



GARLAND POWER & LIGHT

GP&L's Solar Generation Installation Requirements 2018

All GP&L Customers who plan to install Solar Photovoltaic Panels must meet minimum requirements.

Please direct any questions to **972-205-2929** or email energyadvisor@gpltexas.org or visit www.gpltexas.org for complete details.

Note: For safety reasons, there are legal requirements that all grid-connected set-ups **must automatically switch off when there is a failure of the main power supply**. This means that they can NOT supply electricity during outages. **System should not be switched on before the new meter has been set.**

Islanding refers to the condition in which a distributed (DG) generator continues to power a location even though electrical grid power from the electric utility is no longer present. Islanding can be dangerous to utility workers who may not realize that a circuit is still powered. The common example of islanding is a grid supply line that has solar panels attached to it. In the case of a local outage, the solar panels will continue to deliver power as long as brightness is sufficient. In this case, the supply line becomes an "island" with power surrounded by a "sea" of unpowered lines. For this reason, solar inverters that are designed to supply power to the grid are required to have some sort of automatic anti-islanding circuitry in them.



GP&L's Step-By-Step Requirements Guide for Solar Generation Installation

1. Customer or contractor submits the following documents to GP&L (address & email below) 217 N. Fifth Street, Garland, Texas 75040 (email to: energyadvisor@gpltexas.org):
 - Signed and completed copy of “Customer/Contractor Information Form” (*attached below*)
 - Signed and completed copy of “Distributed Generation Interconnection Agreement” (*attached below*)
 - Copy of site electrical one-line diagram and schematic drawings showing the configuration of all distributed generation equipment, current and potential circuits, and protection and control schemes signed by a **Professional Engineer**
 - Copy of site documentation that indicates the precise physical location of the proposed distribution generation facility, proposed meter location and manual disconnect switch
 - Copy of any site documentation that describes and details the operation of the protection and control schemes with schematic drawings for all protection and control circuits, relay potential circuits, and alarm/monitoring circuits (if applicable)
 - Copy of proof of insurance (Homeowner's Insurance) showing at least \$100,000.00 personal liability.
2. GP&L Administration and Distribution Engineering will review the application and documents received
3. GP&L will:
 - 3.1. Approve the installation and sign the Distributed Generation Interconnection Agreement or reject the application
 - 3.1a. If GP&L approves the application, the Customer may begin the installation for the DG (Distributed Generation) system
 - 3.1b. If GP&L rejects the application, GP&L will provide the Customer with written justification of why the application was rejected
4. Contractor responsible for obtaining Electrical Permit from City Building Inspections, located at 800 Main Street, 1st Floor, then scheduling final inspection after work is completed. Contractors can pull permit at <http://www.velocityhall.com> to register. Authorization will come from City Bldg. Insp. by email. Tel # 972-205-2301 or 2303.
5. Contractor installs the PV (photovoltaic) system
6. Customer must have a final inspection (green tag) from the City of Garland Building Inspections Department by calling 972-205-2301 or 972-205-2303
7. Customer will notify GP&L by calling 972-205-2597 or 972-205-2929 when the PV system has been inspected and approved.
8. GP&L will conduct a “Commissioning Test” within two (2) weeks of notice
 - 8.1. If the PV system passes the Commissioning Test, GP&L will install a bi-directional meter and provide the Customer with written authorization to interconnect with the utility system.
SYSTEM SHOULD NOT BE SWITCHED ON BEFORE THE NEW METER HAS BEEN SET
 - 8.2. If the PV system does not pass the Commissioning Test, GP&L will require the Customer to make any corrections needed for the PV system to meet all requirements outlined in the Distributed Generation Interconnection Agreement

I hereby certify that, to the best of knowledge, all of the information provided in this Interconnection Request is true and correct.

Initials: _____

Customer / Contractor Information Form (2018)



Return or Mail Completed Form to: GP&L Energy Advisor
 217 N. Fifth Street
 Garland, Texas 75040 **or**
Email: energyadvisor@gpltexas.org

Customer Name	GP&L Account Number		
Address of Installation	City Garland	State TX	Zip Code
Mailing Address(if different from installation)	City	State	Zip Code
Phone Number	Email		

TO BE COMPLETED BY CONTRACTOR: (All Shaded Areas must be completed by Contractor)

Contractor Name		Licensed Electrician # (State of Texas)	
Mailing Address	City	State TX	Zip Code
Phone Number ()	Email		
Contact Name	Permit # (required)	Install Date	

Reminder: Copy of Contractor's Invoice Required.

