

General Generating Facility Application

I. Introduction and Overview

A. Applicability:

If not otherwise covered by a small system generating facility (GF) rebate application, this application is required to request the interconnection of a GF to the Hyrum City electrical distribution system for parallel operation. Except as noted, this Application may be used for any GF to be operated in parallel with the distribution system by or serve the customer's electric service requirements that would otherwise be served by the City, including distributed generation or cogeneration.

- Customers wanting to install a backup, emergency or standby generator for isolated (break before make) operation during emergency or utility outage conditions should use Emergency/Backup Generator Application. Standby generation that requires momentary paralleling of the generator to the distribution system must use this application.

This application may not be used to apply for interconnecting a generating facility used to participate in transactions where all or a portion of the electrical output of the GF is scheduled with any other entity other than the City. Such transactions are subject to the jurisdiction of Federal Energy Regulatory Commission (FERC).

An Interconnection Agreement is required between the Hyrum City and the party responsible for the GF. Depending on the size of the GF and the operating terms and conditions, additional agreements may also be required with other entities. This agreement may be critical to determining the commercial viability of a project. Contact Hyrum City Energy Services department for more information about the terms and conditions required for an interconnection agreement.

B. Guidelines and Steps for Interconnection:

All completed GF applications submitted to the City must be accompanied by the supporting documentation listed in selection C of this application. An application fee and /or service fee may be charged depending upon the size and complexity of the proposed installation (please contact the City for fee details). Upon receipt of the Application, the City will contact the Customer to initiate the GF plan review. This document is only an application. In addition to submitting the application, the customer must also enter into an Interconnection Agreement with the City before pursuing design approval. The terms and conditions of the Interconnection Agreement vary and may affect the commercial viability of the project. The party responsible for the GF should review the interconnection agreement with the City before pursuing design approval.

Upon design approval, the City will prepare an Interconnection Agreement for execution by the City and the party that will be responsible for the GF. The City will require the inspection and testing of the GF and any related interconnection equipment prior to issuing a Permit to Operate (PTO). Unauthorized parallel GF interconnections will be required to disconnect from the city's electric distribution system. Refusal to disconnect may result in discontinuance of electric service.

Please note, other approvals may need to be acquired and/or other agreements may need to be obtained with regulatory agencies, such as the EPA or local and state governmental building and planning commissions prior to

operating a generating facility. The City's authorization to operate the GF does not satisfy the need for an applicant to obtain such other approvals which includes Hyrum City building permits.

C. Required Documents:

Two (2) copies of this Application and each of the following documents shall be submitted with a GF application. Drawings must conform to accepted engineering standards and must be legible. 11"x17" drawings are preferred.

1. **A Single-line and Three-line drawing** showing the electrical relationship and descriptions of the significant electrical components such as the primary switchgear, secondary switchboard, protective relays, transformers, generator, circuit breakers, with operating voltages, capacities, and protective functions of the Generating Facility, the customers loads, and the interconnection with the City's distribution system which is typically the City's transformer.
2. **Site plans and diagrams** showing the physical layout of the Generating Facility and the location of associated structures and infrastructure such as buildings, streets, driveways, water ways, fences, the customers generating equipment and the City's associated distribution system equipment.
3. **Equipment data sheets** issued by the manufacturer for all major components to be installed such as switchgear, secondary switchboard, protective relays, transformers, generators, circuit breakers, inverters, disconnect switches, transfer switches, battery banks, turbines, motors, with operating voltages, capacities and protective functions.
4. **Customer-owned transformers**, if used, to interconnect the Generating Facility with the City's distribution system, please provide transformer nameplate information (voltages, capacity, winding arrangements, connections, impedance et cetra).
5. **Transfer switches** or schemes used to interconnect the Generating Facility with the City's distribution system, please provide component descriptions, capacity ratings, and a technical description of how the transfer scheme is intended to operate.
6. **Protective relays or elements** used to control and protect the interconnection. Please provide protection diagrams and control schematics showing relay wiring and connections, proposed relay settings, and a description of how the protection scheme is intended to function.
7. **Certified test reports** issued by the manufacturer that demonstrate the generator meets applicable standards may be required for certain applications. Contact the City to determine if test reports are needed.
8. **Class III or larger generating facilities**, generators 50KW or larger or facilities with an aggregate generation greater than 50KW, require all electrical drawings to be stamped by a registered electrical engineer. In addition, a fault study and protective coordination analysis shall be submitted with the drawings by the registered engineer.

D. Completed Application and Assistance:

Completed applications should be submitted, along with the required attachments to:

Hyrum City

Attention: Electric Department

60 West Main

Hyrum, Utah 84319

Phone: (435) 245-6033; e-mail: mdraper@hyrumcity.org

E. Customer GF Information – Where will the Generating Facility be located/installed?

- Name on the Hyrum City account: _____
- Street Address: _____
- Zip: _____

For City use only:

- Electric Account number _____
- Meter Number _____

F. Customer Contact Information – Who should be contacted for additional information, if necessary?

- Customer Contact Person: _____
- Company Name: _____
- Phone: _____ FAX: _____
- Email: _____
- Mailing Address: _____
- City: _____
- State: _____ Zip: _____

Customer Contractor/Engineer Contact Person (optional)

- Company Name: _____
- Phone: _____ Fax: _____
- Email: _____
- Mailing Address: _____
- City: _____
- State: _____ Zip: _____

G. Proposed GF Start-Up Date: _____

II. Generating Facility Information

A. Indicate how this Generating Facility will interface with the City's distribution system. (Choose one)

- **1. Parallel Operation:** The Generating Facility will interconnect and operate in parallel with the City's distribution system continuously.
- **2. Momentary Parallel Operation:** The generating Facility will interconnect and operate on a "momentary parallel" basis with the City's distribution system for a duration of one (1) second or less through switches or circuit breakers specifically designed and engineered for such operation.

If the answer is **option 1-parallel operation**, please supply all of the information requested for the Generating Facility. Be sure to supply adequate information including diagrams and written descriptions regarding the protective relays that will be used to detect faults or abnormal operating conditions on the City's distribution system.

If the answer is **option 2-momentary parallel operation**, please supply adequate information including diagrams and written descriptions regarding the switching device or scheme that will be used to limit the parallel operation period to one second or less as well as the back up or protective controls that will ensure the Generating Facility will trip.

B. Provide the maximum 3-phase fault current that will be contributed by the proposed GF to a 3-phase fault at the Point of Common Coupling (PCC). (If the Generating Facility is single phase in design, Please provide the contribution for a line-to-line fault.) *Consult an electrical engineer or the equipment supplier if assistance is needed in answering this question and please describe the assumptions used in calculating the maximum fault current contribution value.*

- Maximum fault current: _____ Amps
- Service panel short circuit rating: _____ Amps
- Existing transformer size for the facility: _____ KVA

C. Please indicate how this Generating Facility will be operated. *(Select all options that may apply)*

- **1. Supplemental/Demand Management** – Where the Generating Facility will be operated primarily to reduce electrical demands most of the Customer facility when generation is available or to reduce electrical peak periods.
- **2. Primary Power Source** – Where the Generating Facility will be used as the primary source of electric power and that supplied by the City to the Customer's loads will be required for supplemental, standby or backup power purposes only.
- **3. Standby/Emergency/Backup** – Where the Generating Facility will normally be operated only when the City's electric service is not available.
- **4. Other** – Where the Generating Facility is to be used for other purposes such as a test facility ro for commercial processes.

Generator Data

- D. Enter the Generator information requested in the tables provided. If multiple generators are to be connected, provide data for each unit.

Generator Item		Description/Data
1	Manufacturer (Name)	
2	Model (Name/Number)	
3	Software Version (Number)	
4	Gross Nameplate Rating - KVA	
5	Gross Nameplate Rating - KW	
6	Net Nameplate Rating - KW	
7	Operating Voltage - V	
8	Maximum Short Circuit Current - A	
9	Power Factor Rating - %	
10	Power Factor Adjustment (min) - %	
11	Power Factor Adjustment (max) - %	

- E. Has the Generator/Inverter been manufactured and tested to UL, ANSI or IEEE standards?

- Yes
- No

- F. Generator Design

- Synchronous
- Induction
- Inverter

- G. Wiring Configuration

- Single-Phase
- Three-Phase

- H. 3-Phase Winding Configuration

- 3 Wire Delta
- 3 Wire Wye
- 4 Wire Wye

- I. Neutral Grounding System Used

- Un-Grounded
- Solidly Grounded
- Ground Resistor _____ Ohms

- J. For Synchronous Generators Only:

Generator Item		Mfgr. Data
1	% Synchronous Reactance (Xd)	
2	% Transient Reactance (X'd)	
3	% Subtransient Reactance (X''d)	

- K. For Induction Generators Only:

Generator Item		Mfgr. Data
1	Locked Rotor Current (Amps)	
2	Stator Resistance (%)	
3	Stator Leakage Reactance (%)	
4	Rotor Resistance (%)	
5	Rotor Leakage Reactance (%)	

L. For Generators that are Started as a "Motor" Only

Generator Item		Mfgr. Data
1	In-Rush Current (Amps)	
2	Main Panel Continuous Current Rating (Amps)	

M. Prime Mover Type

- Internal Combustion Engine
- Microturbine
- Combustion Turbine
- Turbine
- Fuel Cell
- Photovoltaic
- Other

N. Fuel Type

- Natural Gas
- Propane
- Diesel
- Steam
- Hydro/Water
- Wind
- Photoactive/Sun light
- Thermal
- Coal
- Other

The applicant hereby certifies that the above information, along with the attached plans and project descriptions, are correct. The applicant agrees to comply with the provisions of the Hyrum City Electrical Service Rules and Regulations, Interconnection Standards for Generating Facilities, Building Code, all other applicable sections of City Code, and all other laws and ordinances affecting the construction, installation and operation of the proposed generating facility.

Signature of Applicant: _____ Date: _____

Administrative Use Only

Date Complete Application Submitted: _____

Application Reviewed By: _____ Application Approved or Denied: _____

Notes: _____

HYRUM CITY FEED-IN TARIFF POLICY

The basis of the Hyrum City Solar Power Purchase Program ("S3P") is a fixed-price, 20-year Power Purchase Agreement (PPA) between Hyrum City Utility ("Utility") and Utility's retail customers for solar energy generation. The customer may enter agreements with solar developers for the installation of the system, which also may include financing, lease-purchase and rooftop property leasing.

The energy output of the solar system goes directly to Utility electric grid ("in front of the meter") and system owners are paid based on their PPA. The agreement does not alter the customer's electric bill. The PPAs also convey the Renewable Energy Credits (RECs)—the right to claim the renewable energy attributes of a project—to Utility to be used toward compliance with the Utah Renewable Energy Standard.

Eligibility and Program Structure

Any premise served by Utility is eligible for this on-site solar program. Projects will be accepted in two classes:

- Class-1, Small Projects, 1 to 100kW
- Class-2, Large Projects, >100kW to 1000kW DC

Program Stipulations:

- Projects will be located on the premise of Utility's customers
- Solar photovoltaic (PV) systems range in size from 1 to 1,000 kilowatts (kW DC)
- 1,000 kW maximum aggregate capacity on any single parcel
- 2,000 kW maximum capacity for a single customer entity for multiple parcels and projects
- Grid interconnection "in front of the customer meter" (achieved by actual point of interconnection or billing adjustment)

- Payments are made for metered production
- Two-tier, 20-year, fixed-price standard offer - Class-1, 4¢/kWh 1 kW-100 kW; Class-2, 3¢/kWh >100 kW to 1,000 kW
- Class-1 projects must be operational in 6 months from time of acceptance of the PPA, Class-2 projects must be operational in 12 months.
- Utility retains RECs
- Applications will be accepted on a first-come, first-served basis up to the capacity limit of the circuit or the distribution system as determined by the Utility. Utility may offer customer the ability to pay for the cost to increase the circuit or distribution capacity limit.
- Insurance requirements are delineated in the Utility's Interconnection Standards.

A complete submittal will include:

- Completed Application form
- Site/Facility layout diagram
- Facility one-line diagram
- Scanned copy of all pages requiring signatures

An applicant must complete the following steps in order to remain qualified for the S3P before receiving any payment for energy produced:

- 1) Submit a complete application with all required documents and payment for all applicable fees and deposits;
- 2) Be accepted by Utility for assigned capacity and submit program application fee of \$400 (for a production meter and an engineer review plan) plus \$1 per kW installed capacity;
- 3) Receive engineering approval of the project plan;
- 4) Sign and execute the PPA;

5) Meet payment obligations for any Utility's electrical distribution system upgrades that may be required to accommodate the PV system, if any;

6) Satisfy all applicable permitting, building code, planning and land use requirements;

7) Pass Utility's system inspection and be interconnected to the distribution system;

8) Complete the project by the required completion date based on the time of signing of the PPA;

9) Provide documentation of final system cost and capacity to Utility

Please see separate attachments at www.hyrumcity.org under the heading "Solar Power Purchase Program"

- 1) Application (Project Data, Site Control, and Project Team forms)
- 2) Draft Standard Offer Power Purchase Agreement
- 3) Draft Interconnection Agreement
- 4) Program Sequence Summary

Note: Sample agreements are currently in draft form and subject to change. Please check the website for updates from time-to-time.

Attached are [Member's] PPA guidelines, interconnection standards & application

Hyrum City Utility Services

Interconnection Standards For Generating Facilities (GF) Connected To The Hyrum
City Electric Departmental Distribution System

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Scope and General Requirements

1.1 Scope and Intent

The requirements contained in this document apply to all generation sources connected to the HYRUM CITY ELECTRIC DEPARTMENT distribution system 5MW and below at any one location. Any and all connections to the HYRUM CITY ELECTRIC DEPARTMENT distribution system and any aspect of such connection are subject to HYRUM CITY ELECTRIC DEPARTMENT review and such connections shall not be permitted unless approved by HYRUM CITY ELECTRIC DEPARTMENT. The operation and design of any GF must meet all of the requirements contained in this document, any written agreement between HYRUM CITY ELECTRIC DEPARTMENT and the Operator, as well as any applicable requirements contained in Chapter 26 of the Hyrum City Municipal Code and the Hyrum City Utilities Electric Service Rules and Regulations.

Any location where the aggregate total generation exceeds 5MW may require additional study by HYRUM CITY ELECTRIC DEPARTMENT. This study will consider the specific feeder where the GF is proposed to be connected. If the addition of any GF causes the total amount of generation by all sources on that feeder to exceed 50% of the minimum load on that feeder, additional study by HYRUM CITY ELECTRIC DEPARTMENT is required and the requirements produced as a result of that study may exceed those in this document. If the GF source to be added is highly variable such as wind or solar, and the total amount of wind or solar generation by all sources on that feeder exceeds 13.3% of the feeder capacity, or if the total of all the wind or solar generation on any substation exceeds 13.3% of the substation transformer size, additional study by HYRUM CITY ELECTRIC DEPARTMENT is required and the requirements produced as a result of that study may exceed those in this documents.

Protection and safety devices are intended to provide protection for the HYRUM CITY ELECTRIC DEPARTMENT distribution system, HYRUM CITY ELECTRIC DEPARTMENT utility workers, HYRUM CITY ELECTRIC DEPARTMENT customers and the general public. Protective devices installed on the GF are designed to ensure that the fault current supplied by the GF will be interrupted in the event a fault occurs on the HYRUM CITY ELECTRIC DEPARTMENT distribution system. When a fault occurs, the GF must be designed to automatically disconnect from the HYRUM CITY ELECTRIC DEPARTMENT distribution system until the distribution system is restored to normal operation.

Any source not explicitly described in this document will require special study before it is allowed to interconnect to HYRUM CITY ELECTRIC DEPARTMENT.

1.2 System Phase and Voltage

The GF may interconnect to the system at any service voltage available at the site. Additional voltages may be arranged with HYRUM CITY ELECTRIC DEPARTMENT on the case-by-case basis, subject to HYRUM CITY ELECTRIC DEPARTMENT approval. If the site contains a three-phase system the GF equipment must be three-phase. If only a single phase service is available, a single-phase GF may be allowed. The maximum nameplate rating of all the single-phase generators at any GF shall not exceed 20 kVA if connected line-line. When the site contains a center-tapped single-phase service, machines may be connected between phase and the center-tapped neutral providing the maximum nameplate rating of the generator connected does not exceed 5 kVA.

