promptly and fully pay all liquidated damages to BCS.

9. Drawings, Designs, Plans and Other Related Documents. REL shall provide all necessary drawings, designs, plans and other related documents as needed in sufficient number to allow construction of the Work. Elevations and grade lines on drawings will show heights in relation to a benchmark established by REL. Sizes, elevations and locations of existing facilities to which connections are to be made shall be field measured and verified by REL and its subcontractors prior to beginning the Work.

Any provision in this Scope of Work, drawings and/or specifications requiring REL to submit drawings and/or other documents for "Review", "Comment", "Approval", "Acceptance", "Authorization to Proceed", or any combinations of such words or words of like import shall mean, unless stated otherwise, that REL shall submit such drawings and/or other documents and obtain resolution of any comments before performing any Work described in such drawings and/or other documents.

10. Site Conditions. REL acknowledges that it has either fully investigated and acquainted itself with all conditions relevant to the Work that would affect the Work and the cost thereof, including the topography, surface and subsurface features, and climatic conditions, the quality and quantity of the materials to be encountered, the character of equipment and facilities needed for performance of the Work, the arrangement and conditions of existing or proposed structures and utilities affecting or affected by the Work, the arrangement and conditions of existing or proposed equipment or systems affecting or affected by the Work, and the availability and cost of labor, facilities for transportation and handling and storage of materials and equipment; or it has waived its right to investigate such conditions by submitting its firm, fixed price proposal. REL assumes the risk of such conditions and, regardless of such conditions and the expense or difficulty of performing the Work, shall fully complete the Work for the stated contract price without further recourse to BCS.

11. Authorized Representatives. Before starting the Work, REL shall designate in writing an authorized representative acceptable to BCS to represent and act for REL and shall specify any and all limitations of such representative's authority. Such representative shall be present, or be represented, at the job sites during the course of the Work, and shall be empowered to receive communications on behalf of REL in accordance with this Agreement. All communications given to the authorized representative of REL in accordance with this Agreement shall be binding upon REL. In addition to the Project Engineer, BCS may designate in writing one or more representatives to represent and act for BCS and to receive communications from REL.

12. Subcontracts. REL may subcontract portions of the Work, but shall notify BCS of the intended subcontracting. Where any portion of the Work is subcontracted, REL remains fully responsible for proper and safe performance of the Work, and shall be responsible to BCS for all acts and omissions of its subcontractors and their employees. Nothing contained in this Agreement shall create any contractual obligation or other liability on BCS's part to REL's subcontractors.

13. Labor Relations. REL shall maintain workable and harmonious relations with its employees and between its employees and other individuals on the job site. REL shall use all reasonable efforts to minimize the risk of labor-related delays. Whenever REL obtains knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of the Work, REL shall immediately give notice thereof, including all relevant information relating thereto, to BCS.

14. Compliance with Laws, Codes, Rules and Regulations. REL shall perform the Work and cause its subcontractors to perform the Work in a manner that complies with all applicable federal, state and local (and foreign and international where applicable) laws, codes, regulations and ordinances, and all licenses, permits and approvals needed to complete the Work. Except as provided for elsewhere in this Agreement, whenever references are made to standards or codes in accordance with which the Work is to be performed, the edition or revision of the standards or codes current on the effective date of this Agreement shall apply. In case of any conflict between any referenced standards or codes and any contract documents REL shall immediately report in writing such conflict to BCS to enable it to make a determination of what actions to take.

15. Safety. REL shall comply strictly with all local, municipal, state and national laws, orders, and regulations pertaining to health or safety that are applicable to REL or to the Work, including, without limitation, the Occupational Safety and Health Act of 1970 (84 U.S.C. 1590), as amended, and any Virginia plans approved thereunder and regulations thereunder to the extent applicable. REL shall have in place a safety and health plan that at a minimum complies with such laws, orders, regulations and OSHA requirements.

At all times while any of REL's employees, agents or subcontractors are on the job site, REL shall be responsible for providing them with a safe working environment. REL shall inspect the working environments where its employees, agents or subcontractors are or may be present on the job site and, to the extent such working environments are under REL's control, REL shall promptly take action to correct conditions which cause or may reasonably be expected to cause such working environments to become an unsafe place of employment. Should REL encounter working environments under the control of BCS which REL determines to be unsafe, REL shall immediately report in writing such unsafe working environments to BCS to enable BCS to make a determination of the appropriate action to take. REL shall take all necessary and/or customary precautions to prevent injury to persons or property from open manholes, excavations, ditches, and from materials or equipment left on the job site, by placing signs and lights, erecting barricades, or doing other things as prudence may require or as mandated by law, local regulations, or BCS.

Accidents, injuries and illnesses requiring medical attention, damage to property of BCS, REL or others, and fires shall be orally reported to BCS at the time of the incident. REL shall provide written reports generally following the OSHA 301 form after each incident. REL shall maintain as required by applicable laws and regulations site accident, injury and illness statistics which shall be available for inspection by BCS. Additionally, REL shall provide timely near miss accident/incident reports to BCS (i.e., those that could have resulted in personal injury or property damage).

16. Hazardous Material. REL shall not, under any circumstances, bring onto BCS's property, the job site, or adjacent property explosives, or material reasonably believed to be toxic or hazardous as defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (42 U.S.C. Sections 9601, et seq.), the Hazardous Materials Transportation Act, as amended

(49 U.S.C. Sections 1801, et seq.), the Resource Conservation and Recovery Act, as amended (42 U.S.C. Sections 9601, et seq.), or in any other applicable laws, or regulations ("Hazardous Materials") or allow the use of the same without the prior written approval of BCS.

REL shall provide Material Safety Data Sheets ("MSDS") for all Hazardous Materials as well as chemicals, chemical compounds and chemical mixtures ("Chemicals") brought on to the job site. As may be required by applicable law, or regulations, REL shall provide written notice of the presence at the job site of Hazardous Materials which it or its subcontractors bring on the site to local fire, medical, and law enforcement agencies with a copy of such notification to BCS. REL shall provide labeling of Hazardous Materials, training for its employees in the safe use of such Hazardous Materials and a detailed plan to BCS outlining handling, usage, collection, storage and disposal of such Hazardous Materials. Additionally, REL shall provide an inventory of all materials identified on the Material Safety Data Sheets as containing Toxic Release Inventory (TRI) chemicals. Such inventory shall identify the product and the quantity introduced to the job site.

REL shall properly collect, containerize, and transport to a location on the job site designated by BCS, any Hazardous Materials or Chemicals used or applied at the job site by REL or any of its subcontractors as a result of construction activities at the job site including, but not limited to, used oils, greases, and solvents from flushing and cleaning processes performed under this Agreement. BCS shall thereupon arrange for disposal of all such Hazardous Materials or Chemicals used or applied.

Unused or surplus Hazardous Materials or Chemicals brought onto to the job site by REL or any of its subcontractors shall remain the property of REL or its subcontractors. REL shall be responsible for the proper handling, collection, transportation and removal from the job site of any such unused or surplus Hazardous Material or Chemicals. Prior to BCS's issuing written notice of acceptance of the Work to REL, REL shall remove and certify to BCS the removal of any explosives or other unused Hazardous Materials or Chemicals, stored or located on the job site or any neighboring property by REL or its subcontractors in connection with the Work, and shall provide a written report of the quantity of TRI chemicals used in performance of the Work.

17. Emergencies. In the event of any emergency endangering life or property, REL shall take such action as may be reasonable and necessary to prevent, avoid or mitigate damage, injury or loss and shall report as soon as possible any such incidents, including REL's response thereto, in writing to BCS.

18. Cleanup. REL shall at all times keep the job site in a neat, clean and safe condition and remove from the job site and the vicinity thereof and properly dispose of all debris and rubbish caused by REL's operations. Upon completion of the Work, REL shall promptly return unused materials furnished by BCS and remove from the job site all of REL's equipment, material and like items, leaving such premises and the vicinity clean, safe and ready for use. In the event REL or any of its subcontractors shall fail to maintain the work area as described above in a manner satisfactory to BCS or fail to effect such clean up or removal in compliance with the applicable regulations, codes, or requirements under this Agreement within two (2) working days after having received BCS's written order to do so, BCS shall have the right without further notice to REL to perform such cleanup and remove such items from the site. The cost to BCS to perform such cleanup and to remove such items from the site shall be borne by REL.

19. REL's Equipment. Equipment obtained or furnished by REL which is to be used by REL in performance of the Work shall be in good operating condition, safe, fit for the uses for which it is intended, and suitable for the safe, legal, and efficient performance of the Work. Any such equipment of REL which is rejected by BCS as not conforming with the foregoing shall be promptly repaired or removed by REL and replaced with equipment acceptable to BCS without delaying the schedule for performance of the Work.

REL shall at all times preserve and protect all materials and equipment (whether furnished by REL or BCS) used by REL in the execution of the Work from damage or loss due to weather, fire, theft, unexplained disappearance, or other casualty. REL shall at all times preserve and protect all equipment and materials (whether stored or installed), paving, structures and any and all other items on the job site whether belonging to BCS or others, from damage due to REL's operations.

20. Title to Materials & Equipment. REL warrants and covenants that title to all materials and equipment furnished by REL for incorporation into the Work shall be good and marketable and shall pass to BCS free and clear of all liens, claims, security interests or encumbrances upon payment to REL (less retainage) of the amount then due REL for the materials or equipment. REL further warrants that such materials or equipment provided hereunder shall not have been acquired by REL pursuant to an agreement under which an interest therein or an encumbrance thereon is retained by REL or any third party.

21. Stop Work Orders. BCS shall have the right at any time to stop the Work, and any operations of REL, should REL fail to comply with any of the requirements of this Agreement. The stop work order shall remain in effect until such time that the non-conformance has been remedied. REL shall not be allowed an equitable adjustment in the contract price or an extension of time as a result of a stop work order.

22. Patents. REL agrees that in performing the Work it will not use any process, program, design, device or material which infringes on any United States patent or copyright or any trade secret agreement. REL agrees to indemnify, defend and hold harmless BCS, and all of their directors, officers, employees, agents, servants, customers, successors, heirs, representatives, and assigns (collectively, the "Indemnitees"), from and against, and shall dispose of and/or defend any claims or proceedings and pay any judgments and/or damages suffered and/or incurred by any Indemnitees with respect to any and all claims, demands, losses, liabilities, damages, interest and/or penalties, expenses, judgments and royalties based upon or arising from actual or asserted infringement of any such United States patent or copyright or any trade secret agreement.

If the design, manufacture, fabrication or construction of any item or component of the Work, or the use, lease, or sale of any item or component delivered or scheduled to be delivered under this Agreement is enjoined as a result of a suit based upon any such claims of infringement, REL shall (i) negotiate a license or other agreement with the claimant so that the item or component is no longer subject to such injunction or (ii) modify such item or component suitably or substitute a suitable item or component therefor (subject to the technical approval of BCS), which modified or substituted item or component is not subject to such injunction. In the event that neither of the foregoing alternatives is suitably accomplished by REL, REL shall be liable to BCS for any and all of BCS's additional costs and damages incurred as a result of such injunction.

23. Taxes, Duties & Fees. REL acknowledges that when it repairs, alters, improves or constructs real property, it is the ultimate consumer of material and supplies used in the Work. REL further acknowledges that it is responsible for the payment of any and all applicable Virginia State and Local Sales and/or Use Taxes on all items of tangible personal property incorporated into and becoming part of the realty in connection with the Work.

24. Notice of Completion & Final Acceptance. When REL deems the Work fully completed, including satisfactory completion of such inspections, tests, commissioning, and documentation as is specified in this Agreement, REL shall give a written notice of completion of the Work to BCS, specifying the Work completed and the date it was completed ("Notice of Completion"). BCS and/or its inspector shall then inspect the Work and give REL either (a) written notice rejecting REL's Notice of Completion specifying defective or incomplete portions of the Work, or (b) written notice of acceptance of the Work ("Final Acceptance").

In the event BCS and/or its inspector rejects the Notice of Completion and specifies defective or incomplete portions of the Work, REL shall remedy such defective and incomplete portions of the Work. Thereafter, REL shall again give BCS a written Notice of Completion of the Work, specifying a new date for the completion of the Work based upon the date such defective or incomplete portions of the Work was corrected. The foregoing procedure shall apply again and successively thereafter until Final Acceptance. The failure by BCS to timely inspect or to reject the Work, or to reject a Notice of Completion, shall be deemed to be acceptance of the Work.

25. Liens. REL shall at all times promptly pay for all services, materials, equipment and labor used or furnished by REL in the performance of the Work. Subject to payment by BCS to REL of all amounts due and not in dispute, REL shall keep all property belonging to BCS free and clear of any liens and rights of lien arising out of services, labor, equipment or materials furnished by REL or its employees, materialmen or subcontractors in the performance of the Work.

26. Termination for Cause. Either party may discharge the other and terminate the Agreement when the non-breaching Party determines that it has sufficient cause arising from the breaching Party's (a) dereliction or unsatisfactory performance of a duty, (b) failure to perform the Work in accordance with the provisions of this Agreement, (c) material misrepresentation, or (d) conviction of a felony. In the event that BCS terminates this Agreement for cause, REL shall forfeit the Retainage Funds in their entirety to BCS. The rights and remedies provided in this section are in addition to any other rights and remedies provided by law or under this Agreement.