INFORMATION ON NEW SYSTEM: (All Shaded Areas must be completed by Contractor)

PV Module Mfg.	Model #	Qty.	STC Rating (watts)
Array Orientation	Inverter Mfg.	Model #	
Power Factor:	Voltage Rating:	Ampere Rating:	
Number of Phases:	Frequency:	Total Harmonic Distortion:	
Do you plan to export power: Yes or No	Maximum Amount Expected:		
I certify that the above listed Solar PV equipment meets GP&L's guidelines and requirements for Solar PV installation and that all documentation submitted is true and correct to the best of my knowledge. I further certify that the photovoltaic system has been installed in compliance with Garland Power & Light's technical requirements for distributed generation interconnection (for facilities up to 10 kW).			
Customer Signature:		Date:	
Contractor Signature:		Date:	
GP&L Use Only			
Reviewed by:			

SP- 01262018

INFORMATION ON NEW SYSTEM: (All Shaded Areas must be completed by Contractor)

**Distributed Generation Interconnection Agreement
for Solar or Wind Electric Power Producing Facilities of 10
Kilowatts or Less**

This Agreement is made and entered into by and between the City of Garland, Texas, (the "City") whose municipally owned electric utility operates under the name of Garland Power & Light ("GP&L"), and _____ ("Customer"). The City and Customer may also be referred to in the singular as "Party" and in the plural as "Parties."

RECITALS:

WHEREAS, the City desires to permit electric customers having a solar or wind electric Power Producing Facility of less than 10 kilowatts to offset part of their electrical requirements by utilization of their facilities; and

WHEREAS, Customer desires to enter into an Agreement with the City under the terms and conditions set forth herein,

NOW THEREFORE, in consideration of the premises and the mutual covenants and conditions contained herein, the Parties hereby agree as follows:

Section 1. GENERAL.

The City shall permit Customer to interconnect and operate a solar or wind electric Power Producing Facility in parallel with the City's Electric Utility System in accordance with the terms of this Agreement. The purpose of this Agreement is to permit the Customer to produce electric power for use at the premises, thereby reducing the amount of his electric requirements purchased from the City. In addition, this Agreement shall provide for the customer to receive a Produced Energy Credit calculated upon the power the Customer produces and delivers into the City's Electric Utility System (in excess of the premises' requirements) utilizing the Customer's Power Producing Facility.

Section 2. APPLICABILITY.

This Agreement shall apply only to a solar or wind electric Power Producing Facility of less than 10 Kilowatts ("kW") that is located on the premises and serves that premises exclusively.

Section. 3 DEFINITIONS.

"Agreement" shall mean this Distributed Generation Interconnection Agreement for Solar or Wind Electric Power Producing Facilities of less than 10 Kilowatts (kW).

"Customer" shall mean an electric customer of the City that has a Power Producing Facility on

the premises.

“Electric Utility System” shall mean all generation, transmission and distribution facilities owned or used by the City in connection with its delivery of electric energy to the City’s electric utility customers.

“Net Metering” shall mean the electric energy produced and delivered to the City by the Customer’s Power Producing Facility less the amount of electric energy consumed and delivered to the Customer by the City during the applicable billing period.

“Power Producing Facility” shall mean a solar or wind powered device that generates less than 10 kW of electric power at a voltage of 600 volts or less from an electric customer’s premises in parallel with the City’s Electric Utility System.

“Produced Energy Credit” shall mean the credit applied to a Customer’s electric bill based on the electric energy produced and delivered to the City by the Customer’s Power Producing Facility and the effective City Recovery Adjustment Factor (RAF).

“PV” shall mean photovoltaic/solar.

“PVID” shall mean the identification number assigned by the City to a Power Producing Facility powered by photovoltaic or solar power.

“PUC” shall mean the Public Utility Commission of Texas, or any successor agency.

