Nashville Electric Service

INTERCONNECTION AND OPERATING AGREEMENT
FOR POWER PRODUCTION FACILITY

Contract No. -52-

This Interconnection and Operating Agreement for Power Production Facility ("Agreement") is made and entered into by and between the Metropolitan Government of Nashville and Davidson County, acting by and through the Electric Power Board of said Government and operating under the service name of Nashville Electric Service ("NES" or "Distributor"), and _____ ("Participant") (collectively, the "Parties"). Participant will design and construct one or more Power Production Facilities and all related interconnection equipment as a source of power and energy (the "Qualifying System") on Participant's property, which is located at:

_____

_____

Participant Account Number: _____

WHEREAS, Participant wishes to construct the Qualifying System as described in the Application Packet for Interconnection of Power Production Facility, attached hereto as Exhibit A, including all supporting documents (the "Application"); and

WHEREAS, the Qualifying System will be owned and operated by Participant; and

WHEREAS, Participant wishes to make deliveries of power and energy from the Qualifying System to the Distributor's electrical system (the "Distribution System"); and

WHEREAS, Participant wishes to interconnect its Qualifying System to the Distribution System as defined under the terms and conditions herein; and

WHEREAS, Participant wishes to operate its Qualifying System while connected to the Distribution System;

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements set forth herein, the Parties agree as follows:

1. Scope of Agreement.

1.1 This Agreement is applicable to conditions under which Distributor and Participant agree. The Qualifying System located at Participant's premise, with a Direct Current ("DC") gross power rating of _____ kW, will be interconnected at _____ volts, single phase, at a nominal frequency of 60 Hz, to the Distribution System. Execution of this Agreement allows Participant to proceed with procurement and installation of the Qualifying System. Participant may not proceed with parallel operation or interconnection to the Distribution System until Distributor has conducted an onsite inspection and witnessed any required commissioning test, or waived such test, and given Participant written authorization to proceed with parallel operation. This approval shall not be construed as confirming or endorsing the design or as any warranty of safety, durability, or reliability of the Qualifying System or waive any rights Distributor or Tennessee Valley Authority ("TVA") may have.

2. Establishment of Point of Delivery.

2.1 The "Point of Delivery," as solely defined by Distributor, is the point of demarcation between Participant owned and maintained Qualifying System and Distributor owned and maintained Qualifying System. The generated electric energy leaves Participant's facilities and enters Distributor's facilities at the Point of Delivery.

2.2 Distributor and Participant shall agree as follows:

2.2.1 To interconnect the Qualifying System at the Point of Delivery in accordance with Distributor's terms and conditions, rules and regulations, bylaws, and rates (collectively, the "Rules"), incorporated herein by reference;

2.2.2 That the Qualifying System and all related interconnection equipment will comply with Distributor's latest version of the Electric Service Guidelines, and any applicable TVA program specific guidelines (collectively, the "Guidelines"), which can be found at www.nespower.com, and are incorporated herein by reference; and

2.2.3 That copies of the Rules and Guidelines will be provided prior to execution of this Agreement.

2.3 Participant, at its own expense, shall be responsible for installing, owning, operating, and maintaining all electrical facilities associated with the Qualifying System up to the Point of Delivery.

2.4 The Point of Delivery shall be located at: _____.

3. Establishment of Point of Interconnection.

3.1 The "Point of Interconnection," as solely defined by Distributor, is the boundary from which existing Distributor-owned infrastructure, wires, or facilities along the road right of way are extended to serve the Qualifying System.

3.2 All line extensions necessary to establish the Point of Delivery shall be considered existing facilities. All TVA or Distributor costs associated with establishing the Point of Delivery will be paid for by Participant prior to construction of the Point of Interconnection, or any extension thereof.

3.3 The Point of Interconnection shall be located at: _____.

4. System Impact.

4.1 Where deemed necessary for large installations above 50 kW, NES will perform a system impact study to assess the impacts of any proposed new or modified renewable generation on the NES system. The study may include, but is not limited to, power flow analysis and short circuit calculations. System impact study results will determine if the proposed new or modified generation will create a violation of NES planning criteria.

