

Interconnection Standards
for
Parallel Installation and Operation
of
Customer-Owned
Renewable Electric Generating Facilities



Adopted:	<u>Tuesday, January 9th, 2023</u>
Version:	<u>Version 2.0</u>

Interconnection Customer Contact Information

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Alternate Contact Information (if different from Applicant)

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Equipment Contractor

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

License number (if applicable) _____

Active License? (if applicable) Yes ☐ No ☐

Electrical Contractor (if Different from Equipment Contractor):

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

License number (if applicable) _____

Active License? (if applicable) Yes ☐ No ☐

Contents

Part 1. OVERVIEW	4
1. PURPOSE:	4
2. DEFINITIONS:	4
3. ELIGIBILITY:	7
4. REQUEST:	8
5. SYSTEM EFFECTS:	8
6. SYSTEM UPGRADES:	8
7. AGREEMENT:	9
8. CODES AND PERMITS:	9
9. CERTIFICATE OF COMPLETION:	9
10. NORMAL OPERATION:	9
Part 2. TECHNICAL REQUIREMENTS	10
1. CHARACTER OF SERVICE:	10
2. CODE REQUIREMENTS:	10
3. GENERATING FACILITY CONTROL AND OPERATION:	10
4. FAULT CURRENT CONTRIBUTION	10
5. RECLOSING COORDINATION	10
6. DISCONNECT DEVICE:	11
7. STANDARDS FOR INTERCONNECTION, SAFETY, AND OPERATING RELIABILITY	11
Part 3. INTERCONNECTION APPLICATION	12
Part 4. INTERCONNECTION AGREEMENT	16
Part 5. CERTIFICATE OF COMPLETION	20
Part 6. APPROVAL TO ENERGIZE GENERATING FACILITY	21

Part 1. OVERVIEW

1. PURPOSE:

The purpose of this document is to establish standards for the Utility to interconnect and operate in parallel with customer-owned renewable electric generators.

2. DEFINITIONS:

- a. **Agreement** – This document in its entirety.
- b. **Applicable Laws and Regulations** – All duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority.
- c. **Avoided Costs** – The incremental costs to the Utility of electric energy or capacity or both which, but for the purchase from the Customer's Generating Facility, the Utility would generate itself or purchase from another source.
- d. **Customer** – The end user of electricity and/or the name on the bill within Hopkinton's service territory.
- e. **Distributed Generation Facility** - A qualifying facility, an AEP facility, or an energy storage facility. An AEP facility as defined in 199 IAC 15 (Iowa Utilities Board chapter 15 rules on Cogeneration and Small Power Production), used by an Interconnecting Party to generate electricity that operates in parallel with the Electric Distribution System. A cogeneration facility or a small power production facility that is a qualifying facility under 18 CFR Part 292, Subpart B, used by an Interconnecting Party to generate electricity that operates in parallel with the Electric Distribution System.
- f. **Distribution System** – The Utility's facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances.
- g. **Distribution Upgrades** - A required addition or modification to the Hopkinton Municipal Electric Utility's Electric Distribution system at or beyond the point of interconnection to accommodate the interconnection of a Distributed Generation Facility. Distribution upgrades do not include Interconnection Facilities. Hopkinton Municipal Electric Utility shall design, procure, construct, install, and own any Distribution Upgrades. The actual cost of the Distribution Upgrades, including overheads, shall be directly assigned to the Interconnecting Party whose Distributed Generation Facility caused the need for the Distribution Upgrades.
- h. **Force Majeure** – Any act of God, labor disturbance, act of the public enemy, war, acts of terrorism, insurrection, riot, fire, storm or flood, explosion, breakage, or accident to machinery or equipment through no direct, indirect, or contributory act of a Party, any order, regulation or restriction imposed by governmental, military, or lawfully established civilian authorities (e.g., Midcontinent Independent System Operator (MISO) or Southwest Power Pool (SPP)), or any other cause beyond a Party's control. A force majeure event does not include an act of gross negligence or intentional wrongdoing by the Party claiming force majeure.

