



CITY OF SAN MARCOS

**DISTRIBUTED GENERATION
INTERCONNECTION
GUIDELINES MANUAL**

Introduction

The City of San Marcos (The City) supports renewable energy. This support is demonstrated by the following actions:

- The City currently purchases a significant amount of renewable energy from the City’s wholesale energy providers. This renewable energy is delivered in varying quantiles every hour of every day to all City electric utility customers (including City facilities). These purchases of energy from renewable sources have been increasing over the past several years and with the current pricing forecasts for renewable energy, this trend will likely continue in the future.
- The City also currently supports renewable distributed energy resources through its rebate program, which provides incentives to qualified customers and developers.

Looking forward, the City understands that distributed renewable technologies have progressed and reached a level of cost-effectiveness that leads an increasing number of customers to consider the installation of distributed renewable projects. The City acknowledges and supports our customers’ right to install these systems, much like the City encourages energy efficiency and energy conservation improvements. However, with distributed generation installations, **it is imperative for the City to ensure these installations meet City procedural, technical and operational requirements for the safe interconnection and parallel operation of these systems on the City’s electric distribution system.**

This Distributed Generation Guidelines Manual (DG Guidelines Manual) is intended to provide City customers with accurate procedural, technical and policy information that will allow customer to make informed decisions at every stage or phase of this process.

The DG Guidelines Manual is organized in the following manner:

Section	Purpose
Q&A	Answer basic questions that customers will likely ask / need to know prior to starting on a DG project.
Definitions	Define the main terms associated with DG – to ensure customers understand the terms that are associated with the City’s DG policies, procedures and requirements.
Technical Requirements	This section contains the engineering-based technical requirements and specifications that all DG systems must meet prior to installation / interconnection.
Application Form	The form that must be completed and provided to the City prior to a customer beginning the process to install a DG system.
DG Agreement	The agreement between the City and a customer that desires to install, interconnect and operate a DG system in parallel with the City’s distribution system.
DG Interconnection Diagram	A simple diagram that illustrates key installation and interconnection requirements for all DG systems.



Section 1: Distributed Generation

Q&A

What is the purpose of the City of San Marcos Distributed Generation (DG) Interconnection Guidelines?

The City of San Marcos (COSM) Distribution Generation Interconnection Guidelines Manual was developed to establish the requirements and procedures for the safe installation, interconnection and parallel operation of distributed generation facilities within the City's electric service area.

COSM's DG Interconnection Guidelines are aligned with the Texas Public Utility Commission's (PUC) DG rules and regulations (P.U.C. SUBST. R. 25.211, 25.212 and 25.217) as well as other statutory guidelines, including the Texas Public Utilities Regulatory Act (PURA), which provides for the interconnection and parallel operation of Distributed Renewable Generation with electric utilities in Texas.

The information contained in this Manual has been developed for COSM's customers that are interested and/or considering the installation of interconnected distributed generation. COSM wants to ensure that our customers have all the technical and procedural information needed to have a full understanding of the requirements involved with this process in advance of any decision to install a DG system.

This Manual also provides information for COSM customers regarding the rate (tariff) that COSM has put in place regarding the purchase of any energy that is generated by a DG system and delivered to the COSM distribution system.

The bottom line: COSM is committed to the safe interconnection and operation of all DG installations on the COSM distribution system.

I am a City of San Marcos electric customer and I'm considering installing a DG system - where should I start?

City of San Marcos (COSM) customers should contact the City very early in the "DG decision-making" process. Our representatives will be glad to take time to answer questions and provide both technical and procedural information regarding your potential DG installation. The COSM DG Policy is clear – DG systems will not be allowed to interconnect and/or operate until the following steps have occurred:

1. Customer must submit information and application to COSM Electrical Engineering Services for the proposed DG system(s). The COSM DG Application Form is included in the COSM DG Interconnection Guidelines Manual – and is also available on the City's website (www.sanmarcostx.gov) and at the San Marcos Electric Utility office.
2. The DG application must be reviewed and approved by COSM, prior to installation of the DG system. COSM must confirm that the proposed system meets the technical requirements and specifications and determine if the proposed DG installation requires an engineering study. In some cases, engineering studies are essential to ensure the safe and proper operation of the DG system. Engineering studies may also result in the denial of a DG application.
3. Once the DG system is installed COSM will confirm the installation is consistent with the DG Application and meets all COSM requirements. This inspection must take place prior to interconnecting the DG system with the COSM distribution system.
4. The customer must execute a DG Agreement with COSM. This agreement is required prior to interconnecting the DG system with the COSM distribution system. The DG Agreement confirms that

the system meets all technical requirements and sets forth the rate at which COSM will purchase any energy that is delivered to COSM (in excess of the DG output that is used by the customer).