27. Termination for Emergencies. BCS may terminate this Agreement or a portion thereof by written notice when REL is prevented from proceeding with this Agreement as a direct result of a declared state of emergency or an Executive Order of the President or Governor of Virginia with respect to the prosecution of war or in the interest of national defense.

28. Ownership of Plans. All plans, designs, drawings, technical specifications and copies thereof created by virtue of this Agreement, or otherwise related to this Agreement, are the property of BCS.

29. Inspections. The Project Engineer and Owner's Engineer are authorized at all reasonable times to inspect all work done. Such inspection may extend to all or any part of the Work, as well as

to the preparation and progress of the Work. Only the Project Engineer and Owner's Engineer are authorized to revoke, alter, or waive any provision of this Agreement or issue instructions contrary to the Agreement. Only the Project Engineer and Owner's Engineer are authorized to notify REL or its representatives of any failure to accomplish the milestones within the time allotted, and/or failure to conform to the requirements of the Agreement.

30. Warranties and Assurances. REL warrants that all Work performed will be in accordance with the Agreement.

a. Defects in Workmanship. REL warrants that it will perform the Work with the degree of professional skill and sound practices and judgment that is normally exercised by professional firms with respect to services of a similar nature. REL further warrants that the Work shall comply strictly with the provisions of this Agreement, including the Scope of Work, and all specifications and drawings prepared by REL, and that the Work shall be free from defects, errors, and omissions in materials and workmanship and in design and engineering furnished by REL. REL further warrants that all materials, equipment, and supplies furnished for the Work by REL and its subcontractors shall be new, of the most suitable grade and shall comply in all respects with the provisions of this Agreement.

REL hereby agrees to make, at its own expense, all repairs or replacements necessitated by defects in workmanship that become evident to BCS within five (5) years after the date of final acceptance of the Work. If defective work is found, REL shall, without cost to BCS and in accordance with BCS's written instructions, promptly either correct such defective work, or if it has been rejected by BCS, remove it from the work site and replace it with non-defective work. REL shall also assume all costs incidental to corrective actions including demolition for access, removal, disassembly, transportation, reinstallation, reconstruction, retesting and reinspection. This warranty applies to REL regardless of whether REL or one of its subcontractors was responsible for the defective workmanship. All corrective action taken by REL shall conform to the foregoing warranties and shall be warranted by REL for the remainder of this initial five year period.

b. Equipment & Materials Warranties. With respect to items of manufactured equipment purchased by REL from others, REL warrants that the equipment is as specified, and further agrees to pass on and assign to BCS the warranties of the manufacturers, or suppliers (including any subcontractors hereunder). However, assigning such manufacturer's or supplier's warranties to BCS shall not relieve REL of its warranty obligations set forth above. REL shall be responsible for ensuring the manufacturer warranties comply with the following minimum specifications:

i. Photovoltaic power modules (i.e. solar panels) shall be warranted for twenty-five (25) years with an annual degradation factor of 0.005/year.

ii. Inverters shall have a twenty (20) year warranty.

iii. Racking shall have a limited lifetime structural warranty for the ground-mounted racking, and the roof-mounted racking shall have no less than a fifteen (15) year warranty.

c. Warranty Insurance. REL will provide solar panel “warranty insurance” during the twenty-five (25) year photovoltaic panel warranty period. The warranty insurance will apply only to the solar panel modules, and will provide BCS with compensation for panel warranty claims in the event that the solar panel manufacturer becomes insolvent or ceases to exist during the warranty period.

31. Guaranteed Performance Period.

a. Starting on the date of Final Acceptance and concluding after a period of five (5) years thereafter (the “Guaranteed Performance Period”), REL shall provide an energy production warranty that guarantees energy production to the following minimum threshold:

i. Panel energy output degradation within maximum thresholds established in the manufacturer’s warranty; and

ii. Total five (5) year energy output of 5,791,792 kWhs (the “Energy Production Guarantee”). REL’s penalty for failure of the solar PV system to meet the Energy Production Guarantee at the end of the five year period shall be calculated by multiplying seven cents (\$0.07) by the kWh production shortfall (guaranteed production less actual production). In the event said penalty applies, REL shall promptly and fully pay the penalty to BCS at the end of the Guaranteed Performance Period.

32. Insurance. Unless otherwise specified in this Agreement, REL shall, at its sole expense, maintain in effect, at all times during the performance of the Work insurance coverage with the minimum limits set forth below. REL shall deliver to BCS no later than ten (10) calendar days after execution of this Agreement, but in any event prior to REL commencing Work or entering the job site, certificates of insurance as evidence that policies providing such coverage and minimum limits of insurance are in full force and effect. REL shall provide that not less than thirty (30) calendar days’ advance written notice will be given to BCS prior to cancellation, termination or material alteration of said policies of insurance.

a. Workmen’s Compensation. REL shall maintain workmen’s compensation insurance (including coverage for Occupational Disease) as required by all applicable laws and regulations.

b. General Liability. REL shall maintain general liability insurance covering all operations by or on behalf of REL providing insurance for bodily injury liability, personal injury liability and property damage liability with minimum limits of liability of \$1,000,000.00 for each occurrence. The general liability insurance shall include coverage for:

- i. Premises and Operations;
- ii. Products and Completed Operations;
- iii. Contractual Liability insuring the obligations assumed by REL in this Agreement;
- iv. Broad Form Property Damage (including Completed Operations);
- v. Explosion, Collapse and Underground Hazards; and
- vi. Personal Injury Liability.

The required minimum limits may be satisfied by a combination of primary policy and an excess or umbrella policy.

c. Auto. REL shall maintain automobile liability insurance including coverage for all owned, hired and non-owned automobiles. The automobile liability insurance shall also include coverage for automobile contractual coverage.

The combined single limit of for bodily injury and property damage liability shall be a minimum of \$1,000,000.00 for any one accident or loss. The required minimum limits may be satisfied by a combination of a primary policy and an excess or umbrella policy.

d. Errors & Omissions. REL shall maintain professional liability (E&O) insurance covering its engineer's professional negligent acts, errors, or omissions with a limit of not less than \$1,000,000 each occurrence and annual aggregate. This requirement may be satisfied by REL being named as an additional insured under its engineering subcontractor's E&O insurance policy.

e. Builder's Risk. REL shall maintain builder's risk insurance in the total amount of this Agreement, comprising the value of the entire project at the site on a replacement cost basis. Such insurance shall be maintained until final payment has been made or until no person or entity other than BCS has an insurable interest in the PV system, whichever is earlier. REL shall separately insure or be wholly responsible for all REL's equipment, tools, scaffolding, staging, towers, forms and temporary buildings, owned, borrowed, or rented by REL and subcontractors, and all materials and supplies which are not intended to become a part of the project. Evidence of such coverage will be supplied to BCS.

f. Additional Insured. BCS shall be named as an additional insured in all of the foregoing policies (except for any worker's compensation policy) with respect to liability arising out of the Work being performed under this Agreement. Proof of BCS, its officers, directors and employees being named as an additional insured in all of the foregoing policies must be provided to BCS before Work commences.

33. REL Status. It is agreed that REL shall be an independent contractor of BCS for and during the performance of this Agreement. The relationship of the parties hereto shall in no event be deemed or construed to be that of employer and employee, principal and agent, or any other relationship other than independent contractor and owner. Furthermore, BCS will have no dealing or relationship with subcontractors to this Agreement.

34. Indemnity. Each party shall indemnify, defend, and hold harmless the other from and against any and all claims and demand whatsoever, including costs and attorney's fees, resulting from each party's negligent acts, omissions, or any other tortuous conduct in connection with performance of this Agreement either by itself or its subcontractors. Each party shall indemnify, defend and hold harmless the other from and against any and all claims and demands whatsoever, including costs and attorney fees, under the doctrine of strict liability as it may be applied by a court of competent jurisdiction to each party's performance under this Agreement. Neither party shall be liable for any claim or demand resulting from the other party's negligence.

35. BCS Representations.

a. If, in this Agreement, BCS has undertaken to furnish labor or materials for the construction of the project(s) contemplated herein, BCS represents that such materials shall be on hand at mutually agreed upon locations, or, if such materials are not on hand, they will be made available by BCS to REL at said locations before such time that materials are required for construction.

b. BCS represents that all funds necessary for prompt payment for the construction of the project will be available.

c. If BCS should fail to comply with any of the undertakings contained in this section, REL shall be entitled to an extension of time equal to the delay to complete the Work, provided, however, that REL shall have promptly notified BCS in writing of its desire to extend the time of completion of the Work.

36. Payment of Taxes. REL shall pay and shall assume exclusive liability for all taxes levied or assessed on or in connection with its performance of the Agreement, including, but not limited to, federal or state payroll taxes or assessments and income and excise taxes.

37. Force Majeure. Neither party shall be considered to be in default with respect to any obligation hereunder if performance of such obligation is prevented by uncontrollable forces. The term "uncontrollable forces" is deemed for the purpose of this Agreement to mean any cause beyond the control of the party affected, including but not limited to flood, earthquake, severe storm, drought, lightning, fire, war, riot, civil disturbance, labor disturbance, sabotage, or restraint by a court order or other regulatory agency, which by exercise of due diligence and foresight such party could not reasonably have been expected to avoid. Any party rendered unable to fulfill any obligation by reason of uncontrollable forces shall exercise due diligence to remove such inability with all reasonable dispatch. Nothing contained herein shall be construed to obligate a party to settle a strike against its will.

38. Traffic Control, Barricades, and Signs. REL shall furnish at its own expense, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the Work. When used during periods of darkness, such barricades, warning signs, and hazard markings shall be suitably illuminated. For vehicular and pedestrian traffic, REL shall furnish, erect, and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the laws, rules and regulations promulgated by the state of Virginia and the Virginia Department of Transportation. REL shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stock piles, and its parked construction equipment that may be hazardous.

39. Notice. All notices and correspondence required to be sent to either party hereunder shall be delivered personally or by certified or registered mail and addressed as follows and deemed effective when so mailed (subject to the right to designate a different address by notice similarly given):

IF TO REL:

Michael Keyser
Chief Executive Officer
84 High Street
Millboro, VA 24460

IF TO BCS:

40. Applicable Law; Jurisdiction. This Agreement shall be construed according to the laws of the state of Virginia. Any controversy, dispute or claim between REL and BCS that cannot be resolved at the project level will initially be referred, on five (5) days written notice, to be resolved during a meeting to be held between REL's management and BCS's management. If the matter is not resolved within twenty (20) business days after such meeting of senior management, or if such meeting is not held within thirty (30) days of the aforesaid written notice, either party may bring suit in the state court of Virginia in Bath County.

41. Verbal Statement and Agreements. No oral statements of any person whatsoever shall in any manner or degree, modify or otherwise affect the terms of the Agreement.

42. Damage to Property. REL shall promptly restore and repair all property damage it causes to property owned or under the control of BCS or any third parties whilst in performance of the Work described herein, and shall return all such damaged property to its pre-existing condition prior to REL's damage. All restoration and repair shall be completed to BCS's satisfaction.

43. Permits. Unless stated otherwise, REL will provide all permits required for the Work, except for any permits in which BCS is required by the local jurisdiction to secure.

44. Miscellaneous.

a. Assignment. Neither party to the Agreement shall assign the Agreement or sublet it as a whole, without the written consent of the other, nor shall REL assign any monies due or to become due to it hereunder without the previous written consent of BCS.

b. Amendments. This Agreement may be amended at any time during the term hereof, provided, however, that no amendments or other variation of this Agreement shall be valid unless in writing, signed by REL and a duly authorized representative of BCS.

c. Entire Agreement. This Agreement and all documents incorporated herein constitute the entire agreement between the parties and supersede any oral or written understandings or agreements.

d. Severability. Each part of this Agreement is intended to be severable. In the event that any part of this Agreement is found to be illegal or unenforceable, such provision or provisions shall be severed or modified to the extent necessary to render it enforceable, and as so severed or modified, this Agreement shall continue in full force and effect.

e. Section Headings. The section headings and section numbers and letters in this Agreement are for reference purposes only and shall not affect in any way the meaning or interpretation of this Agreement.

f. Further Assurances. In addition to the instruments and documents to be made, executed and delivered pursuant to this Agreement, the parties hereto agree to make, execute and deliver or cause to be made, executed and delivered, to the requesting party such other instruments and to take such other actions as the requesting party may reasonably require to carry out the terms of this Agreement and the transactions contemplated hereby.

g. Execution in Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same agreement.

h. Waiver. Any waiver at any time by BCS of its rights with respect to this Agreement, or with respect to any other matter arising in connection with this Agreement, shall be deemed a waiver of that specific instance only and shall not be deemed a waiver with respect to any other matter arising thereafter in connection with this Agreement.

i. Authority. Each party represents and warrants that it has the necessary corporate and/or legal authority to enter into this Agreement and to perform all of its duties and obligations imposed by this Agreement. Each party further represents that the individuals executing this Agreement on their respective behalf have been duly authorized to do so and that such execution creates a valid, binding, and legally enforceable obligation of each party.

j. Consequential Damages. Except as otherwise expressly provided for in this Agreement, in no event shall either party hereto, including its officers, directors, employees, and agents, be liable for indirect, incidental, or consequential loss or damages whatsoever.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties hereto execute this Agreement as of the date set forth above.