- i. **Good Utility Practice** – Any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.
- j. **Governmental Authority** – Utility board governed Electric Utility of the City of Hopkinton, Iowa – The municipal electric, and water utility serving Hopkinton, Iowa and surrounding area doing business as Hopkinton Municipal Utilities. Referred to in this Agreement as “Hopkinton”. Any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include the Customer or any Affiliate thereof.
- k. **IEEE Standard 1547** - The Institute of Electrical and Electronics Engineers, Inc. (IEEE), 3 Park Avenue, New York, NY 10016-5997, Standard 1547 (2018), "Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power System Interfaces."
- l. **IEEE Standard 1547.1** - The IEEE Standard 1547.1 (2020), "Conformance Test Procedures for Equipment Interconnecting Distributed Energy Resources with Electric Power Systems and Associated Interfaces."
- m. **IEEE Standard 1549** - The IEEE Standard 1549 (2017), "Standard for Microwave Filter Definitions."
- n. **Interconnection Application** – The Customer's request to interconnect a new Generating Facility, or to increase the capacity of, or make a material modification to the operating characteristics of, an existing Generating Facility that is interconnected with the Utility's electrical system.
- o. **Interconnecting Party** – The Party requesting a new interconnection or to modify an existing interconnection to Hopkinton's Electric System. This can include the real-estate owner, a generator owner, or Customers (end-user).
- p. **Interconnecting Party's System** – A group of components or an integrated system connecting an electric generator with a local electric power system or an Electric Distribution System that includes all interface equipment, including switchgear, protective devices, Inverters, or other interface devices. Interconnection equipment may be installed as part of an integrated equipment package that includes a generator or other electric source. Includes all necessary wiring, manually operated alternating current disconnect/lockout with a locking mechanism in the on and off position, over-current protective device(s) (e.g. breakers), and protection that

will prevent energization of Hopkinton's Municipal Electric System during condition of loss or over/under voltage on Hopkinton's system.

- q. **Interconnection Facilities** - Facilities and equipment required by the utility to accommodate the interconnection of a Distributed Generation Facility. Collectively, Interconnection Facilities include all facilities and equipment between the Distributed Generation Facility and the point of interconnection, including modification, additions, or upgrades that are necessary to physically and electrically interconnect the Distributed Generation Facility to the Electric Distribution System. Interconnection Facilities are sole use facilities and do not include Distribution Upgrades.
- r. **Interconnection Request** - An Interconnecting Party's request, on the required application form, for the interconnection of a new Distributed Generation Facility, or to increase the capacity or change the operating characteristics of an existing Distributed Generation Facility that is interconnected with the utility's Electric Distribution System.
- s. **Interconnection Standard** – Any reference to Interconnection Standard shall mean all the provisions, forms and related documents described in the collective parts of this document, the Interconnection Standards for Parallel Installation and Operation of Customer-Owned Renewable Electric Generating Facilities, as of the date adopted and printed on the cover page.
- t. **Interconnection Study** - Any of the following studies, as determined to be appropriate by the utility: the Interconnection Feasibility Study, the Interconnection System Impact Study, and the Interconnection Facilities Study.
- u. **Inverter** – Equipment that converts Interconnecting Party's Distributed Generation Facility Direct Current (DC) voltage to Hopkinton Municipal Electric's operating Alternating Current (AC) voltage. This includes any static power converter with control, protection, and filtering functions used to interface an electric energy source with an electric utility system. (IEEE 1547, IEEE 1549, UL 1741)
- v. **Iowa Standard Distributed Generation Interconnection Rules** - The most current version of the procedures for interconnecting distributed generation facilities adopted by the Iowa Utilities Board. See Iowa Utilities Board chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45).
- w. **Islanding** – A condition in which a portion of the utility system that contains both load and distributed resources/generation remains energized while isolated from the remainder of the utility system. (IEEE 1547).
- x. **Hopkinton's Electric System** – All related equipment to provide electricity to the Interconnecting Party's PCC (as defined below); also referenced as Hopkinton's Municipal Electric Utilities Electric System
- y. **Hopkinton Interconnection Application Engineering Review Fee** – This fee covers the administrative and engineering costs to Hopkinton related to the interconnection.