What are the technical specifications and requirements for the interconnection of a DG system?

The term “technical requirements” can be a little confusing in terms of the DG application, installation and agreement process. Here are some key things to know and consider regarding technical requirements:

- ✓ COSM has adopted the technical requirements and specifications that are aligned and consistent with the Texas Public Utility Commission (PUC) DG Rule. These specifications set forth the requirements for the safe interconnection and operation of DG systems. These requirements also establish the criteria used to determine if an engineering study is needed.
- ✓ Many technical requirements are addressed / covered by having “pre-certified” equipment with appropriate IEEE, UL and other “stamps of approval” from the DG system manufacturer. For most systems, these certifications signal to COSM that the system being installed meets and/or exceeds technical engineering requirements for the major components of the system (e.g., the solar panels and inverter(s)).
- ✓ There are also technical requirements related to the installation. COSM has provided the requirements (technical and procedural) in this Manual. Several of these requirements are included in the DG Application Form and the DG Agreement. These documents are included in this Manual.

Does COSM sell and/or install DG systems?

No. COSM does not sell or install DG systems.

Does COSM have listed DG vendors or contractors?

COSM realizes that some electric utilities have decided to be in the business of selling and installing certain types of DG systems. However, COSM has determined that selling and/or installing DG systems is not a business that the City can or should consider. City leaders believe efforts are best directed at the safe and reliable operation and maintenance of the COSM distribution system and to maintaining our focus on providing excellent service.

COSM understands that our customers look to us for sound and unbiased information related to electric energy topics and issues. And with that in mind – we are certainly able to provide general information to our customers regarding distributed generation. However, ***COSM will not endorse or recommend systems, vendors or contractors for DG system installations.***

How will COSM account for (and reimburse) for energy that my DG system sends to the electric grid?

COSM will reimburse customers for energy “delivered to” the COSM distribution system at the avoided cost of power supply rate (ACPSR). The ACPSR is determined by the average per KWh cost of wholesale generation costs for electric energy purchased by COSM from its wholesale electric energy provider(s). COSM reserves

the right to amend the ACPSR at any time. Reimbursements will likely take the form of a credit on the customer's monthly bill, however COSM may make other arrangements for reimbursement based on the amount of energy that is delivered to the City from the DG system.

What initial and ongoing costs are associated with a DG interconnection?

COSM has the following upfront charges associated with DG interconnection: permit fees, a fixed cost for Engineering Studies (if required), purchase of COSM standard meter and meter socket(s). COSM does not charge monthly or ongoing fees for interconnected DG systems. Current permit, study, and hardware rates are available on the COSM websites.



Section 2: Distributed Generation Definitions

DG Definitions

- **City Manager:** The City Manager and/or his/her duly authorized representative.
- **City contact person:** The person or persons designated by the city Manager to serve as the City's contact for all matters related to distributed generation interconnection.
- **Commission:** The Public Utility Commission of Texas or its successor organization having jurisdiction over the matters herein contained.
- **Connection Fee:** A one-time paid by Customer during the Permit process to cover the City's cost for meter installation.
- **COSM:** The City of San Marcos.
- **Customer:** a person or entity interconnected or seeking interconnection to the San Marcos electric system for the purpose of receiving or exporting electric power from or to the San Marcos electric system.
- **DG Agreement:** An agreement between a customer and the City that sets forth the contractual conditions under which a company and a customer agree that one or more facilities may be interconnected with the City's electric system.
- **DG Application:** The form of application of a customer seeking interconnection and parallel operation of distributed generation with the City's electric system.
- **Distributed generation:** An electrical generating facility located at a customer's point of delivery (point of common coupling) of ten (10) megawatts (MW) or less and connected at a voltage less than sixty (60) kilovolts (kV) which may be connected in parallel operation to the City of San Marcos' electric system. Note: Emergency generators and other backup power systems that do not operate in parallel with the City of San Marcos' electric system are not covered in this Design Manual.
- **Distributed generation owner:** An owner of distributed generation, the customer on whose side of the meter distributed generation is installed and operated, regardless of whether the customer takes ownership of the distributed generation, or a person who by contract is assigned ownership rights to energy produced from distributed generation located at the premises of the customer on the customer's side of the meter.
- **Energy Delivered:** Electric energy, measured in KWh, sent / delivered to the Customer (premise) by the City of San Marcos.
- **Energy Received:** Electric energy, measured in KWh, sent / delivered to the City of San Marcos distribution system by the DG customer.
- **ERCOT:** The Electric Reliability Council of Texas, Inc. or successor independent organization under Public Utility Regulatory Act ("PURA") §39.151 for the power region to which the City of San Marcos electric system is connected.
- **Interconnection:** The physical connection of distributed generation to the utility system in accordance with the requirements of Design Manual and City ordinance(s) so that parallel operation can occur.
- **Manual disconnect device:** A manual switch at the Point of Interconnection that provides clear indication of the switch position, and when in the open position isolates the distributed generation from load unrelated to generation of electricity or operation of the facility.

