

KNOXVILLE UTILITIES BOARD

INTERCONNECTION, METERING, AND PARALLEL OPERATION AGREEMENT

This Interconnection, Metering and Parallel Operation Agreement (“Agreement”) is made and entered into this _____ day of _____, 20__, by Knoxville Utilities Board, a municipal utility created pursuant to the Charter of the City of Knoxville, Tennessee. hereinafter referred to as “KUB”, and _____ hereinafter referred to as “Participant”. KUB and Participant may be collectively referred to as “Parties” or individually as a “Party.”

WHEREAS, the Participant has requested interconnection services from KUB in order to store, generate, and/or sell the output of generation that is owned by KUB, the Participant, or a third party (see attached Application for Interconnection of Distributed Generation, hereafter called “Application”) at the Participant’s presently metered location, which is:

_____.

WHEREAS, KUB agrees to provide interconnection services to Participant under the terms and conditions of this Agreement and provided further that this Agreement does not create any obligation of KUB to purchase Excess Generation resulting from this interconnection, nor does this Agreement give the Participant the right to sell Excess Generation resulting from this interconnection to any other entity, unless otherwise agreed to by KUB.

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. KUB and the Participant agree that one or more generating and/or storage systems and all related interconnection equipment (described in the attached Application and hereinafter referred to as “Qualifying System”) located at Participant’s presently metered location with gross power rating of _____ kW DC and to be interconnected at _____ kV, may be interconnected to KUB’s electric power distribution system (“System”) in accordance with the terms and conditions of this AGREEMENT. Execution of this AGREEMENT allows the Participant to proceed with procurement and installation of the system, but Participant is not allowed to proceed with parallel operation until KUB has received a completed electrical inspection, KUB has conducted an onsite review and witnessed any required commissioning test, or waived such test, and has given Participant written authorization to proceed with parallel operation.

2. Established Point of Interconnection

The point where the electric energy first leaves the wires or facilities owned by KUB and enters the wires or facilities provided by Participant; or the electricity first leaves the wires of facilities provided by Participant and enters the wires or facilities owned by KUB; is the “Point of Interconnection.” KUB and Participant agree to interconnect the Qualifying System at the Point of Interconnection in accordance with KUB’s rules, regulations, bylaws, and rates (the “Rules”),

which are incorporated herein by reference, and the Participant and the Qualifying System shall comply with the Knoxville Utilities Board Interconnection Agreement and local codes, based on the approved Application.

3. General Responsibilities of the Parties

3.1. KUB has reviewed the proposed Qualifying System as described in the attached Application for compliance with KUB's interconnection procedures and approved the Qualifying System for interconnection based on one of the following conditions:

3.1.1. The Qualifying System has been reviewed by KUB based on the applicable codes and standards and has passed any applicable screening process in KUB's interconnection procedures, or

3.1.2. KUB, in agreement with Participant, has conducted additional engineering evaluations or detailed impact studies at Participant's expense, and any necessary System upgrades or changes identified by these additional studies have been implemented and Participant has paid for such upgrades or changes where necessary.

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 Safety Code, the National Electric Code, and codes/standards issued by Underwriters Laboratories ("UL"), the Institute of Electrical and Electronics Engineers ("IEEE"), and the American National Standards Institute ("ANSI") that are applicable to the design, installation, operation, and maintenance of its Qualifying System.

3.3. KUB shall, at Participant's expense, provide and install such meters and related facilities ("Metering Installation") as in KUB's judgment are needed to measure the electrical output from the Qualifying System. Thereafter, KUB shall, at Participant's expense, test, calibrate, operate, maintain, and, if necessary, replace the meter(s) in the Metering Installation. The Metering Installation shall conform to applicable industry standards and shall be for KUB's exclusive use and control unless otherwise agreed by the Parties. If the Participant is selling the power output of the Qualifying System under a separate program or agreement, the Participant shall notify KUB of any metering requirements of the power purchaser, any costs of which shall be borne by the Participant.

This Agreement does not create any obligation of KUB to purchase Excess Generation, as defined in Section 19.1, resulting from this interconnection, nor does the Agreement give the Participant the right to sell Excess Generation resulting from this interconnection to any other entity, unless otherwise agreed to by KUB.

3.4. The Participant shall provide the local building code official inspection and certification of installation forms to KUB. 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, mechanical, and zoning qualifications.

3.5. Prior to parallel operation, KUB may, at Participant's expense, verify the Qualifying System for compliance with standards which may include testing the Qualifying System in the presence of a witness selected by KUB. Participant shall not begin parallel operation before KUB provides written authorization.

3.6. Participant shall operate 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, UL 1741 SA, IEEE 1547, and any other applicable codes and standards of ANSI, IEEE, and UL.

3.7. The Participant shall be responsible for protecting its generation and/or storage equipment, inverters, protective devices, and other Qualifying System components from damage from normal and abnormal conditions and operations that occur on KUB's System in delivering and restoring

power; and Participant shall be responsible for ensuring that the Qualifying System is inspected and maintained on an ongoing basis in accordance with the manufacturer's instructions to ensure that it is operating correctly and safely.

