HOLYOKE GAS & ELECTRIC DEPARTMENT
Distributed Generation Policy

1. Introduction

The objective of this Policy is to promote clean energy technologies in the City of Holyoke by accommodating the installation of renewable and alternative energy generating facilities by customers for the purpose of serving their own electric or financial needs, in a manner that is beneficial to both the Customer and the other ratepayers in the City of Holyoke.

This document describes the Holyoke Gas & Electric Department's (HG&E) process and requirements for a Customer to connect a Distributed Generation (DG) system to the HG&E electric distribution system (EDS) including equipment specifications, technical, metering and operating requirements. The electric output of the DG system, hereinafter called the "Facility", will be metered as set forth in Section 3 with pricing defined in applicable rate tariff.

All potential DG Customers must have an approved Interconnection Application and submit a signed Interconnection Service Agreement with HG&E prior to the installation of a DG system. The Customer must meet all requirements in the Interconnection Service Agreement prior to connecting to HG&E's EDS and comply will all Federal, State, and local permitting requirements. Customers failing to follow this policy will not receive payment and may be required to disconnect the Facility.

1.1 Applicability

This Policy is applicable to any Customer who wishes to connect a Facility, which must be owned or leased and installed at such Customer's owned or leased property, in Parallel with HG&E's EDS. Qualifying DG Customers fall into one of three categories below, which will determine application type and compensation methods:

Installation Type	Size	Interconnection Application	Application Fee	Payment Type
Residential & Small Commercial[1]	<500 kW-AC	Simplified	None	Buy-all, Sell-all at Distributed Generation Rate[2]
Small Commercial, Large Commercial and Direct Grid-Connected (Utility-Scale)	≥500 kW-AC	Simplified or Standard	None	Power Purchase Agreement (PPA)[3]
Power Exporting / ISO-NE Market Participant[4]	All	Standard	$1.00/kW (minimum $100, maximum $1,000)	Third-party PPA (Off-taker) / ISO-NE Wholesale Energy Pricing

[1]Customer and HG&E may mutually agree to enter into a PPA if less than *500 kW-AC (Commercial only)*
[2]HG&E's Distributed Generation Rate will be posted and updated from time to time on HG&E's website as warranted. Full retail rate Net-metering is not available in HG&E service territory.

[3]HG&E to provide PPA pricing to DG Customer upon request and will be based on market rates.
[4]Subject to HG&E's Power Wheeling Service tariff. Customer or energy off-taker required to register as an ISO-NE Market Participant.

Should both parties enter into a PPA, then all equipment required for interconnecting the system to HG&E's EDS along with pricing will be determined and governed by the terms of the PPA. DG customers wishing to enter into a PPA with HG&E should contact HG&E for pricing prior to proceeding with an Interconnection Application.

DG Generators may sell to the ISO-NE wholesale markets or export power to third parties outside of HG&E's service territory. DG Generators wishing to sell to a third party outside of HG&E service territory will be required to register as an ISO-NE Market Participant and sign a separate interconnection agreement with ISO-NE in addition to submitting an Interconnection Application to HG&E. These Customers will be subject to HG&E's Power Wheeling Service tariff.

If the Facility will always be isolated from HG&E's EDS, then this Policy does not apply (i.e., solar water heating type systems). Third-party retail sales, or Purchase Power Agreements (PPA's) are not allowed between such third-party and HG&E's customer.

1.2 Definitions

The following words and terms shall be understood to have the following meanings when used in this document:

Behind-The-Meter: Distributed Generation installations located behind a customer load or a direct grid-connected Facility reducing utility load.

Customer: HG&E's retail customer; host site or premises, may be the same as Interconnecting Customer.

Distributed Generation (DG): A qualifying power-generating facility includes Photovoltaics, Energy Storage, Wind, Hydroelectric, Biomass, Fuel Cells, Combined Heat and Power (CHP), and Municipal Solid Waste. A Customer may propose a different type power-generating facility and HG&E will conduct a 30 day review to determine if such facility is qualified or not under this Policy.

EDS: Electric Distribution System

Facility: A source of electricity owned and/or operated by the Interconnecting Customer that is located on the Customer's side of the point of interconnection, and all facilities ancillary and appurtenant thereto, including interconnection equipment, which the Interconnecting Customer requests to interconnect to HG&E's EDS.

Good Utility Practice: Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

Interconnecting Customer: Entity that owns and/or operates the Facility interconnected to HG&E's EDS, with legal authority to enter into agreements regarding the construction or operation of the Facility.

Interconnection Service Agreement: An agreement for interconnection service between the Interconnecting Customer and HG&E.

ISO-New England Inc. (ISO-NE): The Independent System Operator established in accordance with the NEPOOL Agreement and applicable FERC approvals, which is responsible for managing bulk power generation and transmission systems in New England.

Isolated: The state of operating the Facility when electrically disconnected from HG&E's Electric Distribution System (EDS) on the Interconnecting Customer's side of the Interconnection Point.

Listed: A Facility that has successfully passed all pertinent tests to conform with IEEE Standard 1547.1-2005.

FERC Jurisdictional Feeder: Any HG&E feeder with a generator that participates in the ISO-NE Energy Markets.

Parallel: The state of operating the Facility when electrically connected to HG&E's EDS.

Parties: The HG&E and the Interconnecting Customer.

Screen(s): Criteria by which the HG&E will determine if a proposed Facility's installation will adversely impact HG&E'S EDS in the Simplified and Standard Processes as set forth in Section 6.

Simplified Process: As described in Section 6.1, process steps from initial application to final written authorization for certain inverter-based Facilities of limited scale and minimal apparent grid impact.
Standard Process: As described in Section 6.2, process steps for Listed non-inverter-based Facilities greater than 1 MW-AC from initial application to final written authorization, using a set of technical Screens to determine grid impact.

Virtual Metering: Applying generation and credits to another HG&E customer or account.

Witness Test: HG&E's right to witness the commissioning testing as defined in IEEE Standard 1547-2003.

1.3 Forms and Agreements
The following documents for the interconnection process are included as Attachments:

- Application Forms:

    a. Simplified Process application form and Service Agreement with Terms and Conditions (Attachment A)
    b. Standard Process application form (Attachment B)

2. Availability

Customers wishing to install a Facility with HG&E are required to provide HG&E with all the technical information for the system and related equipment at least four weeks prior to installation and comply

with all aspects of this document. Systems larger than 500 kW-AC may require longer than four (4) weeks for review depending on complexity and/or technology type.