REL:

By: BARC Electric Cooperative
Member/Manager

By: _____
Name: Keith Swisher
Title: President

BCS:

By: _____
Name:
Title:

EXHIBIT B

SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

OVERVIEW

REL will design, engineer, procure, construct and install a total 937 kilowatt (DC) solar photovoltaic (PV) renewable energy system across three separate locations: Millboro, Valley and BCHS. The solar PV system and its energy will be owned by BCS. REL is to provide turnkey planning, engineering, design, labor, materials, delivery, installation, start-up, testing, commissioning and all other tasks required to provide a solar PV system to meet the requirements of this Scope of Work.

The technical requirements intentionally do not describe every detail of the work required. It is REL's responsibility to design and build a facility that maximizes the value of the project within the parameters of this Scope of Work.

This project shall be designed to meet a minimum thirty (30) year design life, considering the site specific conditions and expected operating conditions. REL shall submit to BCS final structural engineering/design calculations and drawings for review and approval by BCS. REL shall design, provide and install all necessary corrosion controls, passive and physical. The final engineering/design plans and specifications must be signed and stamped by a licensed Professional Engineer (PE), and submitted to BCS for review and approval prior to commencing construction.

MONITORING

REL shall provide a web-based monitoring system that will allow BCS to monitor the performance of the solar PV system in both historical and real-time. The regularly collected data should reflect, but not be limited to, the following:

- a. System performance showing instantaneous output in kW, and kWh over multiple periods such as day, week, month, and life of system;
- b. System availability and weather-related data (i.e. ambient temperatures, irradiation, wind speed); and
- c. Average and accumulated output

COMMISSIONING & OPERATION

REL shall provide all services to fully commission the project. The project completion certification must be signed and stamped by a licensed Professional Engineer. REL shall perform the required performance testing to certify system and component performance. REL is responsible for installation, start-up, commissioning, and monitoring plans. REL is responsible for conducting successful acceptance tests and providing periodic tests to reach substantial and final completions.

ROOFING

As part of the EPC process, REL will provide for, and install, any standing seam roof repairs as necessary prior to panel installation. Standing seam roof repairs will be determined by an inspection conducted by a reputable third-party roof inspector. The roof inspection and repairs shall consist of the following:

1. Initial standing seam inspection to verify metal roof is in good shape, or note areas not acceptable and in need of repair;
2. Repairs; and
3. Inspection of areas repaired to ensure they are remediated before solar installation begins.

MAINTENANCE/TROUBLESHOOTING

BCS, or its O&M contractor, shall be responsible for maintenance and troubleshooting after Final Acceptance. However, REL will provide the following upon Final Acceptance:

1. A solar PV system maintenance schedule, troubleshooting guidelines, and contact information for technical assistance and spare parts ordering.
2. Two (2) sets of operation and maintenance plans, and parts manuals, covering all components and accessories supplied.
3. List of recommended spare parts to keep on hand.

DOCUMENT DELIVERABLES

REL shall provide to BCS the following documents, designs, drawings and other materials:

1. Preliminary and final structural engineering/design calculations and drawings
2. Preliminary and final layout of installation
3. Final "as-built" drawings
4. Bill of materials
5. Equipment and wiring layout (single-line diagram)
6. Equipment (racking, panels, inverters, BOS) details, descriptions, warranty information
7. For the ground-mounted system, all vertical, up and down, and horizontal loading broken down by dead, live, and wind at the base of the system posts. All loads shall be in Kips and in a legible post schedule and table and shall include a post location plan.
8. Details pertaining to electrical grid interconnection
9. Controls, monitors and protective equipment information
10. Startup, commissioning and testing documentation

DRAWINGS

Preliminary drawings submitted for review and final submittals shall be in the form of PDF files of the original CAD drawings. After review by BCS, one set of prints, or PDF files, submitted for review to BCS shall be returned to the engineer, marked by BCS, as either "No Exceptions Taken" or "Revise as Noted and Resubmit". If marked "Revise as Noted and Resubmit ", the required changes

shall be incorporated by the engineer and clearly identified. As stated above, PDF files of the modified drawing(s) shall then be resubmitted to BCS for final review. Once final review of drawings is obtained, one (1) complete PE sealed set of prints from original CAD files shall be forwarded in a timely manner to BCS:

MINIMUM TECHNICAL SPECIFICATIONS

The Solar PV System will be 937 kW DC. It shall be constructed and installed in accordance with all applicable requirements of local electrical codes and the National Electrical Code (NEC), including but not limited to Article 690. The PV system shall be designed and installed using UL or ETL listed components.

The PV modules shall be Jinko Solar.

Mounting/orientation will be fixed.

Minimum ground clearance for panels, electronics and other equipment is three (3) feet.

Racking will be pile-driven. Should the soil report or geotechnical survey indicate that a pile-driven system will not be financially or physically feasible, REL shall inform BCS of this information and that a concrete pier or ballasted system will be used instead. Any such change shall occur at no additional cost to BCS. If, during construction, ground conditions require auguring and pouring concrete piers in places, or setting of ballasted racking, REL shall be responsible for these changes and any additional costs associated therewith.

All system components, including wiring, conduit, connections, inverters, combiner boxes, and major components shall be corrosion/weather resistant rated for their location and working environment.

ELECTRICAL DESIGN SPECIFICATIONS

Output of the solar PV system shall be 480 volt, three phase, 60 Hz, or such other voltage as is necessary to net meter the solar energy. All junction and combiner boxes shall be NEMA 4X rated. All electrical conductors shall be copper. Conductors shall be conservatively sized to meet code ampacity requirements and minimize voltage drop to 2% or less. Underground cables shall be run in PVC or rigid aluminum conduit in accordance with the NEC. When not installed in aluminum conduit, cables shall be installed in seal tight with appropriate aluminum or PVC fittings. All electrical low voltage power and control power wiring shall use properly sized stranded copper conductors with flame retardant cross-link polyethylene (FRXLPE) or ethylene propylene rubber (FREPR) insulation. Equipment and circuits shall be properly grounded according to the NEC.

STRUCTURAL DESIGN SPECIFICATIONS

Design of steel structures will conform to the AISC Specification, SJI Specification, FBC, and local codes. All structures shall be designed to resist dead, live, plus wind and seismic loads based on applicable local building codes. The solar PV system shall be able to withstand maximum wind speeds of at least 115 miles per hour, provided that the roof substrate is also capable of withstanding 115 mph

wind speeds. Thermal loads caused by expected fluctuations of component and ambient temperatures must be combined with all the above load combinations.

Structures shall be designed for all applicable dead, live, wind, seismic, equipment, service and thermal loads. Where practicable, efforts should be made to optimize the design of steel members by designing to an interaction ratio as close as possible to, but not greater than 1.0. Sufficient conservatism shall be built into the design loads and the design allowable stresses to make this optimization prudent.

Steel structures and members shall be designed to the current AISC Specification for Structural Steel Buildings and SJI Standard Specifications and Load and Weight Tables for Steel Joists and Joist Girders. The steel structures shall be designed by hand or by use of approved structural design software. Structural tees (WT) or single angles shall be used in the design of horizontal trusses. Double angles shall not be used unless specifically approved by BCS.

CONNECTIONS

All connections shall be developed in accordance with the AISC Specification and the AISC Manual. In general, bolted connections shall be bearing type connections with threads included in the shear plane. Bolted connection shall be installed, and nuts pre-tensioned using turn-of-nut method unless noted otherwise. Turn-of-nut installations, with standard size holes, require no washers. The number of bolts for channels shall be the same as for beams of the same depth. Single angle connections for beams and channels shall only be used where space or access is restricted and only when approved by BCS. Beam and connection angles shall have a thickness not less than one-half the thickness of the beam's web, or as required to satisfy minimum AISC Specification requirements. Minimum connection angle thickness shall be 1/4 inch.

Specific vertical end reactions shall be indicated on the drawings that will exceed AISC standard end reactions or that require design to include axial loads. Where no vertical end reactions are indicated, connections shall be designed by the fabricator for the reaction obtained from the Table 3-6, AISC Manual, Part 3. Connections shall also be designed for the axial loads indicated on the drawings.

Connections shall contain a minimum of 2 bolts (4 bolts in the outstanding legs of connection angles) or the equivalent capacity of weld. The minimum diagonal bracing connection shall be two bolts double shear or four bolts single shear or the equivalent capacity weld.

Special connections such as those required to allow for thermal movement or for isolation between existing and new structures, shall be designed and detailed on the engineering drawings. When beams require to be coped or cut, all re-entrant corners shall be shaped, notch-free, to a radius of approximately 1/2 inch.

All new connections to existing structural steel shall be field welded.

All welding shall be in accordance with AWS D1.1. Minimum weld size shall be the greater of one-half the thickness of the beam's web or the minimum weld size determined in accordance with

Section 2 of AWS D1.1. Welding electrodes used in welding connections shall be E70XX, unless otherwise noted. Minimum weld size shall be 3/16 inch.

All shop connections shall be either welded or assembled using ASTM A325 high-strength bolts unless otherwise specified. All field connections to new structural members shall be field bolted ASTM A325 high strength bolts unless otherwise specified.

The use of high-strength bolts shall conform to the RCSC Specification unless otherwise noted herein. Bolts shall be 3/4 inch diameter heavy structural hexagonal unless specified otherwise on Purchaser's drawings. Nuts shall be heavy hexagonal. Bevel washers shall be used to connect the flanges of channels.

Welding of or to high-strength bolts is prohibited. If welding is used for shop connections, the weld shall be proportioned to equal the load carrying capacity of the bolted connection.

Anchor bolts connecting to concrete foundations shall not be assumed to transfer any shear loads to the foundations from the column base plate unless approved by BCS. Shear loads in combination with net downward loads may be transferred through friction between the base plate and top of concrete pier if adequate resistance is provided.

Wind loads shall be established and distributed in accordance with applicable building codes, or ASCE-7.

All structural steel shall be hot-dipped galvanized in accordance with ASTM A123.

CONSTRUCTION SPECIFICATIONS

REL shall provide all permits required to perform the Work. REL shall be responsible for complying with requirements of all permits.

REL shall furnish and install miscellaneous materials that become a part of the permanent installation such as welding electrodes and supplies, brackets, bolting, and anchors. REL shall provide all expendable miscellaneous supplies required during the construction including, but not limited to oxygen, acetylene, oil, gasoline, and cleaning fluids, with provision for safe storage of combustible materials.

REL shall provide all temporary electrical materials and devices beyond any temporary electrical sources furnished by BCS. REL shall install, maintain, and remove upon completion of the Work, all temporary electrical equipment and facilities required for the performance of the Work, including, but not limited to, welding machines, temporary welding leads, lights and any facilities needed to power installation tools and equipment.

REL shall provide all temporary bracing, scaffolding, and supports as required for the completion of the Work.

REL's engineer shall regularly perform quality control inspections of the Work to ensure a quality installation.

REL is responsible for furnishing, delivering, maintaining and protecting, transferring, transporting on site, removal from storage, staging, and installing or erecting all materials used in the Work until completion of the Work and its acceptance by BCS.

REL shall furnish, erect, and maintain, all safety barriers (devices) as required for performing the Work.

If at any time REL determines that there is a need to perform unscheduled, out-of-sequence, or special high-risk operations, BCS shall be advised at least 24 hours prior to proceeding with such work. High-risk operations include, but are not limited to, operations that pose threats to human and animal life; may cause extensive environmental disturbances, have potential to cause violation of environmental protection laws and cause inconvenience to the community/neighborhood of the project site.

REL will provide all permanent fencing enclosing the ground-mounted portion of the solar facility.

MATERIAL SPECIFICATIONS

Structural New Materials

Structural Steel

Shapes (W, WT,S)	ASTM A992 (Fy=50KSI)
Channels	ASTM A36
Angles	ASTM A36
Plates	ASTM A36
Tube	ASTM A500

Bolts, Nuts, and Washers (Hot-Dipped Galvanized)

High-strength:

Bolts	ASTM A325N, Type 1
Nuts	ASTM A563, Grade C, Heavy Hex
Washers	ASTM F436

Unfinished:

Bolts	ASTM A307, Grade B to meet the mechanical requirements of ASTM A-36 bar stock
Nuts	ASTM 563, Grade A, Heavy Hex
Pipe Handrail & Posts	ASTM A500, 1-1/2 inch IPS, Grade B, Sch. 40 Rails and Posts

Floor Grating and Stair Treads

ASTM A569 steel, galvanized per ASTM A123.
Grating shall be fastened using "G" Clips. Hot-

dipped galvanized, as manufactured by Grating Fasteners, Inc. or approved equal.