4. Specific Responsibilities for Qualifying Systems that are 100kW in Size or Larger

4.1. The following additional specific requirements shall apply to Qualifying Systems that are 100kW in size or greater ("Large Systems").

- 4.1.1. Interconnections for Large Systems shall be at KUB's sole discretion and shall be allowed only if all other requirements of this Agreement are met and maintained.
- 4.1.2. Distributed generation/storage system inverters shall be manufactured in accordance with IEEE 1547-2018 and UL 1741 SA, as a minimum.
- 4.1.3. Unless otherwise agreed to by KUB, distributed generation/storage system inverters shall be installed with default settings in accordance with IEEE 1547-2018 Normal Operating Performance Category III settings, and default settings in accordance with Normal Operating Performance Category B. The Volt-Var control mode shall be used instead of fixed power factor control mode, and the Frequency-Watt control mode shall be "on" and active in accordance with IEEE 1547-2018.
- 4.1.4. KUB reserves the right to require a change in settings from default settings for the project, during implementation or in the future, as needed for reliability and stability of the circuit.
- 4.1.5. Participant shall notify KUB in writing if the Participant installs updated firmware or performs other modifications that create a setting change in their distributed generation/storage system inverters in accordance with Section 8.1 of the Agreement.
- 4.1.6. Participant shall provide KUB a commissioning test plan for review upon request by KUB. Commissioning tests may be required that could include the following:
 - a. Open-Phase Protection
 - b. Anti-Islanding Protection
 - c. Direct Transfer Trip (only if required for site)
 - d. Enter Service Delay and Soft-Start Ramp Rate
 - e. Designed Power Performance – Capacity
 - f. Reactive Power Controls (PF and Volt-Var)

5. Installation Verification and Ongoing Compliance

5.1. KUB shall provide Participant with as much notice as reasonably practicable, either in writing, email, or by phone, as to when KUB may conduct installation verification of the Qualifying System and/or review Participant's associated documents. Upon reasonable notice, or at any time without notice in the event of an emergency or hazardous condition, KUB shall have access to the Participant's premises at all times for the purpose of accessing the manual disconnect switch, performing an installation verification or disconnection, or, if necessary, to meet KUB's legal obligation to provide service to its customers.

6. Manual Disconnect Switch

6.1. Participant must install a readily accessible manual, lockable, visible load break disconnect switch between the Qualifying System and KUB's System that is visibly marked "**Generation and/or Storage Disconnect.**" The disconnect shall be mounted separate from, but adjacent

to, KUB's meter socket. The Participant shall ensure that such manual disconnect switch shall remain readily accessible to KUB and be capable of being locked in the open position with a single KUB utility padlock. A weatherproof single-line diagram of the facility must be located adjacent to the disconnect switch.

7. Disconnection/Reconnection

- 7.1.** KUB may open the manual disconnect switch or disconnect the Participant's meter, pursuant to the conditions set forth in Section 7.2 below, isolating the Qualifying System, without prior notice to the Participant. To the extent practicable, however, prior notice shall be given. As soon as practicable after the conditions necessitating disconnection have been remedied, KUB shall unlock the disconnect switch so Participant may reenergize the Qualifying System. However, whether or not KUB has locked the disconnect switch, the Participant shall not reenergize the Qualifying System without the prior approval of KUB.
- 7.2.** KUB has the right to disconnect the Qualifying System at any time. Examples of situations that may require disconnect include, but are not limited to:
 - 7.2.1.** Emergencies or maintenance requirements on KUB's System;
 - 7.2.2.** Hazardous conditions existing on KUB's System due to the operation of the Participant's Qualifying System, including without limitation protective equipment, as determined by KUB; and
 - 7.2.3.** Adverse electrical effects, such as power quality problems, on the electrical equipment of KUB's other electric consumers caused by the Qualifying System as determined by KUB.
 - 7.2.4.** Failure to pay KUB for costs associated with the Qualifying System as described in Section 17.
- 7.3.** The Participant is responsible for the protection of the Qualifying System by providing the local protection scheme necessary to isolate the Qualifying System from KUB's System for system line interruptions and when the distribution power source is lost. Accordingly, the Participant must provide and install, at its expense, any necessary protection and control devices for the Qualifying System so that the Qualifying System detects an islanding condition (a condition in which a generator or battery continues to provide power to a location even though power from the electric grid is no longer present) and trips or disconnects the Qualifying System from KUB in less than 10 cycles (less than 0.1667 seconds).

8. Modifications/Additions to Participant-owned Qualifying System

- 8.1.** If the Qualifying System is subsequently modified in order to increase or decrease its gross power rating or any components are changed, the Participant must provide KUB with written notification that fully describes the proposed modifications at least sixty (60) calendar days prior to making such modifications. KUB has the right to accept or deny the request of the proposed modifications. KUB shall review such modifications to determine if KUB needs to modify its interconnection facilities, any cost incurred in the review or system modification shall be borne by the Participant. Participant may, at its own risk, proceed with procurement and installation of such modifications, but Participant is not allowed to proceed with parallel operation until KUB has conducted an onsite installation verification and witnessed any required commissioning test or waived such test, and KUB has given Participant written authorization to proceed with parallel operation of the modified system.