Any qualifying Facility must be located on property owned or leased by the Customer within the City of Holyoke and must operate in Parallel with HG&E's EDS. **HG&E may reject or deny an application if the Facility is proposed to be a Behind-the-Meter Facility interconnected to a FERC Jurisdictional Feeder.** A Facility may be interconnected to a FERC Jurisdictional Feeder if participating in the ISO-NE Energy Markets, however, will be subject to HG&E's Power Wheeling Service tariff.

The credits paid for the generation output from the Facility shall be provided to the respective Customer of such Facility. In no circumstances shall the output from the Facility be provided, sold, or credited to a third party or another HG&E Customer unless otherwise stated in this Policy.

- Customer must complete and HG&E must approve an Interconnection Application,
- Provide a one-line diagram of the proposed Facility at the time of the application along with a description of Facilities including proposed demarcation of interconnection point and construction schedule,
- Sign an Interconnection Agreement prior to commencing installation,
- Receive local wiring inspection approval prior to energizing system
- Comply with this Policy and HG&E's Rules and Regulations where not inconsistent with any specific provision hereof,
- Comply with all applicable laws, regulations and standards,and
- Provide proof of site control (i.e. lease, deed, etc.)

HG&E, at its sole discretion, may limit the cumulative generating capacity of all DG systems within its service territory.

3. Metering

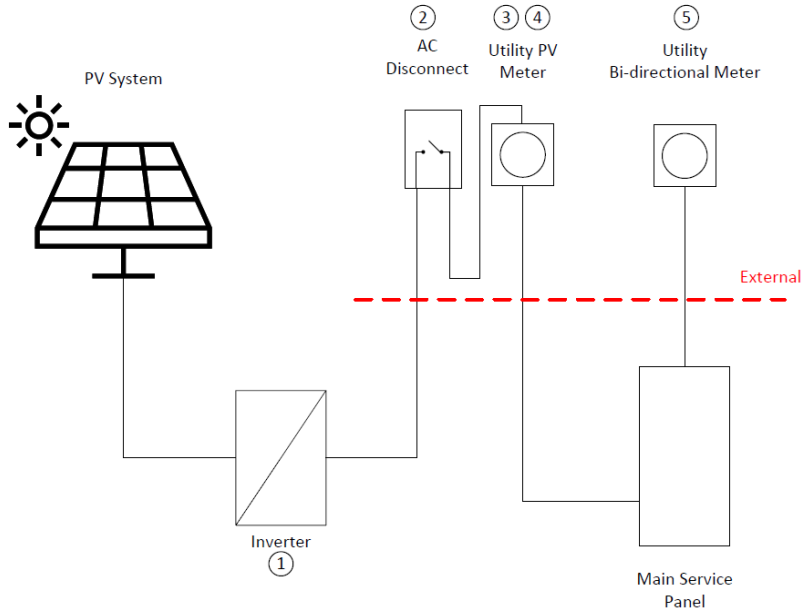
3.1 Residential and Small Commercial System (<500 kW-AC)

For systems that are less than 500 kW-AC, a separate single direction meter that measures all generation produced by the Facility will be installed. In certain scenarios, an additional two meters may be required (i.e. PV paired with storage). A bi-directional meter will be placed at the main service location that measures net consumption.

A diagram of an acceptable wiring configuration for single-phase DG system installations can be found in Section 3.1.1 below. A diagram of an acceptable wiring configuration for single-phase DG system paired with storage can be found in Section 3.1.2 below. Acceptable meter socket wiring can be found in Section 3.1.3. Other acceptable wiring diagrams for other configurations can be provided upon request. Metering and compensation for customers with PV paired with storage will follow the same requirements above. The additional second meter installed for the storage will only be used for measurement purposes only and will not be used to net energy from retail sales. For example, if the storage system is being charged from a PV system, metering will have already measured PV generation and will be added back to the retail bi-directional meter. This PV generation charging the storage system will still be credited at the Distributed Generation Credit rate.

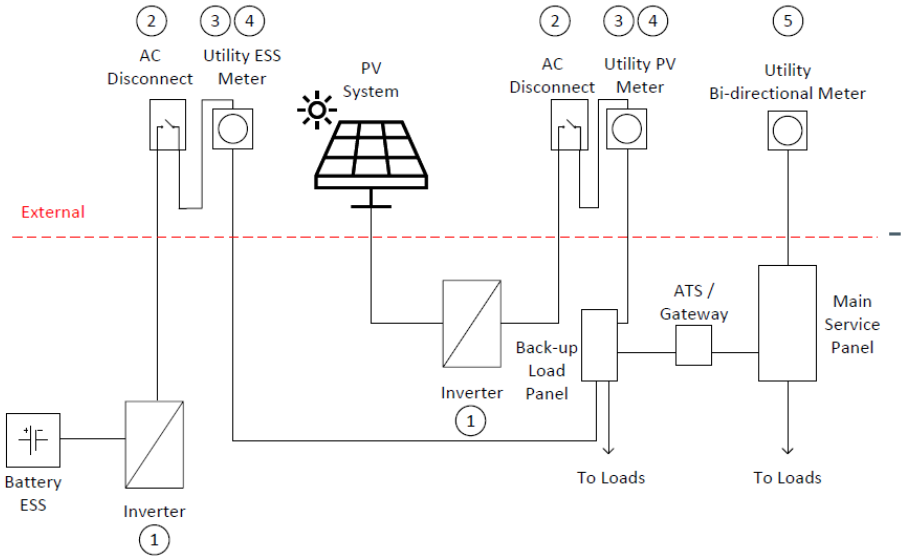
HG&E shall furnish, read and maintain all revenue metering equipment. The Interconnecting Customer shall furnish, install and maintain all meter mounting equipment such as and including meter sockets, test switches, conduits and enclosures.

3.1.1 Acceptable Wiring Diagram for PV (or other DG) Systems



1. Inverter to be UL1741 certified and be IEEE 1541 standard
2. Utility disconnect with visible blade. Lockable to be located outside with 24/7 Utility access. To be provided by customer.
3. 5-Jaw Meter Socket to be installed for separate generation metering. To be provided by customer. Utility to provide meter.
4. Wiring from inverter to Utility PV Meter socket be connected to top jaw positions. Wiring from socket to loads connected to lower jaws.
5. Utility to provide new bi-directional meter.