- **Networked Secondary:** two or more utility distribution transformers electrically tied together on the secondary side to form one power source for one or more customers. The service is designed to maintain service to the customers even after the loss of one of these primary feeder or distribution transformers.
- **Parallel operation:** The operation of distributed generation by a customer while the customer is connected to the San Marcos electric system.
- **Point of Interconnection (Point of Service, Point of Common Coupling):** The point where the electrical conductors of the City of San Marcos utility system are connected to the customer's conductors and where any transfer of electric power between the customer and the City of San Marcos utility system takes place, such as switchgear near the meter.
- **Pre-certified equipment:** A specific generating and protective equipment system or systems that have been certified as meeting the applicable parts of this ordinance relating to safety and reliability by an entity approved by the Commission.
- **Pre-interconnection study:** A study or studies that may be undertaken by the City in response to its receipt of a completed DG Application. Pre-interconnection studies may include, but are not limited to, service studies, coordination studies and utility system impact studies.
- **Stabilized:** The San Marcos electric system shall be considered stabilized when, following a disturbance, the system returns to the normal range of voltage and frequency for a duration of two minutes.



Section 3: Distributed Generation Technical Requirements

Technical Requirements for the Installation of DG System

1. General Requirements

- 1.1. All interconnections shall comply with P.U.C. SUBST. R. 25.212 and successors. In addition, all interconnections shall comply with applicable state and federal laws and regulations.
- 1.2. All interconnections shall comply with local building and electric codes as adopted by COSM. Installation of all interconnections shall be inspected by COSM. Inspection and approval of the installation by COSM is a prerequisite and a continuing condition of interconnection and parallel operation of distributed generation.
- 1.3. Variations from the Technical Requirements herein must be reviewed and approved by the City Manager prior to implementation. Variations in the point of interconnection must be approved by the City Manager and included in the Agreement approved by the City Council.

2. Protection of line workers and City's system

- 2.1. The distributed generation facility must have an interrupting device capable of interrupting the maximum available fault current, an interconnection disconnect device, a generator disconnect device, an over-voltage trip, an under-voltage trip, an over/under frequency trip, and a manual or automatic synchronizing check (for facilities with stand-alone capability).

3. Manual Disconnect

- 3.1. The customer shall provide and install a manual load break switch that provides clear indication of the switch position at the Point of Interconnection to provide separation between COSM electrical system and the customer's electrical generation system. The location of the disconnect switch must be approved by COSM. The disconnect switch shall be easily visible, mounted separately from metering equipment, readily accessible to City of San Marcos personnel at all times, and capable of being locked in the open position with a City of San Marcos padlock. COSM reserves the right to open the disconnect switch isolating the customer's electrical generating system (which may or may not include the customer's load) from City of San Marcos electrical system for any of the following reasons:
 - 3.1.1. To facilitate maintenance or repair of COSM electrical system, or
 - 3.1.2. When emergency conditions exist on COSM electrical system, or
 - 3.1.3. When the customer's electrical generating system is determined to be operating in a hazardous or unsafe manner or is or potentially can unduly affect COSM electrical system waveform, or
 - 3.1.4. When the customer's electrical generating system is determined to be adversely affecting other electric consumers on COSM electrical system, or
 - 3.1.5. Failure of the customer to comply with applicable codes, regulations and standards in effect at the time, or
 - 3.1.6. Failure of the customer to abide by any contractual arrangement or operating agreement with COSM.