Ladders and Cages	ASTM A36 Steel
Checkered Plate	ASTM A36 with a symmetric raised diamond pattern.
Drilled-in Anchors	Hilti HY-150 or HVA (where additional capacity is required) Galvanized/Cadmium Plated.

Anchor Bolts Assemblies (Hot-Dipped Galvanized)

Bolts	ASTM A307, Gr B ASTM A36
Nuts	ASTM A563 Heavy Hex
Washers	ASTM F436
Anchor Sleeves	Sinco/Wilson Plastic Anchor Sleeves

All structural material shall be supplied hot-dipped galvanized.

FABRICATION

Fabrication of all equipment shall be in accordance with REL’s drawings, specifications and standard procedures. Shop assembly shall be sufficiently complete to meet REL’s needs and stay within field installation requirements. Field installation requirements may limit the extent of shop assembly permissible.

INSPECTION AND TESTING

REL shall have an inspection, testing and documentation program in effect. REL shall develop a recommended BCS Inspection Point Program which shall identify all tests/inspections that may be of interest to BCS. BCS shall designate which tests, inspections, etc., BCS shall participate in. REL shall provide at least five (5) working days notification prior to the start of each test designated to be witnessed, and at least five (5) working days’ notice of the exact time of any such test or inspection. All test results shall be documented and submitted to BCS for review, prior to final acceptance by BCS.

BCS may perform random visual inspections to check production quality, check dimensions of the equipment for conformance to the approved drawings, and also check materials for conformance to this specification.

REFERENCE DATA

The codes and standards used shall be the latest editions in effect as of the effective date of the Agreement for the project. The Project’s planning, engineering, design, construction, start-up, testing, commissioning and maintenance shall meet all the applicable local, county, state, federal rules and regulations, codes and standards referenced herein. Where codes do not govern specific features of the

equipment or system, equipment manufacturer specifications and industry standards shall apply. Where local codes or ordinances will have an impact on the design, REL shall address those with BCS for a decision before proceeding. REL may use Codes and Standards not specifically referenced herein upon review and concurrence by BCS. Copies of applicable industry codes and standards are not bound with the Agreement Documents. Where copies of industry codes and standards are needed for REL's performance of the Work, REL shall obtain such copies directly from the publication source. Although certain copies of industry codes and standards needed for enforcement of the requirements may be required submittals, BCS reserves the right to require REL to submit additional copies of these codes and standards as necessary for enforcement of requirements.

Applicable codes and standards related to solar PV system installation:

Underwriters Laboratory Inc. (UL)

- UL 1741 Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources
- UL 1703 Flat-Plate Photovoltaic Modules and Panels
- UL 3703 PV Single Axis Trackers
- UL 8703 Concentrator Photovoltaic Modules and Assemblies

IEEE Standards Association

- ANSI C37.90 IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus -Description
- IEEE 929 Recommended practice for utility interface of residential and intermediate PV systems
- IEEE 1262 Recommended practice for qualification of PV modules
- IEEE 1513 Recommended practice for qualification of concentrator photovoltaic modules
- IEEE 928 Recommended criteria for terrestrial PV power systems
- IEEE 1373 Recommended practice for field test methods and procedures for grid connected PV systems
- IEEE 1374 Guide for terrestrial PV power system safety
- IEEE 1547 Interconnecting Distributed Resources with Electric Power Systems

International Electrotechnical Commission (IEC)

- IEC 61173 Overvoltage protection for photovoltaic (PV) power generating systems – Guide
- IEC 61215 Crystalline silicon terrestrial photovoltaic (PV) modules – Design qualification and type approval
- IEC 61683 Photovoltaic systems - Power conditioners - Procedure for measuring efficiency
- IEC 61724 Photovoltaic system performance monitoring - Guidelines for measurement, data exchange and analysis
- IEC 61727 Photovoltaic (PV) systems - Characteristics of the utility interface
- IEC 61277 Terrestrial photovoltaic (PV) power generating systems - General and guide
- IEC 61721 Susceptibility of a photovoltaic (PV) module to accidental impact damage (resistance to impact test)

IEC 61829 Crystalline silicon photovoltaic (PV) array - On-site measurement of I-V characteristics

IEC 61730 Photovoltaic (PV) module safety qualification

IEC/TR2 61836 Solar photovoltaic energy systems - Terms and symbols

American Society for Testing and Materials (ASTM)

ASTM E 1799 Standard Practice for Visual Inspections of Photovoltaic Modules

ASTM E 1802 Standard Test Methods for Wet Insulation Integrity Testing of Photovoltaic Modules.

ASTM E 1830 Standard Test Methods for Determining Mechanical Integrity of Photovoltaic Modules.

ASTM E 2047 Standard Test Method for Wet Insulation Integrity Testing of Photovoltaic Arrays.

ASME PTC 50 Fuel Cell Power System Performance

National Institute of Standards and Technology (NIST)

Semiconductor and Equipment Materials International (SEMI)

Standardization Administration of People's Republic of China (SAC)

European Committee of Electrotechnical Standardization (CENELEC)

Consumer Product Safety Commission

ANSI Z21.83 Fuel Cell Power Plants

National Fire Protection Association (NFPA)

NFPA 853 Standard for the Installation of Stationary Fuel Cell Power Systems

NFPA 780 Standard for the Installation of Lightning Protection Systems

Applicable codes and standards related to engineering and design:

American Institute of Steel Construction (AISC)

AISC Code of Standard Practice for Steel Buildings and Bridges

AISC Spec. Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings-Allowable Stress Design and Plastic Design

AISC Manual Manual of Steel Construction, Allowable Stress Design 9th Edition

American Society of Civil Engineers (ASCE)

ASCE 7 Minimum Design Loads for Buildings and Other Structures

Transactions Paper No. 3269 Wind Forced on Structures

American Society for Testing and Materials (ASTM)

ASTM A6 Specification for General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use

ASTM A36 Specification for Structural Steel

ASTM A108 Specification for Steel Bars, Carbon, Cold-Finished, Standard Quality

ASTM A123 Specification for Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip
ASTM A153 Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware
ASTM A193 Specification for Alloy Steel and Stainless Steel Bolting Materials for High Temperature Service
ASTM A194 Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure and High Temperature Service
ASTM A242 High-Strength Low-Alloy Structural Steel
ASTM A307 Specification for Carbon Steel Externally Threaded Standard Fasteners
ASTM A325 Specification for High-Strength Bolts for Structural Steel Joints
ASTM A335 Seamless Ferritic Alloy-Steel Pipe for High-Temperature Service
ASTM A370 Methods and Definitions for Mechanical Testing of Steel Products
ASTM A500 Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A563 Specification for Carbon and Alloy Steel Nuts
ASTM A572 Specification for High Strength Low-Alloy Columbium Vanadium Steels of Structural Quality
ASTM A588 Standard Specification for High-Strength Low-Alloy Structural Steel with 50 ksi (345 MPA) minimum yield point to 4" (100 MM) thick
ASTM A992 Standard Specification for Steel for Structural Shapes for use in Building Framing
ASTM F436 Specification for Hardened Steel Washers

American Welding Society (AWS)

AWS A5.5 Low-Alloy Steel Electrodes for Shielded Metal Arc Welding
AWS D1.1 Structural Welding Code

Code of Federal Regulations (CFR)

26 CFR 1910 Occupational Safety and Health Standards (OSHA)
40 CFR Part 122, NPDES General Permit Requirements for Storm Water Discharges Associated with Industrial Activity. August 16, 1991

Virginia State Building Code & Local Building Code

National Fire Protection Association (NFPA)

101 Code of Safety to Life From Fire in Building and Structures

Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation (RCSC)

RCSC Specification for Structural Joints Using ASTM A325 or A490 Bolts
Steel Joist Institute (SJI)
Standard Specifications and Load and Weight Tables for Steel Joists and Joist Girders

Underwriters Laboratory Inc. (UL)

Fire Resistance Directory with Hourly Ratings for Beams, Columns, Floors, Through-Penetrations Fire stop Systems, Partitions and Walls

EXHIBIT C

MILESTONE AND PAYMENT SCHEDULE

Milestone	Date Completed	Invoiced	Retainage	Payment
Kickoff Meeting		\$0	\$0	\$0
Design Completion; Obtain Permits (L&E)		\$75,000	\$7,500	\$67,500
Pre-Construction Meeting		\$0	\$0	\$0
BOS Delivery to Storage Facility or Job Site		\$150,000	\$15,000	\$135,000
Racking Delivery to Storage or Job Site		\$100,000	\$10,000	\$90,000
Racking Installed (L&E)		\$75,000	\$7,500	\$67,500
Solar Panel Delivery to Storage or Job Site		\$700,000	\$70,000	\$630,000
Inverter Delivery		\$150,000	\$15,000	\$135,000
Rack Completed (L&E)		\$100,000	\$10,000	\$90,000
Panel Installation (L&E)		\$150,000	\$15,000	\$135,000
Inverter Installation (L&E)		\$50,000	\$5,000	\$45,000
Conduit and wiring installed (L&E)		\$100,000	\$10,000	\$90,000
Monitoring Complete		\$50,000	\$5,000	\$45,000
Project Completed		\$73,180	\$7,318	\$65,862
Total		\$1,773,180	\$177,318	\$1,595,862

Milestones marked with “(L&E)” will be billed monthly based on percentage completion for those line items.

Material delivery dates could change due to manufacturer’s availability.

Retainage paid upon Final Acceptance.

PROMISSORY NOTE

\$1,773,180

May 1, 2017

Borrower: Bath County Public Schools
12145 Sam Snead Highway
Warm Springs, VA 24484
("Borrower")

Lender: Reliable Energy, LLC
84 High Street
Millboro, VA 24460
("Lender")

FOR VALUE RECEIVED, Borrower agrees to pay Lender the principal amount of One Million, Seven Hundred Seventy Three Thousand, One Hundred Eighty Dollars and Zero Cents (\$1,773,180), together with interest payable on the unpaid principal at the rate of three percent (3%) per annum, as follows:

1. Installment Payments. All amounts owed under this Promissory Note (the "Note") will be paid in equal principal and interest installment payments of One Hundred Nineteen Thousand, One Hundred Eighty Six Dollars (\$119,186) per annum. All payments shall be first applied to any late charges, second to interest and the balance to principal.
2. Due Date. The entire balance of the Note together with any and all interest accrued thereon shall be due and payable in full on **April 30, 2037**.
3. Default Interest. After maturity, or failure to make any payment, any unpaid principal shall accrue interest at the rate of eighteen percent (18%) per annum, or the maximum rate allowed by law, whichever is less, during such period of Borrower's default under this Note.
4. Prepayment. Borrower may prepay all or a part of the balance owed under this Note at any time without penalty.
5. Currency. All late charges, principal and interest payments shall be made in lawful money of the United States.
6. Late Charge. If Lender receives any installment payment more than thirty (30) days after its due date, then a late payment charge of Five Thousand Dollars (\$5,000) shall be added to the scheduled payment.
7. Due on Sale. The property described in the Security Agreement, a true and correct copy of which is attached hereto as Exhibit A, may not be sold or transferred without

Lender's consent. Upon breach of this provision, Lender may declare all sums due under this Note immediately due and payable.

Lender (initials)

Borrower (initials)

8. Acceleration. If Borrower fails to make any payment owed under this Note, or if Borrower defaults under the Security Agreement, and such default is not cured within thirty (30) days after written notice of such default, then Lender may, at its sole option, declare all outstanding sums owed on this Note to be immediately due and payable, in addition to any other rights or remedies that Lender may have under the Security Agreement.

9. Amendment; Modification; Waiver. No amendment, modification or waiver of any provision of this Note or consent to departure therefrom shall be effective unless by written agreement signed by both Borrower and Lender.

10. Transfer of the Promissory Note. Borrower hereby waives any notice of the transfer of this Note by Lender or by any subsequent holder of this Note, agrees to remain bound by the terms of this Note subsequent to any transfer, and agrees that the terms of this Note may be fully enforced by any subsequent holder of this Note.

11. Successors. The terms and conditions of this Note shall inure to the benefit of and be binding jointly and severally upon the successors, assigns, heirs, survivors and personal representatives of Borrower and shall inure to the benefit of any holder, its legal representatives, successors and assigns.

12. Waiver. No breach of any provision of this Note shall be deemed waived unless it is waived in writing. No course of dealing and no delay on the part of Lender in exercising any right will operate as a waiver thereof or otherwise prejudice Lender's rights, powers, or remedies. No right, power, or remedy conferred by this Promissory Note upon Lender will be exclusive of any other rights, power, or remedy referred to in this Note, or now or hereafter available at law, in equity, by statute, or otherwise.

13. Governing Law. The validity, construction and performance of this Note will be governed by the laws of Virginia, excluding that body of law pertaining to conflicts of law. Borrower hereby waives presentment, notice of non-payment, notice of dishonor, protest, demand and diligence.