3.1.2 Acceptable Wiring Diagram for DG paired with Storage Systems*

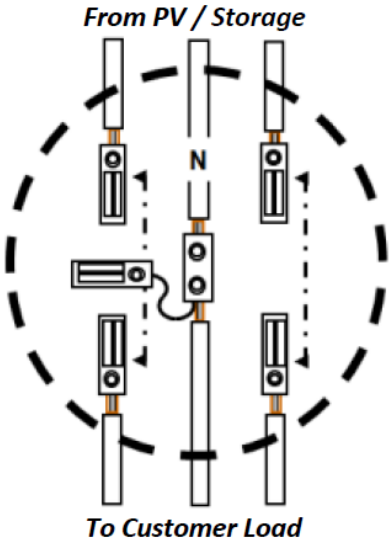


1. Inverter(s) to be UL1741 certified and be IEEE 1541 standard
2. Utility disconnect(s) with visible blade. Lockable to be located outside with 24/7 Utility access. To be provided by customer.
3. 5-Jaw Meter Socket(s) to be installed for separate generation metering. To be provided by customer. Utility to provide meter(s).
4. Wiring from inverter(s) to Utility PV Meter socket and Utility ESS Meter socket be connected to top jaw positions. Wiring from socket to loads connected to lower jaws (see page 5).
5. Utility to provide new bi-directional meter.

**Other configurations are possible depending on if a back-up panel is installed or if storage is providing back-up power to the entire service location.*

3.1.3 Single-Phase Metering Connections of PV (or other DG) Systems

Single-Phase Self-Contained Metering Connections



120/208V & 120/240V
Single-phase, 3-wire
5-terminal meter socket
400 amp or less

Notes:

A. An approved lever operated manual bypass is required on sockets for all commercial/industrial services, 100 amp may be supplied with non-locking jaws, greater than 100 amp must be supplied with locking jaw.
B. When the fifth terminal kit is used, install a No. 12 copper conductor, with white insulation, between the fifth jaw in the 9 o'clock position and the neutral lug/bar.
C. All new or upgraded services (200 amps or less) must have a 5 terminal socket installed even if it is a 120/240 volt service.
D. A five terminal meter socket is acceptable for a 120/240 volt service.
E. All single-phase network and 125/216 volt services will require a main disconnect with over current protection ahead of the meter (Cold Sequence).

3.2 Small Commercial, Large Commercial or Utility-Scale Systems (≥500 kW-AC)

For systems greater than 500 kW-AC or systems less than 500 kW-AC that have entered into a PPA with HG&E, metering and wiring requirements will be provided separately based on application. All equipment required for interconnecting the system to HG&E's EDS along with pricing will be governed by the terms of the PPA. Systems greater than or equal to 1 MW-AC are subject to requirements in Section 7.

3.3 Power Exporting / ISO-NE Market Participants

For DG Customers interested in selling to the ISO-NE wholesale markets or exporting power to third-parties outside of HG&E's service territory, separate metering and equipment related to interconnecting to HG&E's EDS will be determined on a case-by-case basis. ISO-NE requires specific metering criteria per Operating Procedure No. 18 (OP-18: Metering and Telemetering Criteria). All metering and equipment

will be at the sole cost of the Customer. All station service and other consumption will be required to be separately metered and billed per Section 4.3. Systems greater than or equal to 1 MW-AC are subject to requirements in Section 7.

4. Payment and Billing

Payment and Billing for DG Facilities will be performed based on Installation Type as outlined in Section 1.1. HG&E will not be responsible for any incorrect information that may be provided to Interconnecting Customer by third-party installers or vendors including but not limited to payback analyses, incentives, credits, or any other forms of financial benefits the system may generate. Further detail on payment and billing based on Installation Type can be found below:

4.1 Residential and Small Commercial System (<500 kW-AC)

All DG generation, which will be metered separately as defined in Section 3 above will be credited at HG&E's Distributed Generation Credit in a buy-all, sell-all arrangement and will be posted and updated from time to time on HG&E's website as warranted. Full retail rate Net-metering is not available in HG&E service territory. The Customer is entitled to all environmental attributes (i.e. renewable energy certificates) and tax credits associated with the system unless otherwise stated in a separate contract.

For Customer consumption, the generation (kWh) will be added back to the retail net meter reading on the customer's account for electricity consumption billing to measure and bill for true consumption. For example, if the meter measuring the Distributed Generation reads 500 kWh and the bi-directional (net) retail meter measuring consumption into and out of the house reads 300 kWh, then the 500 kWh will be added back to the bi-directional retail meter to get a reading of 800 kWh, which would be the consumption the service would normally see for that month as if the DG system is not installed. A monthly meter charge will be included that will cover the cost for maintenance of the meter(s). Please visit HG&E's website for an example of billing for a residential customer.

Billing shall be performed on a monthly basis as part of the normal meter reading and billing cycle. Customers will be charged on their monthly bill for all metered purchases (kWh delivered to customer) based on their rate class independently of the generation produced from the Facility. Metered sales (kWh delivered to HG&E from the Facility) will be credited based on applicable tariff rate. In limited circumstances virtual Metering may be accommodated.

If there is a net credit on the customer bill for the month, such credit will roll over into the next month. If the customer moves or terminates their account and a credit remains, HG&E will send the Customer a check for the remaining credit. In the event the respective billing account changes ownership, any sales will be transferred to the new owner with verification from Customer associated with such change and date associated therewith and the HG&E.

4.2 Small Commercial, Large Commercial or Utility-Scale Systems (≥500 kW-AC)

As outlined in Section 1.1, Small Commercial, Large Commercial or Utility-Scale Systems greater than or equal to 500 kW-AC must enter into a PPA with HG&E. Should both parties enter into a PPA, then pricing and billing will be determined and governed by the terms of the PPA.

4.3 Power Exporting / ISO-NE Market Participant

As outlined in Section 1.1, DG Generators may sell to the ISO-NE wholesale markets or export power to third parties outside of HG&E's service territory. These Customers will be subject to HG&E's Power Wheeling Service tariff and will be billed monthly. All consumption or station service may be required to be metered separately and billed at the applicable HG&E rate. Wholesale market generation customer or external energy off-taker will be required to register as an ISO-NE Market Participant.