1.3 System Reclosing

Automatic reclosing is generally not utilized on the HYRUM CITY ELECTRIC DEPARTMENT distribution systems to clear temporary faults; however, in the cases and locations where automatic reclosing is used, the GF must be designed to ensure that the GF will disconnect from the distribution system in the event an automatic reclose occurs. Normally the GF will not be allowed to interfere with automatic reclosing where it exists; however, industry standards require that a GF must automatically disconnect from an islanded system within two seconds. If the existing reclosing interval is faster than two seconds HYRUM CITY ELECTRIC DEPARTMENT will reset it to accommodate the GF.

1.4 Islanding

Islanding occurs when a GF becomes separated from the main generation source on a distribution system, but continues to independently serve a portion of the distribution system. GF's shall be equipped with protective devices

and controls designed to prevent the generator from being connected to a de-energized distribution system. Islanding is not permitted on the HYRUM CITY ELECTRIC DEPARTMENT distribution system.

1.5 Synchronizing

Synchronization of the GF with the HYRUM CITY ELECTRIC DEPARTMENT system must be done automatically. Any proposal to allow manual synchronization is subject to review and approval by HYRUM CITY ELECTRIC DEPARTMENT. All GF's must use protective devices that prevent electrically closing a GF that is out of synchronization with the distribution system. HYRUM CITY ELECTRIC DEPARTMENT will under no circumstances be responsible to liable for any damage done due to an out of synchronization closure of GF onto the system. Additionally, the Operator is responsible and liable for any damages done to the HYRUM CITY ELECTRIC DEPARTMENT system by any type of improper closing onto the system.

1.6 Improper Operation of the GF

Operation and design of the GF must meet all the requirements contained in this document as well as any applicable requirements contained in the Hyrum City Municipal Code and the Hyrum City Utilities Electric Service Rules and Regulations and any written agreement between HYRUM CITY ELECTRIC DEPARTMENT and the Operator. Also, no GF operation will at any time be allowed to adversely impact the operation of the HYRUM CITY ELECTRIC DEPARTMENT system in any way. The GF must not produce adverse amounts of unbalanced currents or voltages; produce high or low voltages, or unacceptable frequencies; it must not inject DC or harmonics into the system beyond what is allowed by this document; or cause excessive operations of system voltage regulating devices such as load tap changers and voltage regulators. The GF must not adversely affect system grounding or ground fault protection.

HYRUM CITY ELECTRIC DEPARTMENT will not normally interfere with the operation of any GF. However, when requested by HYRUM CITY ELECTRIC DEPARTMENT by telephone, in person, or in writing, the Operator must immediately stop operation and not resume operation until cleared by HYRUM CITY ELECTRIC DEPARTMENT to do so. If the Operator begins to operate the GF out of the ranges or conditions listed herein, the Operator must agree to cease operation until such a time as the GF Operator can demonstrate to HYRUM CITY ELECTRIC DEPARTMENT that it has remedied the problem and can once again operate the GF in compliance with these requirements.

If usage of the GF causes unusual fluctuations or disturbances on , or interference with HYRUM CITY ELECTRIC DEPARTMENT's system or other HYRUM CITY ELECTRIC DEPARTMENT customers, HYRUM CITY ELECTRIC DEPARTMENT shall have the right to require GF to install suitable apparatus to reasonably correct or limit such fluctuation, disturbance or interference at not expense to HYRUM CITY ELECTRIC DEPARTMENT or other customers.

1.7 System Capacity Limitations

The equipment installed by HYRUM CITY ELECTRIC DEPARTMENT to distribute power is limited in size and is normally sized for safe and efficient delivery of power. Adding generation to this system, especially generation supplied by renewable sources which normally have low capacity factors, may quickly overload the existing equipment. Care must be taken when adding generation to avoid damaging HYRUM CITY ELECTRIC DEPARTMENT equipment. Also, when system penetration levels of distributed generation becomes large enough, accidental islanding of sections of the system becomes possible, and additional protective devices or systems, such as transfer trip equipment, may be needed for safe operation of the HYRUM CITY ELECTRIC DEPARTMENT system, Whenever one or more of the following limitations are exceeded, HYRUM CITY ELECTRIC DEPARTMENT may need to conduct an additional study and HYRUM CITY ELECTRIC DEPARTMENT may require additional equipment. Additional study is required if:

- a) The rated aggregate generation kVA on any distribution transformer after the addition of the new GF equals or exceeds 100% of the rating of the transformer
- b) The rated aggregate generation kVA on any protective device or feeder from the point of interconnection to the substation transformer exceeds 13.3% of the rating of that protective device or feeder

- c) The rated aggregate generation kVA on any feeder or portion of a feeder equals or exceeds 50% of the existing annual minimum load on that feeder or feeder section
- d) The proposed GF results in more than 90kW of single-phase generation on one phase of a feeder when both the new and existing generation are included
- e) The proposed GF includes an induction machine 300kW or greater, or an aggregate of 300kW of induction generators

1.8 Submittal Requirement

The Operator shall submit in a timely manner, sufficient design and specification information relating to the facilities to be installed by the Operator. HYRUM CITY ELECTRIC DEPARTMENT shall be entitled to review and approve or disapprove these facilities prior to their installation and energization. The Operator agrees to incorporate any reasonable design changes requested by HYRUM CITY ELECTRIC DEPARTMENT prior to, during, or after installation of the GF's facilities. HYRUM CITY ELECTRIC DEPARTMENT's approval or acceptance of any design and specification information related to the GF to be installed shall not be construed as an endorsement of such engineering plans, specifications, or other information.

The following drawings and other documents must be submitted to HYRUM CITY ELECTRIC DEPARTMENT for approval before any construction is begun.

- a) Single-line diagram of the facility showing the sizes of all equipment and the system protection planned
- b) Cut sheets on all equipment planned including inverters, generators, fuses, circuit breakers, switches, etc.
- c) Capability curves on all synchronous and doubly fed induction generators
- d) Short circuit calculations

2.0 Standards and Definitions

2.1 Standards

In all cases the current edition of the following standards should be referred to in design of the power plant, choice of equipment, and interconnection design.

- a) ANSI C84.1 American National Standard for Electric Power Systems and Equipment-Voltage ratings (60 Hertz)
- b) IEEE Std. 18 IEEE Standard for Shunt Capacitors
- c) IEEE Std. 32 IEEE Standard Requirements, Terminology, and Test Procedures for Neutral Grounding Devices
- d) IEEE Std. 141: IEEE Recommended Practice for Electric Power Distribution for Industrial Plants
- e) IEEE Std. 142: IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems
- f) IEEE Std. 242: IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems
- g) IEEE Std. 519: Recommended Practices and Requirements for Harmonic Control in Electric Power Systems.
- h) IEEE Std. 665: IEEE Standard for Generation Station Grounding
- i) IEEE Std. 1015: IEEE Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems
- j) IEEE Std. 1036: IEEE Standard for Application of Shunt Power Capacitors
- k) IEEE 1547 IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems
- l) IEEE 1547.1 IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems

- m) IEEE 1547.2 IEEE Application Guide for IEEE Std 1547, IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems
- n) IEEE Std. C2: National Electrical Safe Code
- o) IEEE Std. C37.06: IEEE Standard for AC High-Voltage Circuit Breakers rated on a Symmetrical Current Basis-Preferred Ratings and Required Capabilities.
- p) IEEE C37.012: IEEE Application Guide for Capacitor Current Switching for AC High-Voltage Circuit Breakers
- q) IEEE C37.66 IEEE Standard Requirements for Capacitor Switches for AC Systems (1kV thru 38kV).
- r) IEEE C37.90 IEEE Standard for Relays and Relay systems Associated with Electric Power Apparatus
- s) IEEE C37.90.1 IEEE Standard for Surge Withstand Capability (SWC) Tests for Relay and Relay Systems Associated with Electric Power Apparatus.
- t) IEEE C37.90.2 IEEE Standard for Withstand Capability of Relay System to Radiated Electromagnetic Interference from Transceivers
- u) IEEE C37.90.3 IEEE Standard Electostatic Discharge Tests for Protective Relays
- v) IEEE C37.95 IEEE Guide for Protective Relaying of Utility-Consumer Interconnections
- w) IEEE Std. C37.102 IEEE Guide for AC Generator rotation
- x) IEEE Std C62.41: IEEE recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits
- y) NERC PRC-024-1: Generator Frequency and Voltage Protective Relays
- z) NFPA 70: National Electrical Code
- aa) UL 1741: Inverters, Converters, Controllers and Interconnection System Equipment for use with Distribution Energy Resources

2.2 Definitions

The following definitions will be used throughout this document.

- ANSI-American National Standards Institute
- HYRUM CITY ELECTRIC DEPARTMENT
- GF-Generating facility
- IEEE-Institute of Electrical and Electronic Engineers
- KVA-Kilovolt-amps
- KW-Kilowatt
- MW-Megawatt
- NEC-National Electrical Code
- NEMA-National Electrical Manufacturers Association
- NESC-National Electrical Safety Code
- Operator-Generating facility owner and operator, successors, heirs, agents, employees, and assigns
- PCC-Point of common coupling
- UL-Underwriters Laboratories
- VAR-Volt-Amps reactive(reactive power)

3.0 GF Equipment and Installation Requirements

3.1 General Requirements

The installation of any GF shall meet the relevant requirements of the National Electrical Code (NEC) and the National Electrical Safety Code (NESC). Where required by the municipality, the Operator cleared to move forward with the installation must obtain all necessary building permits, pass all applicable building department inspections, and meet other applicable requirements including but not limited to municipal code and Hyrum City Electric Service Rules and Regulations.

Unless otherwise modified in this document, the interconnection must meet the requirements of IEEE Std. 1547. Where the requirements of this document vary from the requirements of IEEE Std. 1547, this document governs.

The Operator shall be solely responsible for protecting the GF and all associated equipment from abnormal distribution system conditions such as outages, short circuits, voltage or frequency variations, or other disturbances. HYRUM CITY ELECTRIC DEPARTMENT will not install equipment for the protection of the GF generator or other equipment. The GF equipment must be designed and operated so that it is capable of properly synchronizing the generator to the system, maintaining safe operation of the generation equipment, detecting any unusual operating condition, and disconnecting the generator from the system anytime damage to the generator or other equipment may occur. The equipment protection provided by the Operator will prevent the GF from adversely affecting the distribution system's capability of providing reliable service to other HYRUM CITY ELECTRIC DEPARTMENT customers. The GF must automatically disconnect its self from the system anytime the system conditions are outside the ranges described in this document and is not permitted to reconnect to the system until the system conditions return to normal and are maintained within the normal range for a minimum of five (5) minutes.

3.2 Interconnection Disconnect Switch

Each GF installation must include a manually operated, lockable, disconnect switch with a visual break. The disconnect switch must be visible and accessible at all times by HYRUM CITY ELECTRIC DEPARTMENT personnel to allow the GF to be disconnected safely during maintenance or outage conditions. In the case of a PV system this disconnect switch must be located next to the HYRUM CITY ELECTRIC DEPARTMENT electric meter. In all cases the disconnect switch must be rated to interrupt the maximum output of the generator and must be rated for the voltage and fault current requirements of the GF and must meet all applicable NEMA, UL, ANSI, IEEE, and NEC standards as well as local and state electrical codes. The disconnect switch shall be permanently labeled with text indicating that the switch is for the GF. The labeling shall also clearly indicate the open and closed position of the switch. The disconnect switch must be located on the output or load side of the GF such that the entire GF can be isolated from HYRUM CITY ELECTRIC DEPARTMENT distribution system. If the site contains several generators, a single disconnect switch may be used providing its rating is sufficient for all generators and opening it produces a visible open point between all generators and the HYRUM CITY ELECTRIC DEPARTMENT system.

Other devices such as circuit breakers or fuses may be considered as a substitute for a disconnect switch if each of the following conditions is met:

- a) If a circuit breaker is used it is drawn-out and capable of being locked into the disconnected position
- b) If a fuse is used it is capable of being removed from the bus to provide a visual open point
- c) The operator or Operator's agents are available at all times to disconnect and remove this breaker or fuses whenever requested by HYRUM CITY ELECTRIC DEPARTMENT

All lock-out and tag-out capabilities must also be available for the devices used and must be assessable to HYRUM CITY ELECTRIC DEPARTMENT personnel.

3.3 Dedicated Transformer and Additional Primary Protection

If the GF rating is greater than 50kW the GF must be connected to the HYRUM CITY ELECTRIC DEPARTMENT by a dedicated transformer. The transformer must meet HYRUM CITY ELECTRIC DEPARTMENT standards and design criteria. The transformer must be labeled according to HYRUM CITY ELECTRIC DEPARTMENT practices.

Most interconnecting transformers on the HYRUM CITY ELECTRIC DEPARTMENT system are protected with fuses. However, if a GF is rated at 1500 kVA or above, HYRUM CITY ELECTRIC DEPARTMENT may determine the fuse protection is insufficient to properly protect the HYRUM CITY ELECTRIC DEPARTMENT system. In this case, HYRUM CITY ELECTRIC DEPARTMENT may require that a dedicated three-phase interrupting device such as a recloser must be added to the transformer high-voltage side along with necessary relaying. Moreover, any GF whose connection to the HYRUM CITY ELECTRIC DEPARTMENT distribution system increases the aggregate generation on any feeder, transformer or portion of the feeder to 1500 kVA or above is subject to the separate study by HYRUM CITY ELECTRIC DEPARTMENT, and HYRUM CITY ELECTRIC DEPARTMENT may require the addition of a three-phase protective device on the primary side of the system.

3.4 Interrupting Devices Required

Circuit breakers or other interrupting devices located at the point of common coupling (PCC) must be certified or "Listed" (as defined in Article 100, the Definitions Section of the National Electrical Code) as suitable for their intended application. This includes being capable of interrupting the maximum available fault current expected at their location. The Operator's GF Facility and associated interconnection equipment must be designed so that the failure of any single device will not potentially compromise the safety and reliability of HYRUM CITY ELECTRIC DEPARTMENT's distribution.

3.5 System Protective Functions

The protective functions and requirements contained in this document are designed to protect HYRUM CITY ELECTRIC DEPARTMENT's distribution system and not specifically the Operator's GF. The Operator is solely responsible for providing adequate protection for the GF and all associated equipment. The Operator's protective devices must not impact the operation of other protective devices utilized on the HYRUM CITY ELECTRIC DEPARTMENT distribution system in a manner that would affect HYRUM CITY ELECTRIC DEPARTMENT's ability to provide reliable service to its customers.

The GF's protective functions must sense abnormal conditions and disconnect the GF from the HYRUM CITY ELECTRIC DEPARTMENT distribution system during abnormal conditions. All GFs must be capable of sensing line-line-line-line-line, the line-ground faults on the distribution feeder supplying the GF and must disconnect from the line to protect both the line from further damage and the generator from damage due to excessive currents or unusual voltages. The settings of these relays will be coordinated with HYRUM CITY ELECTRIC DEPARTMENT substation relaying.

For induction machines speed matching must be done automatically and shall match speed to less than 5% before closing the associated breaker.

The minimum protective functions needed for various types of generators, and other requirements for system protection are shown below. Any machine that is not included in one of the following categories must be individually considered by HYRUM CITY ELECTRIC DEPARTMENT.

3.5.1 Synchronous Machines above 50kW to 100kW

- a) Over and under voltage functions (27/59)
- b) Over current trip functions. (50/51) which may be included in a breaker trip-unit or a fuse.
- c) Ground fault protection (50/51G)
- d) Over and under frequency functions. (81O/U)
- e) Sync Check (25)
- f) Phase-sequence or negative sequence voltage (47)
- g) A function to prevent the GF from contributing to the formation of an unintended island and to prevent the GF from reconnecting with the distribution system under abnormal conditions is required.
- h) Relay settings and test reports will be submitted to HYRUM CITY ELECTRIC DEPARTMENT for review. HYRUM CITY ELECTRIC DEPARTMENT will determine if an on-site inspection is required.