4.1.1 If violations of the NES planning criteria are identified in the impact study, improvements to the system will be identified as part of the technical coordination phase of the new or modified generation project. Any such required improvements shall be the Participant's sole expense.

4.1.2 At the point in which NES determines that there is, or could be, an impact to a neighboring system, NES will notify the neighboring utility and invite them to participate in the study process.

4.1.3 NES and neighboring utilities may communicate during their independent studies, but it is the responsibility of the Participant to provide all necessary data.

4.1.4 See Exhibit B for any applicable system improvements identified as a result of the System Impact study.

4.2 Single-phase Qualifying Systems larger than 100 kW will be permitted to be connected to the Distribution System (25 kV and below) only after a determination by Distributor that

such connection will not interfere with the operation of the distribution circuit. Single-phase Qualifying Systems will not normally be permitted to be connected to sub-transmission and transmission (46 kV and above) facilities.

4.3 Three-phase Qualifying Systems larger than 500 kW will be permitted to be connected to the NES System only after a determination by Distributor that such connection will not interfere with the operation of the NES System. See Exhibit B for any applicable system improvements deemed necessary prior to connection of the generation system.

5. Lease of Facilities. [Not Applicable to This Agreement.]

5.1 If the Qualifying System's Point of Delivery and Point of Interconnection are in different locations, the Participant will be required to lease any facilities between these two points on a month to month basis. Lease of Facilities shall be defined according to the Distributor's Guidelines. Participant shall lease from Distributor the equipment and facilities as described in the Inventory Document attached hereto as Exhibit C. Title to and responsibility for maintenance and repair of the facilities remain with Distributor.

5.2 Participant does hereby grant unto Distributor the right and privilege to continue to keep in place the facilities presently located within the easements, together with all rights of access, ingress, and egress into, in, on, over, and across all easements as deemed necessary by Distributor in its sole discretion for the use, operation, maintenance, and replacement and addition to such facilities.

5.3 Distributor, at its expense, shall operate, repair, and maintain all the leased facilities.

5.4 For purposes of line clearances under this Agreement, Distributor shall perform switching functions necessary to clear Participant's Qualifying System from Distribution System. Distributor will coordinate such operations with Participant. Tennessee law shall apply to any claim of injury, damages, expense or loss that may occur on Participant's side of the Distribution System as a result of such line clearance.

5.5 In consideration of the leased facilities described in the Inventory Document attached hereto as Exhibit C, Participant shall pay Distributor the sum of $000.00 per month for the term of this Agreement. Title to and responsibility for maintenance and repair of the facilities remains with Distributor.

6. General Responsibilities of the Parties.

6.1 Participant shall be responsible for protecting its Qualifying System from damage from the normal and abnormal conditions and operations that occur on the Distribution System in delivering and restoring power.

6.2 Participant shall be responsible for ensuring that the Qualifying System is inspected, maintained, and tested annually in accordance with the manufacturer's instructions to ensure that it is operating correctly and safely. Distributor will have the right to request and receive copies of the test results.

6.3 Distributor will review the proposed Qualifying System, as described in the Application, for compliance with TVA and Distributor's Guidelines, and will allow interconnection of the Qualifying System based on the following conditions:

6.3.1 Qualifying System has been certified as meeting the applicable codes and standards and Distributor, in agreement with Participant, has conducted any additional engineering evaluations or detailed impact studies needed, and any necessary Distribution System upgrades or changes identified by these additional studies have been implemented, and Participant has paid for such changes where necessary.

6.3.2 Participant shall comply with all applicable laws, regulations, zoning codes, building codes, safety rules, and environmental restrictions, including the latest version of the National Electrical Code, applicable to the design, installation, operation, and

maintenance of its Qualifying System. Distributor does not review based on local building or structural codes. Additional, more detailed information may be required by local authorities.

6.3.3 During the term of this Agreement, Participant will at all times be responsible for any costs, including but not limited to those required to ensure the protection and continued safe and reliable operation of the Distribution System, which costs are incurred by Distributor and arise out of the continued connection and parallel operation of the Qualifying System with the Distribution System. This may also include any repairs that need to be made.