4. Power Quality

- 4.1. Voltage: COSM shall endeavor to maintain the distribution voltages on the electrical system but shall not be responsible for factors or circumstances beyond its control. The customer shall provide an automatic method of disconnecting generation equipment from COSM electrical system within 10 cycles should a voltage deviation greater than +5% or -10% from normal be sustained for more than 30 seconds (1800 cycles) or a voltage deviation greater than +10% or -30% from normal be sustained for more than 10 cycles. If high or low voltage complaints or flicker complaints result from the operation of the customer's electrical generation, the customer's generating system shall be disconnected until the problem is resolved.
- 4.2. Frequency: COSM shall endeavor to maintain a 60-hertz nominal frequency on the electrical system. The customer shall provide an automatic method of disconnecting generation equipment from COSM electrical system within 15 cycles should a deviation in frequency of +0.5Hz or -0.7Hz from normal occur.
- 4.3. Harmonics: In accordance with IEEE 519, the total harmonic distortion (THD) of voltage shall not exceed 5% of a pure sine wave of 60-hertz frequency or 3% of the 60-hertz frequency for any individual harmonic when measured at the point of interconnection with COSM electrical system. Also, the total current distortion shall not exceed 5% of the fundamental frequency sine wave. If harmonics beyond the allowable range result from the operation of the customer's electrical generation, the customer's generating system shall be disconnected until the problem is resolved.
- 4.4. Flicker: The distributed generation facility shall not cause excessive voltage flicker on COSM electrical system. This flicker shall not exceed 3% voltage dip, in accordance with IEEE 519 (Section 10.5), as measured at the point of interconnection.
- 4.5. Power factor: The customer's electrical generation system shall be designed, operated and controlled at all times to provide reactive power requirements at the point of interconnection from 0.97 lagging to 0.97 leading power factor. Induction generators shall have static capacitors that provide at least 97% of the magnetizing current requirements of the induction generator field. COSM may, in the interest of safety, authorize the omission of capacitors. However, where capacitors are used for power factor correction, additional protective devices may be required to guard against self-excitation of the customer's generator field.

5. Loss of Source

- 5.1. The customer shall provide approved protective equipment necessary to immediately, completely and automatically disconnect the customer's electrical generation equipment from COSM electrical system in the event of a fault on the customer's system, a fault on COSM system or loss of source on COSM system. Such protective equipment shall conform to the criteria specified in UL 1741 and IEEE 1547.
- 5.2. The customer's generating system shall automatically disconnect from the grid within 10 cycles if the voltage on one or more phases falls and stays below 70% of nominal voltage for at least 10 cycles. The automatic disconnecting device may be of the manual or automatic reclose type and shall not be capable of reclosing until after COSM service voltage and frequency are restored to within the normal operating range and the system is stabilized.

6. Coordination and Synchronization

- 6.1. The customer shall be solely responsible for coordination and synchronization of the customer's electrical generating system with all aspects of COSM electrical system, and the customer assumes all responsibility for damage or loss that may occur from improper coordination and synchronization of its generating system with COSM electrical system.

7. Metering

- 7.1. At the point of customer / premise interconnection, the City will provide a standard data recorder (meter) that can measure the “KWh Delivered” and the “KWh Received” in intervals established by COSM. If special (non-standard) metering is required, the City will identify this requirement and any cost to the customer prior to approval of the DG Application.
- 7.2. Customer shall pay for the installation of a second data recorder (second meter and meter socket) that can measure the output of the DG system. The second meter and meter socket will typically be a 100 amp or 200 amp (the standard equipment / material used by the City) and the cost will be based on the City's current cost for the equipment / material. The meter socket specification will be provided by COSM Electrical Engineering during application review, when technical project details are made available. Customer shall pay for the second meter, which shall be installed by the City, after installation is complete and passes final City inspections. Customer shall pay a Connection Fee to cover costs associated with meter installation.

8. Interconnection Study

- 8.1. COSM will determine whether an interconnection study is necessary, based on relevant engineering factors including the output of the system, the location of the system and other City of San Marcos distribution system factors. Interconnection studies, include service study, coordination study, and utility system impact study, as needed and determined in the sole discretion of the City. If the interconnection study is deemed necessary, COSM shall perform the study under reasonable terms and conditions agreed upon by both the customer and City of San Marcos and at the customer's sole expense.
- 8.2. Any modifications or additions to COSM Electric system identified through the interconnection study as required for the safe and reliable interconnection of Customer's facility shall be solely at the Customer's expense. Customer shall not acquire any ownership in such modifications or additions to City of San Marcos distribution system.
- 8.3. The interconnection study may conclude the proposed system may not be approved / authorized by the City. In such cases, the City will make the study available to the customer and may also offer recommendations for modifications that could result in authorization to proceed with a revised system.
- 8.4. No study fee will be charged if the proposed generation site is not on a networked secondary and if all of the following apply:
 - 8.4.1. The proposed generation equipment is pre-certified. Generation equipment that are less than 20 kW AC shall be considered pre-certified if a UL 1741 listed inverter that also meets IEEE 1547 specifications is used. For solar PV installations, to be pre-certified system must have UL 1703 listed PV modules, and
 - 8.4.2. The proposed generation system does not expect to export more than 15% of total load on the feeder, and