3.5.2 Synchronous Machines 100kW to and including 1000kW

- a) Interrupting devices must be 3-phase circuit breakers with electrical operation.
- b) Relays must be utility grade (must meet IEEE Std. C37.90, C37.91, C37.92, and C37.93) and must be independent from the generator control devices.
- c) Over and under voltage functions (27/59)
- d) Voltage restrained over current trip functions. (50/51V)
- e) Ground fault protection (50/51G)
- f) Over and under frequency functions. (81O/U)
- g) Sync Check (25)

- h) Phase-sequence or negative sequence voltage (47)
- i) Reverse power (32)
- j) A function to prevent the GF from contributing to the formation of an unintended island and to prevent the GF from reconnecting with the distribution system under abnormal conditions is required.
- k) Relay settings and test reports will be submitted to HYRUM CITY ELECTRIC DEPARTMENT for review. HYRUM CITY ELECTRIC DEPARTMENT will determine if an on-site inspection is required.

3.5.3 Synchronous Machines 1000kW to and including 5000Kw

- a) Interrupting devices must be 3-phase circuit breakers with electrical operation.
- b) Relays must be utility grade (must meet IEEE Std. C37.90, C37.91, C37.92 and C37.93) and must be independent from the generator control devices.
- c) Over and under voltage functions (27/59)
- d) Voltage restrained over current trip functions. (50/51V)
- e) Ground fault protection (50/51G)
- f) Over and under frequency functions. (81O/U)
- g) Negative Sequence Current (46)
- h) Loss of Field (40)
- i) Sync Check (25)
- j) Phase-sequence or negative sequence voltage (47)
- k) Reverse power (32)
- l) A function to prevent the GF from contributing to the formation of an unintended island and to prevent the GF from reconnecting with the distribution system under abnormal conditions is required.
- m) Relay setting and test reports will be submitted to HYRUM CITY ELECTRIC DEPARTMENT for review.

3.5.4 Doubly-Fed Induction Machines above 50kW to 100kW

- a) Over and under voltage functions (27/59)
- b) Over current trip functions. (50/51) which may be included in a breaker trip-unit or a fuse
- c) Ground fault protection (50/51G) which may be included in a breaker trip-unit or a fuse
- d) Phase-sequence or negative sequence voltage (47)
- e) Speed matching to within 5% (15)
- f) If it is determined that it is possible for the machine to self-excite in this installation, the GF must include a function to prevent the GF from contributing to the formation of an unintended island and to prevent the GF from reconnecting with the distribution system under abnormal condition. If it is determined that the machine cannot self-excite, evidence must be provided to HYRUM CITY ELECTRIC DEPARTMENT proving that this is the case and anti-islanding protection is not required.. If such evidence does not meet HYRUM CITY ELECTRIC DEPARTMENT approval, anti-islanding protection is required.
- g) Relay settings and test reports must be submitted to HYRUM CITY ELECTRIC DEPARTMENT for review. HYRUM CITY ELECTRIC DEPARTMENT will determine if an onsite inspection is required.

3.5.5 Doubly-Fed Induction Machines 100kW to 5000kW

- a) Interrupting devices must be 3-phase circuit breakers with electrical operation.
- b) Relays must be utility grade (must meet IEEE Std. C37.90, C37.91, C37.92 and C37.93) and must be independent from the generator control devices.
- c) Over and under voltage functions (27/59)
- d) Over current trip functions. (50/51) which may be included in a breaker trip-unit or a fuse
- e) Ground fault protection (50/51G) which may be included in a breaker trip-unit or a fuse
- f) Phase-sequence or negative sequence voltage (47)
- g) Negative sequence current (46)
- h) Over and under frequency (81O/U)
- i) Reverse power (32)
- j) Speed matching to within 5% (15)

- k) If it is determined that it is possible for the machine to self-excite in this installation the GF must include a function to prevent the GF from contributing to the formation of an unintended island and to prevent the GF from reconnecting with the distribution system under abnormal conditions. If it is determined that the machine cannot self-excite, evidence must be provided to HYRUM CITY ELECTRIC DEPARTMENT proving that this is the case and anti-islanding protection is not required. If such evidence does not meet HYRUM CITY ELECTRIC DEPARTMENT approval, anti-islanding protection is required.
- l) Relay settings and test reports must be submitted to HYRUM CITY ELECTRIC DEPARTMENT for review. HYRUM CITY ELECTRIC DEPARTMENT will determine if an on-site inspection is required.

3.5.6 Induction Machines above 50kW to 100kW

- a) Over and under voltage functions (27/59)
- b) Over current trip functions. (50/51) which may be included in a breaker trip-unit or a fuse
- c) Ground fault protection (50/51G) which may be included in a breaker trip-unit or a fuse
- d) Phase-sequence or negative sequence voltage (47)
- e) Speed matching to within 5% (15)
- f) If it is determined that it is possible for the machine to self-excite in this installation the GF must include a function to detect and trip the unit during a self-excited condition. This will prevent system over voltages and also prevent the GF from contributing to the formation of an unintended island. If it is determined that the machine cannot self-excite, evidence must be provided to HYRUM CITY ELECTRIC DEPARTMENT proving that this is the case and this protection is not required. If such evidence does not meet HYRUM CITY ELECTRIC DEPARTMENT approval, Anti-islanding protection is required.
- g) Relay settings and test reports must be submitted to HYRUM CITY ELECTRIC DEPARTMENT for approval. HYRUM CITY ELECTRIC DEPARTMENT will determine if an on-site inspection is required.

3.5.7 Induction Machines 100kW to 5000kW

- a) Interrupting devices must be 3-phase circuit breakers with electrical operation.
- b) Relays must be utility grade (must meet IEEE Std. C37.90, C37.91, C37.92 and C37.93) and must be independent from the generator control devices.
- c) Over and under voltage functions (27/59)
- d) Over current trip functions. (50/51) which may be included in a breaker trip-unit or a fuse.
- e) Ground fault protection (50/51G) which may be included in a breaker trip-unit or a fuse
- f) Phase-sequence or negative sequence voltage (47)
- g) Negative sequence current (46)
- h) Over and under frequency (81 U/O)
- i) Reverse power (32)
- j) Speed matching to within 5% (15)
- k) If it is determined that it is possible for the machine to self-excite in this installation the GF must include a function to detect and trip the unit during a self-excited condition. This will prevent system over voltages and also prevent the GF from contributing to the formation of an unintended island. If it is determined that the machine cannot self-excite, evidence must be provided to HYRUM CITY ELECTRIC DEPARTMENT proving that this is the case and this protection is not required. If such evidence does not meet HYRUM CITY ELECTRIC DEPARTMENT approval, anti-islanding protection is required.
- l) Relay settings and test reports will be submitted to HYRUM CITY ELECTRIC DEPARTMENT for review. HYRUM CITY ELECTRIC DEPARTMENT will determine if an on-site inspection is required.

3.5.8 Inverter Connected Systems 1000kW and Below

This may include photovoltaic system (PV), some wind turbines, fuel cells, microturbines and all other machines that deliver their power to the utility system via an inverter or converter utilizing power electronics.

- a) The Inverter must be tested to meet IEEE 1547, and IEEE 1547.1. One way to meet this requirement is to be tested to UL1741. However, it is not required that this testing be done by Underwriters Laboratories. Any recognized testing lab which confirms that the inverter meets IEEE 1547, and IEEE 1547.1 is satisfactory. If the inverter does not carry a UL sticker, HYRUM CITY ELECTRIC DEPARTMENT must be supplied with a letter from the manufacturer or an independent testing laboratory stating the inverter has been tested and meets the above IEEE standards.
- b) HYRUM CITY ELECTRIC DEPARTMENT will require over current trip functions (50/51) which may be included in a breaker trip-unit or a fuse. This device must be separate from the inverter control system and internal disconnect device.
- c) HYRUM CITY ELECTRIC DEPARTMENT will determine if an on-site inspection is required to observe calibration and testing of the inverter functions.

3.5.9. Inverter Connected Systems above 1000kW to 5000kW

This may include photovoltaic system (PV) some wind turbines, fuel cells, microturbines and all other machines that deliver their power to the utility system via an inverter or converter utilizing power electronics.

- a) The Inverter must be tested to meet IEEE 1547, and IEEE 1547.1. One way to meet this requirement is to be tested to UL1741. However, it is not required that this test be done by Underwriters Laboratories. Any recognized testing lab which confirms that the inverter meets IEEE 1547, and IEEE 1547.1 is satisfactory. If the inverter does not carry a UL sticker, HYRUM CITY ELECTRIC DEPARTMENT must be supplied with a letter from the manufacturer or an independent testing laboratory stating the inverter has been tested and meets the above IEEE standards.
- b) HYRUM CITY ELECTRIC DEPARTMENT will require over current trip functions (50/51) which may be included in a breaker trip-unit or a fuse. This device must be separate from the inverter control system and internal disconnect device.
- c) Ground fault protection (50/51G) which may be included in a breaker trip unit. This device must be separate from the inverter control system and internal disconnect device.
- d) Over and under frequency (81 O/U). This device must be separate from the inverter control system and internal disconnect device.
- e) Over and under voltage functions (27/59). This device must be separate from the inverter control system and internal disconnect device.
- f) HYRUM CITY ELECTRIC DEPARTMENT will determine if an on-site inspection is required to observe calibration and testing of the inverter and relay functions.

3.5.10 All machines above 5000kW

Any type of GF of this size must be studied and considered individually by HYRUM CITY ELECTRIC DEPARTMENT.

3.6 Momentary Paralleling Generation Facilities

At times an Operator may decide to install a system that may operate parallel to the HYRUM CITY ELECTRIC DEPARTMENT system only momentarily (normally less than 0.1 seconds). With HYRUM CITY ELECTRIC DEPARTMENT's approval, the transfer switch or system used to transfer the Operator's loads from HYRUM CITY ELECTRIC DEPARTMENT's distribution system to the Operator's GF may be used in lieu of the protective functions required for parallel operation.

4.0 Facility Grounding

In all cases the GF grounding system must not adversely impact HYRUM CITY ELECTRIC DEPARTMENT grounding or ground fault protective relaying. The GF grounding must not cause high voltages to occur under any condition either normally occurring or

occurring during a system fault such as allowing high voltages to exist on the un-faulted phases during a single-line-to-ground fault.

4.1 Equipment Bonding Conductor

The Operator must install an equipment-grounding conductor, in addition to the undergrounded conductors and grounded conductor (neutral), between the GF and the distribution system. The grounding conductor must be permanent, electrically continuous, and must be capable of safely carrying the maximum fault current that could be imposed by the system to which it is connected. Additionally, the equipment-grounding conductor must be of sufficiently low impedance to facilitate the operation of over current protection devices under fault conditions. All conductors shall comply with the National Electrical Code (NEC). The GF must not be designed or implemented such that the earth becomes that sole fault current path.

4.2 Surge Protection

It is strongly recommended but not required that a surge protective device (SPD) be utilized to protect GF equipment.

4.3 System Grounding

HYRUM CITY ELECTRIC DEPARTMENT maintains an effectively grounded distribution system and requires that all GFs be designed to contribute to an effectively grounded system. Effective grounding prevents the occurrence of excessively high voltages during ground faults and protects existing HYRUM CITY ELECTRIC DEPARTMENT equipment. Effective grounding of the GF may desensitize existing HYRUM CITY ELECTRIC DEPARTMENT ground fault protection, which could require HYRUM CITY ELECTRIC DEPARTMENT ground fault relay settings changes or modifications in the design of the GF. The transformer supplied to interconnect the GF voltage to the HYRUM CITY ELECTRIC DEPARTMENT system will normally be a grounded-wye to grounded-wye transformer. This connection will not provide a grounding source by itself and will not provide an effectively grounded system from the GF side of the interconnection unless effective grounding of GF is provided. When designing the grounding system for the GF, the designer should consider the condition that will result when a ground fault occurs on the line serving the GF. This ground fault would be cleared on the HYRUM CITY ELECTRIC DEPARTMENT side of the line by opening a breaker or recloser in the HYRUM CITY ELECTRIC DEPARTMENT substation. This will result in momentarily islanding the line on the GF until it opens its breaker. Under this condition, where the line is islanded and being supplied by the GF, the system must remain effectively grounded.

Effective grounding shall be defined by IEEE Std. 142 which states that to be considered effectively grounded both of the following two conditions must be met:

- a) The ratio of zero-sequence reactance to positive-sequence reactance (X_0/X_1) must be positive and three or less
- b) The ratio of zero-sequence resistance to positive-sequence reactance (R_0/X_1) must be positive and less than 1.

The GF system equivalent (Thevenin equivalent) impedance must meet the criteria for effective grounding stated above. The networks used in determining this impedance, and other fault current calculations for the plant, will include the positive, negative, and zero sequence networks of the step-up transformer connected to the HYRUM CITY ELECTRIC DEPARTMENT system, all other transformers between the generator and the point of common coupling, the generator subtransient, positive, negative and zero sequence values, the neutral grounding device for the generator, the grounding transformer and neutral grounding device (if used) and any significant cable runs. The GF shall maintain an effectively grounded system under normal operating conditions while operating in connection with HYRUM CITY ELECTRIC DEPARTMENT lines.

The short circuit contribution ratio (SCCR) of the GF is defined as the ratio of the GF short circuit contribution to HYRUM CITY ELECTRIC DEPARTMENT's contribution to a short circuit ($I_{scGF}/I_{scHYRUM CITY ELECTRIC DEPARTMENT}$) for either a three-phase

or single-line-to ground fault measured at the high voltage side of the transformer stepping up from the generation voltage to the HYRUM CITY ELECTRIC DEPARTMENT voltage.

The GF must be grounded in such a way that the SCCR for a line-ground fault calculated at the high voltage side of the transformer connecting the GF to HYRUM CITY ELECTRIC DEPARTMENT is less than 3% HYRUM CITY ELECTRIC DEPARTMENT while still achieving effective grounding as defined above. If this SCCR ratio is greater than 3% HYRUM CITY ELECTRIC DEPARTMENT must do a study to determine if re-setting ground fault relays on the existing HYRUM CITY ELECTRIC DEPARTMENT system is required. In rare cases connecting a certain GF to a particular feeder may not be practical due to protection issues or special protection techniques may be needed to make the connection safe.

Proper grounding of the GF can be achieved in a number of ways. HYRUM CITY ELECTRIC DEPARTMENT may at its discretion accept any of the following methods:

- a) Solidly grounding the generator or installing a solidly grounded grounding transformer (zig-zag or grounded wye-delta transformer). While a solidly grounded generator is acceptable to HYRUM CITY ELECTRIC DEPARTMENT if all other requirements are met, it must be used with care. ANSI standards generally require that for a synchronous generator the ground fault current must be limited to the three-phase fault current. This usually requires a resistance or reactance be used for grounding the generator neutral. Also, a solidly grounded generator may conduct large amounts of harmonic currents. There may be some unbalanced voltage at the terminals of the generator. This can cause circulating current through the generator if it is solidly grounded which may make de-rating of the generator necessary. If a solidly grounded system is used the designer must consider and plan for all issues that may result.
- b) Resistance grounding. A resistance grounded generator or grounding transformer with a resistance placed between neutral and ground may be used if it meets the requirements of effective grounding.
- c) Reactance grounding. A reactance grounded generator or grounding transformer with a reactor between the transformer neutral and ground may be used if it meets the requirements of effective grounding.
- d) Other methods may be suggested for consideration by HYRUM CITY ELECTRIC DEPARTMENT.