6.4 Participant shall provide the local building code official inspection and certification of installation forms to Distributor. The certification shall reflect that the code official has inspected and certified that the installation was permitted, has been approved, and has met all electrical, structural, and mechanical qualifications. No Qualifying System will be interconnected or energized until this certification has been delivered to Distributor.

6.5 Participant shall clearly mark all generation sources with appropriate signage, as outlined in the Guidelines.

7. Operational Oversight.

7.1 Participant will be responsible for operating its Qualifying System in a manner that will not cause undesirable or harmful effects to the Distribution System or Distributor's other customers and is consistent with Rules and Guidelines.

7.2 Participant shall supply Distributor with diagrams and specifications describing the Qualifying System and related interconnection, operation, and protective equipment and any proposed changes to the aforesaid facilities. These diagrams and specifications shall be consistent with good engineering practice and shall specify the equipment to be used (relays, breakers, transformers, generators, etc.) by manufacturer, model, type, size, impedance, and other pertinent information. Also, Participant shall provide any revised drawings in a timely manner that reflect any changes to the current drawings along with a description of the changes.

7.3 For any Qualifying System with output greater than 1,000 kW, the control and protective equipment used by Participant shall be utility class and shall conform to the latest revision of ANSI/IEEE C37.90, IEEE (Standard Relays and Relay Systems Associated with Electric Power Apparatus).

7.4 Participant shall at all times maintain the wiring, equipment, and appliances furnished by the Participant in such condition and repair as may be required by Distributor and by statute, law, city ordinance, or code. Specifications and/or instruction manuals for such control and protective equipment shall be made available by Participant upon request by Distributor.

8. Access to Property and Equipment.

8.1 Participant shall provide Distributor access to the property during normal business hours so that Distributor may test and inspect the installation and operation of the Qualifying System to ensure that it has been installed and is operating in accordance with this Agreement. Distributor will endeavor to provide forty-eight (48) hours' notice to Participant when a Distributor representative will be on-site for any test or inspection of the installation and operation of the Qualifying System in accordance with this section. Each party shall provide the other party with access to its property as necessary for the other party to perform its obligations under this Agreement. In an emergency situation, Distributor shall have unfettered access to property to disconnect facilities at any time for the safety of the Distribution System, Distributor's personnel, and/or the public. Each party's representatives

entering upon the other party's property shall at all times comply with the other party's applicable safety and security rules and regulations.

9. Disconnect Means.

9.1 To provide assurance that the Distribution System cannot be energized from the Qualifying System during outages on the Distribution System, the Participant must provide equipment for manually disconnecting and isolating the Qualifying System. This will help provide safety for the Distributor's employees performing emergency repairs or routine maintenance to its lines. Such equipment must be capable of preventing the Qualifying System from energizing the Distribution System's lines and must include a device (or devices) which can be locked so as to visually show, easily and clearly from the physical Point of Delivery, the isolation of the Qualifying System to prevent all means of back feed into the connecting Distribution System.

9.2 Participant must install a manual, lockable, visible load break disconnect switch between the generation source and the Distribution System that is visibly marked "**Utility Disconnect Switch**." The disconnect shall be mounted separate from but adjacent to Distributor's meter socket, or as otherwise directed by Distributor. Participant shall ensure that the manual disconnect switch will remain readily accessible to Distributor and be capable of being locked in the open position with a single Distributor utility padlock.

9.3 A permanent, weatherproof single-line diagram of the Qualifying System must be located adjacent to the utility disconnect switch and approved by Distributor before Participant is allowed to begin parallel operation. Names and current telephone numbers of at least two persons authorized to provide access to the Qualifying System, and have authority to make decisions regarding the interconnection and operation of the Qualifying System, shall be included on the diagram.

9.4 For systems larger than 50 kW and where deemed necessary by NES Engineering, a SCADA operated switch may be required at the point of generation interconnection to aid in remote system segregation. Any such requirements will be communicated at the end of NES Engineering review. Any cost associated with this requirement shall be the customer's responsibility. See Exhibit B for specific requirements if necessary.