5. Interconnection

Interconnecting Customer intends to install a Facility that will be connected electrically to HG&E's EDS and operate in Parallel, synchronized with the voltage and frequency maintained by HG&E during all operating conditions. It is the responsibility of the Interconnecting Customer to design, procure, install, operate and maintain all necessary equipment on its property for connection to HG&E's EDS in accordance with Good Utility Practice and per HG&E's Information & Requirements For Electric Service Below 600 Volts. The Interconnecting Customer and HG&E shall enter into an Interconnection Service Agreement, with exception of those Facilities that meet the Simplified screening.

The interconnection of the Facility with the HG&E EDS must be reviewed to determine if the Facility will be interconnected to a FERC Jurisdictional Feeder per Section 2. The interconnection will also be reviewed for potential impact to the HG&E EDS as described in Section 6, must meet the technical requirements of Section 7 and must be operated as described in Section 7. Any upgrades or system modifications to the HG&E EDS ("System Modifications") in order to accommodate interconnection of the Facility will be made by HG&E. In addition to the cost associated with the installation and construction of the Facility, the Interconnecting Customer shall be responsible for all HG&E studies, metering, and System Upgrades or Modification costs, if applicable per HG&E's Information & Requirements For Electric Service Below 600 Volts. Any fees related to the interconnection process are payable in advance of work being performed.

For DG Customers entering into a PPA with HG&E or will be an ISO-NE Market Participant, any system modifications and/or required equipment related to interconnection will be determined based on type, size and location of the proposed Facility. Revisions to the initial one-line may be required based on these modifications and requirements. All equipment and labor related to interconnection will be at sole cost of the Customer.

The Interconnecting Customer should consult HG&E before designing, purchasing or installing any generating equipment, in order to verify the nominal utilization voltages, frequency, and phase characteristics of the service to be supplied, the capacity available, and the suitability of the proposed equipment for operation at the intended location. HG&E will in no way be responsible for damages sustained as a result of the Interconnecting Customer's failure to ascertain the electric service characteristics at the proposed interconnection point.

The Facility should be operated in such a manner that it does not compromise, or conflict with, the safety or reliability of the HG&E EDS. The Interconnecting Customer should design its equipment in such a manner that faults or other disturbances on the HG&E EDS do not cause damage to the Interconnecting Customer's equipment. In addition to pre-construction analysis and review, HG&E reserves the right to conduct post-construction audits and inspections of operating Facilities and if any concerns are identified HG&E may disconnect Facility and require that either on-site Customer

protective equipment be installed and/or that Customer pay for any necessary EDS System Modifications to remove such concern.

Authorization to interconnect will be provided once the Interconnecting Customer has met all terms of the interconnection process, including receiving all local permits, as outlined in this document. This interconnection policy does not cover the use of the HG&E EDS to export power or the purchase of excess power.

6. Process Overview

There are two basic paths described below for interconnection of the Interconnecting Customer's Facility to the HG&E EDS.

Simplified – This is for all Listed inverter-based Facilities (i.e. PV, Energy Storage, etc) and non-inverter-based Facilities less than 1 MW-AC.

Standard – This is for Listed non-inverter-based Facilities greater than 1 MW-AC that pass certain pre-specified Screens on radial HG&E systems.

All proposed new Facilities without respect to ownership, dispatch control or prime mover that will operate in Parallel with the HG&E EDS must submit a completed application and pay the appropriate application fee to the HG&E. All other Interconnecting Customers must proceed through a series of Screens to determine their ultimate interconnection process path.

There is no application fee for Facilities that qualify for the Simplified Process. Standard Process fees for systems that will be exporting power will be determined on a case-by-case basis.

6.1 Simplified Process

Interconnecting Customers using UL Listed single-phase inverter-based Facilities on a radial feeder where the aggregate Facility capacity on the circuit is less than 50% of the circuit annual peak load qualify for Simplified interconnection.

The Simplified Process is as follows:

a. Interconnecting Customer submits a Simplified Process application.

b. HG&E verifies Facility equipment passes the Screens for Simplified Process.
   - Radial Feeder
   - Power rating < 50% of feeder peak (load or generation) in aggregate with other Facilities
   - IEEE 1547.1 Compliant
   - Listed (UL 1741 SA)
   - External Manual Disconnect
   - Acceptable one-line drawing / configuration (see Section 3)
   - Equipment specifications included
   - Interconnecting Transformer Adequately Sized
     a. Transformer upgrade due to exceeding kVA rating may be required*
   - Second DG meter socket (residential) or cabinet (commercial)

- Protective relay settings (if applicable or requested)
- Located on non-FERC Jurisdictional Feeder.

**At cost to customer*

c. If approved, HG&E signs the application and sends a copy to the Interconnecting Customer along with a cost estimate for any necessary upgrades or modifications to the HG&E EDS. HG&E will not perform any required EDS upgrades or modifications to accommodate the new Facility until the Customer has made full advanced payment upon the cost estimate provided by HG&E for the necessary upgrades or modifications to HG&E EDS.

d. Upon receipt of the signed application, the Interconnecting Customer installs the Facility. Then the Interconnecting Customer arranges for inspection of the completed installation by the local Electrical Inspector, and/or other authority having jurisdiction, and this person signs the Certificate of Completion.

e. The Interconnecting Customer returns the Certificate of Completion to HG&E.

f. HG&E will inspect the Facility for compliance with this Policy and approved one-line diagram.

g. Upon acceptance of compliance, HG&E will install new meters
    a. Replace existing retail meter with a bi-directional meter
    b. Install new DG meter(s).

h. HG&E authorizes the Facility to operate in Parallel with EDS.

i. Final invoices for any work performed beyond initial estimated payment is required to be paid within 30 days of receipt of final bill. Any payment not made within this time period will be subject to HG&E disconnecting service to the system. In the event the advanced payment is greater than actual costs, HG&E will issue a credit to Interconnecting Customer.

6.2 Standard Process

Interconnecting Customers not qualifying for the Simplified Process must pass a series of Screens before qualifying for Standard interconnection. Depending on whether one or more Screens are passed, additional steps may be required.