5.0 Prevention of Interference and Unacceptable Operating Conditions

The Operator must not operate the GF in any way that causes a system disturbance or that superimposes a voltage or current upon HYRUM CITY ELECTRIC DEPARTMENT's distribution system that results in interference with HYRUM CITY ELECTRIC DEPARTMENT operations, service to HYRUM CITY ELECTRIC DEPARTMENT's customers, or other HYRUM CITY ELECTRIC DEPARTMENT equipment and facilities. When HYRUM CITY ELECTRIC DEPARTMENT suspects that interference with electric service to other HYRUM CITY ELECTRIC DEPARTMENT customers is occurring, and such interference exceeds HYRUM CITY ELECTRIC DEPARTMENT Standards, HYRUM CITY ELECTRIC DEPARTMENT reserves the right at its expense to install special test equipment as may be required to reform a disturbance analysis and monitor the operation of the GF to evaluate the quality of power produced. If the GF is demonstrated to be the source of the interference, and it is demonstrated that the interference produced exceeds HYRUM CITY ELECTRIC DEPARTMENT Standards or generally accepted industry standards, HYRUM CITY ELECTRIC DEPARTMENT may, without liability, disconnect the GF from the HYRUM CITY ELECTRIC DEPARTMENT distribution system. It shall be the responsibility of the Operator to eliminate any interference caused by the GF and the Operator must diligently pursue and take corrective action, at the Operator's own expense, to eliminate undesirable interference caused by the GF. The GF will be reconnected to the HYRUM CITY ELECTRIC DEPARTMENT system only after the Operator demonstrates to the satisfaction of HYRUM CITY ELECTRIC DEPARTMENT that the cause of the interference has been remedied.

The Operator's protective devices must prevent the GFs from contributing to an island. If the HYRUM CITY ELECTRIC DEPARTMENT feeder to which the GF is connected is de-energized for any reason, the GF must sense this and disconnect itself within 2 seconds of the de-energization of the feeder.

5.1 Voltage Regulation

The GF shall not actively regulate the voltage at the point of common coupling (PCC) unless the effects of this are first reviewed and approved by HYRUM CITY ELECTRIC DEPARTMENT. If a study has been done by HYRUM CITY ELECTRIC

DEPARTMENT which determines that it is advantageous for a GF to actively control its voltage, HYRUM CITY ELECTRIC DEPARTMENT will inform the Operator and the Operator will be required to control the GF's terminal voltage.

5.2 System Voltage

The voltage operating range limits for GFs shall be used as a protection function that responds to abnormal conditions on HYRUM CITY ELECTRIC DEPARTMENT's distribution system. The HYRUM CITY ELECTRIC DEPARTMENT voltage operating range is normally 95% to 105% of the nominal voltage at the electrical service point, and 92% to 105% of nominal voltage at the utilization point, as required by ANSI C84.1. All GFs must be capable of operating within the voltage range normally experienced on HYRUM CITY ELECTRIC DEPARTMENT's distribution system. Occasional excursions outside this range may occur, and tripping of the GF is not suggested until the voltage range is less than 88% or more than 110% of the nominal voltage. The operating range and GF protection shall be selected in a manner that minimizes nuisance tripping between 88% and 110% of nominal voltage. GFs must not energize or, after a trip, re-energize HYRUM CITY ELECTRIC DEPARTMENTs circuits whenever the voltage at the PCC deviates from the allowable voltage operating range allowed by ANSI C84.1 Table 1 voltage range (95%-105% of nominal voltage at the service or 92-105% of nominal voltage at the utilization point).

Whenever the HYRUM CITY ELECTRIC DEPARTMENT distribution system voltage at the PCC varies from normal (nominally 120 volts) by the amounts as set forth in Table 5-1 the GF's protective functions shall disconnect the generator(s) from the HYRUM CITY ELECTRIC DEPARTMENT distribution system with delay times no longer than those shown.

Table 5-1: Voltage trip settings.
(Adapted from IEEE 1547-2003 and ANSI C84.1-2006)

Voltage at Point of Common Coupling (% of base Voltage)	Maximum Tripping Time Delay (seconds/cycles)
V-PCC < 50%	0.16 / 10
50% < V-PCC < 88%	2.0 / 120
92% < V-PCC < / 105%	Normal operating range
110% < V-PCC < 120%	1.0 / 60
120% < V-PCC	0.16 / 10

5.3 System Frequency

The GF shall operate in synchronism with the HYRUM CITY ELECTRIC DEPARTMENT distribution system. Whenever HYRUM CITY ELECTRIC DEPARTMENT's distribution system frequency at the PCC varies from normal (nominally 60 Hertz) by the amounts as set forth in Table 5-2 the GF's protective functions shall disconnected the generator(s) from the HYRUM CITY ELECTRIC DEPARTMENT distribution system with delay times no longer than those shown.

Table 5-2: Frequency Settings
(Adapted from IEEE 1547-2003 and NERC PRC-024-1)

GF Facility Size	Frequency (Hz)	Maximum Tripping Time Delay (sec./cycles)
GF 30kW or Less	GF<59.3	0.16/10
	59.3 ≤ GF ≤ 60.5	Continuous Operation
	GF>60.5	0.16/10
GF > 30kW	GF<57.8	0.16/10
	57.8 ≤ GF ≤ 58.0	4/240
	58.0 < GF ≤ 58.5	40/2,400
	58.5 < GF ≤ 59.0	200/12,000
	59.0 < GF < 59.5	1,800/108,000

	59.5 ≤ GF ≤ 60.5	Continuous Operation
	60.5 < GF ≤ 61.5	600/36,000
	61.5 < GF	0.16/10

Unless some other anti-islanding scheme is employed, the GF should disconnect due to low frequency resulting from islanding the feeder load on the GF. The frequency settings must be adjusted to insure that, during the lowest loading level on the feeder, the resulting frequency change of the GF when it is islanded with those feeder loads, should cause the under frequency relaying to disconnect the generators within two seconds.

5.4 Synchronization

Synchronous machine automatic synchronizers and sync-check relays must be set as shown in Table 5-3.

Rating of GF (kVA)	Maximum Slip Rate (Hz)	Maximum Voltage Difference (%V)	Maximum Phase Angle Difference (deg).
0-500	0.3	10	20
500-1500	0.2	5	10
1500 and above	0.1	3	10

5.5 Flicker

Any voltage flicker at the PCC caused by the GF should not exceed the limits defined by the “Maximum Borderline of Irritation Curve” identified in IEEE 519, IEEE 141, and IEEE 1453. This limit is shown in Figure 5-1. This requirement is necessary to minimize the adverse voltage effects which may be experienced by other customers on the HYRUM CITY ELECTRIC DEPARTMENT distribution system due to the operation of the GF. Induction generators may only be connected to the system and brought up to synchronous speed (as an induction motor) if these flicker limits are not exceeded.

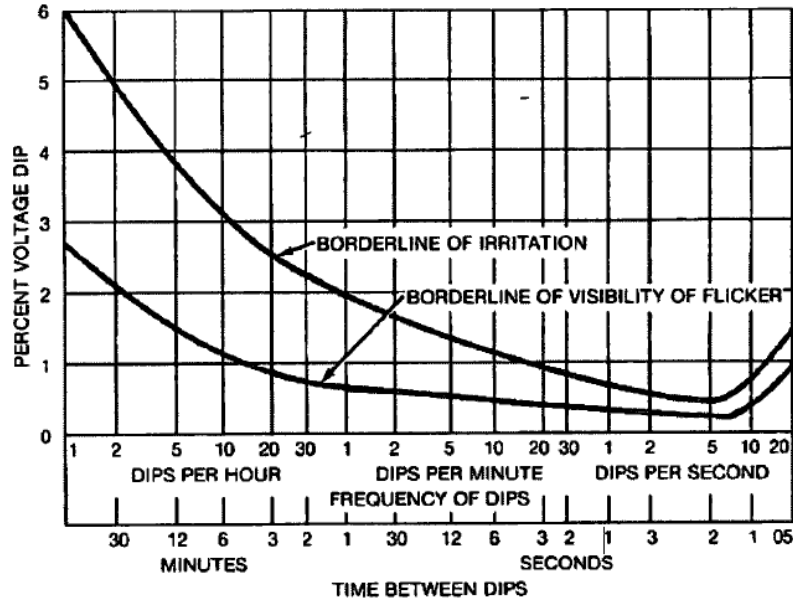


Figure 5-1: Allowable voltage flicker vs. time (reproduced from IEEE Std. 141).

5.6 Harmonics

Harmonic distortion measured at the PCC must be in compliance with IEEE 519 and IEEE 1547. Harmonic Current injection limits are shown in Table 5-4.

Table 5-4: Maximum harmonic current distortion as a percentage of fundamental frequency at the point of common coupling (Adapted from IEEE 1547-2003)

Individual Harmonic Order h (Odd Harmonics Only)					
H<11	11≤h<17	17≤h<23	23≤h<35	35≤h	TDD
4.0	2.0	1.5	0.6	0.3	5.0

The even Harmonic limits must be 25% of those shown in Table 5-4.

GF's must not inject direct current greater than 0.5% of rated output into the HYRUM CITY ELECTRIC DEPARTMENT distribution system. Any device causing a DC offset such as half-wave converter shall not be allowed.

5.7 Power Factor

The power factor at the point of common coupling (PCC) with HYRUM CITY ELECTRIC DEPARTMENT (the low voltage terminals of the transformer connecting the GF to HYRUM CITY ELECTRIC DEPARTMENT) shall always remain within 0.95 lagging (VARs going into the site) to 0.95 leading (Vars going out of the site). The only exception to this requirement is a GF consisting of an inverter connected generator 10kW or less. For this exception it is expected that the site power factor will deteriorate anytime the GF is operating, the HYRUM CITY ELECTRIC DEPARTMENT will provide the VARs needed at the site. However the site power factor must be maintained such that it would remain within the limits stated above if the GF was not operating and, as a result, the power factor was allowed to revert to the value it had before the GF was added.

Each synchronous generator in a GF shall be capable of operating at any point within a power factor range of 0.95 leading (Vars going into the generator) to 0.95 lagging (Vars going out of the generator). Synchronous generators should automatically control power factor and should be set to deliver VARs to the system as needed to keep the power factor at the PCC with HYRUM CITY ELECTRIC DEPARTMENT to the range required by this section.

For generators other than synchronous generators, operation outside this power factor range is acceptable provided the cumulative power factor of the customer's entire facility is kept within the range noted. This may be done using capacitor banks, controlling the inverter settings, adding static VAR compensators (SVC) or synchronous condensers, or other means agreeable to both the GF and HYRUM CITY ELECTRIC DEPARTMENT. If capacitor banks are used they shall be sized and installed per IEEE Stds. 18, 1036, C37.012, C37.06, C37.66, and 1015. Capacitors may need to be stepped and switched to meet the power factor requirements above. Before the addition of capacitors the GF should completely study the effects of the capacitor additions on the resonance conditions and harmonic values that will result. If the GF's addition of capacitors causes adverse resonance or harmonics effects on HYRUM CITY ELECTRIC DEPARTMENT's system, the GF shall be required to pay for any modification needed to mitigate the problem.

6.0 Monitoring Provisions

The following monitoring and metering requirements must be met by any Operator connecting a GF to the HYRUM CITY ELECTRIC DEPARTMENT system.

6.1 Metering

GFs larger than 10kW and less than or equal to 100kW require a minimum of a form 9s metering installation.

GFs larger than 100kW will require revenue metering capable of recording the following components.

- a) Time of use (TOU)
- b) Harmonic measuring capability
- c) Four quadrant capability
- d) MV90 capable
- e) Form 9S
- f) The revenue meter must measure the aggregate load of the Operator's facility including the GF.

6.2 Monitoring and Control Requirements

Each non-inverter connected generating facility of 100kW or larger shall be required, at the discretion of HYRUM CITY ELECTRIC DEPARTMENT, to have HYRUM CITY ELECTRIC DEPARTMENT supplied equipment that will be used for monitoring and control of the facility. The Operator shall be responsible for all hardware, software, and any installation costs of HYRUM CITY ELECTRIC DEPARTMENT provided equipment associated with the co-gen installation. HYRUM CITY ELECTRIC DEPARTMENT will provide a remote monitoring and control equipment enclosure containing the following equipment at the Operator's expense:

- 900 MHZ spread spectrum radio
- SEL 351 relay
- Terminal blocks as required
- Various control switches, CT blocks, etc as required
- UPS power supply with battery back up

A YAGI antenna will be provided and shall be installed by the Operator at a location designated by HYRUM CITY ELECTRIC DEPARTMENT. The Operator will be responsible for installing the antenna coax specified by HYRUM CITY ELECTRIC DEPARTMENT. The Operator must use a certified installer to terminate the coax. The Operator shall also be responsible for mounting the equipment enclosure.

The monitoring and control system shall be designed to allow HYRUM CITY ELECTRIC DEPARTMENT to preform the following:

- Trip the generator breaker for unstable system conditions such as frequency, voltage and fault conditions

- Place a HOT LINE TAG on the generator breaker that would block its close circuit to prevent its closing
- Initiate a generator startup thru SCADA for future power dispatching by HYRUM CITY ELECTRIC DEPARTMENT (This would normally be blocked locally unless requested by the Operator.)
- Monitor the generator breaker status to determine if the generator is on or off line
- Monitor generator output power (real and reactive), voltage, harmonics etc. (This will require current and voltage inputs from the GF equipment.)

The GF Operator must provide all the necessary interface design to accomplish the functions listed above. The GF Operator must submit drawings of the proposed design to HYRUM CITY ELECTRIC DEPARTMENT for review.

7.0 Testing

7.1 Commissioning Tests

In addition to any commissioning tests required by the owner of the GF or manufacturer of equipment used, the following tests must be performed before operation of the GF. The Operator must notify HYRUM CITY ELECTRIC DEPARTMENT two weeks in advance of the time of the testing so that a HYRUM CITY ELECTRIC DEPARTMENT representative may observe any tests required by HYRUM CITY ELECTRIC DEPARTMENT.

- a) Visual inspection to ensure proper grounding
- b) Visual inspection shall confirm the presence of the isolation device described in section 3.2 and the device shall be tested for operation.
- c) Trip tests must be performed to prove each device which is required to trip any breaker is capable of doing so.
- d) Relays or protective functions provided by the generator manufacture must be tested and relay test reports must be made available to HYRUM CITY ELECTRIC DEPARTMENT. All of the functions required in Section 3.5 must be tested. Inverter connected devices tested by an independent testing laboratory as required in Section 3.5 are not be required to perform this test.
- e) In the case of a synchronous generator the Operator must prove that the generator is connected to the system with the proper phase rotation and that all three phases of generator voltage match those of the system at the same instant in time. This test is commonly know as “phasing out” the generator.
- f) In the case of a synchronous generator the Operator must prove that the generator synchronizer the sync check relay is capable of connecting the generator to the system properly and in synchronism. This test must be done before the generator is allowed to actually connect to the system.
- g) The ability of the control system to disconnect the generator within two seconds in the event of islanding must be tested.

7.2 Periodic Maintenance Tests

An Operator must maintain his or her equipment in good order and in compliance with all manufacturers suggested periodic maintenance. If it is discovered that an Operator is not properly maintaining his or her equipment, HYRUM CITY ELECTRIC DEPARTMENT may disconnect the GF until such time that the Operator can prove that he or she has provided all required maintenance needed to allow the GF to operate properly and safely.

HYRUM CITY ELECTRIC DEPARTMENT reserves the right to inspect the GF equipment whenever it appears the GF is operating in a matter that is hazardous to the HYRUM CITY ELECTRIC DEPARTMENT.

Fictional testing must be performed every year to prove the proper operation of the isolation device and all breakers and relays. For all GFs consisting of synchronous machines with aggregate ratings of larger than 1000kW, no less than once every three years all protective functions must be re-rested and calibrated to prove their operation complies with the requirements contained in this document. The Operator must maintain written records of these tests and these records will be made available to HYRUM CITY ELECTRIC DEPARTMENT on request.

Battery systems used for generator control or protective relaying must be maintained and periodically tested as suggested by the battery manufacturer.

7.3 Qualified Personnel

All testing and calibration shall be done by qualified personnel. HYRUM CITY ELECTRIC DEPARTMENT will provide a list of contractors qualified to provide this service.

8.0 Design Changes

After the GF begins operation any design changes, such as the addition of more generation, must be submitted to HYRUM CITY ELECTRIC DEPARTMENT for review. Protective devices or any other requirements listed in this document must not be modified or their settings changed without approval of HYRUM CITY ELECTRIC DEPARTMENT.