- z. **Parallel Operation or Parallel** - The state of operation that occurs when a Distributed Generation Facility is connected electrically to the Electric Distribution System for longer than 100 milliseconds.
- aa. **Point of Common Coupling (PCC)** – The point where the Distributed Generation Facility is electrically connected to the Electric Distribution System. Point of interconnection has the same meaning as the term Point of Common Coupling defined in IEEE Standard 1547. The PCC is typically the electric meter, unless otherwise stated.
- bb. **Qualifying Facility** – A cogeneration facility or a small power production facility that is a qualifying facility under 18 CFR Part 292, Subpart B, used by an interconnection customer to generate electricity that operates in parallel with the electric distribution system or local electric power system. Qualifying Facilities that are not Generating Facilities under subparagraphs “g” above may qualify for interconnection with the Utility under provisions of the Public Utilities Regulatory Policies Act (PURPA), but the terms and conditions of interconnection shall be determined on a case-by-case basis.
- cc. **Reasonable Efforts** – With respect to an action required to be attempted or taken by a Party under the Interconnection Agreement, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.
- dd. **Renewable Energy Metering** - “Renewable Energy Metering” refers to the use of a single electric meter (no second meter required) that can run forward and backward depending on whether the Interconnecting Party’s System is generating power or using power from Hopkinton Municipal Electric Utility.
- ee. **System Average Energy Cost** – The current average cost of fuel and purchased energy for the billing period as determined by the Utility.
- ff. **System Upgrades** – The additions, modifications, and upgrades to the Utility's Distribution System at or beyond the point of interconnection to facilitate interconnection of the Generating Facility and render the transmission service necessary to effect the Interconnection Customer's wholesale sale of electricity in interstate commerce. Distribution Upgrades do not include Interconnection Facilities.

3. **ELIGIBILITY:**

- a. Interconnection to the electric system shall be granted only to new or existing customers, in good standing, under the Utility’s electric service schedules. The Interconnection Agreement shall be between the Customer and the Utility and will not include third parties.
- b. The Interconnection Standards apply to a customer-owned Generating Facility for Lab-Certified Inverter-Based Distributed Generation Facilities 10 kVA or Smaller. Proposals to interconnect a customer-owned generator with output rated at more than 10 kW or Qualifying Facility not covered by this standard will be subject to a review process that may take into account the impact of the interconnection on reliability, rates, power supply agreements, and local and regional system planning.

4. REQUEST:

The Customer shall make a request by completing the attached document entitled “Application for Interconnection”. The Utility may require additional details or clarifications as needed to properly evaluate the application. Upon Hopkinton Municipal Electric’s Acceptance of the Application, the Interconnecting Party can execute this Interconnection Agreement which will reference the information presented in the Application in this document. Upon execution of this Interconnection Agreement and installation of customer-owned distributed generation, the Interconnecting Party shall cause the Distributed Generation Facility to be inspected by the local electrical inspection authority, who shall establish that the Distributed Generation Facility meets local code requirements.

5. SYSTEM EFFECTS:

The Utility will analyze the overall impact of the proposed generating facility on the transmission and distribution system. Such analyses will be based on Good Utility Practice to determine thermal effects, voltage ranges, power quality, system stability, etc. Interconnecting Party’s eligible system is a self-contained electric generation system comprising: Inverter(s) for the conversion of the Interconnecting Party’s System’s operating voltage to Hopkinton Municipal Electric’s operating voltage, manually operated alternating current disconnect/lockout with a locking mechanism in the on and off position, over-current protective device(s) (e.g. breakers), and anti-islanding protection. A new Hopkinton Municipal Electric meter may be necessary for services that already exist, above and beyond optional metering of Interconnecting Party’s generation.

A new manually operated alternating current disconnect/lockout is to be provided on the AC/load side of a central or string inverter, in such a way to allow for complete disconnection of Interconnecting Party’s generation source at Hopkinton Municipal Electric’s discretion. A detailed description, electrical location, and physical location shall be described within Hopkinton Municipal Electric’s Approved Interconnection Application Document.