8.4.3. The proposed generation system does not contribute more than 25% of the maximum possible short circuit current of the feeder.

9. Protection. The distributed generation facility must have interrupting devices capable of interrupting the maximum available fault current, an interconnection disconnect device, a generator disconnect device, an over-voltage trip, an under-voltage trip, an over/under frequency trip and a manual or automatic synchronizing check (for facilities with standalone capability). Facilities rated over 10kW, three-phase, must also have reverse power sensing and either a ground over-voltage or a ground over-current trip depending on the grounding system. Grounding shall be done in accordance with UL 1741, IEEE 1547 and NEC Article 250.

10. Three-Phase Generators.

10.1. Synchronous machines:

10.1.1. The distributed generation facility's circuit breakers shall be three-phase devices with electronic or electromechanical control.

10.1.2. The Customer is solely responsible for proper synchronization of its generator with COSM system.

10.1.2.1. The excitation system response ratio shall not be less than 0.5.

10.1.2.2. The generator's excitation system shall conform to the field voltage versus time criteria specified in ANSI Standard C50. 13-1989.

10.2. Induction machines: The induction machines used for generation may be brought up to synchronous speed if it can be demonstrated that the initial voltage drop at the point of interconnection is within the flicker limits specified in this document.

11. Inverters:

11.1. Line-commutated inverters do not require synchronizing equipment.

11.2. Self-commutated inverters require synchronizing equipment.

12. Standards. The distributed generation equipment shall be designed, installed, operated and maintained in accordance with, but not limited to, ANSI standards, UL standards, IEEE standards, the National Electrical Code, ERCOT Operating Guides and any other applicable local, state or federal codes and statutes. In the case of a conflict between the requirements in this document and any of those standards or codes, this document shall prevail.



***Section 4: Distributed Generation
Application***

INTERCONNECTION AND METER APPLICATION

APPLICATION AND CUSTOMER INFORMATION

This application is for the coordination of interconnection of a distributed generation (DG system) and associated / required metering equipment between "Customer", COSM and the electrician / contractor doing the proposed work. The following needs to be filled out completely and clearly.

Date	
First Name (Customer)	
Last Name (Customer)	
Account Number	
Premise Type	<input type="checkbox"/> Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Other
Phone	
Email	
Installation Address (physical address)	

DG SYSTEM INFORMATION

Total Nameplate Rating (kW)		Over 50 kW?	Yes	No
(If Solar DG) Panel Manufacturer				
Inverter Manufacturer				
Do you plan to export power?	Yes	No	(please circle one)	
Does system have a battery backup?				
IEE and/or UL Certification(s) (list all or attach documentation)				
Please provide the system engineering and/or manufacturers drawings and specifications	<input type="checkbox"/> System one-line diagram <input type="checkbox"/> Additional system documentation			

INFORMATION PREPARED AND SUBMITTED BY

License Number (Master Electrician, Electrical Engineer, or Homestead Owner)	
Company Name	
Phone	
Email	
Project Contact Person	
Signature	
Date	

NOTES TO APPLICANT

1. It is understood that electric services (new meter) charges must be paid in accordance with City of San Marcos Distributed Generation Interconnection Guidelines Manual, which is authorized by Ordinance 2018-004.
2. Charges will be available after application has been reviewed. Charges are required to be paid and application for service be made prior to issuance of permit.
3. If work has not been completed within a 180-day period – the application will be voided.
4. If additional work is required by COSM – there will be additional charges that will need to be paid.
5. **ALLOW A MINIMUM OF FIVE WORKING DAYS FOR PROCESSING**
6. Return to City of San Marcos Building Code Department; City of San Marcos, Texas

INTERNAL / OFFICE USE ONLY:

WO# _____



***Section 5: Distributed Generation
Agreement***

**FOR THE INTERCONNECTION AND PARALLEL
OPERATION OF DISTRIBUTED GENERATION IN
COSM ELECTRIC SYSTEM**

CITY OF SAN MARCOS ELECTRIC UTILITY
DISTRIBUTED GENERATION INTERCONNECTION AGREEMENT

CUSTOMER: _____

TELEPHONE: _____ EMAIL: _____

INTERCONNECTION ADDRESS: _____

REQUESTED DATE OF CONNECTION: _____

Type of System and Fuel/Energy Source: _____

Make and Model: _____

Operating Voltage and Wattage: _____

RECITALS

San Marcos Electric Utility (SMEU) owns and operates a municipal electric utility engaged in the distribution of electricity serving the City of San Marcos, Texas and portions of Hays County, Texas; and

Customer intends to construct, own, operate, maintain and connect to SMEU's electric distribution system, an on-site distributed generation (DG) facility with a maximum capacity of 100 kW (the "DG System").

The parties wish to contract for the purchase and sale of the net electrical output from the DG System, and the terms of its interconnection with the SMEU electric distribution system.

AGREEMENT

Article 1.0 | This Agreement shall be effective as of the date of last signature below (the "Effective Date") and, subject to the other terms of this Agreement, shall continue in effect for a period of one year, and if not earlier terminated this Agreement will be extended automatically for a period of one year. Customer may terminate this Agreement effective upon providing written notice of termination to the City and disconnecting the DG facilities as provided below. The City may terminate this Agreement by providing written notice to Customer immediately upon: (a) the failure or breach of any covenant, warranty or representation given by Customer in this Agreement; (b) a material change, as determined by the City in its sole discretion, in a rule, ordinance or statute applicable to this Agreement; or (c) for health and safety reasons presenting an imminent risk of injury to persons or damage to property, as determined by the City in its sole discretion. The City may otherwise terminate this Agreement by providing 90 days written notice of termination to Customer.

Article 2.0 | Customer shall disconnect all Customer owned DG facilities which tie to SMEU equipment upon the termination of this Agreement, subject to coordination with SMEU and approvals deemed necessary by SMEU to protect its facilities and equipment.

Article 3.0 | The DG System will be installed at Customer's premises at the address specified above. The DG System shall not have a generation capacity greater than 10 MW. Customer shall install, operate and maintain the DG System in full and faithful compliance with all applicable federal, state and local laws, ordinances, rules and regulations, and generally accepted industry codes and standards, including, but not limited to the National Electrical Safety Code and the National Electrical Code. Customer shall promptly notify CITY upon receipt of any citation or other official notice of alleged violation of laws, ordinances, rules and regulations concerning the DG System.

Article 4.0 | Customer warrants and represents that:

4.01 | The information regarding the characteristics of the DG System are as specified in the Application for Interconnection and Parallel Operation of Distributed Generation with the CITY Electric system filed by the Customer with CITY;

4.02 | The DG System and associated other electrical components and devices meet National Electrical Code standards;

4.03 | All permits, inspections, approvals, and/or licenses necessary for the installation or operation of the DG System have been obtained. The DG System has been successfully tested to UL 1741 and IEEE 1547 standards or has been satisfactorily tested by an independent laboratory with published results.

4.04 | Customer shall provide manufacturer's data or other written proof acceptable to CITY to verify the accuracy of the foregoing warranties and representations. If any of foregoing warranties and representations are inaccurate, CITY may, without waiver of or prejudice to any other remedy, immediately disconnect the DG system from the CITY electric system and terminate this agreement.

Article 5.0 | CITY will purchase from Customer and Customer will sell exclusively to CITY the electrical output from the DG system that is "received" by the CITY Distribution System. During the term of this Agreement, Customer shall exclusively purchase from CITY its requirements of electric energy above the amounts generated by the DG system.

Article 6.0 | The CITY shall pay Customer for the "KWh Received" (energy received by the CITY'S Distribution System) at the "Avoided Cost of Generation Rate" (ACGR). The ACGR is calculated based on the Avoided Cost of Generation Formula (ACGF), which can be obtained from the CITY. The inputs to the calculation are derived from the CITY'S wholesale electric energy provider(s) monthly invoices. The CITY reserves the right to amend the ACGR and the ACGF at any time.

Article 7.0 | At the point of customer / premise interconnection, the CITY will provide a standard data recorder (meter) that can measure the "KWh Delivered" and the "KWh Received" in intervals established by the CITY. If special (non-standard) metering is required, the CITY will identify this requirement and any cost to the customer prior to approval of the DG Application.