10.0 Liability and Insurance

In no event shall HYRUM CITY ELECTRIC DEPARTMENT be help responsible for the safety, reliability, design, or protection of the GF. Compliance with these interconnection standards does not mean the GF is safe to operate and the Operator is solely responsible for making a determination about whether the GF is safe to operate.

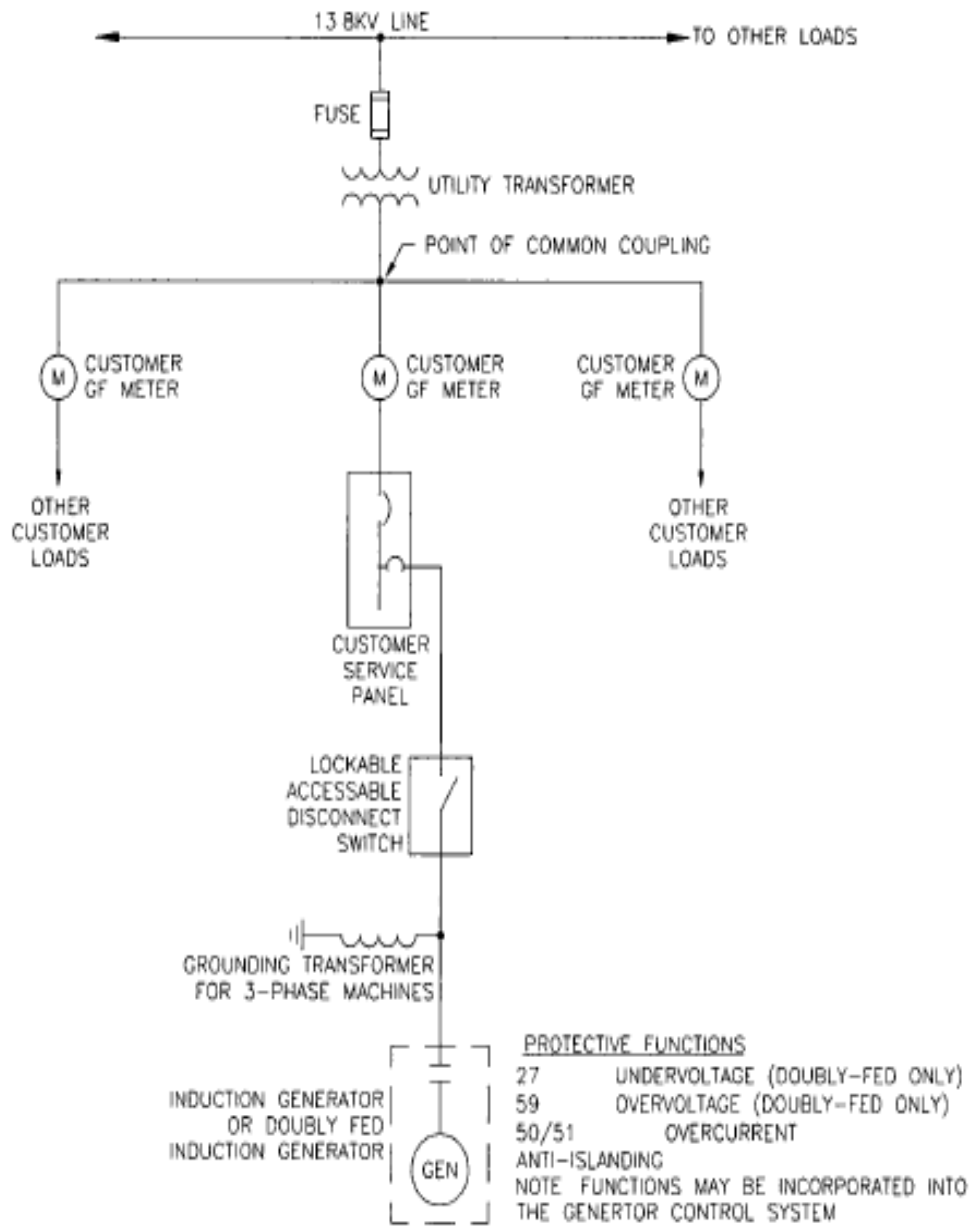
Nothing herein shall be construed to create any duty to, any standard of care with reference to, or any liability to any person who is not a party to an arrangement or agreement between HYRUM CITY ELECTRIC DEPARTMENT and the Operator pursuant to these requirements. HYRUM CITY ELECTRIC DEPARTMENT is not liable for damages caused to the facilities, improvements or equipment of the Operator by reason of the operation, faulty operation or non-operation of HYRUM CITY ELECTRIC DEPARTMENT facilities.

To the extent permitted by law, the Operator shall be solely responsible for and shall defend, indemnify and hold HYRUM CITY ELECTRIC DEPARTMENT harmless from and against any and all claims or causes of action for personal injury, death, property damage, loss or violation of governmental laws, regulations or orders, which injury, death, damage, loss or violations occurs on or is caused by operation of equipment or facilities on the Operator's side of the point of connection. Notwithstanding the above and to the extent permitted by law, the Operator shall be solely responsible for and shall defend, indemnify and hold harmless HYRUM CITY ELECTRIC DEPARTMENT from and against any and all claims or causes of action for personal injury, death, property damage or loss or violation of governmental laws, regulations of orders, wherever occurring, which injury, death, damage, loss or violation is due solely to the acts of omissions of such Operator, including but not limited to the use of defective equipment or faulty installation or maintenance or equipment by such party. However, nothing contained in this section shall be construed as relieving or releasing the other party from liability or personal injury, death, property damage or loss or violation of governmental laws, regulations or order, wherever occurring, resulting from its own negligence or the negligence of any of its officers, servants, agents or employees. In the event of concurrent negligence liability shall be apportioned between the parties according to each party's respective fault. Neither the Operator nor HYRUM CITY ELECTRIC DEPARTMENT shall be liable to the other or any other third party, in contract or in tort or otherwise, for loss of use of equipment and related expenses, expense involving cost of capital, claims of customers of HYRUM CITY ELECTRIC DEPARTMENT or the Operator, as applicable, loss of profits or revenues, cost of purchase or replacement power, or any indirect, incidental or consequential loss or damage whatsoever.

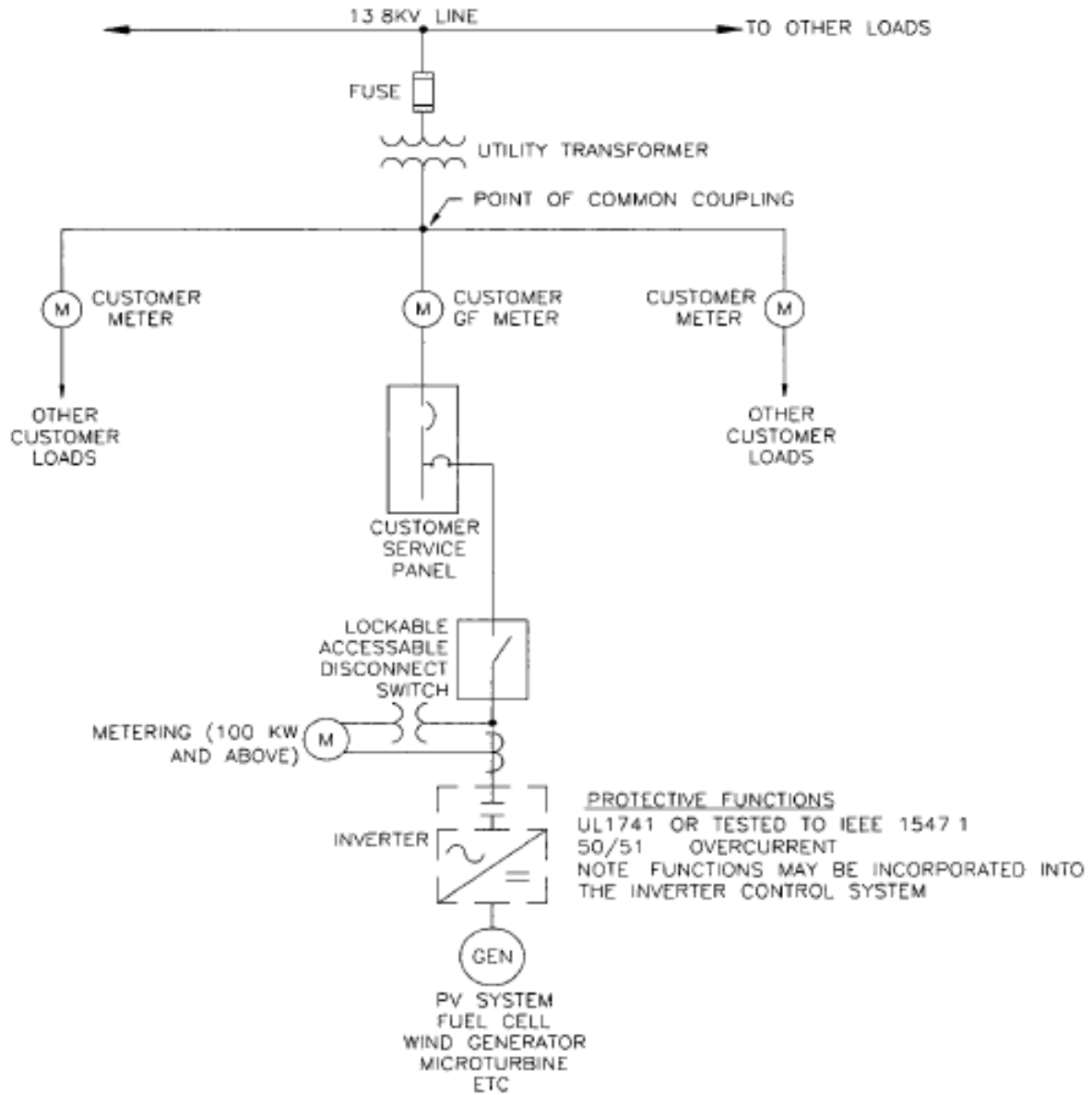
The Operator shall pay all costs that may be incurred by HYRUM CITY ELECTRIC DEPARTMENT in enforcing the indemnity described herein. Each party's liability to the other party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either party be liable to the other party for indirect, incidental, special, consequential, or punitive damages of any kind whatsoever.

For systems of ten kW or more, the Operator, at its own expense, except when the Operator is a governmental entity that self-insures in accordance with Colorado law, shall secure and maintain in effect during connection of its GF to the HYRUM CITY ELECTRIC DEPARTMENT system, liability insurance with a combined single limit for bodily injury and property damage of not less than \$300,000 (Three Hundred Thousand Dollars) each occurrence. Such liability insurance shall not exclude coverage for any incident related to the subject GF or its operation. Except when the Operator is a governmental entity that self-insures in accordance with Colorado law, HYRUM CITY ELECTRIC DEPARTMENT shall be named as an additional insured under the liability policy. For systems above 500 kW and up to one megawatt, the Operator, at its own expense, except when the Operator is a governmental entity that self-insures in accordance with Colorado law, shall secure and maintain in effect during connection of its GF to HYRUM CITY ELECTRIC DEPARTMENT system, liability insurance with a combined single limit for bodily injury and property damage of not less than \$2,000,000 (Two Million Dollars) for each occurrence. Insurance coverage for systems greater than one megawatt shall be determined on a case-by-case basis by HYRUM CITY ELECTRIC DEPARTMENT and shall reflect the size of the installation and the potential for system damage. Any insurance policy required herein shall include that written notice be given to HYRUM CITY ELECTRIC DEPARTMENT at least 30 days prior to any cancellation or reduction of any coverage. Such liability insurance shall provide, by endorsement to the policy, that HYRUM CITY ELECTRIC DEPARTMENT shall not by reason of its inclusion as an additional insured incur liability to the insurance carrier for the payment of premium of such insurance. A copy of the liability insurance certificate must be received by HYRUM CITY ELECTRIC DEPARTMENT prior to GF operation. Certificates of insurance evidencing the requisite coverage and provision(s) shall be furnished to HYRUM CITY ELECTRIC DEPARTMENT prior to date of interconnection of the generation system. HYRUM CITY ELECTRIC DEPARTMENT shall be permitted to periodically obtain proof of current insurance coverage from the Operator in order to verify proper liability insurance coverage. The Operator will not be allowed to commence or continue interconnected operations unless evidence is provided that satisfactory insurance coverage is in effect at all times.