14. Attorney's Fees and Costs. Borrower shall pay all costs incurred by Lender in collecting sums due under this Note after a default, including reasonable attorneys' fees, whether or not suit is brought. If Borrower or Lender sues to enforce this Note or obtain a declaration of its rights hereunder, the prevailing party in any such proceeding shall be entitled to recover its reasonable attorneys' fees and costs incurred in the proceeding (including those incurred in any bankruptcy proceeding or appeal) from the non-prevailing party.

15. Severability. If any clause or any other portion of this Note shall be determined to be void or unenforceable for any reason, such determination shall not affect the validity or enforceability of any other clause or portion of this Note, all of which shall remain in full force

and effect.

16. Conflicting Terms. In the event of any conflict between the terms of this Note and the terms of the Security Agreement, the terms of this Note shall prevail.

17. Execution. The Borrower executes this Note as a principal and not as a surety.

18. Commercial Property. The Borrower represents and warrants to Lender that the sums represented by this Note are being used for business, investment or commercial purposes, and not for personal, family or household purposes. THIS NOTE IS SECURED BY A SECURITY AGREEMENT.

19. Notice. The addresses for all notices given under this Note are set forth first above.

DO NOT DESTROY THIS NOTE.

When paid, this original Note together with the Security Agreement must be surrendered to Lender for cancellation and retention before any reconveyance can be processed.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties to this Note hereby execute this instrument as of the date first written above.

BORROWER:

By: _____

Name:

Title:

LENDER:

By: BARC Electric Cooperative
Member/Manager

By: _____

Name: Keith Swisher

Title: President

Certificate of Acknowledgment of Notary Public

State of Virginia)
) ss
County of Bath)

On _____, before me, _____, a notary public in and for said state, personally appeared _____, known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged to me that he or she executed the same in his or her authorized capacity and that by his or her signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Notary Public for the State of _____
My commission expires _____

[NOTARY SEAL]

Certificate of Acknowledgment of Notary Public

State of Virginia)
) ss
County of Bath)

On _____, before me, _____, a notary public in and for said state, personally appeared Keith Swisher, known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged to me that he or she executed the same in his or her authorized capacity and that by his or her signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Notary Public for the State of _____
My commission expires _____

[NOTARY SEAL]

SECURITY AGREEMENT

THIS SECURITY AGREEMENT (this "**Agreement**"), dated as of this first day of May, 2017, is made by and between Bath County Public Schools (the "**Debtor**"), with an address at 12145 Sam Snead Highway, Warm Springs, VA 24484, and Reliable Energy, LLC (the "**Secured Party**"), with an address at 84 High Street, Millboro, VA 24460.

Under the terms hereof, the Secured Party desires to obtain and the Debtor desires to grant the Secured Party security for all of the Obligations (as hereinafter defined).

NOW, THEREFORE, the Debtor and the Secured Party, intending to be legally bound, hereby agree as follows:

1. Definitions.

(a) "**Collateral**" shall include the property, improvements, fixtures, equipment and other personal property described in Exhibit A attached hereto and made a part hereof (the "**Personal Property**") and all additions and accessions thereto, substitutions therefor and replacements thereof.

(b) "**Loan Documents**" means the Note (as hereafter defined), this Agreement and all other documents and instruments evidencing, securing or executed in connection therewith.

(d) "**Note**" means that certain Promissory Note, dated as of the date hereof, made by Debtor, for the benefit of Secured Party, in the original principal amount of \$1,773,180.

(e) "**Obligations**" shall include all debts, liabilities, obligations, covenants and duties owing from the Debtor to the Secured Party of any kind or nature, present or future (including any interest accruing thereon after maturity, or after the filing of any petition in bankruptcy, or the commencement of any insolvency, reorganization or like proceeding relating to the Debtor, whether or not a claim for post-filing or post-petition interest is allowed in such proceeding), whether evidenced by or arising under the Note or this Agreement or, whether absolute or contingent, joint or several, due or to become due, now existing or hereafter arising, and all costs and expenses of the Secured Party incurred in the enforcement, collection or otherwise in connection with any of the foregoing, including reasonable attorneys' fees and expenses.

(f) "**UCC**" means the Uniform Commercial Code, as adopted and enacted and as in effect from time to time in the Commonwealth of Virginia. Terms used herein which are defined in the UCC and not otherwise defined herein shall have the respective meanings ascribed to such terms in the UCC.

2. Grant of Security Interest. To secure the Obligations, the Debtor, as debtor, hereby assigns and grants to the Secured Party, as secured party, a continuing lien on and security interest in the Collateral.

3. Change in Name or Locations. The Debtor hereby agrees that if the location of the Collateral changes from the locations listed in Exhibit A, or if the Debtor changes its name or form or jurisdiction of organization, or establishes a name in which it may do business, the Debtor will immediately notify the Secured Party in writing of the additions or changes.

4. Representations and Warranties. The Debtor represents, warrants and covenants to the Secured Party that: (a) the Debtor has good, marketable and indefeasible title to the Collateral, has not made any prior sale, pledge, encumbrance, assignment or other disposition of any of the Collateral, and the Collateral is free from all encumbrances and rights of setoff of any kind except the lien in favor of the Secured Party created by this Agreement; (b) except as herein provided, the Debtor will not hereafter without the Secured Party's prior written consent sell, pledge, encumber, assign or otherwise

dispose of any of the Collateral or permit any right of setoff, lien or security interest to exist thereon except to the Secured Party; and (c) the Debtor will defend the Collateral against all claims and demands of all persons at any time claiming the same or any interest therein.

5. Debtor's Covenants. The Debtor covenants that it shall:

(a) from time to time and at all reasonable times allow the Secured Party, by or through any of its officers, agents, attorneys, or accountants, to examine or inspect the Collateral, and obtain valuations and audits of the Collateral, at the Debtor's expense, wherever located. The Debtor shall do, obtain, make, execute and deliver all such additional and further acts, things, deeds, assurances and instruments as the Secured Party may require to vest in and assure to the Secured Party its rights hereunder and in or to the Collateral, and the proceeds thereof, including waivers from landlords, warehousemen and mortgagees;

(b) keep the Collateral in good order and repair at all times and immediately notify the Secured Party of any event causing a material loss or decline in value of the Collateral, whether or not covered by insurance, and the amount of such loss or depreciation;

(c) only use or permit the Collateral to be used in accordance with all applicable federal, state, county and municipal laws and regulations; and

(d) have and maintain insurance at all times with respect to all Collateral against risks of fire (including so-called extended coverage), theft, vandalism, damage, destruction and other risks (including risk of flood if any Collateral is maintained at a location in a flood hazard zone) as the Secured Party may reasonably require, in such form, in the minimum amount of the outstanding principal of the Note and written by such companies as may be reasonably satisfactory to the Secured Party. Each such casualty insurance policy shall contain a standard Lender's Loss Payable Clause issued in favor of the Secured Party under which all losses thereunder shall be paid to the Secured Party as the Secured Party's interest may appear. Such policies shall expressly provide that the requisite insurance cannot be altered or canceled without at least thirty (30) days prior written notice to the Secured Party and shall insure the Secured Party notwithstanding the act or neglect of the Debtor. Upon the Secured Party's demand, the Debtor shall furnish the Secured Party with evidence of insurance as the Secured Party may require. In the event of failure to provide insurance as herein provided, the Secured Party may, at its option, obtain such insurance and the Debtor shall pay to the Secured Party, on demand, the cost thereof. Proceeds of insurance may be applied by the Secured Party to reduce the Obligations or to repair or replace Collateral, all in the Secured Party's sole discretion.

(e) If any of the Collateral is, at any time, in the possession of a bailee, Debtor shall promptly notify Secured Party thereof and, if requested by Secured Party, shall promptly obtain an acknowledgment from the bailee, in form and substance satisfactory to Secured Party, that the bailee holds such Collateral for the benefit of Secured Party and shall act upon the instructions of Secured Party, without the further consent of Debtor.

6. Negative Pledge; No Transfer. The Debtor will not sell or offer to sell or otherwise transfer or grant or allow the imposition of a lien or security interest upon the Collateral or use any portion thereof in any manner inconsistent with this Agreement or with the terms and conditions of any policy of insurance thereon.

7. Further Assurances. Debtor hereby irrevocably authorizes Secured Party at any time and from time to time to file in any Uniform Commercial Code jurisdiction any initial financing statements and amendments thereto that (a) indicate the Collateral (i) as all assets of Debtor or words of similar effect, regardless of whether any particular asset comprised in the Collateral falls within the scope of the Uniform Commercial Code of such jurisdiction, or (ii) as being of an equal or lesser scope or with greater detail, and (b) contain any other information required by the Uniform Commercial Code for the sufficiency or filing

office acceptance of any financing statement or amendment, including, but not limited to (i) whether Debtor is an organization, the type of organization and (ii) any organization identification number issued to Debtor. Debtor agrees to furnish any such information to Secured Party promptly upon request.

8. Events of Default. The Debtor shall, at the Secured Party's option, be in default under this Agreement upon the happening of any of the following events or conditions (each, an "**Event of Default**"): (a) a failure to pay any amount due under the Note or this Agreement; (b) the failure by the Debtor to perform any of its other obligations under this Agreement; (c) falsity, inaccuracy or material breach by the Debtor of any written warranty, representation or statement made or furnished to the Secured Party by or on behalf of the Debtor; (d) an uninsured material loss, theft, damage, or destruction to any of the Collateral; (e) the entry of any judgment against the Debtor or any lien against or the making of any levy, seizure or attachment of or on the Collateral; or (f) any indication or evidence received by the Secured Party that the Debtor may have directly or indirectly been engaged in any type of activity which, in the Secured Party's discretion, might result in the forfeiture of any property of the Debtor to any governmental entity, federal, state or local.

9. Remedies. Upon the occurrence of any such Event of Default and at any time thereafter, the Secured Party may declare all Obligations secured hereby immediately due and payable and shall have, in addition to any remedies provided herein or by any applicable law or in equity, all the remedies of a secured party under the UCC. The Secured Party's remedies include, but are not limited to, to the extent permitted by law, the right to (a) peaceably by its own means or with judicial assistance enter the Debtor's premises and take possession of the Collateral without prior notice to the Debtor or the opportunity for a hearing, (b) render the Collateral unusable, (c) dispose of the Collateral on the Debtor's premises, and (d) require the Debtor to assemble the Collateral and make it available to the Secured Party at a place designated by the Secured Party. Unless the Collateral is perishable or threatens to decline speedily in value or is of a type customarily sold on a recognized market, the Secured Party will give the Debtor reasonable notice of the time and place of any public sale thereof or of the time after which any private sale or any other intended disposition thereof is to be made. The requirements of commercially reasonable notice shall be met if such notice is sent to the Debtor at least five (5) days before the time of the intended sale or disposition. The Debtor shall be responsible for the Secured Party's expenses of retaking, holding, preparing for sale, selling or the like, including the Secured Party's reasonable attorneys' fees and legal expenses, incurred or expended by the Secured Party to enforce any payment due it under this Agreement either as against the Debtor, or in the prosecution or defense of any action, or concerning any matter growing out of or connection with the subject matter of this Agreement and the Collateral pledged hereunder. The Debtor waives all relief from all appraisal or exemption laws now in force or hereafter enacted.

10. Notices. All notices, demands, requests, consents, approvals and other communications required or permitted hereunder must be in writing and will be effective upon receipt. Such notices and other communications may be hand-delivered, sent by electronic mail with confirmation of delivery and a copy sent by first-class mail, or sent by nationally recognized overnight courier service, to a party's address set forth above or to such other address as any party may give to the other in writing for such purpose.

11. Preservation of Rights. No delay or omission on the Secured Party's part to exercise any right or power arising hereunder will impair any such right or power or be considered a waiver of any such right or power, nor will the Secured Party's action or inaction impair any such right or power. The Secured Party's rights and remedies hereunder are cumulative and not exclusive of any other rights or remedies which the Secured Party may have under other agreements, at law or in equity.

12. Severability. In case any one or more of the provisions contained in this Agreement should be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby.

13. Changes in Writing. No modification, amendment or waiver of any provision of this Agreement nor consent to any departure by the Debtor therefrom will be effective unless made in a writing signed by the Secured Party, and then such waiver or consent shall be effective only in the specific instance and for the purpose for which given. No notice to or demand on the Debtor in any case will entitle the Debtor to any other or further notice or demand in the same, similar or other circumstance.

14. Entire Agreement. This Agreement (including the documents and instruments referred to herein) constitutes the entire agreement and supersedes all other prior agreements and understandings, both written and oral, between the parties with respect to the subject matter hereof.

15. Counterparts. This Agreement may be signed in any number of counterpart copies and by the parties hereto on separate counterparts, but all such copies shall constitute one and the same instrument. Delivery of an executed counterpart of a signature page to this Agreement by facsimile transmission shall be effective as delivery of a manually executed counterpart. Any party so executing this Agreement by facsimile transmission shall promptly deliver a manually executed counterpart, provided that any failure to do so shall not affect the validity of the counterpart executed by facsimile transmission.

16. Successors and Assigns. This Agreement will be binding upon and inure to the benefit of the Debtor and the Secured Party and their respective heirs, executors, administrators, successors and assigns; provided, however, that the Debtor may not assign this Agreement in whole or in part without the Secured Party's prior written consent and the Secured Party at any time may assign this Agreement in whole or in part.