“WT” shall mean wind turbine.

“WTID” shall mean wind turbine identification number and shall refer to the identification number assigned by the City to a Power Producing Facility powered by a wind turbine.

Section 4. IDENTIFICATION OF POWER PRODUCING FACILITY

The Power Producing Facility referred to in this Agreement shall refer exclusively to the Power Producing Facility identified, located and described in this section:

4.1 Type: _____
(PV or WT)

4.2 Identification Number: _____
(PVID or WTID)

4.3 Rating:
PV Array Rating: _____ kW
WT Rating: _____ kW

4.4 Site Address: _____

Section 5. PRODUCED ENERGY CREDIT

5.1 Information Relating to Calculation of Credit.

For each billing period, the billing statement shall include information indicating the amount of electric energy produced and delivered to the City by the Customer's Power Producing Facility. The statement shall also reflect the amount of electric energy consumed and delivered to the Customer by the City during the applicable billing period.

5.2 Produced Energy Credit.

The Customer shall be entitled to a Produced Energy Credit based upon the amount of electric energy produced and delivered to the City by the Customer's Power Producing Facility during the billing period. For each billing period, if the amount of electric energy consumed and delivered to the Customer by the City exceeds the amount of electric energy produced and delivered by the Power Producing Facility to the City, the Customer shall pay for such amount of electric energy at the City's applicable electric energy service rate.

Section 6. INTERRUPTION OR REDUCTION OF DELIVERIES

6.1 City's Authority.

The City shall not be obligated to accept or pay for produced energy, and may require the Customer to interrupt or reduce deliveries of available energy in the following instances:

- a. when the City determines that it is necessary in order to construct, install, maintain, repair, replace, remove, investigate, or inspect any of the City's equipment or any part of its system; or
- b. if the City determines that curtailment, interruption, or reduction is necessary because of emergencies, forced outages, force majeure, or compliance with prudent electrical practices.

6.2 Notwithstanding the provisions of 6.1, or any other provision of this Agreement, the City shall have the right to disconnect the Power Producing Facility from the City's Electric Utility System if it determines that either (a) the Power Producing Facility or its operation may endanger the City's personnel, or (b) the continued operation of the Power Producing Facility may endanger the integrity of the City's Electric Utility System. The Power Producing Facility shall remain disconnected until such time as the City is satisfied that the condition(s) referenced in (a) or (b) of this section have been corrected or no longer exist.

6.3 Notice.

Whenever reasonably possible, the City shall give the Customer reasonable notice of the possibility that an interruption or reduction of deliveries may be required.

Section 7. INTERCONNECTION

- 7.1 Delivery of Energy to City. Energy delivered to the City under this Agreement shall be delivered at the City's meter on the premises identified in Section 4.
- 7.2 Dual Register/Metering Requirement.
It is expressly understood and agreed by the parties that the interconnection and monitoring of electric flow contemplated by this Agreement shall be accomplished through the use of dual electric registers (one meter with two registers) or dual meters. The Power Producing Facility shall be responsible for all expenses associated with the purchase and installation of a dual meter base (when applicable). The City shall, at its expense, supply and install the separate electric meters (when dual registers are not used) to monitor the flow of electricity in each direction.
- 7.3 Testing and Approval of Facility.
- 7.3.1 Testing. The Power Producing Facility shall install and maintain protective apparatus as required by the City, which shall be tested prior to commencing parallel operations. Additional meter testing may result in a charge if meter is found to be accurate. The City shall have the right to have representatives present at the initial testing of the Power Producing Facility's protective apparatus. The Customer shall notify the City at least five (5) days prior to the initial testing.
- 7.3.2 Approval. The Power Producing Facility shall not commence parallel operations with the City until written approval of the interconnection facilities has been given by the City. Such approval shall not be unreasonably withheld.

Section 8. MAINTENANCE AND PERMITS

Power Producing Facility shall: (a) maintain the facility and interconnection facilities in a safe and prudent manner and in conformance with all applicable laws and regulations including, but not limited to, those set forth in Exhibit "A" to this Agreement and the PUC Distributed Generation Interconnection Manual; and (b) obtain any governmental authorizations and permits as required for the construction and operation of the Power Producing Facility and interconnection facilities. The Power Producing Facility shall reimburse the City for any and all losses, damages, claims, penalties, or liability it incurs as a result of the Power Producing Facility's failure to obtain or maintain any governmental authorizations and permits required for the construction and operation of the Power Producing Facility.