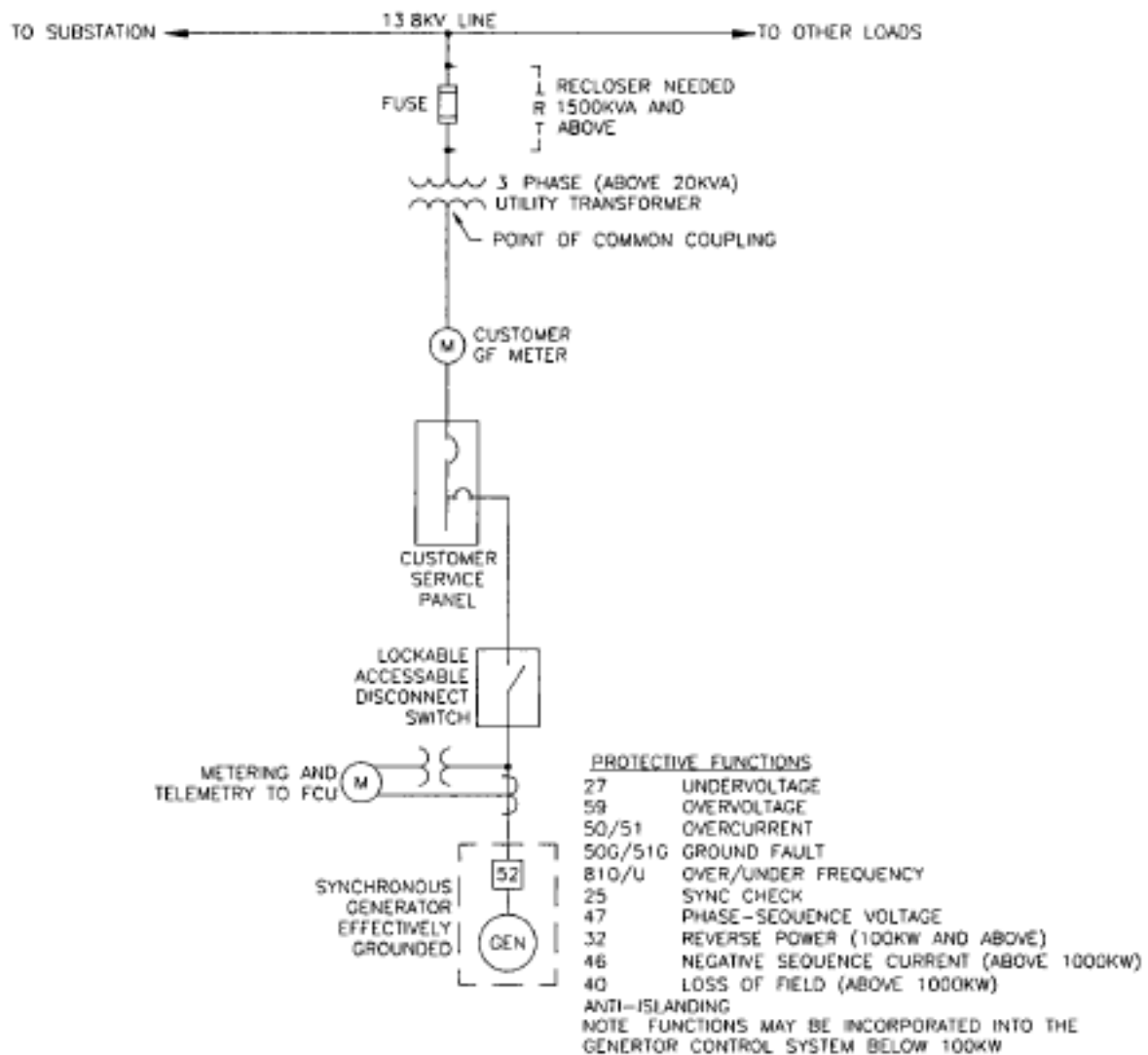
APPENDIX A TYPICAL ONE LINE INDUCTION GENERATOR BETWEEN 50KW AND 100KW



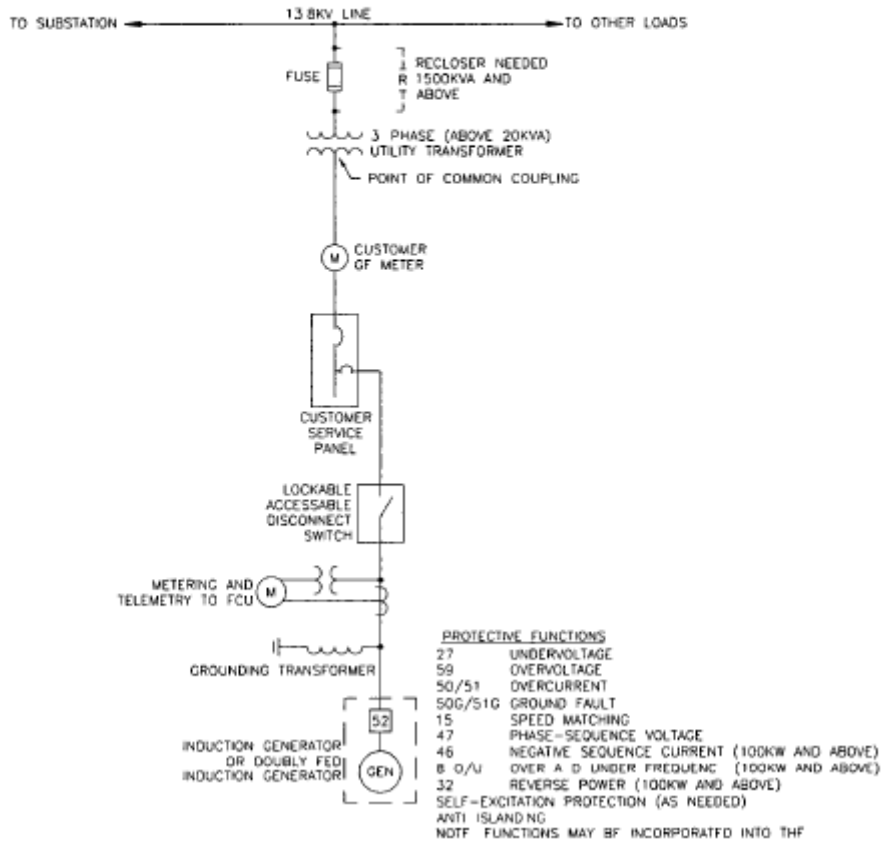
APPENDIX B TYPICAL ONE LINE INVERTER CONNECTED GENERATOR BELOW 1000KW



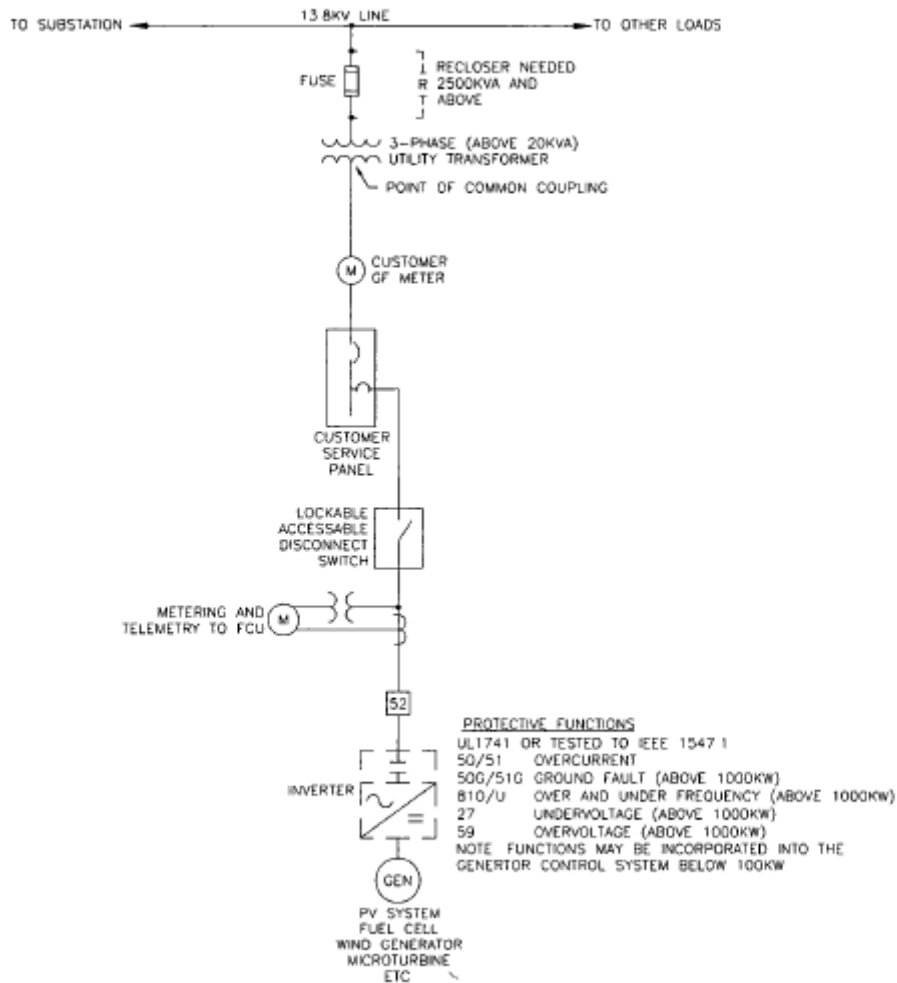
APPENDIX C TYPICAL ONE LINE SYNCHRONOUS GENERATOR 50KW AND ABOVE



APPENDIX D TYPICAL ONE LINE INDUCTION GENERATOR LARGER THAN 100KW



APPENDIX E TYPICAL ONE LINE INVERTER CONNECTED GENERATOR LARGER THAN 1000KW



POWER PURCHASE AGREEMENT

This POWER PURCHASE AGREEMENT, (the "Agreement"), effective as of that last date of signature provided below, is by and between _____ ("Owner") as a (Select one) "SP3 Class I" – under 100kW or "SP3 Class II" – 100 to 1000kW generator, and Hyrum City, Utah ("Utility").

RECITALS:

WHEREAS, Utility owns, directly or indirectly, an electric power distribution network within the municipal boundaries of Hyrum City, Utah, (the "Network"); and

WHEREAS, Utility desires that Owner install, maintain and operate, and Owner desires to install, maintain and operate the "feed-in tariff" System to be interconnected (fed- into) into the Network on property owned or leased by Owner, as more fully described in Exhibit A hereto, (the "Site"); and

WHEREAS, Utility will accept title to all electric energy ("Energy") generated by Owner, which Energy will be sold to Utility; and

WHEREAS, Owner desires to sell, and Utility desires to purchase, the Environmental Attributes (as defined herein) generated by the System and other services pursuant to the terms and conditions set forth herein.

NOW THEREFORE, in consideration of the mutual promises set forth below, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

AGREEMENT

I. Definitions. Unless otherwise required by the context in which any term appears:

(a) capitalized terms used in this Agreement shall have the respective meanings set forth in this Section 1; (b) the singular shall include the plural and vice versa; (c) the word "including" shall mean "including, without limitation", (d) references to "Sections" and "Exhibits" shall be to sections and exhibits hereof; (e) the words "herein," "hereof" and "hereunder" shall refer to this Agreement as a whole and not to any particular section or subsection hereof; and (f) references to this Agreement shall include a reference to all exhibits hereto, as the same may be amended, modified, supplemented or replaced from time to time.

"Agreement" shall have the meaning set forth in the recitals.

"Applicable Law" shall mean, with respect to any Governmental Authority, any constitutional

provision, law, statute, rule, regulation, ordinance, treaty, order, decree, judgment, decision, certificate, holding, injunction, registration, license, franchise, permit, authorization, guideline, governmental approval, consent or requirement of such Governmental Authority, enforceable at law or in equity, along with the interpretation and administration thereof by any Governmental Authority.

“Budget Non-Appropriation Event” shall have the meaning set forth in Section 7.2.

“Commercial Operation” shall mean the production of Energy by Owner which is available for purchase pursuant to the terms of the Agreement, including satisfaction of all Conditions, as set forth in Section 3.3.1.

“Commercial Operation Date” shall mean, subject to verification by Utility, the date on which Owner notifies Utility of Owner’s declaration that all conditions set forth in Section 3.3 have occurred or otherwise been satisfied.

“Contractor” shall mean Owner and any third party contractor, subcontractor, or assignee.

“Delivery Point” shall mean the point of electrical interconnection of the Site and the Network, as shown on Exhibit A.

“Energy” shall have the meaning set forth in the Recitals.

“Environmental Attributes” means the characteristics of electric power generation of the System that have intrinsic value, separate and apart from the Energy, arising from the environmental benefits of the System or the Energy, including but not limited to all environmental and other attributes that differentiate the System or the Energy from energy generated by fossil-fuel based generation units, fuels or resources, characteristics of the System that may result in the avoidance of environmental impacts on air, soil or water, such as the absence of emission of any oxides of nitrogen, sulfur or carbon or of mercury, or other gas or chemical, soot, particulate matter or other substances attributable to the System or compliance with laws or regulations involving or administered by the Clean Air Markets Division of the Environmental Protection Agency or successor administrator or any state or federal entity given jurisdiction over a program involving transferability of rights arising from Environmental Attributes and Reporting Rights, including all RECs; provided, however, that "Environmental Attributes" shall not include any investment tax credits (including any grants or payments in lieu thereof) and any tax deductions or other benefits under the Internal Revenue Code or applicable federal, state, or local law available as a result of the ownership and operation of the System or the output generated by the System (including, without limitation, accelerated and/or bonus depreciation).

“Estimated Annual Production” shall mean the annual estimate of Energy, based on PVWatts® (NREL) or similar as set forth in Schedule 1 to Exhibit B hereto.

“Expiration Date” shall have the meaning set forth in Section 8.1.

“Force Majeure Event” shall have the meaning set forth in Section 7.1.

“Governmental Authority” shall mean any federal, state, regional, county, town, city, or municipal government, whether domestic or foreign, or any department, agency, bureau, or other administrative, regulatory or judicial body of any such government, including the Hyrum City.

“Installation Work” shall mean all work performed by Owner in connection with the furnishing, installation, testing and commissioning of the System.

“kWh Rate” shall have the meaning set forth in Section 5.1.

“Monthly Period” shall mean the period commencing on the Commercial Operation Date and ending on the last day of the calendar month in which the Commercial Operation Date occurs, and, thereafter, all subsequent one (1) month periods during the Term.

“Monthly Production” shall mean, for each Monthly Period, the amount of Energy from the System delivered during such Monthly Period to the Delivery Point.

“Network” shall have the meaning set forth in the Recitals.

“O&M Work” shall have the meaning set forth in Section 4.1.

“Owner” shall have the meaning set forth in the Recitals. For purposes of access rights and other rights necessary for Owner to perform its obligations hereunder, the term "Owner" shall include Owner's authorized agents, contractors and subcontractors.

“Owner Default” shall have the meaning set forth in Section 9.1.

“Party” shall mean each of Utility and Owner.

“Person” shall mean any individual, corporation, partnership, company joint venture, association, trust, unincorporated organization or Governmental Authority.

“Renewable Energy Credits (RECs)” shall mean a tradable, non-tangible energy commodity in the United States that represents proof that 1 megawatt-hour (MWh) of electricity was generated from an eligible renewable energy resource towards compliance with the Utah renewable energy standard as set forth in C.R.S. § 40-2-124, as may be amended from time to time.

“Replacement Costs” means an amount equal to the present value of the economic loss to a Party, attributable to early termination of the Agreement, limited to the twelve months following the Termination Date, determined in a commercially reasonable manner.

For Utility, commercially reasonable Replacement Costs include incremental costs suffered by Utility to replace the Estimated Annual Production and/or Environmental Attributes that Owner fails to deliver under this Agreement, including the amounts paid or incurred by Utility for replacement capacity, replacement energy, transmission and

ancillary services associated with delivery of replacement capacity and energy and directly associated transaction costs. As a point of reference for current estimated Replacement Costs, the rate charged by Utility's under Tariffs 1 and 7 ("Resale Power" and "Renewable Energy Premium") for all such costs is \$0.040 per kWh. In the event of Owner termination prior to Commercial Operation Date, Replacement Costs for the Utility shall be limited to the following flat fee:

- i) Class I systems, \$400 per City solar power generation account ("Account");
- ii) Class II systems, a fee per Account calculated as \$5 per rated kilowatt- DC from 100 to 1000 kW.

For Owner, commercially reasonable Replacement Costs include the amounts Utility would have paid over the subsequent twelve months for the Estimated Annual Production and Environmental Attributes, had the same been delivered.

For either Party, Replacement Costs may include reasonable attorneys' fees suffered as a result of the early termination of the Agreement.

“Reporting Right” means the right to report ownership of Environmental Attributes (including RECs) in compliance with federal or state law, if applicable, and to a federal or state agency or any other party, and include Green Tag Reporting Rights accruing under Section 1605(b) of The Energy Policy Act of 1992 and any present or future federal, state, or local law, regulation or bill, and international or foreign emissions trading program.

“Solar Generator Interconnection Agreement” shall mean the Solar Generator Interconnection Agreement between Utility and Customer authorizing the interconnection of the System and available for contribution to the Network.

“Site” shall have the meaning set forth in the Recitals and depicted on the attachments hereto.

“SP3 Class I” shall mean a solar generation system with the rated capacity less than 100kW dc.

“SP3 Class II” shall mean a solar generation system with a rated capacity between 100kWdc and 1000 kW dc.

“State” shall mean the State of Utah.

“System” shall mean the solar photovoltaic generating system designed and installed pursuant to this Agreement at the Site and more fully described in Exhibit B hereto.

“Term” shall have the meaning set forth in Section 8.1.

“Termination Date” shall have the meaning set forth in Section 8.1.

“Utility” shall have the meaning set forth in the Recitals.

2. **Purchase and Sale of Energy and Environmental Attributes.** During the Term of this Agreement, Owner shall sell, and Utility shall purchase all Energy of the System delivered by Owner to the Delivery Point. During the term of this Agreement, Owner will also provide the Environmental Attributes associated with all Energy generated by the System to Utility and Utility will accept all such Environmental Attributes, all in accordance with the terms and conditions set forth herein. Owner shall provide Utility with access to the Site in accordance with the terms of the separate Solar Generator Interconnection Agreement, executed contemporaneous to this Agreement.

3. **Construction, Installation and Testing of System.** With respect to the Site on which the System is to be installed:

3.1 **Detailed Engineering.** Owner shall prepare and submit to Utility engineering drawings showing the plan and array configuration for the Site, detailed plans of all structures, electrical systems, interfaces with the grid electricity supply and any necessary facility or utility infrastructure improvements and/or modifications.

3.2 **Installation.** Owner will cause the System to be designed, engineered, installed and constructed substantially in accordance with the terms of this Agreement and in compliance with local building codes and utility standards, including but not limited to the Solar Generator Interconnection Agreement. Owner shall organize the procurement of all materials and equipment for the Installation Work and maintain the same at the Site as necessary.

3.3 **Condition to Commercial Operation.** Owner shall notify Utility in writing when the System is ready for commercial production of Energy under this Agreement and interconnection with the Network. This notification is contingent upon verification of the satisfaction or occurrence of the all of the conditions set forth in this Section ("Conditions") and Owner's providing evidence of such satisfaction or occurrence reasonably acceptable to Utility. The parties agree that review and approval of such Conditions may occur on an ongoing and incremental basis, pending resolution of any disputes, as such Conditions are satisfied.