17. Interpretation. In this Agreement, unless the Secured Party and the Debtor otherwise agree in writing, the singular includes the plural and the plural the singular; words importing any gender include the other genders; references to statutes are to be construed as including all statutory provisions consolidating, amending or replacing the statute referred to; the word "or" shall be deemed to include "and/or", the words "including", "includes" and "include" shall be deemed to be followed by the words "without limitation"; references to articles, sections (or subdivisions of sections) or exhibits are to those of this Agreement unless otherwise indicated. Section headings in this Agreement are included for convenience of reference only and shall not constitute a part of this Agreement for any other purpose. If this Agreement is executed by more than one Debtor, the obligations of such persons or entities will be joint and several.

18. Governing Law and Jurisdiction. This Agreement has been delivered to and accepted by the Secured Party and will be deemed to be made in the Commonwealth of Virginia. **THIS AGREEMENT WILL BE INTERPRETED AND THE RIGHTS AND LIABILITIES OF THE PARTIES HERETO DETERMINED IN ACCORDANCE WITH THE LAWS OF THE COMMONWEALTH OF VIRGINIA.** The Debtor hereby irrevocably consents to the exclusive jurisdiction of any state or federal court in which BARC Electric Cooperative provides electric service, provided that nothing contained in this Agreement will prevent the Secured Party from bringing any action, enforcing any award or judgment or exercising any rights against the Debtor individually, against any security or against any property of the Debtor within any other county, state or other foreign or domestic jurisdiction. The Secured Party and the Debtor agree that the venue provided above is the most convenient forum for both the Secured Party and the Debtor. The Debtor waives any objection to venue and any objection based on a more convenient forum in any action instituted under this Agreement.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties have executed this Agreement as of the day and date first above written.

DEBTOR:

By: _____

Name:

Title:

SECURED PARTY:

By: BARC Electric Cooperative
Member/Manager

By: _____

Name: Keith Swisher

Title: President

Certificate of Acknowledgment of Notary Public

State of Virginia)
) ss
County of Bath)

On _____, before me, _____, a notary public in and for said state, personally appeared _____, known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged to me that he or she executed the same in his or her authorized capacity and that by his or her signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Notary Public for the State of _____
My commission expires _____

[NOTARY SEAL]

Certificate of Acknowledgment of Notary Public

State of Virginia)
) ss
County of Bath)

On _____, before me, _____, a notary public in and for said state, personally appeared Keith Swisher, known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged to me that he or she executed the same in his or her authorized capacity and that by his or her signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Notary Public for the State of _____
My commission expires _____

[NOTARY SEAL]

EXHIBIT A

The Personal Property shall include all property, improvements, fixtures, and equipment installed at Bath County High School, Millboro Elementary and Valley Elementary (the "Schools") by Reliable Energy, LLC and its subcontractors pursuant to that certain Engineering, Procurement and Construction ("EPC") Agreement dated _____, 2017 by and between Reliable Energy, LLC and Debtor. Said property, improvements, fixtures, and equipment is generally described as follows:

- All Jinko JKM320PP-72 or similar solar panels and appurtenances thereto;
- All Ironridge roofing products (rails, clips, and other materials) and S-5 clips installed to affix solar panels to the metal roofs at the Schools;
- Schletter G-Max ground mount racking system installed at Valley Elementary;
- All Solectria Solar inverters;
- All "balance of system" component parts necessary for a complete turnkey installation; and
- Any additional solar installations not otherwise contemplated herein but made a part of the EPC Agreement.

UCC FINANCING STATEMENT

FOLLOW INSTRUCTIONS

A. NAME & PHONE OF CONTACT AT FILER (optional)
B. E-MAIL CONTACT AT FILER (optional)
C. SEND ACKNOWLEDGMENT TO: (Name and Address)
<div style="border: 1px solid black; width: 100%; height: 100%; position: relative;"> </div>

THE ABOVE SPACE IS FOR FILING OFFICE USE ONLY

1. DEBTOR'S NAME: Provide only one Debtor name (1a or 1b) (use exact, full name; do not omit, modify, or abbreviate any part of the Debtor's name); if any part of the Individual Debtor's name will not fit in line 1b, leave all of item 1 blank, check here and provide the Individual Debtor information in item 10 of the Financing Statement Addendum (Form UCC1Ad)

1a. ORGANIZATION'S NAME									
OR	1b. INDIVIDUAL'S SURNAME		FIRST PERSONAL NAME		ADDITIONAL NAME(S)/INITIAL(S)		SUFFIX		
1c. MAILING ADDRESS			CITY		STATE		POSTAL CODE		COUNTRY

2. DEBTOR'S NAME: Provide only one Debtor name (2a or 2b) (use exact, full name; do not omit, modify, or abbreviate any part of the Debtor's name); if any part of the Individual Debtor's name will not fit in line 2b, leave all of item 2 blank, check here and provide the Individual Debtor information in item 10 of the Financing Statement Addendum (Form UCC1Ad)

2a. ORGANIZATION'S NAME									
OR	2b. INDIVIDUAL'S SURNAME		FIRST PERSONAL NAME		ADDITIONAL NAME(S)/INITIAL(S)		SUFFIX		
2c. MAILING ADDRESS			CITY		STATE		POSTAL CODE		COUNTRY

3. SECURED PARTY'S NAME (or NAME of ASSIGNEE of ASSIGNOR SECURED PARTY): Provide only one Secured Party name (3a or 3b)

3a. ORGANIZATION'S NAME									
OR	3b. INDIVIDUAL'S SURNAME		FIRST PERSONAL NAME		ADDITIONAL NAME(S)/INITIAL(S)		SUFFIX		
3c. MAILING ADDRESS			CITY		STATE		POSTAL CODE		COUNTRY

4. COLLATERAL: This financing statement covers the following collateral:

5. Check only if applicable and check only one box: Collateral is held in a Trust (see UCC1Ad, item 17 and Instructions) being administered by a Decedent's Personal Representative

6a. Check <u>only</u> if applicable and check <u>only</u> one box:	6b. Check <u>only</u> if applicable and check <u>only</u> one box:
<input type="checkbox"/> Public-Finance Transaction <input type="checkbox"/> Manufactured-Home Transaction <input type="checkbox"/> A Debtor is a Transmitting Utility	<input type="checkbox"/> Agricultural Lien <input type="checkbox"/> Non-UCC Filing

7. ALTERNATIVE DESIGNATION (if applicable): Lessee/Lessor Consignee/Consignor Seller/Buyer Bailee/Bailor Licensee/Licenser

8. OPTIONAL FILER REFERENCE DATA:

Instructions for UCC Financing Statement (Form UCC1)

Please type or laser-print this form. Be sure it is completely legible. Read and follow all Instructions, especially Instruction 1; use of the correct name for the Debtor is crucial.

Fill in form very carefully; mistakes may have important legal consequences. If you have questions, consult your attorney. The filing office cannot give legal advice.

Send completed form and any attachments to the filing office, with the required fee.

ITEM INSTRUCTIONS

A and B. To assist filing offices that might wish to communicate with filer, filer may provide information in item A and item B. These items are optional.

C. Complete item C if filer desires an acknowledgment sent to them. If filing in a filing office that returns an acknowledgment copy furnished by filer, present simultaneously with this form the Acknowledgment Copy or a carbon or other copy of this form for use as an acknowledgment copy.

1. **Debtor's name.** Carefully review applicable statutory guidance about providing the debtor's name. Enter only one Debtor name in item 1 -- either an organization's name (1a) or an individual's name (1b). If any part of the Individual Debtor's name will not fit in line 1b, check the box in item 1, leave all of item 1 blank, check the box in item 9 of the Financing Statement Addendum (Form UCC1Ad) and enter the Individual Debtor name in item 10 of the Financing Statement Addendum (Form UCC1Ad). Enter Debtor's correct name. Do not abbreviate words that are not already abbreviated in the Debtor's name. If a portion of the Debtor's name consists of only an initial or an abbreviation rather than a full word, enter only the abbreviation or the initial. If the collateral is held in a trust and the Debtor name is the name of the trust, enter trust name in the Organization's Name box in item 1a.

1a. **Organization Debtor Name.** "Organization Name" means the name of an entity that is not a natural person. A sole proprietorship is **not** an organization, even if the individual proprietor does business under a trade name. If Debtor is a registered organization (e.g., corporation, limited partnership, limited liability company), it is advisable to examine Debtor's current filed public organic records to determine Debtor's correct name. Trade name is insufficient. If a corporate ending (e.g., corporation, limited partnership, limited liability company) is part of the Debtor's name, it must be included. Do not use words that are not part of the Debtor's name.

1b. **Individual Debtor Name.** "Individual Name" means the name of a natural person; this includes the name of an individual doing business as a sole proprietorship, whether or not operating under a trade name. The term includes the name of a decedent where collateral is being administered by a personal representative of the decedent. The term does not include the name of an entity, even if it contains, as part of the entity's name, the name of an individual. Prefixes (e.g., Mr., Mrs., Ms.) and titles (e.g., M.D.) are generally not part of an individual name. Indications of lineage (e.g., Jr., Sr., III) generally are not part of the individual's name, but may be entered in the Suffix box. Enter individual Debtor's surname (family name) in Individual's Surname box, first personal name in First Personal Name box, and all additional names in Additional Name(s)/Initial(s) box.

If a Debtor's name consists of only a single word, enter that word in Individual's Surname box and leave other boxes blank.

For both organization and individual Debtors. Do not use Debtor's trade name, DBA, AKA, FKA, division name, etc. in place of or combined with Debtor's correct name; filer may add such other names as additional Debtors if desired (but this is neither required nor recommended).

1c. Enter a mailing address for the Debtor named in item 1a or 1b.

2. **Additional Debtor's name.** If an additional Debtor is included, complete item 2, determined and formatted per Instruction 1. For additional Debtors, attach either Addendum (Form UCC1Ad) or Additional Party (Form UCC1AP) and follow Instruction 1 for determining and formatting additional names.

3. **Secured Party's name.** Enter name and mailing address for Secured Party or Assignee who will be the Secured Party of record. For additional Secured Parties, attach either Addendum (Form UCC1Ad) or Additional Party (Form UCC1AP). If there has been a full assignment of the initial Secured Party's right to be Secured Party of record before filing this form, either (1) enter Assignor Secured Party's name and mailing address in item 3 of this form and file an Amendment (Form UCC3) [see item 5 of that form]; or (2) enter Assignee's name and mailing address in item 3 of this form and, if desired, also attach Addendum (Form UCC1Ad) giving Assignor Secured Party's name and mailing address in item 11.

4. **Collateral.** Use item 4 to indicate the collateral covered by this financing statement. If space in item 4 is insufficient, continue the collateral description in item 12 of the Addendum (Form UCC1Ad) or attach additional page(s) and incorporate by reference in item 12 (e.g., See Exhibit A). Do not include social security numbers or other personally identifiable information.

Note: If this financing statement covers timber to be cut, covers as-extracted collateral, and/or is filed as a fixture filing, attach Addendum (Form UCC1Ad) and complete the required information in items 13, 14, 15, and 16.

5. If collateral is held in a trust or being administered by a decedent's personal representative, check the appropriate box in item 5. If more than one Debtor has an interest in the described collateral and the check box does not apply to the interest of all Debtors, the filer should consider filing a separate Financing Statement (Form UCC1) for each Debtor.

6a. If this financing statement relates to a Public-Finance Transaction, Manufactured-Home Transaction, or a Debtor is a Transmitting Utility, check the appropriate box in item 6a. If a Debtor is a Transmitting Utility and the initial financing statement is filed in connection with a Public-Finance Transaction or Manufactured-Home Transaction, check only that a Debtor is a Transmitting Utility.

6b. If this is an Agricultural Lien (as defined in applicable state's enactment of the Uniform Commercial Code) or if this is not a UCC security interest filing (e.g., a tax lien, judgment lien, etc.), check the appropriate box in item 6b and attach any other items required under other law.

7. **Alternative Designation.** If filer desires (at filer's option) to use the designations lessee and lessor, consignee and consignor, seller and buyer (such as in the case of the sale of a payment intangible, promissory note, account or chattel paper), bailee and bailor, or licensee and licensor instead of Debtor and Secured Party, check the appropriate box in item 7.

8. **Optional Filer Reference Data.** This item is optional and is for filer's use only. For filer's convenience of reference, filer may enter in item 8 any identifying information that filer may find useful. Do not include social security numbers or other personally identifiable information.



P.O. Box 264
Millboro, VA 24460-0264
1 (800) 846-2272

SOLAR OPERATIONS & MAINTENANCE AGREEMENT

This Solar Operations & Maintenance Agreement (the "Agreement") is entered into by and between Bath County Public Schools, a [enter legal entity type], duly organized, existing under and by virtue of the laws of the state of Virginia, its successors and assigns ("BCS"), and Reliable Energy, LLC, a limited liability company duly organized, created, and existing under and by virtue of the laws of the state of Virginia, its successors and assigns ("REL") on this ___ day of _____, 2017.