The Standard Process is as follows:

a. Interconnecting Customer submits an Standard Process application.

b. HG&E verifies Facility equipment passes the Screens for Standard Process.
- Power rating < 50% of feeder peak (load or generation)
- IEEE 1547.1 Compliant
- Listed (UL 1741 SA) if applicable
- Protection Relay Settings
- Located on non-FERC Jurisdictional Feeder.
- Other information as requested

c. HG&E may conduct internal or external studies to identify System Modifications to the EDS made necessary by the Facility at cost to the customer.

d. HG&E prepares and sends the Interconnecting Customer a cost estimate and an appropriate executable Interconnection Service Agreement.

e. Interconnecting Customer returns the signed Interconnection Service Agreement.

f. HG&E executes the Interconnection Service Agreement.

g. Interconnecting Customer completes installation and, upon receipt of payment, HG&E completes System Modifications as required.

h. HG&E inspects completed installation for compliance with this Policy and attends a Witness Test. Then the Interconnecting Customer arranges for inspection of the completed installation by the local Electrical Inspector, and/or other authority having jurisdiction, and this person signs the Certificate of Completion.

i. Interconnecting Customer sends Certificate of Completion to HG&E.

j. HG&E authorizes the Facility to operate in Parallel.

k. Final invoices for any work performed beyond initial estimated payment is required to be paid within 30 days of receipt of final invoice. Any payment not made within this time period will be subject to HG&E disconnecting service to the system. In the event the advanced payment is greater than actual costs, HG&E will issue a credit to Interconnecting Customer.

7. Interconnection Requirements

Interconnecting Customer shall design and construct the Facility in accordance with the applicable manufacturer's instructions and in compliance with Good Utility Practices and the requirements of this Policy.

Requirements are as follows:

a. **Permits and Regulatory Approvals -** The Customer shall be solely responsible for obtaining and maintaining all City, State, and Federal authorizations, permits, licenses and other approvals required for the construction, operation, maintenance, and repair of the generation Facility throughout the operating term thereof. The Customer shall provide proof of such to the Department upon request.

b. **ISO Reliability Committee Approval (Systems ≥1 MW-AC and ≤5MW-AC) –** Per Section I.3.9 of the ISO New England Transmission, Markets and Services Tariff, for Facilities ≥1 MW-AC and ≤5MW-AC, an application is required to be submitted to and approved by the ISO-NE Reliability Committee prior to Commercial Operation. The application needs to be submitted at least 14 business days prior to the subsequent Reliability Committee meeting in order to be added to the agenda for review. The Reliability Committee will provide either an approval or request

additional information within 7 business days following the meeting. HG&E, or its representative, will submit an application on behalf of the Interconnecting Customer.

c. **System Impact Study -** HG&E may require a System Impact Study to be performed either internally or by its consultant depending on size, location or type of proposed technology. HG&E will provide a quote and scope of the study and will require payment upfront prior to performing this work.

d. **Transient Voltage Conditions** – Because of unusual events on the HG&E EDS, there will be transient voltage fluctuations that will result in voltages exceeding the limits of the stated ranges. The Facility must be designed to handle these transient conditions.

e. **Noise and Harmonics** – Noise and harmonics levels shall not exceed those allowed in the most current IEEE Standard 1547.

f. **Frequency** – The HG&E EDS generally operates at 60 hertz. Instantaneous deviations from 60 hertz occur infrequently and may be as much as +/- two tenths of a cycle. The Facility should be designed to handle these transient conditions.

g. **Machine/Inverter Reactive Capability** – Facilities < 1 megawatt ("MW") will not be required to provide reactive capability. Facilities $\geq$ 1 MW may be required to provide reactive capability to regulate and maintain distribution system voltage within an acceptable range.

h. **Protection Requirements (<1 MW-AC)** – In addition to an external manual disconnect switch and any further HG&E requirements as part of the application process, any Facility less than 1 MW-AC to be interconnected with the HG&E distribution system must comply with the standards listed below.
   - IEEE Standard 1547, Latest.
   - UL Standard 1741.
   - IEEE Standard 929-2000

i. **Protection Requirements (≥1 MW-AC)** – In addition to any further HG&E requirements as part of the application process and requirements above in Section 7(g), any Facility greater than or equal to 1 MW-AC to be interconnected with the HG&E distribution system will be required to have an automatic recloser with direct transfer trip to be provided and installed by HG&E at sole cost to Interconnecting Customer.

8. Operating Requirements

Interconnecting Customer shall operate and maintain the Facility in accordance with the applicable manufacturer's recommended maintenance schedule and in compliance with Good Utility Practices and all requirements of this Policy.

Requirements are as follows:

a. **No Adverse Effects; Non-Interference** - HG&E shall notify Interconnecting Customer if there is evidence that the operation of the Facility could cause disruption or deterioration of service to other customers served by HG&E or if operation of the Facility could cause damage to the HG&E

EDS. Each party shall notify the other of any emergency or hazardous condition or occurrence with its equipment or facilities that could affect the safe operation of the other party's equipment or facilities.

HG&E will operate the EDS in such a manner so as not to unreasonably interfere with the operation of the Facility. The Interconnecting Customer will protect itself from normal disturbances propagating through the HG&E EDS. Such normal disturbances shall not constitute unreasonable interference.

b. **Safe Operation and Maintenance** - Each Party shall operate, maintain, repair and inspect and shall be fully responsible for the facilities it owns. HG&E and the Interconnecting Customer shall each provide equipment on its respective side of the interconnection point that adequately protects the HG&E EDS, personnel and other persons from damage and injury.

c. **Access** - HG&E shall have access to the disconnect switch of the Facility at all times.

9. Disconnection

a) HG&E may temporarily disconnect the Facility, in its sole discretion, for the following:

1. **Non-Compliance** – If at any time HG&E determines that the customer is out of compliance with the terms agreed to in the Interconnection Service Agreement, or has energized the system prior to receiving final approval, HG&E may disconnect the system either remotely through it's Advanced Metering Infrastructure or physically and temporarily place a lock on the external disconnect until the system is in compliance with this Policy and process.

2. **Emergency Conditions** – Immediate temporary disconnection. In the event that Facility damages HG&E's EDS or any of HG&E's customers' equipment or wiring, the Customer shall be solely responsible for all costs associated with the repair and/or replacement of damaged portion of such system, equipment, and/or wiring; until this condition is satisfied, HG&E reserves right to keep Facility disconnected.

3. **Routine Maintenance, Construction and Repair** – Temporary disconnection with appropriate notice.

4. **Forced Outages** – Immediate temporary disconnection.

5. **Non-Emergency Adverse Operating Effects** – Temporary disconnection with appropriate notice.

6. **Modification of the Facility** – Immediate temporary disconnection. Reconnection only after Interconnecting Customer proves satisfactory compliance with this policy.

b) HG&E and/or the Interconnecting Customer may permanently disconnect the Facility per the following; subject to HG&E terminating service with sufficient notice that it is doing so because the Facility i) failed to operate for any consecutive twelve-month period, ii) impairs the operation of HG&E's EDS or service to other customers or materially impairs the local circuit or

iii) has not complied with this Policy or other applicable City, State or Federal requirements and the Customer does not cure after a sixty (60) day notice the problem at its sole expense.