9. Indemnity

- 9.1.** Participant agrees to release, indemnify, defend and save harmless KUB, and their respective agents, contractors, and employees from all liability, claims, demands, causes of action, costs, including reasonable attorney fees, 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 9.1 shall survive termination of this AGREEMENT. Nothing in this AGREEMENT shall serve to limit the participant's obligations under this section 9.1, Indemnity.

10. Assignment

- 10.1.** Participant shall not assign this AGREEMENT without thirty (30) calendar days prior written notice to KUB and without KUB's written consent, which consent shall not be unreasonably withheld or delayed.
- 10.2.** The assignee shall be required to assume in writing all of the Participant's rights, responsibilities, and obligations under this AGREEMENT.

11. Insurance

- 11.1.** There are no specific insurance requirements for Qualifying Systems. However, the Participant is encouraged to obtain an insurance policy to protect the Qualifying System equipment and an additional liability policy for Personal Injury and Property Damage to sufficiently protect the Participant and those parties indemnified in section 9.1 of this AGREEMENT.

12. Effective Term and Termination Rights

- 12.1.** This AGREEMENT becomes effective when executed by both Parties and shall continue in effect as long as the Qualifying System is capable of operation and connected to KUB's System, notwithstanding any termination of any power purchase agreement for some or all of the Qualifying System's output. If KUB incurs any costs as a result of termination of this AGREEMENT, Participant shall reimburse KUB for such costs. KUB reserves the right to terminate this AGREEMENT if the Participant is non-compliant with any terms of this AGREEMENT or KUB's interconnection procedures.

13. Entire AGREEMENT and Prior Agreements Superseded

- 13.1.** This AGREEMENT, including the Rules, all attached Exhibits expressly made a part hereof for all purposes, constitutes the entire agreement and understanding between the Parties with regard to the interconnection of the Qualifying System 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 herein, in the Participant's attached Application, or other written information provided by the Participant in compliance with the Rules.

14. Notices

- 14.1.** Notices given under this AGREEMENT are deemed to have been duly delivered if hand delivered or sent by United States certified mail, return receipt requested, postage prepaid, to:

(a) If to KUB:

Knoxville Utilities Board

ATTN New Service Manager

4505 Middlebrook Pike

Knoxville, TN 37921

(b) If to Participant:

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

15. Applicable Law

15.1. This AGREEMENT shall be governed pursuant to the laws of Tennessee.

16. Severability

16.1. If one or more of the provisions of this AGREEMENT are found to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions of the Agreement shall not be affected.

17. Billing and Payment

17.1. Participant is responsible for KUB's actual costs, including applicable overheads that KUB incurs due to Participant's interconnection and parallel operation of the Qualifying System. These costs include, without limitation, the cost of system impact studies, installation verifications, reviews, associated billing charges, meter reading charges, installation of the Metering Installation, operations and maintenance ("O&M") of the Metering Installation and all other additional facilities required to be installed by KUB to interconnect the Qualifying System, and KUB's System reconfiguration, upgrades, and modifications (including any reconfiguration or restoration of KUB's System following termination of this AGREEMENT ("Disconnection Costs")).

17.2. Upon receipt of sufficient information from Participant, KUB shall provide to Participant an estimate of such interconnection costs, indicating what costs are upfront costs ("Upfront Interconnection Costs") and what costs (if any) are recurring, periodic charges ("Periodic Interconnection Costs").

17.3. Participant shall remit to KUB the full amount equal to the Upfront Interconnection Costs, before KUB begins incurring costs and before Participant interconnects or begins parallel operation of the Qualifying System. If the total actual Upfront Interconnection Costs incurred by KUB exceed the estimate paid by Participant, KUB shall promptly submit to Participant a written invoice for the excess amount, which amount Participant shall promptly pay. Once KUB has begun incurring any Periodic Interconnection Costs or Disconnection Costs, KUB shall bill Participant for such costs, which costs Participant shall promptly pay.

18. Miscellaneous

18.1. This AGREEMENT may be amended only by a written instrument executed by both Parties.

18.2. This AGREEMENT may be executed in several counterparts, each of which shall be considered as original and all of which shall constitute but one and the same instrument.

18.3. The headings in this AGREEMENT are solely for the convenience of the Parties in locating provisions in this AGREEMENT. The headings themselves are not part of this AGREEMENT and shall not affect the meaning or interpretation of this Agreement.

19. Excess Generation

19.1. Generation in excess of the customer's instantaneous usage that flows beyond the customer's point of interconnection with KUB and into the KUB distribution system shall be referred to herein as Excess Generation.

19.2. Excess Generation Agreements:

- Customer does not have an agreement to sell Excess Generation.
- Customer has an agreement to sell Excess Generation under:

Agreement Description: _____

With: _____

Effective Date: _____

Term of Contract: _____

Customer must attach copy of the agreement.

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

[KUB]

[PARTICIPANT NAME]

BY: _____

BY: _____

TITLE: _____

TITLE: _____

DATE: _____

DATE: _____