WITNESSETH:

WHEREAS, on December 6, 2016, at its regular monthly school board meeting, REL presented the directors of the BCS school board with a turnkey proposal that included, among other things, operations and maintenance services associated with certain solar arrays to be constructed by REL at Millboro Elementary ("Millboro"), Valley Elementary ("Valley") and Bath County High School ("BCHS");

WHEREAS, on February 7, 2017, at its regular school board meeting, the BCS directors approved the proposal, recognizing the unique educational opportunity to all students enrolled in the BCS system, and recognizing the long-term energy savings that can be achieved through solar energy; and

WHEREAS, REL will operate and maintain the solar arrays pursuant to the terms of this Agreement;

NOW, THEREFORE, in consideration of the mutual covenants, agreements, and benefits stated in this Agreement, and for other good and valuable consideration, the receipt and sufficiency of which is hereby recognized, BCS and REL agree as follows:

1. Incorporation of Recitals. The above stated recitals are incorporated into this Agreement and made part of this Agreement by this reference to the same extent as if these recitals were set forth in full at this point.
2. Intent. This Agreement is intended to provide for the regular operation and maintenance of the BCS solar arrays, and thus is limited to regular wear and tear of the solar arrays and its component equipment. This Agreement is not intended to cover damage to the solar arrays due to extreme

weather or storm events, lightning strikes, vandalism, and other similar claims covered by BCS's property insurance policy.

3. Duties and Responsibilities. Within the term provided, and in accordance with the provisions of this Agreement, REL shall faithfully and competently be responsible for accomplishing the duties and tasks (the "Work") as set forth in the Scope of Work, a true and correct copy of which is attached hereto as Exhibit A and fully incorporated herein and made a part of this Agreement by this reference to the same extent as if it were set forth in full at this point. REL shall provide and pay for all labor, equipment, tools, and transportation necessary for the performance, execution, and completion of the Work.

4. Character of Workers, Methods, and Equipment. REL shall, at all times, employ sufficient labor and equipment for prosecuting the Work to full completion. All workers shall have sufficient skill and experience to properly perform the Work as it is assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the Work satisfactorily. All equipment which is proposed to be used in accomplishing the Work shall be of sufficient size and in such mechanical condition as to meet requirements of the Work and to produce a satisfactory quality of Work. Equipment used on any portion of the Work shall be such that no injury to previously completed work, adjacent property, or existing facilities will result from its use.

5. Payment. In consideration of the faithful performance of the Work, BCS promises to pay to REL the amount of Nine Hundred Twenty-One Dollars (\$921.00) per month during the Term of this Agreement.

6. Term. This Agreement shall take effect upon Final Acceptance of the solar arrays, as that term is defined in the Engineering, Procurement and Construction (EPC) Agreement, and shall continue for a term of twenty (20) years thereafter.

7. Termination for Cause. BCS may discharge REL and terminate the Agreement at any time when BCS determines that it has sufficient cause arising from (a) REL's dereliction or unsatisfactory performance of a duty, (b) REL's failure to perform the Work in accordance with the provisions of this Agreement, (c) misrepresentation by REL, or (d) conviction of REL or any of its directors and/or officers of a felony. Notwithstanding termination of this Agreement and subject to any directions from BCS, REL shall take timely, reasonable, and necessary action to protect and preserve property in the possession of REL in which BCS has an interest.

8. Termination for Emergencies. BCS may terminate this Agreement or a portion thereof by written notice when REL is prevented from proceeding with this Agreement as a direct result of a declared state of emergency or an Executive Order of the President or Governor of Virginia with respect to the prosecution of war or in the interest of national defense.

9. Workmanship. All Work shall be done and completed in a thoroughly workmanlike manner in accordance with generally accepted industry standards.

10. Warranty. REL warrants to BCS that all Work will be in accordance with the Scope of Work. Any work not performed in accordance with the Scope of Work shall be promptly remedied by REL, at REL's sole expense.

11. Insurance. REL shall obtain and maintain insurance coverage in amounts and types as necessary in order to protect BCS and REL from liability associated with the Work performed under this Agreement. Such insurance shall include, but shall not be limited to: statutorily required amounts of workmen's compensation insurance and public liability and property damage insurance, automobile liability and property damage insurance in amounts which shall protect REL from claims of damage for personal injury, including accidental death, as well as from claims for direct property damage which may arise from negligent operations under the Agreement, whether such operations are by REL or a subcontractor or by anyone directly or indirectly employed by either of them.

Nothing contained in these insurance requirements is to be construed as limiting the extent of REL's responsibility for payment of damages resulting from its operations under this Agreement.

12. REL Status. It is agreed that REL shall be an independent contractor of BCS for and during the performance of this Agreement.

13. Indemnity. Each party shall indemnify, defend, and hold harmless the other from and against any and all claims and demand whatsoever, including costs and attorney's fees, resulting from each party's negligent acts, omissions, or any other tortuous conduct in connection with performance of this Agreement either by itself or its subcontractors. Each party shall indemnify, defend and hold harmless the other from and against any and all claims and demands whatsoever, including costs and attorney fees, under the doctrine of strict liability as it may be applied by a court of competent jurisdiction to each party's performance under this Agreement. Neither party shall be liable for any claim or demand resulting from the other party's negligence.

14. Payment of Taxes. REL shall pay and shall assume exclusive liability for all taxes levied or assessed on or in connection with its performance of the Agreement, including, but not limited to, federal or state payroll taxes or assessments and income and excise taxes.

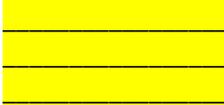
15. Force Majeure. Neither party shall be considered to be in default with respect to any obligation hereunder if performance of such obligation is prevented by uncontrollable forces. The term "uncontrollable forces" is deemed for the purpose of this Agreement to mean any cause beyond the control of the party affected, including but not limited to flood, earthquake, severe storm, drought, lightning, fire, war, riot, civil disturbance, labor disturbance, sabotage, or restraint by a court order or other regulatory agency, which by exercise of due diligence and foresight such party could not reasonably have been expected to avoid. Any party rendered unable to fulfill any obligation by reason of uncontrollable forces shall exercise due diligence to remove such inability with all reasonable dispatch. Nothing contained herein shall be construed to obligate a party to settle a strike against its will.

16. Safety Requirements. REL shall be solely and completely responsible for safety conditions on the site where work is to be performed, including that safety of all persons and property during the term of the Agreement. Safety provisions shall conform to United States Department of Labor,

Occupational Safety, and Health Act ("OSHA"), BCS's safety rules and other applicable laws. This requirement shall apply continuously and not be limited to working hours.

17. Notice. All notices and correspondence required to be sent to either party hereunder shall be delivered personally or by certified or registered mail and addressed as follows and deemed effective when so mailed (subject to the right to designate a different address by notice similarly given):

IF TO REL: Michael Keyser
Chief Executive Officer
84 High Street
Millboro, VA 24460

IF TO BCS: 

18. Applicable Law; Jurisdiction. This Agreement shall be construed according to the laws of the state of Virginia. All disputes under this Agreement and all judicial proceedings shall be brought in the state courts of Virginia, Bath County.

19. Verbal Statement and Agreements. No oral statements of any person whatsoever shall in any manner or degree, modify or otherwise affect the terms of the Agreement.

20. Damage to Property. REL shall promptly restore and repair all property damage it causes to property owned or under the control of BCS or any third parties whilst in performance of the Work described herein, and shall return all such damaged property to its pre-existing condition prior to REL's damage. All restoration and repair shall be completed to BCS's satisfaction.

21. Miscellaneous.

a. Assignment. Neither party to the Agreement shall assign the Agreement or sublet it as a whole, without the written consent of the other, nor shall REL assign any monies due or to become due to it hereunder without the previous written consent of BCS.

b. Amendments. This Agreement may be amended at any time during the term hereof, provided, however, that no amendments or other variation of this Agreement shall be valid unless in writing and signed by REL and a duly authorized representative of BCS.

c. Entire Agreement. This Agreement and all documents incorporated herein constitute the entire agreement between the parties and supersede any oral or written understandings or agreements.

d. Severability. Each part of this Agreement is intended to be severable. In the event that any part of this Agreement is found to be illegal or unenforceable, such provision or provisions shall be severed or modified to the extent necessary to render it enforceable, and as so severed or modified, this Agreement shall continue in full force and effect.

e. Section Headings. The section headings and section numbers and letters in this Agreement are for reference purposes only and shall not affect in any way the meaning or interpretation of this Agreement.

f. Further Assurances. In addition to the instruments and documents to be made, executed and delivered pursuant to this Agreement, the parties hereto agree to make, execute and deliver or cause to be made, executed and delivered, to the requesting party such other instruments and to take such other actions as the requesting party may reasonably require to carry out the terms of this Agreement and the transactions contemplated hereby.

g. Execution in Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same agreement.

h. Waiver. Any waiver at any time by BCS of its rights with respect to this Agreement, or with respect to any other matter arising in connection with this Agreement, shall be deemed a waiver of that specific instance only and shall not be deemed a waiver with respect to any other matter arising thereafter in connection with this Agreement.

i. Authority. Each party represents and warrants that it has the necessary corporate and/or legal authority to enter into this Agreement and to perform all of its duties and obligations imposed by this Agreement. Each party further represents that the individuals executing this Agreement on their respective behalf have been duly authorized to do so and that such execution creates a valid, binding, and legally enforceable obligation of each party.

j. Consequential Damages. Except as otherwise expressly provided for in this Agreement, in no event shall either party hereto, including its officers, directors, employees, and agents, be liable for indirect, incidental, or consequential loss or damages whatsoever.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties hereto execute this Agreement as of the date set forth above.

REL:

By: BARC Electric Cooperative
Member/Manager, Reliable Energy, LLC

By: _____
Name: Keith Swisher
Title: President

BCS:

By: _____
Name: _____
Title: _____

Exhibit A

SCOPE OF WORK

1. Inspections and Maintenance. REL shall perform all reasonable and necessary tasks to keep the solar arrays in good working order during the Term of this Agreement. This includes regular inspection and maintenance of the facilities. The following table is illustrative of the tasks and timeframes under which REL shall perform the work.

<i>Task</i>	<i>Monthly</i>	<i>Semi-Annually</i>	<i>As Required</i>
Monitor system performance / energy production	X		
Visually inspect panels for physical damage	X		
Check inverters		X	
Visually inspect enclosures	X		
Inspect wiring & grounding		X	
Inspect racking		X	
Clean electrical equipment		X	
Monitor system for proper voltage/current	X		
Address shading issues			X
Inspect DC connections		X	
Inspect signage		X	
Rinse/wash solar panels		X	
Inspect bolts/fasteners		X	
Warranty tests for panels/inverters		X	X

REL shall utilize an operations and maintenance checklist when performing inspections. A copy of each completed checklist shall be provided to BCS upon completion of each inspection. REL's checklist procedures shall include detailed inspection and testing protocols to ensure that all components of the solar project are functioning properly.

2. Warranty Claims. During the Term of this Agreement, REL shall assist BCS with and/or facilitate warranty claims as needed. This includes, but is not limited to, documentation and communication with manufacturers, shipping logistics, and replacement of defective parts.

3. Exclusions. This Agreement specifically excludes the moving, removing or transferring all or part of the solar arrays, except as done in the ordinary course of performing maintenance.



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(800) 846-2272

BATH COUNTY SCHOOL DISTRICT

SOLAR PROJECT O&M PROCEDURES

I. INTRODUCTION

Regular operations & maintenance (O&M) will be carried out through a combination of BARC Electric Cooperative (BARC) staff and Reliable Energy’s subcontractor, Affordable Energy Concepts (AEC), headquartered near Lynchburg, Virginia. AEC is a leading solar contractor in the Commonwealth and has prior expertise with BARC Electric as the successful bidder and EPC contractor for BARC’s first-of-its-kind community solar project. AEC is currently under a guaranteed performance period for BARC’s community solar array and is providing ongoing O&M services and training to BARC personnel through the community solar project. As the incumbent electric utility for Bath County, BARC personnel have electrical training, certifications and expertise on all voltages of wire, service installations, fault identification, electrical engineering, and line repair. BARC Electric is also a Class A contractor in Virginia and has several certified master electricians on staff.

As part of the turnkey services provided, REL and the Bath County School District (BCS) will enter into a 20-year O&M agreement with REL. Under the O&M agreement, REL will provide a full suite of O&M services through a combination of its own resources and its subcontractor, AEC. For the first five years of the program, AEC will provide a complete system guarantee to REL and provide all O&M services. After the first five years of system performance, it is anticipated that REL will maintain some O&M tasks with AEC (e.g. warranty testing requiring specialized equipment) but will take over many of the regular O&M tasks internally. These services will likely be provided by qualified BARC Electric staff through an existing management services agreement between BARC Electric and REL.

Regular O&M is necessary for many reasons: (1) to ensure optimal operation of the solar arrays for 30+ years; (2) to maximize solar energy production; (3) to enable warranty claims for system component parts, including panels, inverters and racking; and (4) to reduce the risk of significant unforeseen costs. The following table shall provide guidance on the tasks and timeframes under which O&M shall be performed. Additional O&M tasks shall be performed on an as-required basis.