1. **Simplified Process –** Either party may permanently disconnect the Facility upon sixty (60) days advance written notice to the other party.

2. **Standard Process –** Either party may permanently disconnect the Facility in accordance with their contractual agreement.

10. Limitation of Liability, Indemnification, and Insurance

HG&E shall not be liable, directly or indirectly, to the Customer or any other person for any loss, injury, damage, casualty, fees or penalties, asserted on the basis of any theory, arising from, related to or caused by the construction, installation, operation, maintenance or repair of the Facility, and associated equipment and wiring, except to the extent of its own gross negligence or willful misconduct, but only to the extent permitted by law. Neither by inspection nor non-rejection nor in any other way does HG&E give any warranty, expressed or implied as to the adequacy, safety or other characteristics of any equipment, wiring or devices, installed on the Customer's premises, including the Facility. HG&E will not be held liable for any financial harm that this Policy or modifications to this Policy cause the Customer, Interconnecting Customer, and/or the Facility.

The Customer shall indemnify and hold harmless HG&E, its board members, managers, employees, agents, consultants, attorneys and assigns from and against any and all losses, claims, damages, costs, demands, fines, judgments, penalties, payments and liabilities, together with any costs and expenses (including attorneys' fees) incurred in connection with, resulting from, relating to or arising out of the construction, operation, maintenance and repair of the Facility, including the Customer's failure to comply with this Policy or any abnormality or failure in the operation of the Facility, or any adverse impact to HG&E's EDS or its other customers.

The Customer shall maintain sufficient insurance to cover any damage to HG&E's system caused by the construction, operation, maintenance and repair of the Facility and shall name HG&E as an additional insured. The Customer shall provide HG&E with proof of satisfactory insurance upon request by HG&E.

11. Amendments/Modification

The terms and conditions of this Distributed Generation Policy are subject to amendment and/or modification at any time by HG&E, in its sole discretion, for the protection of its distribution system, service territory, or its customers. The Interconnecting Customer agrees to be bound by any such amendment and/or modification.

Simplified Process Interconnection Application and Service Agreement

Legal Name and Address of Interconnecting Customer (or, Company name, if appropriate):

Customer or Company Name (print): _____

Contact Person, if Company: _____
Mailing Address: _____

City: _____ State: _____ Zip Code: _____
Telephone (Daytime): _____ (Evening): _____
Facsimile Number: _____ E-Mail Address: _____

Alternative Contact Information (e.g., system installation contractor or coordinating company, if appropriate):

Name: _____
Mailing Address: _____
City: _____ State: _____ Zip Code: _____
Telephone (Daytime): _____ (Evening): _____
Facsimile Number: _____ E-Mail Address: _____

Electrical Contractor Contact Information (if appropriate):

Name: _____ Telephone: _____
Mailing Address: _____
City: _____ State: _____ Zip Code: _____

Facility Information:
Address of Facility:

_____

City: _____ State: _____ Zip Code: _____
Electric Service Company: _____ Account Number (if applicable): _____ Meter Number (if applicable): _____
System Nameplate Rating: _____ (kW-AC) System Nameplate Capacity: _____ (kWh-AC) (if applicable)
Single or Three Phase
Generator/Inverter Manufacturer: _____ Model Name and Number: _____ Quantity: _____
UL 1741.1 (IEEE 1547.1) Listed? Yes _____ No _____ External Manual Disconnect: Yes _____ No _____
Energy Source: Solar ☐ Wind ☐ Hydro ☐ Diesel/Oil ☐ Natural Gas ☐ Battery ☐ Other _____
Wiring requirements in Section 3 of HG&E's Distributed Generation Policy have been reviewed (if applicable):

Transformer Data (if applicable, for Interconnecting Customer-Owned Transformer):
Nameplate Rating: _____ (kVA) Quantity: _____ Single _____ or Three _____
Phase Transformer Impedance: ___ (%)
If Three Phase:
Transformer Primary: _____ (Volts) _____ Delta _____ Wye _____ Wye Grounded _____ Wye Floating
Transformer Secondary: _ (Volts) _ Delta _____ Wye _____ Wye Grounded _____ Wye Floating

Interconnection Protective Relays (if applicable): _____

Estimated Install Date: _____ Estimated In-Service Date: _____

Interconnecting Customer Signature

I hereby certify that, to the best of my knowledge, all of the information provided in this application is true and I agree to the Terms and Conditions on the following page:

Customer Signature: _____ Title: _____ Date: _____

Please enclose a copy of the site electrical One-Line Diagram showing the configuration of all generating facility equipment, current and potential circuits, protection and control schemes, and point of interconnection along with all associated equipment cut sheets.

Approval to Install Facility (For Company use only)

Installation of the Facility is approved contingent upon the terms and conditions of this Agreement, and agreement to any system modifications, if required (Are system modifications required? Yes ____ No ____ To be Determined ____)

Company Signature: _____ Title: _____ Date: _____

Application ID Number: _____ Company Waives inspection/Witness Test Yes ☐ No ☐

INTERCONNECTION SERVICE AGREEMENT FOR DISTRIBUTED GENERATORS

Terms & Conditions

1. Construction of the Facility. The Interconnecting Customer may proceed to construct the Facility once the Application and Agreement has been signed by Company and returned to Interconnecting Customer.

2. Interconnection and Operation. The Interconnecting Customer may operate the System and interconnect with the Company's system once the following has occurred:

2.1 Terms and Conditions: Customer returns signed copy of this form to Company at address noted.
2.2 Documentation: Customer submits a copy of the site electrical One-Line Diagram showing the configuration of all generating facility equipment and all associated equipment cut sheets.
2.3 System Impact Study: Company may require a System Impact Study to be performed at the sole cost of the Customer.
2.4 Municipal Inspection: Upon completing construction, the Interconnecting Customer will cause the System to be inspected or otherwise certified by the local electrical wiring inspector with jurisdiction.
2.5 Certificate of Completion: The Interconnecting Customer returns the Certificate of Completion issued by local wiring inspector to the Company at address noted.
2.6 Company has completed or waived the right to inspection. If witness test is deemed waived, customer submits photographs of installed distributed generation system and external AC disconnect switch if applicable.
2.7 Company has issued Permission to Operate notice.