Please note that Hopkinton Municipal Electric only allows generation from Customers to be connected to the Hopkinton Municipal Electric’s utility infrastructure if 1) the generation is used to offset energy used, 2) the balance of energy (energy generated less consumed) pushed back to Hopkinton Municipal Electric’s Electric System is credited on a Hopkinton Municipal Electric’s avoided cost basis under the Hopkinton Municipal Electric tariff, and 3) the energy pushed back to Hopkinton Municipal Electric’s system is settled on a monthly basis (no energy credit carry forward).

6. SYSTEM UPGRADES:

As a result of the above analysis, the Utility will provide the Customer with a cost estimate and projected timeframe for any system upgrades that may be necessary to accommodate the generating facility.

7. AGREEMENT:

Once the Customer and the Utility have identified and mutually agreed on the scope of the overall project including the generating facility, system upgrades and estimated costs, the Customer and the Utility shall execute the attached document entitled "Interconnection Agreement".

8. CODES AND PERMITS:

- a. The Customer shall be responsible for procuring all building, operating and environmental permits that are required by any Governmental Authority having jurisdiction for the type of generating facility and for the necessary ancillary structures to be installed.
- b. The equipment shall meet the standards listed in the attached document entitled "National Certification Codes and Standards".
- c. The construction and facilities shall meet all applicable building and electrical codes.

9. CERTIFICATE OF COMPLETION:

Upon completion of the generating facility and prior to normal operation, the Customer shall provide a signed copy of the attached document entitled "Certificate of Completion".

10. NORMAL OPERATION:

The Customer may begin normal operation of the generating facility upon completion of all documentation and receipt of written approval from the Utility.

Part 2. TECHNICAL REQUIREMENTS

1. CHARACTER OF SERVICE:

The electrical service shall be 60 cycle per second alternating current (AC) at supply voltages and number of phases that apply under the Utility's rate schedules.

2. CODE REQUIREMENTS:

The Generating Facility shall meet all requirements established by the National Electrical Code (NEC), National Electrical Safety Code (NESC), Institute of Electrical and Electronics Engineers (IEEE), Underwriters Laboratories (UL), and Occupational Safety and Health Administration. Specific codes are listed in Section 7 of this Part 2, below as "National Certification Codes and Standards". In addition, Manufacturer's Ownership, Operating and Maintenance Manuals shall be reviewed and accepted by both parties prior to beginning operation.

3. GENERATING FACILITY CONTROL AND OPERATION:

The control system of the Generating Facility shall comply with the IEEE specifications and standards for parallel operation with the Utility and in particular as follows:

- a. Power output control system shall automatically disconnect from Utility source upon loss of Utility voltage and not reconnect until Utility voltage has been restored by the Utility.
- b. Power output control system shall automatically disconnect from Utility source if Utility voltage fluctuates beyond plus or minus 10% (ten percent).
- c. Power output control system shall automatically disconnect from Utility if frequency fluctuates plus or minus 2 cycles (Hertz).
- d. Inverter output distortion shall meet IEEE requirements.
- e. The Generating Facility shall meet the applicable IEEE standards concerning impacts to the Distribution System with regard to harmonic distortion, voltage flicker, power factor, direct current injection and electromagnetic interference.

4. FAULT CURRENT CONTRIBUTION

The Generating Facility shall be equipped with protective equipment designed to automatically disconnect during fault current conditions and remain disconnected until the voltage and frequency have stabilized.

5. RECLOSING COORDINATION

The Generating Facility shall be coordinated with the Distribution System reclosing devices by disconnecting from the system during the initial de-energized operation and shall remain disconnected until the voltage and frequency have stabilized.

6. DISCONNECT DEVICE:

A safety disconnect switch shall be installed that is visible to and readily accessible by Utility personnel. The switch shall be capable of being locked in the open position and shall prevent the generator from supplying power to the distribution system.