Section 9. ACCESS TO PREMISES

The City may enter the Power Producing Facility's premises (a) to inspect, at reasonable hours, the Power Producing Facility's protective devices and read or test meters; and (b) to disconnect, without notice and wherever necessary, the interconnection facilities if, in the City's opinion, a hazardous condition exists and such immediate action is necessary to protect persons, the City's facilities, or property of others from damage or interference caused by the Power Producing Facility's solar or wind electric power producing facilities, or lack of properly operating protective devices.

Section 10. INDEMNIFICATION AND LIMITATION OF LIABILITY

- 10.1 **Customer agrees to indemnify, defend and hold harmless the City of Garland, Texas and all of its present, future and former agents, employees, officials and representatives in their official, individual and representative capacities from and against any and all claims, demands, causes of action, judgments, liens and expenses (including attorney's fees, whether contractual or statutory), costs and damages (whether common law or statutory, and whether actual, punitive, consequential or incidental), of any conceivable character, due to or arising from injuries to persons (including death) or to property (both real and personal) created by, arising from or in any manner relating to the Power Producing Facility, including (a) engineering, design, construction, maintenance, repair, operation, supervision, inspection, testing, protection or ownership of, or (b) the making of replacements, additions, betterments to, or reconstruction of the Customer's Power Producing Facility, and expressly including those arising through strict liability and those arising under the constitutions of the United States and Texas.**
- 10.2 The provisions of this Section 10 shall not be construed to relieve any insurer of its obligation to pay any insurance claims in accordance with the provisions of any valid insurance policy.
- 10.3 Except as otherwise provided in Section 10.1, neither Party shall be liable to the other Party for consequential damages incurred by that Party.

- 10.4 If the Customer fails to comply with the insurance provisions of this Agreement, the Customer shall, at its own cost, defend, save harmless and indemnify the City, its directors, officers, employees, agents, assignees, and successors in interest from and against any and all loss, liability, damage, claim, cost, charge demand, or expense of any kind or nature (including attorney's fees and other costs of litigation) resulting from the death or injury to any person or damage to property, including the personnel and property of the City, to the extent the City would have been protected had the Customer complied with all such insurance provisions. The inclusion of this Section 10.4 is not intended to create any expressed or implied right in the Customer to elect not to provide the required insurance. The provisions of this subsection shall survive the termination of this Agreement.

Section 11. INSURANCE

- 11.1 Customer represents that, at the time of the execution of this Agreement, he has currently in force all risk property insurance on the premises in the amount of the current value of the premises, and comprehensive personal liability insurance covering the premises in a minimum amount of \$100,000.00 per occurrence. Customer further represents that he shall maintain such insurance in force for the duration of this Agreement. Customer shall provide a copy of the insurance policy to the City prior to interconnection of the Power Producing Facility with the City's electric grid, and shall provide proof of continuing coverage, upon request, in a form satisfactory to the City.
- 11.2 The insurance required in Section 11.1 shall, by endorsement to the policy or policies, provide for thirty (30) calendar days written notice to the City prior to cancellation, termination, alteration, or material change of such insurance.

Section 12. TERMINATION

Either Party may terminate this Agreement, at will and without cause, by giving written notice of termination to the other party not less than thirty (30) days prior to the date of termination; provided however, that this Agreement shall automatically terminate upon (1) the disconnection of electric utility service to the premises due to the delinquency of any payment; (2) the closing of Customer's electric utility account, (3) a change in ownership of the premises, or (4) the failure to maintain the insurance required under this Agreement.

Section 13. NOTICES

Any notice required or desired to be given from one party to the other party to this Agreement shall be in writing and shall be given and shall be deemed to have been served and received (whether actually received or not) if (i) delivered in person to the address set forth below; (ii) deposited in an official depository under the regular care and custody of the United States Postal Service located within the confines of the United States of America and sent by certified mail, return receipt

requested, and addressed to such party at the address hereinafter specified; or (iii) delivered to such party by courier receipted delivery. Either party may designate another address within the confines of the continental United States of America for notice, but until written notice of such change is actually received by the other party, the last address of such party designated for notice shall remain such party's address for notice.