10. Synchronization and Isolation.

10.1 Participant shall provide adequate facilities for the proper synchronization of its Qualifying System with the Distribution System, such that synchronism is accomplished, either manually or by automatic means, without causing undesirable currents or voltages (including current surges and voltage fluctuations) on the Distribution System.

10.2 Participant shall provide circuitry that will properly disconnect the Qualifying System from the Distribution System during line interruptions, for occasions when the Distribution System becomes isolated from its source of generation, and for the proper resynchronization of the Qualifying System after such interruptions or isolation. Rapid restoration of service following a temporary interruption using automatic circuit breaker reclosing is a standard utility practice. System operation shall be in line with IEEE 1547 requirements and with the requirements detailed in Section 13 of this document.

11. Grounding, Voltage, Phasing, Fault Protection, and Harmonics.

11.1 The Qualifying System that connects to the Distribution System must be grounded in such a way that coordination is maintained with the relay protection system in use by the Distribution System, and such that the Qualifying System will be protected from deleterious voltages during fault conditions.

11.2 Participant shall provide necessary voltage regulation equipment to prevent the Qualifying System from causing excessive voltage variation on the Distribution System. The voltage variation caused by the Qualifying System must be within ranges capable of being handled by the voltage regulation facilities used by the Distribution System. The voltage produced by the Qualifying System must be balanced if it is a multi-phase installation. The waveform must be sinusoidal and compatible with the operation of the Distribution System.

11.3 Participant will be responsible for protecting its Qualifying System from inadvertent phase unbalance or single phasing in the Distribution System's voltage. All three phase Qualifying Systems shall keep the load and production balanced among the phases as much as possible.

11.4 Operation of the Qualifying System shall not cause an instantaneous dip or increase in the Distribution System's nominal voltage of greater than five percent (5%) as measured at Distributor and/or TVA's meter.

11.5 It shall be the responsibility of Participant to provide adequate protection or safeguards to prevent damage to the Distribution System caused by overvoltage, under-voltage, or fault currents originating from the operation of the Qualifying System. Participant shall provide adequate fault current interruption capability with secondary relaying and control circuits.

11.6 It shall be the responsibility of Participant to provide adequate protection or safeguards to prevent damage to the Qualifying System caused by overvoltage, under-voltage, or fault currents originating from the operation of the Distribution System.

11.7 Adequate design precautions must be taken by Participant to prevent excessive and deleterious harmonic voltages or currents caused by the Qualifying System from occurring on the Distribution System. The Qualifying System must be designed to operate with normal harmonic voltages and currents that originate from the Distribution System. Participant shall conduct operations of its Qualifying System in compliance with all aspects of the Rules and in accordance with industry standard prudent engineering practice and must comply with the latest version of IEEE 519 (Recommended Practice and Requirements for Harmonic Control in Electric Power Systems).

11.8 In certain circumstances the addition of a transfer trip may be required to aid in fault clearing and system protection. Such instances are not common but may be required as a direct result of NES Engineering review. Any cost associated with this requirement shall be the customer's responsibility. See Exhibit B for specific requirements if necessary.

12. Direct Current (DC) Injection.

12.1 Adequate design precautions must be taken by Participant to prevent injecting direct current into the Distribution System. Where DC injection is a possibility, methods such as isolation transformers, monitoring devices, or other decoupling devices should be utilized by Participant to prevent DC injection.

13. Disconnection / Reconnection.

13.1 Distributor may, or may require Participant to, temporarily disconnect the Qualifying System from the Distribution System ("Disconnection") or to interrupt, suspend, or curtail deliveries (the occurrence of the foregoing referred to collectively as "Curtailment") in the following circumstances:

13.1.1 If, in Distributor's sole judgment, a condition exists that presents an imminent physical threat to persons or property and Disconnection or Curtailment appears necessary to protect such persons or property; or

13.1.2 To overcome Distribution System reliability problems caused by an emergency and/or outage of the Distribution System; or

13.1.3 If such Disconnection or Curtailment is necessary to construct, install, maintain, replace, remove, investigate, inspect, or test any affected part of the Distribution System; or to facilitate restoration of line or equipment outages; or

13.1.4 Failure of Participant to operate and maintain the Qualifying System in accordance with the other express provisions of this Agreement; or

13.1.5 Power quality problems; or

13.1.6 Termination of this Agreement, required power contract, or electric service between Distributor and Participant for the Qualifying System premise.