7. STANDARDS FOR INTERCONNECTION, SAFETY, AND OPERATING RELIABILITY

The interconnection of a Customer-Owned Generating Facility and associated interconnection equipment to the Utility's Distribution Facilities shall meet the applicable provisions of the following publications:

- a. ANSI/IEEE1547-2018 Standard for Interconnecting Distributed Resources with Electric Power Systems (including use of IEEE 1547.1 testing protocols to establish conformity). The following standards shall be used as guidance in applying IEEE 1574:
 - i. IEEE Std 519-2014, IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems
 - ii. IEC/TR3 61000-3-7 Assessment of emission limits for fluctuating loads in MV and HV power systems
- b. Iowa Electric Safety Code, as defined in 199 IAC Chapter 25
- c. ANSI/NFPA 70 (2017), National Electrical Code
- d. OSHA (29 CFR § 1910.269)

Part 3. INTERCONNECTION APPLICATION FORM

Application No. _____



AN APPLICATION FEE OF \$1,000.00 MUST BE SUBMITTED WITH THE APPLICATION

(For Lab-Certified Inverter-Based Distributed Generation Facilities 10 kVA or Smaller)

(If the utility performs a witness test as specified under 199 IAC 45.5(10), the utility may charge the interconnected customer an additional cost-based fee of no more than \$125).

Customer

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Alternate Contact (if different from Customer)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Equipment Contractor

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

License number (if applicable) _____

Active License? (if applicable) ☐ Yes ☐ No

Applicant Ownership Interest

☐ Owner ☐ Lease ☐ 3rd Party PPA ☐ Other (Please explain) _____

Intent of Generation

☐

Offset Load (Unit will operate in parallel but will not export power to the utility)

☐

Net Metering (Unit will operate in parallel and will export power to utility pursuant to utility's net metering or net billing tariff)

☐

Self-Use and Sales to the Utility (Unit will operate in parallel and may export and sell excess power to utility pursuant the utility's tariff)

☐

Backup Generation (Unit will temporarily operate in parallel with electric distribution system for more than 100 milliseconds. Units that temporarily operate in parallel with the electric distribution system for 100 milliseconds or less are outside the scope for interconnection)

☐

Other (Please explain): _____

Electric Service Information for Customer Facility Where Generator Will be Interconnected

*Existing Capacity (Service Entrance) _____(Amps) *Proposed Capacity (Service Entrance) _____(Amps)

Voltage _____ (Volts)

Type of Service: Single Phase ☐ Three Phase ☐

If 3 Phase Transformer, indicate type: Primary Winding: Wye ☐ Delta ☐

Secondary Winding: Wye ☐ Delta ☐ Transformer Size _____ Impedance _____

Breaker-Existing Panel ☐ Line Side Tap with Fuse ☐ Inside Sealed Enclosure ☐

Information For Inverter-based Facilities:

Inverter Information (Attach manufacturer's technical specifications and label information from a nationally recognized testing laboratory, e.g. UL.)

Manufacturer _____ Model No. _____ Quantity _____

Inverter UL1741 Listed YES ☐ NO ☐ Efficiency _____% Power Factor _____%

Continuous Rated Output: _____ kWac _____ Voltsac Single Phase ☐ Three Phase ☐

DC Source/Prime Mover

Solar Module 1 Manufacturer _____ Model No. _____ Quantity _____

Power Rating _____ (Wattac)

Solar Module Orientation

Type: Fixed ☐ Single Axis ☐ Dual Axis ☐ Tilt (degrees) _____ Azimuth (180° = south) _____

*Inverter/Solar Module Combinations

Inverter Information (Attach manufacturer's technical specifications and label information from a nationally recognized testing laboratory, e.g. UL.)

Inverter Type: ☐ String ☐ Microinverter.

kWdc Connected to each inverter: _____ kWdc Continuous Rated Output of each inverter: _____ kWac

Inverter is DC Limited (kWDC < kWAC) ☐ Yes ☐ No

Insurance Disclosure

The terms and conditions in the interconnection agreement contain provisions related to liability and indemnification and should be carefully considered by the interconnection customer. The interconnection customer shall carry general liability insurance coverage, such as, but not limited to, homeowner's insurance.