Customer shall pay for the installation of a second data recorder (second meter and meter socket) that can measure the output of the DG system. The second meter and meter socket will typically be a 100 amp or 200 amp (the standard equipment / material used by the CITY) and the cost will be based on the CITY'S current cost for the equipment / material.

Article 8.0 | The CITY will determine whether an interconnection study is necessary, based on relevant engineering factors including the output of the system, the location of the system and other CITY distribution system factors. Interconnection studies, include service study, coordination study, and utility system impact study, as needed and determined in the sole discretion of CITY. If the interconnection study is deemed necessary, the CITY shall perform the study under reasonable terms and conditions agreed upon by both the customer and CITY and at the customer's sole expense.

Any modifications or additions to the CITY'S Electric system identified through the interconnection study as required for the safe and reliable interconnection of Customer's facility shall be solely at the Customer's expense. Customer shall not acquire any ownership in such modifications or additions to CITY'S distribution system.

The interconnection study may conclude the proposed system may not be approved / authorized by the CITY. In such cases, the CITY will make the study available to the customer and may also offer recommendations for modifications that could result in authorization to proceed with a revised system.

No study fee will be charged if the proposed generation site is not on a networked secondary and if all of the following apply:

- 1) The proposed generation equipment is pre-certified. Generation equipment that are less than 20 kW AC shall be considered pre-certified if a UL 1741 listed inverter that also meets IEEE 1547 specifications is used. For solar PV installations, to be pre-certified system must have UL 1703 listed PV modules, and
- 2) The proposed generation system does not expect to export more than 15% of total load on the feeder, and
- 3) The proposed generation system does not contribute more than 25% of the maximum possible short circuit current of the feeder.

Article 8.0 | Customer shall be solely responsible for the design, installation, operation, maintenance, and repair of the DG System and Customer's interconnection facilities. The interconnection of the DG System to the CITY electrical system shall comply with the Public Utility Commission of Texas Substantive Rules §25.212 relating to Technical Requirements for Interconnection and Parallel Operation of On-Site Distributed Generation, (16 Texas administrative Code §25.212) or any successor rule addressing distributed generation. CITY shall inspect the DG System and the interconnection equipment. All costs to interconnect with the CITY electric system shall be the responsibility of Customer. CITY shall not be required to take or pay for any energy generated by the DG System until the DG System successfully passes CITY'S Field Inspection and Customer shall have reimbursed CITY for all its interconnection costs. Maintenance of the DG System shall be performed in accordance with the applicable manufacturer's recommended maintenance schedule.

Article 9.0 | CITY shall not be obligated to accept and shall have the right to require Customer to temporarily curtail, interrupt, or reduce, deliveries of energy in order to construct, install, maintain, repair, replace, remove, investigate, inspect, or test any part of the interconnection facilities, equipment, or any part of the CITY electric system. CITY may disconnect, without notice, the DG System from the electric

distribution system, if, in CITY'S opinion, a hazardous condition exists, and such immediate action is necessary to protect persons, or CITY'S facilities or other customers' facilities from damage or interference caused by Customer's DG System or lack of properly operating protective devices.

Article 10.0 | SMEU shall not be obligated to accept, and shall have the right to require Customer to temporarily curtail, interrupt, or reduce customer generation and deliveries of electricity in order to construct, install, maintain, repair, replace, remove, investigate, inspect, or test any part of SMEU's interconnection facilities, equipment, or any other part of SMEU's electric system. SMEU may disconnect, without notice, the DG System from the electric distribution system, if, in SMEU's opinion, a hazardous condition exists and such immediate action is necessary to protect persons, SMEU's facilities or other customers' facilities from damage or interference caused by Customer's DG System or lack of properly operating protective devices.

Article 11.0 | Customer hereby grants SMEU access on and across its property to inspect the DG System and the interconnection equipment, to read or test meters and metering equipment, to operate, maintain and repair SMEU's facilities and to disconnect the DG system from SMEU's electric system, as outlined in paragraph 10 above. No inspection by SMEU of the DG System or the interconnection facilities shall impose on SMEU any liability or responsibility for the operation, safety or maintenance of the DG System or Customer's interconnection facilities.