Section 14. ATTORNEY'S FEES

Should either party to this Agreement commence legal proceedings against the other to enforce the terms and provisions of this Agreement, the party losing in such legal proceedings shall pay the reasonable attorneys' fees and expenses (including, but not limited to expert witness fees and deposition expenses) of the party prevailing in such legal proceedings.

Section 15. NO ASSIGNMENT

Neither party shall have the right to assign that party's interest in this Agreement without the prior written consent of the other party.

Section 16. SEVERABILITY

If any term or provision of this Agreement is held to be illegal, invalid or unenforceable, the legality, validity or enforceability of the remaining terms or provisions of this Agreement shall not be affected thereby, and in lieu of each such illegal, invalid or unenforceable term or provision, there shall be added automatically to this Agreement a legal, valid or enforceable term or provision as similar as possible to the term or provision declared illegal, invalid or unenforceable.

Section 17. WAIVER

Either City or Customer shall have the right to waive any requirement contained in this Agreement, which is intended for the waiving party's benefit, but, except as otherwise provided herein, such waiver shall be effective only if in writing executed by the party for whose benefit such requirement is intended. No waiver of any breach or violation of any term of this Agreement shall be deemed or construed to constitute a waiver of any other breach or violation, whether concurrent or subsequent, and whether of the same or of a different type of breach or violation.

Section 18. GOVERNING LAW; VENUE

This Agreement and all of the transactions contemplated herein shall be governed by and construed in accordance with the laws of the State of Texas. The provisions and obligations of this Agreement are performable in Dallas County, Texas such that exclusive venue for any action arising out of this Agreement shall be in Dallas County, Texas.

Section 19. PARAGRAPH HEADINGS; CONSTRUCTION.

The paragraph headings contained in this Agreement are for convenience only and shall in no way enlarge or limit the scope or meaning of the various and several paragraphs hereof. Both parties have participated in the negotiation and preparation of this Agreement and this Agreement shall not be construed either more or less strongly against or for either party.

Section 20. BINDING EFFECT.

Except as limited herein, the terms and provisions of this Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, devisees, personal and legal representatives, successors and assigns.

Section 21. COUNTERPARTS.

This Agreement may be executed in multiple counterparts, each of which shall be deemed an original, and all of which shall constitute but one and the same instrument.

Section 22. EXHIBITS.

All exhibits to this Agreement are incorporated herein by reference for all purposes wherever reference is made to the same.

Section 23. ENTIRE AGREEMENT.

It is understood and agreed that this Agreement contains the entire agreement between the parties and supersedes any and all prior agreements, arrangements or understandings between the parties relating to the subject matter. No oral understandings, statements, promises or inducements contrary to the terms of this Agreement exist. This Agreement cannot be changed or terminated orally and no written modification of this Agreement shall be effective unless executed by both parties.

Section 24. RELATIONSHIP OF PARTIES; NO THIRD-PARTY BENEFICIARIES.

Nothing contained in this Agreement shall be deemed or construed by the parties hereto or by any third party to create the relationship of principal and agent or of partnership or of joint venture or of any association whatsoever between the parties, it being expressly understood and agreed that no provision contained in this Agreement nor any act or acts of the parties hereto shall be deemed to create any relationship between the parties other than the relationship of independent parties

contracting with each other solely for the purpose of effecting the provisions of this Agreement. Except for the provisions of this Agreement relating to the indemnification of employees, agents and representatives of the City, there are no third-party beneficiaries to this Agreement and no third-party beneficiaries are intended by implication or otherwise.

EXECUTED on the dates indicated below but deemed to be effective as of the _____ day of _____, 20__.