3.3.1 The Conditions are as follows:

- (a) Owner has successfully completed that testing of the System that is required by any financing documents, government permits, the City's parallel generation interconnection standards (as applicable), the Solar Generator Interconnection Agreement, and manufacturers' warranties for the commencement of commercial operation of the System;
- (b) The System has operated continuously for a period of at least seventy two (72) hours without experiencing any abnormal operating conditions, and has generated continuously for a period of not less than six (6) hours while synchronized to the Network at a net output of at least ninety percent (90%) of solar resource adjusted net capacity without experiencing abnormal operating conditions;

- (c) The System has met the interconnection requirements for Utility and has achieved initial synchronization with the Network, and has demonstrated reliable communications within the System and with Utility' interconnection monitoring equipment;
- (d) If required by Utility field engineering staff, an independent professional engineer's certification has been obtained by Owner stating the System has been completed in all material respects, including compliance with applicable parallel generation interconnection standards;
- (e) Certificates of insurance evidencing appropriate coverage have been obtained and submitted to Utility; and
- (f) Owner has made all necessary governmental filings and/or applications for Environmental Attributes and other system accreditations.

4. **Operation and Maintenance of System.**

4.1 **O&M Work.** Owner, at its sole cost and expense, shall provide all spare parts, System operation, repair, monitoring and maintenance services for Owner-installed equipment for the Term of this Agreement, excluding any monitoring and maintenance of metering equipment placed by Utility to determine the quantity of electricity produced by the System (collectively, the "O&M Work").

4.2 **Metering.**

4.2.1 **Maintenance and Testing.** Utility shall install and maintain a utility-grade kilowatt-hour ("kWh") meter ("Meter") on the Site for the measurement of Energy generated by the System at the Site, which shall measure the kWh output of the System on a continuous basis for purposes of determining the Monthly Production. Owner shall be allowed to observe any Meter test, and Utility shall provide notice of the testing to Owner at least ten (10) days prior to the test date. Owner shall reimburse Utility for the cost of the additional tests requested by Owner, unless such testing demonstrates that the Meter was operating outside of industry standard tolerance allowances or an adjustment is required under Section 4.2.2.

4.2.2 **Adjustments.** If testing of a Meter pursuant to Section 4.2.1 indicates that such Meter is in error by more than two percent (2%), then Utility shall promptly repair or replace such Meter. Utility shall make a corresponding adjustment to the records of the amount of Energy based on such test results for (a) the actual period of time when such error caused inaccurate meter recordings, if such period can be determined by Utility, or (b) if such period cannot be so determined, then a period equal to one-half (1/2) of the period from the later of (i) the date of the last previous test confirming accurate

metering and (ii) the date the Meter was placed into service; provided, however, that such period shall in no case exceed two (2) years.

4.3 **Title to System.** Owner, or Owner's permitted assigns, shall at all times retain title to and be the legal and beneficial owner of the System, including the right to any tax credits available under federal or state law, and the System shall remain the property of Owner or Owner's assigns. Owner shall not transfer title to another entity without prior written notification to Utility and written Utility approval, which approval shall not be unreasonably withheld, or except as provided in Section 11.3.

4.4 **Compliance with Utility Specifications.** The Owner agrees to furnish, install, operate and maintain its interconnection as required by Utility interconnection standards, available at Utility's offices and incorporated by this reference, and agrees to meet the requirements of such policies and procedures, as amended from time to time.

4.5 **Title and Risk of Loss.** Title to and risk of loss related to the Energy shall transfer from Owner to Hyrum City at and after the Delivery Point. Title and risk of loss related to the Environmental Attributes associated with Energy from the System shall transfer from Owner to Utility upon delivery of the associated Energy to the Delivery Point.

5. **Purchase of Energy and Environmental Attributes.** With respect to the System installed on the Site pursuant to this Agreement.

5.1 **Purchase Entitlement.** In addition to all Energy from the System delivered to the Delivery Point, Utility shall be entitled to 100% of the Environmental Attributes generated by the System. Energy production shall be metered and verifiable by Utility's personnel. While the Energy and Environmental Attributes are calculated and billed on a per kWh basis (the "kWh Rate") as set forth in Exhibit C, attached hereto and incorporated by this reference, they represent a package of services as described in the definitions herein. The payments for that package of services, as provided for in this Agreement, are calculated to include all of the defined services in the kWh Rate. Neither Utility nor Owner may claim that by this Agreement, Owner is an electric utility subject to regulation as an electric utility or subject to regulated electricity rates. Owner shall not claim to be providing electric utility services to Utility.

5.2 **Purchase Rate.** The fee structure and method of compensation shall be as shown in Exhibit C.

5.3 **Environmental Attributes.**

5.3.1 The Environmental Attributes including all RECs, and Reporting Rights Owner shall transfer and assign to Utility. At Utility's request, Owner shall provide evidence of Owner's transfer and assignment of right, title and interest in and to the Environmental Attributes.

5.3.2 Owner will at all times retain all tax credits and depreciation association with the System.

6. **Billing and Payment.** Billing and payment for the Energy and Environmental Attributes sold and purchased under this Agreement and any other amounts due and payable hereunder shall be as follows:

6.1 **Billing.** Owner shall not be required to submit invoices or billing to the City for Monthly Production. City shall monitor through the Meter at the Delivery Point all Energy delivered by the System in each Monthly Period during the Term of this Agreement, and make appropriate payments, as set forth in Section 6.2.

6.2 **Payments.** Utility shall pay to Owner for each Monthly Period during the Term within thirty (30) business days after close of the month for the Energy delivered by the System during each such Monthly Period equal to the product of (a) Monthly Production for the System for the relevant month multiplied by (b) the relevant kWh Rate for Energy and Environmental Attributes relating to the System as set forth on Exhibit C, which payment shall be made by check or by wire transfer of immediately available funds to Owner or to such assignee as Owner shall designate in writing to Utility. This payment fully compensates Owner for all Energy and Environmental Attributes produced by the System.

7. **Force Majeure.**

7.1 **Definition of Force Majeure Event.** For the Agreement, an act or event is a "Force Majeure Event" if such act or event is beyond the reasonable control, and not the result of the fault or negligence, of the affected Party and such Party had been unable to overcome such act or event with the exercise of due diligence. Subject to the foregoing conditions, "Force Majeure Event" shall include the following acts or events: (i) natural phenomena, such as storms, hurricanes, floods, lightning and earthquakes; (ii) explosions or fires arising from lightning or other causes unrelated to the acts or omissions of the Party seeking to be excused from performance; (iii) acts of war or public disorders, civil disturbances, riots, insurrection, sabotage, epidemic, terrorist acts, or rebellion; (iv) strikes or labor disputes; (v) action by a Governmental Authority, including a moratorium on any activities related to this Agreement; (vi) the impossibility for one of the Parties, despite reasonable efforts, to obtain any approval necessary to enable the affected Party to fulfill its obligations, provided that the impossibility is not attributable to the Party and that such Party has exercised reasonable efforts to obtain such approval; and (vii) a Budget Non-Appropriation Event as described in Section 7.2.

7.2 **Non-Appropriation.** For Utility, due to constitutional and charter limitations pertaining to multiple-year contracts, a Force Majeure Event shall include a budget non-appropriation event in which Utility Budget of any year covered in this Agreement does not appropriate funds for the procurement of parallel generation services for the Utility (a "Budget Non-Appropriation Event"). Upon occurrence of a Budget Non-Appropriation Event, the obligation of Utility to pay for the Energy in accordance with Section 6.2 shall

be suspended for the Force Majeure period. Utility agrees it shall use its best efforts to seek appropriation for parallel generation services during the term of this Agreement. Utility will notify Owner no later than June 30th of the fiscal year if a Budget Non-Appropriation Event has occurred.

7.3 Termination in Consequence of Force Majeure Event. If a Force Majeure Event shall have occurred that has affected a Party's performance of its obligations hereunder and that Force Majeure Event has continued for a period of three hundred sixty-five (365) consecutive days, then the non-affected Party shall be entitled to terminate this Agreement upon thirty (30) days' prior written notice to the other Party. If at the end of such thirty (30) day period such Force Majeure Event shall still continue, this Agreement shall automatically terminate. Upon such termination for a Force Majeure Event, neither Party shall have any liability to the other. By mutual agreement of the Parties, the System damaged or destroyed by a Force Majeure Event may be replaced by Owner within the time frames set forth above and subsequent to replacement and upon commencement of operation of the replacement System all terms and conditions of this Agreement will remain in effect. Notwithstanding any other provision hereunder to the contrary, following the conclusion or resolution of any Force Majeure Event, the parties agree that to the extent possible, the Term of this Agreement shall be extended as necessary to preserve the rights, obligations and economic benefits of Owner and Utility hereunder. If during a Budget Non-Appropriation Event, Utility continues to receive Energy and Environmental Attributes from Owner, then upon the conclusion of such event, Utility shall pay for such Energy and Environmental Attributes.

8. Term; Utility Options; Termination.

8.1 Term. The operating term of this Agreement shall commence on the Commercial Operation Date and shall expire on the date (the "Expiration Date") that is twenty (20) years after the Commercial Operation Date (the "Term"), unless and until terminated earlier with respect to the Site pursuant to Sections 7.3, 8.2, 8.3, or 9.3 (the date of any such termination, the "Termination Date") of this Agreement or unless extended pursuant to Section 8.2.

8.2 End or Extension of Term.

8.2.1 Extension of Term. Upon prior written notice to Owner of at least one-hundred eighty (180) days, and no time earlier than five (5) years prior to the Expiration Date, Utility shall have the option to renew the Term of this Agreement for two (2) additional five (5)-year periods under terms and conditions acceptable to the Parties, including but not limited to setting a new power purchase rate.

8.2.2 Early Termination or End of Term without Extension. Upon early termination or default by Utility, or expiration of the term without notice of extension by Utility, ownership of Energy and Environmental Attributes shall revert to Owner, and where feasible and at Owner's election, (i) Owner will have the option to operate the system as a net-metered system, subject to the interconnection and parallel generation standards in place at that time, or (ii)

Utility will continue to purchase power upon separate agreement with Owner on terms and conditions acceptable to the Parties, including but not limited to setting a new power purchase rate.

8.3 Owner Termination for Convenience. Prior to the Commercial Operation Date, Owner may terminate this Agreement at any time upon written notice to Utility, which termination shall be effective thirty (30) days after Utility receipt of such notice, subject to Utility's right to recover from Owner any Replacement Costs, calculated as of the date of termination. After the Commercial Operation Date, Owner may terminate this Agreement at any time following the fifth year of the Term by giving Utility thirty (30) days prior written notice of Owner's intention to terminate, subject to Utility's right to recover from Owner any Replacement Costs, calculated as of the Termination Date. The Parties agrees damages would be difficult to quantify upon an early termination and agrees that any component of Replacement Costs that is characterized as an "early termination fee" is not a penalty.

9. **Default.**

9.1 Owner Defaults. The following events shall constitute events of default with respect to Owner (each an "Owner's default"):

9.1.1 If Owner fails to generate and deliver any useful amount of Energy and/or Environmental Attributes after the Commercial Operation Date as contemplated in this Agreement (though it shall not be an Owner's default if the System does not achieve the Estimated Annual Production, but otherwise continues to deliver useful Energy consistent with this Agreement) and (i) if such condition can be cured within thirty (30) days after Utility's notice of such event and Owner fails to so cure, or (ii) Owner fails to commence and pursue said cure within such thirty (30) day period if a longer cure period is needed; provided that the Owner provides the Utility with notice of the expected time it will take to cure the breach and such timeframe is not greater than 365 days; or

9.1.2 If Owner is unable to achieve a Commercial Operation Date at the Site within six months of the execution of this Agreement for a Class I system, or twelve months of the execution of this Agreement for a Class II system ("System Delivery Period");

9.1.3 If Owner files or is adjudged bankrupt or fails to demonstrate the ability to perform under the Agreement, following the filing or adjudication of a bankruptcy proceeding.

9.2 Utility Defaults. The following events shall constitute events of defaults with respect to Utility (each, a "Utility Default"):

9.2.1 Utility fails to pay Owner any amount due Owner under this Agreement within thirty (30) days from receipt of notice from Owner of such past due amount; or

9.2.2 Utility refuses to sign documents needed to obtain any federal, state or utility incentives or tax benefits or refuses to sign or intentionally breaches any

term of the interconnection agreement required by the Utility for interconnection of the System.

9.3 Remedies.

9.3.1 If an Owner's Default or a Utility Default has occurred, the non-defaulting Party shall have the right to: (a) send notice, designating a day, no earlier than five (5) days after such notice and no later than twenty (20) days after such notice, as the Termination Date of this Agreement; (b) accelerate all amounts owing between the Parties; (c) terminate this Agreement and end the Term effective as of the Termination Date; and (d) if the default is after Commercial Operation, collect any Replacement Costs, which shall be paid on the Termination Date. Any notice by Utility shall inform the Owner that upon the Termination Date, Owner is to stop or terminate all work or performance under this Agreement. After receipt of a notice of termination, and except as otherwise directed by Utility, the Owner shall stop work under this Agreement on the date specified in the notice of termination. Each Party shall have a duty to mitigate any damages or Replacement Costs due under this Agreement upon any termination. Any obligations to terminate performance under this Agreement shall be without prejudice to Owner's rights to exercise its option to operate the System as a net-metered system or enter into a new power purchase agreement, as provided in Section 8.2.2.

9.3.2 Upon a default prior to the Commercial Operation Date, the non-defaulting Party shall not be entitled to Replacement Costs, other than the flat fee provided in Section 1. In addition, upon Owner's Default for failure to achieve the Commercial Operation Date within the applicable System Delivery Period, Owner shall forfeit any deposit previously paid by Owner to Utility.

9.4 **Actions to Prevent Injury.** If any Utility Default or Owner's Default creates an imminent risk of damage or injury to any Person or any Person's property, then in any such case, in addition to any other right or remedy that the non-defaulting Party may have, the non-defaulting Party may (but shall not be obligated to) take such action as the non-defaulting Party deems appropriate which may include disconnecting and removing all or a portion of the System, or suspending the supply or receipt of Energy from the System, as applicable.

9.5 **No Consequential Damages.** Nothing in this Agreement is intended to cause either Party to be, and neither Party shall be, liable to the other Party for any lost business, lost profits or revenues from others or other special or consequential damages, all claims for which are hereby irrevocably waived by Utility and Owner. Notwithstanding the foregoing, none of the payments for Environmental Attributes or any other amount specified as payable by Utility to Owner under the terms of this Agreement upon the termination of this Agreement shall be deemed consequential damages.

9.6 **Effect of Termination of Agreement.** Upon the Termination Date or the Expiration Date, as applicable, any amounts then owing by a Party to the other Party shall become immediately due and payable and the then future obligations of Utility and Owner under this Agreement shall be terminated (other than the indemnity and responsibility obligations set forth in Section 10). Such termination shall not relieve either Party from obligations accrued prior to the effective date of termination or expiration.

10. **Indemnification and Defense.**

10.1 Each Party (an "Indemnifying Party") agrees that it shall indemnify and hold harmless the other party, their permitted successors and assigns and their respective directors, officers, members, shareholders and employees (each an "Indemnified Party" and collectively, the "Indemnified Parties") from and against any and all losses incurred by the Indemnified Parties, including costs and reasonable attorney fees, to the extent arising from or out of the following: (i) any claim for or arising out of any injury to or death of any person or loss or damage to property of any person to the extent arising out of the Indemnifying Party's acts or omissions; (ii) any infringement of patents or the improper use of other proprietary rights by an Indemnifying Party or its employees or representatives that may occur in connection with the performance of this Agreement; and (iii), with respect to Owner, Utility agrees to indemnify Owner and any Owner Indemnified Party from and against any and all losses arising from any claim asserting that the transfer of title to Energy by Owner is ineffective. An Indemnifying Party shall not, however, be required to reimburse or indemnify any Indemnified Party for any loss to the extent such loss is due to the negligence or willful misconduct of any Indemnified Party. The liability of Utility is governed, limited and controlled by the Governmental Immunity Act, as now or hereafter amended. Nothing in this Agreement shall be construed as a limitation or waiver of the immunities, limits, or protections provided under said Act.