13.2 If, subsequent to initial operation, Distributor determines that the Qualifying System is not in compliance with the provisions of this Agreement and is not operating in compliance with IEEE 1547 (Standard for Interconnecting Distributed Resources with Electric Power Systems) and UL 1741 (Inverters, Converters, and Controllers for use in Independent Power Systems), the Qualifying System will be disconnected from the Distribution System until Distributor determines that the problem has been corrected.

13.3 Distributor requires that an IEEE 1547 compliant three-phase inverter be used on all three-phase installations. The inverter(s) must function such that any abnormal Distribution System event as defined by IEEE 1547 affecting any phase voltage or voltages results in generation of the Qualifying System ceasing on all three phases per IEEE 1547.

13.4 A five (5) minute minimum delay time is required before the Qualifying System may reconnect to the Distribution System after disconnecting as a result of an outage on the Distribution System or other IEEE 1547 reasons.

14. Testing.

14.1 Distributor may test the Qualifying System according to IEEE 1547.1-2005 (Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems).

14.2 Distributor has the right to periodically, or at any time, inspect the Qualifying System and observe the operation and any testing of the Qualifying System.

14.3 Annual inspection, testing, and maintenance of the Qualifying System, including any disconnecting means, protective controls and relays, grounding, inverters, and uninterruptible power supplies shall be completed by the Participant per guidelines established by the manufacturer or governing authority. Test reports and maintenance logs shall be kept and shall be made available to Distributor for review upon request.

14.4 Distributor has the right to require testing by the Participant to verify the correct operation of the Qualifying System. The Participant shall complete such testing within five (5) working days of notification unless other arrangements are made.

14.5 During the course of inspection and testing, any equipment found to be faulty shall be removed from service until repairs are made. If the faulty equipment is fundamental to the operation of the entire Qualifying System, then the entire system shall be removed from service until repairs are made.

15. Modifications/Additions to Participant-Owned Renewable Generation.

15.1 Prior to any proposed modification to the Qualifying System by Participant during the term of this Agreement, including but not limited to any electrical relay and protection equipment or facilities, or Qualifying System DC gross power rating increase or decrease, Participant shall supply to Distributor's Designated Representative, for review and written acceptance, a new Application, including all diagrams and specifications for such modification. No modification shall be made prior to Distributor's acceptance. Distributor shall make reasonable efforts to provide notice of acceptance or any further requirements within sixty (60) days of complete submittal by Participant, provided, however, due to the complexity of

a proposed modification, Distributor may require additional time to deliver acceptance. In no event will Distributor's acceptance of such modification be unreasonably withheld.

15.2 The diagrams and specifications shall be consistent with good engineering practice and shall specify the equipment to be used as to manufacturer, model, model type, technical specifications and other pertinent information. Such review and acceptance are provided only insofar as required for safety and efficiency of the Distribution System and Distributor's employees and shall not constitute a guarantee or warranty of proposed diagrams, specifications, or approval of the Qualifying System Design.

15.3 When applicable, any program rules or regulations set forth by an accompanying TVA Agreement regarding modifications and/or additions must be met.

16. Indemnity.

16.1 Participant agrees to release, indemnify, and save harmless TVA, Distributor, the United States of America, and their respective agents and employees from all liability, claims, demands, causes of action, costs, or losses for personal injuries, property damage, or loss of life or property, sustained by Participant, Participant's agents and family, or third parties arising out of or in any way connected with the installation, testing, operation, maintenance, repair, replacement, removal, defect, or failure of Participant's Qualifying System. The obligations of this Section shall survive termination of this Agreement.

17. Metering. [Not Applicable to This Agreement.]

17.1 Power and energy delivered by the Qualifying System shall be measured by Distributor's metering equipment at the Point of Delivery and, when applicable, adjusted for losses.

17.2 All costs associated therewith for metering shall be borne by Participant.

17.3 Metering shall meet accuracy standards required for equivalent electrical services and may be accomplished with standard meters or any devices that meet data collection and accuracy requirements, with proper Distributor approval.