Proof of insurance must include:

1. Facility Address
2. Interconnection Customer as insured
3. General Liability Coverage

Proof of Homeowner's or General Liability Insurance attached: ☐ Yes

Provide a one line diagram of the Small Generating Facility. The one line diagram is a basic drawing of an electric circuit in which one or more conductors are represented by a single line and each electrical device and major component of the installation, from the generator to the point of interconnection, are noted by symbols.

One Line Diagram attached: ☐ Yes

Plot Plan - A map showing the distributed generation facility's location in relation to streets, alleys, or other geographic markers.

Plot Plan attached: ☐ Yes

Customer Signature

I hereby certify that, to the best of my knowledge, the information provided in this Application is true. I agree to abide by the terms and conditions of the Utility's Interconnection Standard and will return the Certificate of Completion when the Generating Facility has been installed.

Signature: _____ Date: _____

----- **Utility Use** -----

Contingent Approval to Interconnect the Generating Facility

Interconnection of the Generating Facility is approved contingent upon the terms and conditions of the Utility's Interconnection Standard and upon return of the Certificate of Completion.

Utility Signature: _____

Title: _____ Date: _____

Application Number: _____

Utility waives inspection/witness test? ☐ Yes ☐ No Initial _____

Part 4. INTERCONNECTION AGREEMENT



Application No. _____

This Agreement, ("**Agreement**") is entered into by and between Hopkinton Municipal Electric Utility ("**Utility**") and _____, ("**Customer**"). Customer and Utility are referenced in this Agreement collectively as "**Parties**" and individually as "**Party**."

Recitals

WHEREAS, Utility is a municipal electric utility engaged in the retail sale of electricity in the state of Iowa;

WHEREAS, Customer owns or desires to install, own and operate an electric Generating Facility;

Agreement

NOW, THEREFORE, in consideration of the covenants and promises herein, the Parties mutually agree as follows:

1. SCOPE OF AGREEMENT

This Agreement governs the terms and conditions under which the Customer's Generating Facility will interconnect with and operate in parallel with the Utility's electrical system. This Agreement is intended for any Interconnecting Party wanting to install generating equipment on Hopkinton Municipal Electric's system. Typical installations include, but are not limited to, solar panels and wind turbines. This agreement can support intended installations with a generating capacity of up to 10 kVA and smaller.

2. DEFINITIONS:

The definitions used in this Part are those found in Part 1, Section 2 of this Interconnection Standard.

3. PARALLEL OPERATION

This Agreement governs the terms and conditions under which the Distributed Generation Facility will interconnect to, and operate in parallel with, the Hopkinton Municipal Electric's Electric Distribution System. Customer shall not commence parallel operation of the generating

facility until written approval of the interconnection facilities has been given by Utility. Such approval shall not be unreasonably withheld. Utility shall have the right to have representatives present at the initial testing of Customer's protective apparatus. This Agreement does not constitute an agreement to purchase or deliver the Interconnecting Party's power. Nothing in this Agreement is intended to affect any other agreement between the Hopkinton Municipal Electric and the Interconnecting Party.

4. INTERCONNECTION COSTS

The Utility has estimated the costs, including overheads, for the purchase and construction of necessary System Upgrades to its Distribution System and has provided a detailed itemization of such costs in the attached description of the estimated System Upgrade costs. The Customer agrees to pay the costs upon receipt of the Utility's invoice within the timeframe indicated on the invoice.

5. INTERRUPTION OR REDUCTION OF DELIVERIES

Utility may require Customer to interrupt or reduce deliveries when the Utility determines, in its sole discretion, that curtailment, interruption or reduction is necessary because of personnel safety, emergencies, Force Majeure or compliance with Good Utility Practices.

6. ADVERSE OPERATING EFFECTS

The interconnection of the customer-owned generation shall not reduce the reliability and quality of the Distribution System. This includes, but is not limited to high levels of harmonics, abnormal voltage fluctuations and excessive frequency deviations. The Utility shall notify the Customer as soon as practicable if, based on Good Utility Practice, operation of the Generating Facility may cause disruption or deterioration of service to other customers served from the same electric system, or if operating the Generating Facility could cause damage to the Utility's distribution system. If, after notice, the Customer fails to remedy the adverse operating effect within a reasonable time, the Utility may disconnect the Generating Facility. The Utility shall provide the Customer with notice of such disconnection as provided in the Utility's Service Policies.