11. **Miscellaneous Provisions.**

11.1 **Notices.** All notices, communications and waivers under this Agreement shall be in writing and shall be (a) delivered in person or (b) mailed, postage prepaid, either by registered or certified mail, return receipt requested or (c) sent by reputable overnight express carrier, addressed in each case to the addresses set forth below, or to any other address either of the parties to the Agreement shall designate in a written notice to the other Party:

If to Owner:
Address: _____

Attention: _____
Phone: _____
Fax: _____

If to Utility:

Hyrum City Electric Dept
60 West Main
Hyrum, UT 84319
Attention: Electric Utility
Phone: (435) 245-6033

All notices, communications and waivers under this Agreement, if applicable, to any Person who has or will provide financing for this Agreement pursuant to Section 11 shall be to the name and address specified in a notice from Owner to Utility, which Utility shall acknowledge. All notices sent pursuant to the terms of this Section 11.1 shall be deemed received (i) if personally delivered, then on the date of delivery, (ii) if sent by reputable overnight, express courier, then on the next business day immediately following the day sent, or (iii) if sent by registered or certified mail, then on the earlier of the third (3rd) business day following the day sent or when actually received.

11.2 Authority.

11.2.1. **Owner Representations.** Owner hereby represents and warrants that: (i) This Agreement is a legal, valid and binding obligation of Owner enforceable against Owner in accordance with its terms, subject to the qualification, however, that the enforcement of the rights and remedies herein is subject to (a) bankruptcy and other similar laws of general application affecting rights and remedies of creditors and (b) the application of general principles of equity (regardless of whether considered in a proceeding in equity or at law); (ii) To the best knowledge of Owner, as of the date of execution hereof, no approval of a Governmental Authority (other than any approvals that have been previously obtained or disclosed in writing to Utility) is required in connection with the due authorization, execution and delivery of this Agreement by Owner or the performance by Owner of its obligations hereunder which Owner has reason to believe that it will be unable to obtain in due course on or before the date required for Owner to perform such obligations; (iii) As of the date of execution hereof, Owner (a) has taken all actions required of it under the terms of this Agreement, (b) is not intending to dedicate its property to public use, (c) is not a "public utility" and (d) is not an electric utility subject to rate regulation by any Governmental Authority; (iv) Neither the execution and delivery of this Agreement by Owner nor compliance by Owner with any of the terms and provisions hereof (a) conflicts with, breaches or contravenes the provisions of the Articles of Organization or any operating agreement of Owner or any contractual obligation of Owner or (b) results in a condition or event that constitutes (or that, upon notice or lapse of time or both, would constitute) an event of default under any material contractual obligation of Owner.

11.2.2. **Utility Representations.** Utility hereby represents and warrants that: (i) It is a legally and regularly created, established, organized and existing home-rule municipal governmental unit, which municipality duly exists under the laws of the State and has all requisite power and authority to enter into this Agreement, to perform its obligations hereunder and to consummate the transactions

contemplated hereby; (ii) The execution and delivery of this Agreement and the performance of its obligations hereunder have been duly authorized by all necessary action; (iii) This Agreement is a legal, valid and binding obligation of Utility enforceable against Utility in accordance with its terms, subject to the qualification, however, that the enforcement of the rights and remedies herein is subject to bankruptcy, reorganization, insolvency, moratorium or other laws of equitable principles affecting the enforcement of creditors' rights; (iv) No approval by a Governmental Authority (other than any approvals which have been previously obtained or disclosed in writing to Owner) is required in connection with the due authorization, execution and delivery of this Agreement by Utility or the performance by Utility of its obligations hereunder which Utility has reason to believe that it will be unable to obtain in due course; (v) Neither the execution and delivery of this Agreement by Utility nor compliance by Utility with any of the terms and provisions of this Agreement (a) conflicts with, breaches or contravenes any contractual obligation of Utility, or (b) results in a condition or event that constitutes (or that, upon notice or lapse of time or both, would constitute) an event of default under any contractual obligation of Utility; and (vi) Utility has not entered into any contracts or agreements with any other person regarding the provision of the services contemplated to be provided by Owner under this Agreement.

11.3 **Assignment.**

11.3.1 **Owner Assignment.** Owner shall not sell, transfer or assign (collectively, an "Assignment") this Agreement or any interest therein, without the prior written consent of Utility, which consent shall not be unreasonably withheld; provided, however, that Owner is not required to obtain Utility's consent in order to: (a) assign this Agreement to any affiliate of Owner with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of Owner under this Agreement, and undertakes in writing to perform those obligations, or (b) sell, transfer, assign or pledge its interest in the System or any monies due under this Agreement to a financial institution ("Financial Institution") (provided that Utility will not pay to a third party any monies owed hereunder without the advance written direction of Owner). Utility's consent to any other Assignment shall not be unreasonably withheld if Utility has been provided with reasonable proof that the proposed assignee: (i) has or is prepared to obtain comparable experience and/or capability in operating and maintaining photovoltaic solar systems comparable to the System and providing services required by this Agreement; and (ii) has the financial capability to maintain and operate the System and provide the services required by this Agreement. A direct assignee from Owner of this Agreement (that is not a Financial Institution acquiring an interest pursuant to a security agreement) shall assume in writing, in form and content reasonably satisfactory to Utility, the due performance of all Owner's obligations under this Agreement, including any accrued obligations at the time of the Assignment. A copy of the Assignment agreement, fully executed and acknowledged by the assignee, together with a certified copy of a properly

executed corporate resolution (if the assignee be a corporation) authorizing such Assignment agreement shall be sent to Utility not less than ten (10) days before the Contract Date of such Assignment.

11.3.2 **Utility Assignment.** Utility shall not assign its interests in this Agreement, nor any part thereof, without Owner's prior written consent, which consent shall not be reasonably withheld.

11.4 **Financing Accommodations.** Utility acknowledges that upon Owner's financing the acquisition and installation of the System or mortgaging the Site with a Financial Institution, that Owner's obligations under the financing may be secured by, among other collateral, a pledge or collateral assignment of this Agreement and a transfer of an ownership interest in the System (subject to a leaseback from the Financial Institution). In order to facilitate such necessary financing, Utility agrees as follows:

11.4.1 **Consent to Collateral Assignment.** Utility consents to the security assignment by Owner to the Financing Institution of this Agreement, and a transfer of the Owner's right, title and interest in and to the System to the Financing Institution, provided that such assignment shall not relieve the Owner of its obligations hereunder.

11.4.2 **Financing Institution's Default Rights.** Notwithstanding any contrary term of this Agreement:

11.4.2.1 The Financing Institution, as collateral assignee, shall be entitled to exercise, in the place and stead of Owner, any and all rights and remedies of Owner under this Agreement in accordance with the terms of this Agreement. Financing Institution shall also be entitled to exercise all rights and remedies of secured parties generally with respect to this Agreement and the System.

11.4.2.2 The Financing Institution shall have the right, but not the obligation, to pay all sums due under this Agreement and to perform any other act, duty or obligation required of Owner hereunder or cause to be cured any default of Owner hereunder in the time and manner provided by the terms of this Agreement plus an additional fifteen (15) business days. Nothing herein requires the Financing Institution to cure any default of Owner under this Agreement or (unless the Financing Institution has succeeded to Owner's interests under this Agreement) to perform any act, duty or obligation of Owner under this Agreement, but Utility hereby gives it the option to do so.

11.4.2.3 Upon the exercise of remedies under its security interest in the System, including any sale thereof by the Financing Institution, whether by judicial proceeding or under any power of sale contained therein, or any conveyance from Owner to the Financing Institution (or any qualified assignee of the Financing Institution as defined below) in

lieu thereof, the Financing Institution shall give notice to Utility of the transferee or assignee of this Agreement. Any such exercise of remedies shall not constitute a default under this Agreement.

11.5 **Successors and Assigns.** The rights, powers and remedies of each Party shall inure to the benefit of such party and its successors and permitted assigns.

11.6 **Amendments.**

- (a) **In writing.** Any modification, alteration, amendment, change or extension of any term, provision or condition of this Agreement permitted by this Agreement shall be made by written amendment to this Agreement, signed by Owner and Utility.
- (b) **No oral modification.** No oral modification, alteration, amendment, change or extension of any term, provision or condition of this Agreement shall be permitted.
- (c) **Changes or modification required by Utility.** Notwithstanding any other provision, this Agreement shall, at all times, be subject to such changes or modifications by the Utility as it may, from time to time, direct in the exercise of its jurisdiction, provided that no such changes or modifications i) shall affect the rights, obligations and economic benefits of the Parties hereto or ii) shall be effective without the prior written consent of Owner.
- (d) **Claim barred after final payment.** No claim by Owner for an adjustment hereunder shall be allowed if written modification of this Agreement is not made prior to final payment under this Agreement.

11.7 **Waiver.** The failure by either Party to insist upon the strict compliance with any term, provision or condition of this Agreement shall not constitute or be deemed to constitute a waiver or relinquishment of that Party's right to enforce the same in accordance with this Agreement. The fact that Utility specifically refers to one provision of the procurement rules or one section of applicable statutes, and does not include other provisions or statutory sections in this Agreement shall not constitute a waiver or relinquishment of Utility's rights or Owner's obligations under the procurement rules or statutes.

11.8 **Partial Invalidity.** In the event that any provision of this Agreement is deemed to be invalid by reason of the operation of Applicable Law, Owner and Utility shall negotiate an equitable adjustment in the provisions of the same in order to effect, to the maximum extent permitted by law, the purpose of this Agreement (and in the event that Owner and Utility cannot agree then such provisions shall be severed from this Agreement) and the validity and enforceability of the remaining provisions, or portions or applications thereof, shall not be affected by such adjustment and shall remain in full force and effect.

11.9 **Disputes, Governing Law; Venue; Jurisdiction.**

- (a) Disputes shall be resolved in accordance with the laws of the State, as the same may be amended from time to time.
- (b) The validity of the Agreement and any of its terms or provisions, as well as the rights and duties of the parties to this Agreement, shall be governed by the laws of the State.
- (c) Either party may initiate dispute resolution procedures by sending a notice of dispute ("Notice of Dispute"). The parties will attempt to resolve the dispute promptly through good faith negotiations. If the dispute has not been resolved within ten (10) days from the Notice of Dispute, the Parties may proceed to mediation.
- (d) If a dispute remains unresolved for sixty (60) days after receipt of the Notice of Dispute, either party may submit the Dispute to the courts, as provided in this Section 11.9.
- (e) Any action at law or in equity to enforce or interpret the provisions of this Agreement shall be brought in the District Court in and for Cache County, Utah or U.S. District Court in Utah. Each party irrevocably agrees to submit to the exclusive jurisdiction of such courts over any claim or matter arising under or in connection with this Agreement.

11.10 **Third Parties.** This Agreement is for the exclusive benefit of the parties to this Agreement, their successors and permitted assigns and Persons expressly benefited by the indemnity provisions of this Agreement. No other Person (including, without limitation, tenants of the Site) shall be entitled to rely on any matter set forth in, or shall have any rights on account of the performance or non-performance by any Party of its obligations under, this Agreement.

11.11 **Relationship of Parties; Independent Contractor Status, Responsibilities.**

- (a) In the performance of services required under this Agreement, Owner is an "independent contractor," with the authority and responsibility to control and direct the performance and details of the work and services required under this Agreement; however, Utility shall have a general right to inspect work in progress to determine whether, in Utility's opinion, the services are being performed by Owner in compliance with this Agreement. Unless otherwise provided by special condition, it is understood that Utility does not agree to use Owner exclusively, and that Owner is free to contract to provide services to other individuals or entities while wider contract with Utility.
- (b) Owner and Owner's employees and agents are not by reason of this Agreement, agents or employees of Utility for any purpose, and Owner and

Owner's employees and agents shall not be entitled to claim or receive from the State any vacation, sick leave, retirement, workers' compensation, unemployment insurance, or other benefits provided to state employees.

- (c) Owner shall be responsible for payment of all applicable federal, state, and county taxes and fees which may become due and owing by Owner by reason of this Agreement, including but not limited to (i) income taxes, (ii) employment related fees, assessments, and taxes, and (iii) general excise taxes, including any property tax, associated with the equipment. Owner also is responsible for obtaining all licenses, permits, and certificates that may be required in order to perform this Agreement.
- (d) Owner is responsible for securing all employee-related insurance coverage for Owner and Owner's employees and agents that is or may be required by law, and for payment of all premiums, costs, and other liabilities associated with securing the insurance coverage.

11.12 **No Public Utility.** Nothing contained in this Agreement shall be construed as an intent by Owner to dedicate its property to public use or subject itself to regulation as a "public utility" (as defined by Applicable Law).

11.13 **Cooperation with Financing.** Utility acknowledges that Owner may be financing the System and/or the Site and Utility agrees that it shall reasonably cooperate with Owner and its financing parties in connection with such financing, including (a) the furnishing of such information, (b) the giving of such certificates, and (c) providing such opinions of counsel and other matters as Owner and its financing parties may reasonably request; provided, that the foregoing undertaking shall not obligate Utility to materially change any rights or benefits, or materially increase any burdens, liabilities or obligations of Utility, under this Agreement (except for providing notices and additional cure periods to the financing parties with respect to Events of Defaults with respect to Owner as a financing party may reasonably request).

11.14 **Rights and Remedies.** Except as otherwise set forth herein, each Party reserves to itself all rights, counterclaims and other remedies and/or defenses to which it is or may be entitled, arising from or out of this Agreement.

11.15 **Precedence.** The provisions of this Agreement shall take precedence over any other document and shall govern the agreement between the Owner and Utility.

11.16 **Timely Submission of all Certificates.** All required certificates should be applied for and submitted to Utility as soon as possible. If a valid certificate is not submitted on a timely basis for award of a contract, an offer otherwise responsive and responsible may not receive the award.

11.17 **Confidentiality.**

- (a) All material given to or made available to Owner by virtue of this Agreement, which is identified as proprietary or confidential information, will be safeguarded by Owner and shall not be disclosed to any individual or organization without the prior written approval of Utility.
- (b) All information, data or other material provided by Owner to Utility shall be subject to the Utility's information regulations.

11.18 **Laws and Regulations.** Owner shall keep itself fully informed of all laws, ordinances, codes, rules and regulations, governmental general and development plans, setback limitations, rights of way, and all changes thereto, which in any manner affect the contract and all performance thereof. Owner shall comply with all such present laws, ordinances, codes, rules, regulations, design standards and criteria, governmental general and development plans, setback imitations, rights-of-way, including the giving of all notices necessary and incident to proper and lawful prosecution of the work, and all changes thereto. If any discrepancy or inconsistency is discovered between this Agreement and any such law, ordinance, code, rule, regulation, design standard, design criterion, governmental general and development plans, setback limitation, or rights-of-way, Owner shall forthwith report the same in writing to Utility.

11.19 **Survival.** The provisions of Sections 1, 7, 8, 9, 10, and 11 shall survive the expiration or termination of this Agreement.

11.20 **Entire Agreement.** This Agreement (including all exhibits attached hereto) represents the entire agreement between the parties to this Agreement with respect to the subject matter hereof and thereof and supersedes all prior and contemporaneous oral and prior written agreements. This Agreement may be executed in one or more counterparts, all of which taken together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have duly executed and delivered this Agreement as of the date set forth above.

OWNER: _____

Address: _____

By: _____

Name, Title: _____

Date: _____

HYRUM CITY, UTAH
A municipal corporation

By: _____
Hyrum City Administrator

Date: _____

ATTEST:

By: _____
City Recorder

APPROVAL AS TO FORM:

By: _____
City Attorney

EXHIBIT A
DESCRIPTION OF SITE

(Legal and narrative description, including address and aerial photo.)

EXHIBIT B
DESCRIPTION OF SYSTEM; SPECIFICATION; MAINTENANCE

Kilowatt photovoltaic renewable power system including fixed-tilt ground mount racking, utility scale inverters and related equipment.

Including:

Schedule 1: Estimated Annual Production, as derived through PVWatts® (NREL) or similar production estimation calculator.