<i>Task</i>	<i>Monthly</i>	<i>Semi-Annually</i>	<i>As Required</i>
Monitor system performance / energy production	X		
Visually inspect panels for physical damage	X		
Check inverters		X	

Visually inspect enclosures	X		
Inspect wiring & grounding		X	
Inspect racking		X	
Clean electrical equipment		X	
Monitor system for proper voltage/current	X		
Address shading issues			X
Inspect DC connections		X	
Inspect signage		X	
Rinse/wash solar panels		X	
Inspect bolts/fasteners		X	
Warranty tests for panels/inverters		X	

II. STANDARD O&M PROCEDURES

A. Safety Requirements. Safety requirements during PV servicing include the proper use of lockout/ tagout procedures, the use of personal protective equipment (PPE), procedures for safely disconnecting live circuits, and appropriate observation of and compliance with all PV-specific system signage and warnings.

i. Lockout/Tagout Lockout/tagout (LOTO) procedures are designed to ensure safe working practices and must be strictly followed whenever systems are de-energized prior to servicing. REL shall follow the rules set forth in 29 CFR 1910.147 for all LOTO procedures.

The lock placed on equipment during servicing should be removed only by the person who placed it. The lockout devices, such as padlocks, shall be approved for LOTO applications. OSHA provides variations of LOTO that may be used depending on an approved energy control program. Safety protocols need to be followed when re-energizing equipment, including notifying others that the system is about to be energized.

ii. PPE and Other Safety Equipment. Identification of potential hazards is crucial to the process of selecting the appropriate PPE for the task at hand. All personnel working on or near PV systems should be trained to recognize hazards and choose the appropriate PPE to eliminate or reduce those hazards. Rubber-insulating gloves should always be worn when working near energized lines with protective leather gloves over them and inspected before each use. All workers will have and wear general industrial safety equipment such as hardhats, safety glasses, boots, fire-rated clothing, and safety vests are strongly recommended when working on construction sites or around live electrical equipment. The jobsite will be equipped

with appropriate fire extinguishers and first aid supplies and all personnel must have proper training in their use. Lastly, at least two qualified people trained in cardiopulmonary resuscitation (CPR) should be on site at all times.

iii. **PV-Specific Signage and Warnings.** Article 690 of the NEC (NFPA, 2011b) covers the requirements for PV-specific signage and warnings that must be present on every PV system. Additional signage may also be required by the local jurisdiction or utility. These placards and warnings need to be visible to those working on or near the systems and should never be covered or painted over. Particular care must be taken to observe and follow warning labels reading “DO NOT DISCONNECT UNDER LOAD” located on module connections, combiner boxes, disconnects, and some inverter switches not designed as a load-break switch. Failure to heed these warning labels can lead to instrument malfunction, arcing, fires, and personnel injuries.

B. **Routine Scheduled Maintenance.** The O&M checklist provided below shall be utilized for periodic maintenance activities to ensure that the inspections are thorough and complete. Some of the inspections, primarily system performance and energy production, will be monitored through web based monitoring programs.

O&M inspection technicians should:

- Check for vegetation growth or other new shade items such as a satellite dish;
- Check for ground erosion near the footings of a ground mount system;
- Confirm proper system signage is in place;
- Confirm appropriate expansion joints are used where needed in long conduit runs;
- Confirm electrical enclosures are only accessible to authorized personnel, are secured with padlocks or combination locks, and have restricted access signage;
- Check for corrosion on the outside of enclosures and the racking system;
- Check for cleanliness throughout the site—there should be no debris in the inverter pad area or elsewhere;
- Check for loose hanging wires in the array;
- Check for signs of animal infestation under the array;
- Inspect PV modules for defects that can appear in the form of burn marks, discoloration, delamination, or broken glass;
- Check modules for excessive soiling from dirt buildup or animal droppings (See Array Washing Procedure for proper procedures for cleaning an array);
- Ensure that the module wiring is secure and not hanging loose and exposed to potential damage, bent to an unapproved radius, or stretched across sharp or abrasive surfaces;
- Inspect racking system for defects including rust, corrosion, sagging, and missing or broken clips or bolts;
- If sprinklers are used to spray the array, check that the water is free of minerals (demineralized) as these minerals can cause gradual performance degradation;
- Inspect conduits for proper support, bushings, and expansion joints, where needed;
- Look for signs of corrosion near the supports;
- Open combiner boxes and check for torque marks on the connections;
- Look for debris inside the boxes and any evidence of damaging water intrusion;

- Look for discoloration on the terminals, boards, and fuse holders;
- Open the door to the disconnect(s) and look for signs of corrosion or damage. Check to make sure the cabinet penetrations are properly sealed and there is no evidence of water ingress;
- Perform a visual inspection of the interior and exterior of the inverter. Look for signs of water, rodent, or dust intrusion into the inverter;
- If a weather station is present, ensure that the sensors are in the correct location and at the correct tilt and azimuth. A global horizontal irradiance sensor should be flat, and a plane of array irradiance sensor should be installed to the same pitch and orientation as the array. Irradiance sensors should be cleaned to remove dirt and bird droppings;
- Follow detailed inverter manufacturer visual inspection policies to insure warranty protection.

C. Failure Response. In the event the monitoring system shows a system failure, a technician should be onsite within 24 hours to check the system and begin troubleshooting.

D. Diagnosing and Testing for Low Power Production. Low power production may be a sign of a defect and need for warranty claim, as well as impacting ROI, thus O&M personnel need effective strategies for identifying and correcting problems quickly. System operators or owners may become aware of a PV installation's underperformance through one of the following means: a predefined alert, which may be weather-related, a result of comparison with other systems in the portfolio, or a result of comparison with other monitored parts of the system at a site with multiple inverters.

Once the underperformance is confirmed, personnel must determine what is causing it. Steps to diagnosing power production deficiencies include: during routine maintenance and when diagnosing an underperforming system, the first and most important components to check are the fuses. Fuses generally must be removed from their holders to determine whether they have blown. Perform a system performance data review using the DAS or a program such as the PVWatts calculator (NREL, 2012) to calculate the expected system output based on weather conditions and system size to compare actual to modeled systems production. A phase that has a different output than the others could be the result of a bad current transformer (CT) or a blown fuse in the CT circuit (i.e., an instrumentation problem). If there is no difference in recorded values, then use the inverter operator display/interface (if applicable) to identify the inverter error log. See inverter diagnostics for errors that may have caused the inverter to perform at less than 100% power. Verify that the array maximum power point voltage is in the maximum power point tracking window of the inverter, using an IV curve tracer on a sample string or group of strings. Modules will degrade over time and an array that begins service at the lower end of the inverter maximum power voltage window may degrade until its maximum power voltage no longer falls within this range, further compounding the effects of module degradation

Additionally, the technician may perform general system checks as necessary to identify problems:

- Check all fuses at the inverter and work out to the combiner boxes.
- Perform Voc string testing.
- Perform Imp string testing.
- Validate weather sensors.

- Look for soiling. If soiling might be the problem, test an individual string (Voc, Imp, IV curve) and then clean the string and retest.
- Perform IV curve tracing.
- Take infrared (IR) images of the PV cells

E. Array Washing Procedure. Depending on the site conditions, an annual or even quarterly cleaning may pay for itself in gained production. Some sites have more accumulation of dirt and other buildup than other sites. Depending on the tilt of the array and amount of seasonal rainfall, the soiling can have a dramatic impact on the overall production of the system. Most module manufacturers have specific guidelines about how not to clean modules, such as not using high pressure water, not using harmful chemicals, and even not using cold water when the module glass temperature is hot or using hot water to clean cold modules. Thermal shock from the difference in temperature between the glass surface temperature and the water temperature can result in fracturing or breaking of the glass. Before washing modules:

- Walk the site to confirm that there are no broken modules (shattered glass). Never spray broken modules with water. Perform a safety evaluation of the site looking for safety hazards such as trip hazards or areas that will become excessively slippery when wet.
- Plan for water runoff. If the site has a storm water prevention plan in place, determine how the used water will be collected and disposed of. If harmful chemicals are not used during the cleaning process, drain guards can be used to filter out sediments.
- Be aware of trip hazards introduced by having hoses spread throughout the property, cone off area if needed.
- Determine whether the module cover glass is too hot and will be damaged by coming into contact with cool water. Depending on the local climate and time of year, it may be best to limit washing activities to the morning or evening hours.
- Identify the water source to be used. Ideally, there will be a source of water near the array. If not, it may be necessary to bring in water from an outside source, which will involve a tank or water truck.
- Determine the best method of getting water to the modules. Typically, a ¾-inch garden hose is used to connect to a spigot near the array.
- Set up hoses and tools.
- If required, block or install drain guards for filtration or water capture purposes.
- Take a baseline production reading of the system, noting both kilowatt-hour (kWh) output of each of the inverters and weather conditions including temperature and irradiance.

When washing modules:

- De-ionized water is preferred to prevent spotting and calcium buildup.

- Normal water pressure of 50 to 70 pounds per square inch is recommended; do not use high pressure washers.

- If high pressure washers are necessary, hold the pressure source far enough away from the modules to prevent damage. As a rule of thumb, if the stream is too strong to comfortably hold one’s hand in, it is too much pressure for the modules.

- Spray the modules with water.
- Use a soft-bristled brush to get stubborn dirt off.
- If needed, use a non-damaging soap.
- Use extensions with tools to be able to reach extended distances.
- If needed, squeegee modules dry.

F. System Warranties. It is important to know and understand the warranty requirements of the specific products used in a PV system. Not all warranties are created equal. Warranty requirements not followed, including documenting regularly conducted preventive maintenance, can result in a voided warranty. Typical warranty requirements are strict regarding the tasks that must be performed. However, the tasks are often simple and serve to protect the products and ensure greater long-term reliability. See product data sheets for material warranties.

G. Additional Resources. Technicians shall refer to the *PV System Operations and Maintenance Fundamentals* manual for additional information, or as questions may arise during the O&M process.

III. O&M Checklist

Array Installation and Wiring	Notes:
Condition:	
<input type="checkbox"/> Proper insulation on module wiring	
<input type="checkbox"/> Proper connectors on array wiring extensions	
<input type="checkbox"/> Proper grounding of array and array mount	
<input type="checkbox"/> Grounded conductors installed	
<input type="checkbox"/> Array mount properly secured and sealed	
<input type="checkbox"/> Suitable transition from open wiring to enclosed wiring	
<input type="checkbox"/> Metallic conduit through attics to array disc	
<input type="checkbox"/> Damages of modules observed	

<input type="checkbox"/> Dirt accumulation observed	
<input type="checkbox"/> Shading observed on modules	
DC Connections	Notes:
<input type="checkbox"/> Source Circuit Combiner Boxes	
<input type="checkbox"/> DC-Rated circuit breakers or fuses with adequate voltage rating	
<input type="checkbox"/> Listed equipment	
DC Component Enclosures	Notes:
<input type="checkbox"/> Proper conductor sizes and insulation types	
<input type="checkbox"/> Proper conductor terminations	
<input type="checkbox"/> DC ratings on DC components	
<input type="checkbox"/> Listed equipment	
<input type="checkbox"/> SINGLE POLE GROUNDING	
<input type="checkbox"/> Optional Grounding electrode conductor	
AC Component Enclosures	Notes:
<input type="checkbox"/> Isolated neutral busbar	
<input type="checkbox"/> Listed components	
<input type="checkbox"/> Labelled disconnects and C/B	
Building Main Disconnect	Notes:
<input type="checkbox"/> Labelled	
Utility Disconnect	Notes:
<input type="checkbox"/> Labelled	
<input type="checkbox"/> Visible, lockable, accessible, load break, external handle	
Appropriate Signs installed	Notes:
<input type="checkbox"/> Check for sign identifying PV power source system attributes at DC	
<input type="checkbox"/> Check for sign identifying A.C. point of connection	
<input type="checkbox"/> Check for sign identifying switch for alternative power system	
Inverters	Notes:

<input type="checkbox"/> Listed Inverters (type, serial number, configuration)	
<input type="checkbox"/> Status/Condition	
<input type="checkbox"/> Defects founded	
<input type="checkbox"/> Input and output disconnects labeled	
<input type="checkbox"/> Proper wire sizes	
<input type="checkbox"/> Grounded	
<input type="checkbox"/> See attached pages for inverter readings	
Batteries (Battery backup systems only)	Notes:
<input type="checkbox"/> Terminals protected from shorting	
<input type="checkbox"/> Cables properly terminated (no set screw lugs on fine stranded wire)	
<input type="checkbox"/> Maintenance-free vented for cooling	
<input type="checkbox"/> Flooded vented to outside	
<input type="checkbox"/> Labelled with proper safety procedures	
Standby Circuits (Battey backup only)	Notes:
<input type="checkbox"/> Watch for multiwire if 120 V	
<input type="checkbox"/> Labeled	
Point of Utility Connection	Notes:
<input type="checkbox"/> Labelled	
<input type="checkbox"/> Compliance	