CITY:

CUSTOMER:

By: _____

By: _____

Printed Name: _____

Printed Name: _____

Title: _____

Date: _____

Date: _____

Phone: _____

ADDRESS FOR NOTICES:

CITY

CUSTOMER

City of Garland
ATTN: Managing Director, Electric Utility
217 N. Fifth Street
Garland, Texas 75040

Name: _____
Address: _____
City, State, ZIP: _____

Exhibit A

A. INTERCONNECTION STANDARDS FOR RESIDENTIAL ELECTRIC POWER PRODUCING FACILITIES 10kW OR LESS

Technical Requirements For Interconnecting Residential Power Producing Facilities IO kW or Less, Single Phase, 600 Volts or Less, in Parallel With a Utility System

1. Design Requirements

- A. The power producing facility shall be tested by a nationally recognized testing laboratory and conform to all applicable local, state and federal building codes and National Standards and any authorities having jurisdiction.
- B. The power producing facility shall have an automatic switching device operated by over and under voltage protection and over and under frequency protection:
 1. The power producing facility shall automatically disconnect from the utility system within two seconds if the voltage rises above 132 volts or falls below 104 volts (nominal 120 volt base) at the inverter interface point.
 2. The power producing facility shall automatically disconnect from the utility system within six cycles if the voltage falls below 60 volts (nominal 120 volt base) at the inverter interface point.
 3. The power producing facility shall automatically disconnect from the utility system within two cycles if the voltage rises above 180 volts (nominal 120 volt base) at the inverter interface point.
 4. The power producing facility shall automatically disconnect from the utility system within six cycles if the frequency rises above 60.5 Hertz or falls below 59.3 Hertz at the inverter interface point.
 5. Following a power producing facility disconnect as a result of a voltage or frequency excursion as stated in Section (1)(B)(1-4) above, the power producing facility shall remain disconnected until the utility service voltage has recovered to utility acceptable voltage and frequency limits for a minimum of five minutes.
 6. The above set points shall not be changed or modified by the power producing facility owner or representative.

2. Manual Disconnect Device

- A. The power producing facility shall be capable of being isolated from the utility system by means of an external, manual. Visible load break, disconnecting switch installed by the owner of the power producing facility and the utility system.
- B. B. The disconnect switch shall be located within 10 feet of the external electric service meter.
- C. The disconnect switch shall be readily accessible for operation by utility personnel at all times and be capable of being padlocked only in the open position. Operation of this switch is at the sole discretion of the utility without prior notice.
- D. The disconnect switch shall be clearly marked: "Generator Disconnect Switch" with permanent 3/8 inch letters or larger.

3. Dedicated Distribution Transformer

- A. The connecting utility reserves the right to require that the power producing facility connects to the utility's system through a dedicated distribution transformer if the utility decides that the transformer is necessary to ensure conformance with utility safe work practices, to enhance service restoration operations or to prevent detrimental effects to other utility customers.

4. Network Application

- A. The utility reserves the right to exclude the power producing facility from connection to second my network utility systems.

5. Power Producing Facility Performance

- A. The electrical output of the power producing facility shall meet the latest IEEE Standard 519 and ANSI C84.1 at the time of placement into service.

6. Testing and Maintenance

- A. Upon initial parallel operation of the system, or any time a system adjustment or revision is made, a system functional test demonstrating compliance with Section (I)(B)(I-5) above is required. This test is a system acceptance test demonstrating to utility personnel that the system controls are operational and disconnect from the utility when the utility voltage and frequency parameters are outside of the limits described in Section (1)(BXI-5) above. Built-in software testing routines may be used to verify, on demand, correct operation of the system controls. The software testing routines shall be production verified and tested.

B. The connecting utility reserves the right to require the power producing facility owner to operationally test the system controls. The utility will either witness the test or will require written certification by a licensed or qualified installation contractor acceptable to the utility.

B. ADDIDONAL DESIGN REQUIREMENTS

Power Producing Facility shall conform to all applicable solar or wind electrical generating system safety and performance standards established by the National Electrical Code (NEC), the Institute of Electrical and Electronic Engineers (IEEE), and accredited testing laboratories such as Underwriters Laboratories, and where applicable, rules of the Public Utility Commission regarding safety and reliability, and applicable building codes. A customer-generator who's solar or wind electrical generating system, or a hybrid system of both, meets those standards and rules shall not be required to install additional controls, perform or pay for additional tests, or purchase additional liability insurance.