3. Connection Charges. Customer is subject to charges for interconnection costs. These interconnection costs are directly related to the installation of those facilities the Company deems necessary for interconnection. Costs include, but are not limited to, initial engineering evaluations, System Impact Studies, purchase and installation of additional switching, transmission, distribution, protection and communication equipment at Company's facilities, safety provisions, engineering and administration. These costs shall be paid in full by the Customer in accordance with Mass. DPU 216 G/E Company's Rules and Regulations.

4. Company Right of Inspection. Within ten (10) business days after receipt of the Certificate of Completion, the Company may, upon reasonable notice and at a mutually convenient time, conduct an inspection of the System to ensure that all equipment has been appropriately installed and that all electrical connections have been made in accordance with the Company Rules and Regulations. The Company has the right to disconnect the System in the event of improper installation or failure to return Certificate of Completion. If the Company does not inspect in 10 days or by mutual agreement of the Parties, the Witness Test is deemed waived.

5. Safe Operations and Maintenance. The Interconnecting Customer shall be fully responsible to operate, maintain, and repair the System through Good Industry Practice.

6. Access. The Company shall have access to the disconnect switch (if applicable) of the System at all times.

7. Disconnection. The Company may temporarily disconnect the System to facilitate planned or emergency Company work with appropriate notice to Interconnecting Customer.

8. Metering and Billing. All Systems approved under this Agreement qualify for Distributed Generation, as approved by HG&E from time to time, and must comply with Section 3 of the Distributed Generation Policy unless otherwise stated in a separate Energy Services Agreement. Customer agrees that they have reviewed the billing arrangement and compensation for generation as described in Section 4 of the Distributed Generation Policy. HG&E is not responsible for any incorrect information that may be provided to Interconnecting Customer by third-party installers or vendors including but not limited to payback analyses, incentives, credits, or any other forms of financial benefits the system may generate.

9. Indemnification. Interconnecting Customer and Company shall each indemnify, defend and hold the other, its directors, officers, employees and agents (including, but not limited to, Affiliates and contractors and their employees), harmless from and against all liabilities, damages, losses, penalties, claims, demands, suits and proceedings of any nature whatsoever for personal injury (including death) or property damages to unaffiliated third parties that arise out of, or are in any manner connected with, the performance of this Agreement by that party, except to the extent that such injury or damages to unaffiliated third parties may be attributable to the negligence or willful misconduct of the party seeking indemnification.

10. Limitation of Liability. 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 any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever.

11. Termination. This Agreement may be terminated under the following conditions:

11.1. By Mutual Agreement. The Parties agree in writing to terminate the Agreement.
11.2. By Interconnecting Customer. The Interconnecting Customer may terminate this Agreement by providing written notice to Company.
11.3. By the Company. The Company may terminate this Agreement (1) if the Facility fails to operate for any consecutive 12 month period, or (2) in the event that the Facility impairs the operation of the electric distribution system or service to other customers or materially impairs the local circuit and the Interconnecting Customer does not cure the impairment.

12. Assignment/Transfer of Ownership of the Facility. This Agreement shall survive the transfer of ownership of the System to a new owner when the new owner agrees in writing to comply with the terms of this Agreement and so notifies the Company.

13. Interconnection. Interconnecting Customer agrees to Company's Rules and Regulations and any other applicable requirements or otherwise stated by Company to Interconnecting Customer in an Energy Services Agreement. Any terms and conditions defined in a separately executed Energy Services Agreement will take precedence over the Terms and Conditions of this Agreement.

Customer Signature

I hereby certify that I agree to the Terms and Conditions above.

Interconnecting Customer Signature: _____

Interconnecting Customer Name (Printed): _____

Date: _____

As a condition of interconnection you are required to send (e-mail preferred) a signed copy of this form to:

Name: Steve Roy
Title: Electric Division Superintendent
Company: City of Holyoke Gas & Electric Department
Address: 99 Suffolk Street
Holyoke, MA 01040
Email: sroy@hged.com

STANDARD PROCESS INTERCONNECTION APPLICATION

Date Prepared: _____

Contact Information:

Legal Name and address of Interconnecting Customer applicant (or, if an Individual, Individual's Name)
Company Name: _____Contact Person:_____

Mailing Address:

City: _____ State: _____ Zip Code:

Telephone (Daytime): _____ (Evening):

Facsimile Number: _____ E-Mail Address:

Alternative Contact Information (if different from Applicant)

Name: _____

Mailing Address:

City: _____ State: _____ Zip Code:

Telephone (Daytime): _____ (Evening):

Facsimile Number: _____ E-Mail Address:

Ownership (include % ownership by any electric utility): _____

Confidentiality Statement: "I agree to allow information regarding the processing of my application (without my name and address) to be reviewed by the Massachusetts DG Collaborative that is exploring ways to further expedite future interconnections." Yes___ No___

Generating Facility Information

Location (if different from above): _____

_____

Electric Service Company: HG&E Account Number (if available): _____

Type of Generating Unit: Synchronous_____ Induction_____ Inverter_____

Manufacturer: _____ Model: _____

Nameplate Rating: _____(kVAR) _____ (Volts) _____ Single_____ or 3_____ Phase

System Total Design Capacity: _____(kW AC) _____(kVA) _____(kWh-AC) (if applicable)

Prime Mover: Fuel Cell__ Recip Engine___ Gas Turb___ Steam Turb___ Microturbine__ PV__ Other___

Energy Source: Solar___ Wind__ Hydro___ Diesel___ Natural Gas___ Fuel Oil__ Other_____
(Specify)

IEEE 1547.1 (UL 1741) Yes_____ No ___

Need an air quality permit from DEP? Yes____ No ___ Not Sure ___

If "yes", have you applied for it? Yes____No____

Is there other electrical work being done in the facility? Yes ___ No ___

Planning to Export Power? Yes____ No____ A Cogeneration Facility? Yes____ No_____

Anticipated Export Power Purchaser: _____

Export Form? Simultaneous Purchase/Sale____ Net Purchase/Sale___ Net Metering__ Other_____ (Specify)

Est. Install Date: _____ Est. In-Service Date: _____ Agreement Needed By: _____

Application Process

I hereby certify that, to the best of my knowledge, all of the information provided in this application is true:

Interconnecting Customer Signature: _____ Title: _____ Date: _____

The information provided in this application is complete:

Company Signature: _____ Title: _____ Date: _____

Generating Facility Technical Detail

List components of the generating facility that are currently certified and/or listed to national standards

	Equipment Type	Manufacturer	Model	National Standard
1.				
2.				
3.				
4.				
5.				
6.				