17.4 TVA may require either remote and/or physical access to the meter on a monthly basis. This may require additional metering equipment, as specified by both Distributor and TVA.

17.5 Participant shall provide a communication line for Distributor and/or TVA use. This line shall be used solely for metering purposes and shall be in accordance with Distributor and/or TVA requirements.

17.6 Any ongoing maintenance or troubleshooting of the communication line is the responsibility of Participant.

17.7 All metering equipment shall conform to the applicable section of the Guidelines.

17.8 The type of metering and associated equipment shall be determined by Distributor and/or TVA.

17.9 Selection of metering arrangements will be based upon the lowest cost for equipment and arrangements that will also meet Distributor and TVA's reasonable data requirements.

17.10 Operation, maintenance, and testing of the metering equipment may be required from time to time by Distributor. When tests are requested by Participant, such tests shall be at Participant's expense.

18. Assignment.

18.1 Participant shall not subcontract or assign this Agreement, or any of its rights and obligations hereunder, without the prior written approval of Distributor and/or TVA.

18.2 In the event of a change of ownership of Participant's premise or Qualifying System without Distributor knowledge, the new Participant or owner shall assume all rights, responsibilities, and obligations under this Agreement.

19. Effective Term and Termination Rights.

19.1 This Agreement shall be deemed effective when executed by both Parties, and shall continue in effect for a term of five (5) years. This Agreement may be terminated by either Distributor or Participant at any time on or after the date falling one (1) year after the signing of this Agreement upon at least ninety (90) days' prior written notice. However, if Participant is included in one of TVA's Renewable Programs, then this Agreement shall be subject to the terms of those Programs and said terms shall supersede the terms of this Agreement.

19.2 This Agreement will be terminated immediately upon the termination of the TVA Program Agreement, when applicable.

20. Headings.

20.1 The headings of the Sections of this Agreement are for reference only and shall not be deemed to limit, define, or restrict the meaning or substance thereof.

21. Governing Law.

21.1 This Agreement shall be construed in accordance with and governed by the laws of the State of Tennessee without giving effect to its laws, rules or principles governing conflicts of laws.

22. Severability.

22.1 The invalidity or unenforceability of any provision (or portion thereof) of this Agreement shall not affect the validity or enforceability of any other provision (or remainder of such provision) of this Agreement, all of which shall be broadly construed to give effect to the intent of the invalid or unenforceable provision.

23. Entirety of Agreement and Prior Agreements Superseded.

23.1 This Agreement – including the Guidelines, Rules, all attached Exhibits which are expressly made a part hereof for all purposes, and, when applicable, TVA Program Documents executed by TVA, Distributor, and Participant – constitutes the entire agreement and understanding between the Parties with regard to the interconnection of the Qualifying System of the Parties at the Point of Interconnection expressly provided for in this Agreement. The Parties are not bound by or liable for any statement, representation, promise, inducement, understanding, or undertaking of any kind or nature (whether written or oral) with regard to the subject matter hereof not set forth or provided for in this Agreement, Participant's Application, or any other written information provided by Participant in compliance with the Rules.

24. Notices.

24.1 Wherever in this Agreement notice is required to be given by either party to the other, such notice shall be in writing and shall be effective when mailed by certified mail, return receipt requested, with postage prepaid, hand delivered, or in the form of an Electronic Mail Record. All such notice shall be directed to the addresses specified below:

(a) If to Distributor:

Engineering Manager, Innovation,
Projects and Standards
Nashville Electric Service
1214 Church Street
Nashville, TN 37246

(b) If to Participant(s):

The above-listed names, titles, and addresses of either party may be changed by written notification to the other.

[Signature page follows.]

IN WITNESS WHEREOF, the Parties have caused this Agreement to be signed by their respective duly authorized representatives.

Participant(s):

Sign: _____

Date: _____

Distributor:

The Metropolitan Government of Nashville and Davidson County, acting by and through the Electric Power Board of said Government

By: _____
President & Chief Executive Officer

Date: _____

Approved as to Form and Legality:

By: _____
Chief Legal Officer & General Counsel

Date: _____

Attest:

_____
Secretary

EXHIBIT A