7. ACCESS TO PREMISES

Interconnecting Party shall allow access to its premises and to the Interconnecting Party's System by Hopkinton Electric Municipal personnel in accordance with the Hopkinton Municipal Electric Service Rules: (i) to inspect Interconnecting Party's System, (ii) to read and to replace meters; (iii) to open the load-break disconnect switch, and (iv) to disconnect the interconnection facilities at Hopkinton Electric Municipal meter or transformer. When practical, Hopkinton Municipal Electric shall provide notice to the customer prior to using its right of access.

8. INSURANCE

THE INTERCONNECTING PARTY IS REQUIRED TO OBTAIN INSURANCE COVERAGE PRIOR TO COMMENCING CONSTRUCTION AND EXECUTING THIS AGREEMENT. THE INTERCONNECTING PARTY SHALL PROVIDE HOPKINTON MUNICIPAL ELECTRIC WITH PROOF THAT IT HAS A CURRENT HOMEOWNER'S INSURANCE POLICY OR OTHER GENERAL LIABILITY POLICY.

The Customer shall, at its own expense, maintain in force general liability insurance without any exclusion for liabilities related to the interconnection undertaken pursuant to this Agreement. The amount of such insurance shall be not less than **\$1,000,000** combined single limit.

9. GOVERNING LAW

This Agreement shall be interpreted and governed under the laws of the State of Iowa. Venue of any action arising hereunder or related to this Agreement shall lie in Delaware County, Iowa. The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of Iowa, without regard to its conflicts of law principles. This Agreement is subject to all applicable laws and regulations. Each Party expressly reserves the right to seek change in, appeal, or otherwise contest any laws, orders, or regulations of a governmental authority. The language in all parts of this Agreement shall in all cases be construed as a whole, according to its fair meaning, and not strictly for or against the utility or Interconnecting Party, regardless of the involvement of either Party in drafting this Agreement. The parties acknowledge that Hopkinton Municipal Electric is subject to applicable open records laws for Iowa public entities. Certain information regarding this Agreement may be subject to public inspection or disclosure.

10. DOCUMENTS

This Agreement incorporates all other provisions and related documents of this Interconnection Standard.

11. NOTICES

All written notices shall be directed as follows:

CUSTOMER:

Name: _____

Address: _____

City/State/Zip _____

UTILITY:

Name: _____

Address: _____

City/State/Zip _____

11. TERM OF AGREEMENT

This Agreement shall be in effect when signed by the Customer and Utility and shall remain in effect thereafter month to month unless terminated by either Party on thirty (30) days prior written notice and in accordance with the Service Policies.

IN WITNESS WHEREOF, the Parties hereto have caused two originals of this Agreement to be executed by their duly authorized representatives.

This Agreement is effective as of the last date set forth below.

CUSTOMER:

Signature

Print Name

Date

For the UTILITY:

Signature

Print Name and Title

Date

Part 5. CERTIFICATE OF COMPLETION

Application No. _____



Is the Generating Facility installed, tested and ready for operation? Yes _____ No _____

Customer: _____

Address: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Location of the Generating Facility (if different from above):

Electrician/Service Company:

Name: _____

Address: _____

City/State/ZIP: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

License number: _____

Date Utility approved installation facility: _____

Application number: _____

Inspection:

The Generating Facility has been installed and inspected in compliance with applicable electrical codes.

A copy of the signed electrical inspection form is attached. ☐ Yes ☐ No

(If inspection form is not attached)

Signature of inspector:

Date

Printed name of inspector

Part 6. APPROVAL TO ENERGIZE GENERATING FACILITY

Application No. _____



The Utility, having entered into an Interconnection Agreement for the facility described in the Application noted by number above and having received a Certificate of Completion with proper documentation of the electrical inspection hereby authorizes the Generating Facility to be energized:

Utility Signature: _____

Title: _____ Date: _____