Total Number of Generating Units in Facility? _____

Generator Unit Power Factor Rating: _____

Max Adjustable Leading Power Factor? _____ Max Adjustable Lagging Power Factor? _____

Generator Characteristic Data (for all inverter-based machines)

Max Design Fault Contribution Current? _____ Instantaneous ____ or RMS?

Harmonics Characteristics:

Start-up power requirements:_____

Generator Characteristic Data (for all rotating machines)

Rotating Frequency: _____ (rpm) Neutral Grounding Resistor (If Applicable): _____

Additional Information for Synchronous Generating Units

Synchronous Reactance, Xd: _____ (PU) Transient Reactance, X'd: _____ (PU)

Subtransient Reactance, X"d: _____ (PU) Neg Sequence Reactance, X_2: _____ (PU)

Zero Sequence Reactance, Xo: _____ (PU) KVA Base: _____

Field Voltage: _____ (Volts) Field Current: _____ (Amps)

Additional information for Induction Generating Units

Rotor Resistance, Rr: _____ Stator Resistance, Rs:

Rotor Reactance, Xr: _____ Stator Reactance, Xs:

Magnetizing Reactance, Xm: _____ Short Circuit Reactance, Xd":

Exciting Current: _____ Temperature Rise:

Frame Size: _____

Total Rotating Inertia, H: _____ Per Unit on KVA Base: _____

Reactive Power Required In Vars (No Load): _____

Reactive Power Required In Vars (Full Load): _____

Additional information for Induction Generating Units that are started by motoring

Motoring Power: _____ (KW) Design Letter: _____

Interconnection Equipment Technical Detail

Will a transformer be used between the generator and the point of interconnection? Yes_____ No

Will the transformer be provided by Interconnecting Customer? Yes_____ No

Transformer Data (if applicable, for Interconnecting Customer-Owned Transformer):

Nameplate Rating: _____ (kVA) Single ___ or Three ___ Phase

Transformer Impedance: _____ (%) on a _____ KVA Base

If Three Phase:
Transformer Primary: _____ (Volts) ___Delta ____ Wye _____ Wye Grounded ____ Other

Transformer Secondary: _____ (Volts) ___Delta ____ Wye _____ Wye Grounded ____ Other

Transformer Fuse Data (if applicable, for Interconnecting Customer-Owned Fuse):

(Attach copy of fuse manufacturer's Minimum Melt & Total Clearing Time-Current Curves)

Manufacturer:_____ Type:_____ Size: _____ Speed: _____

Interconnecting Circuit Breaker (if applicable):

Manufacturer:_____ Type:_____ Load Rating:_____ Interrupting Rating:_____ Trip Speed:_____
(Amps) (Amps) (Cycles)

Interconnection Protective Relays (if applicable):

(If microprocessor-controlled)

List of Functions and Adjustable Setpoints for the protective equipment or software:

	Setpoint Function	Minimum	Maximum
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____

(If discrete components)
(Enclose copy of any proposed Time-Overcurrent Coordination Curves)

Manufacturer:_____ Type:_____ Style/Catalog No.:_____ Proposed Setting:

Manufacturer:_____ Type:_____ Style/Catalog No.:_____ Proposed Setting:

Manufacturer:_____ Type:_____ Style/Catalog No.:_____ Proposed Setting:

Manufacturer:_____ Type:_____ Style/Catalog No.:_____ Proposed Setting:

Manufacturer:_____ Type:_____ Style/Catalog No.:_____ Proposed Setting:

Manufacturer:_____ Type:_____ Style/Catalog No.:_____ Proposed Setting:

Current Transformer Data (if applicable):

(Enclose copy of Manufacturer's Excitation & Ratio Correction Curves)

Manufacturer:_____ Type:_____ Accuracy Class:_____ Proposed Ratio Connection:

Manufacturer:_____ Type:_____ Accuracy Class:_____ Proposed Ratio Connection:

Potential Transformer Data (if applicable):

Manufacturer:_____ Type:_____ Accuracy Class:_____ Proposed Ratio Connection:_____

Manufacturer:_____ Type:_____ Accuracy Class:_____ Proposed Ratio Connection:_____

General Technical Detail

Enclose 3 copies of site electrical One-Line Diagram showing the configuration of all generating facility equipment, current and potential circuits, and protection and control schemes with an Electrical registered professional engineer (PE) stamp in the state of Massachusetts.

Enclose 3 copies of any applicable site documentation that indicates the precise physical location of the proposed generating facility (e.g., USGS topographic map or other diagram or documentation).

Proposed Location of Protective Interface Equipment on Property:
(Include Address if Different from Application Address)

_____

_____

Enclose copy of any applicable site documentation that describes and details the operation of the protection and control schemes.

Enclose copies of applicable schematic drawings for all protection and control circuits, relay current circuits, relay potential circuits, and alarm/monitoring circuits (if applicable).

Please enclose any other information pertinent to this installation.

Certificate of Completion for Expedited/Standard Process Interconnections

Installation Information: **Check if owner-installed**

Customer or Company Name (print): _____ **Contact Person, if Company:**

Mailing Address:

City: _____ **State:** _____ **Zip Code:**

Telephone (Daytime): _____ **(Evening):**

Facsimile Number: _____ **E-Mail Address:**

Address of Facility (if different from above): _____

Electrical Contractor's Name (if appropriate): _____

Mailing Address: _____

City: _____ **State:** _____ **Zip Code:** _____

Telephone (Daytime): _____ **(Evening):** _____

Facsimile Number: _____ **E-Mail Address:** _____

License number: _____

Date of approval to install Facility granted by the Company: _____

Application ID number: _____

Inspection:

The system has been installed and inspected in compliance with the local Building/Electrical Code of _____
(City/County)

Signed (Local Electrical Wiring Inspector, or attach signed electrical inspection):

_____

Name (printed): _____

Date: _____

As a condition of interconnection you are required to send/fax a copy of this form along with a copy of the signed electrical permit to the person listed below at HG&E:

Name: Steve Roy
Company: Holyoke Gas & Electric
Address: 99 Suffolk Street
City, State ZIP: Holyoke, MA 01040
Fax No.: 413-536-9353
E-mail: sroy@hged.com