Article 12.0 | **CUSTOMER SHALL INDEMNIFY, DEFEND AND SAVE HARMLESS CITY, ITS ELECTED AND NON-ELECTED OFFICIALS, OFFICERS, AGENTS AND EMPLOYEES FROM AND AGAINST ANY AND ALL LIABILITIES, LOSSES, CLAIMS, DAMAGES, ACTIONS, SUITS OR DEMANDS FOR DAMAGES (INCLUDING COSTS AND ATTORNEY'S FEES, BOTH AT TRIAL AND ON APPEAL) ARISING OUT OF, RESULTING FROM, OR IN ANY MANNER CONNECTED WITH THE BREACH OF ANY WARRANTY OR REPRESENTATION MADE BY CUSTOMER IN THIS AGREEMENT, OR IN ANY MANNER CONNECTED WITH THE DESIGN, CONSTRUCTION, OPERATION, MAINTENANCE OR REPAIR OF ANY PART OF CUSTOMER'S DG SYSTEM OR INTERCONNECTION FACILITIES, INCLUDING, WITHOUT LIMITATION LIABILITIES, LOSSES, CLAIMS, DAMAGES, ACTIONS, SUITS OR DEMANDS FOR DAMAGES FOR OR ON ACCOUNT OF PERSONAL INJURY TO, OR DEATH OF, ANY PERSON, OR DAMAGE TO, OR DESTRUCTION OR LOSS OF, PROPERTY BELONGING TO CUSTOMER, CITY OR ANY THIRD PERSON.**

Article 13.0 | For Facilities 50 kW and Smaller: The Customer is not required to provide a certificate of insurance coverage to CITY. It is recommended, however, that the Customer carry liability insurance coverage which insures the Customer against all claims for property damage and for personal injury or death arising out of, resulting from or in any manner connected with the installation, operation and maintenance of the Customer's generating equipment.

For Facilities Larger than 50 kW: Prior to installation / interconnection, the Customer must provide a certificate of insurance showing satisfactory liability insurance including contractual liability insurance covering indemnity obligations which insures the Customer against all claims for property damage and for personal injury or death arising out of, resulting from or in any manner connected with the installation, operation and maintenance of the Customer's DG Facility.

- 1) The amount of such insurance coverage shall be not less than \$2,000,000 per occurrence and name CITY as an additional insured. This amount may be increased at the sole discretion of CITY if the nature of the project so requires.

- 2) The certificate of insurance shall provide that the insurance policy will not be changed or canceled during its term without thirty days written notice to CITY. The term of the insurance shall be coincident with the term of the installation / interconnection contract or shall be specified to renew throughout the length of the Installation / Interconnection Contract.
- 3) The Customer shall provide proof of such insurance to CITY at least annually and on request by CITY.

Article 14.0 | Notices given under this Agreement are deemed to have been duly delivered if hand delivered or sent by United States certified mail, return receipt requested, postage prepaid, to:

If to Company:

City of San Marcos

If to Customer:

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

Article 15.0 | A material failure of either party to fully, faithfully and timely perform its obligations under this Agreement shall be a breach of this Agreement. In the event of a breach which is not cured within thirty (30) days after receipt of written notice to the party in default, the party not in default may terminate this Agreement. **If** Customer is in breach of this Agreement, and such breach continues for thirty (30) days after written notice from CITY, CITY may disconnect the DG System or otherwise suspend taking energy from Customer. All rights granted under this section are in addition to all other rights or remedies available at law or under this Agreement or the applicable CITY Utilities Rules and Regulations.

Article 16.0 | This Agreement shall inure to the benefit of and by binding upon the heirs, successors, or assigns of each of the parties hereto. Customer may not assign this Agreement without the prior written consent of CITY. Any assignment without such consent shall be null and void.

Article 17.0 | This Agreement constitutes the entire agreement and understanding between the parties hereto and can be amended only by agreement between the parties in writing. In the event any provision of this Agreement, or any part or portion thereof, shall be held to be invalid, void or otherwise unenforceable, the obligations of the parties shall be deemed to be reduced only as much as may be required to remove the impediment.

Article 18.0 | The failure of either party to insist in anyone or more instances upon strict performance of any provisions of this Agreement, or to take advantage of any of its rights hereunder, shall not be construed as a waiver of any such provision or the relinquishment of any such right or any other right hereunder.

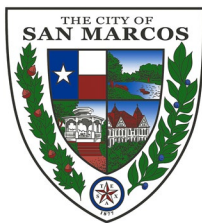
Article 19.0 | This Agreement and all disputes arising hereunder shall be governed by the laws of the State of Texas. Venue for all such disputes shall be proper and lie exclusively in Hays County, Texas.

IN WITNESS WHEREOF, the parties hereto have caused their names to appear below, signed by authorized representatives.

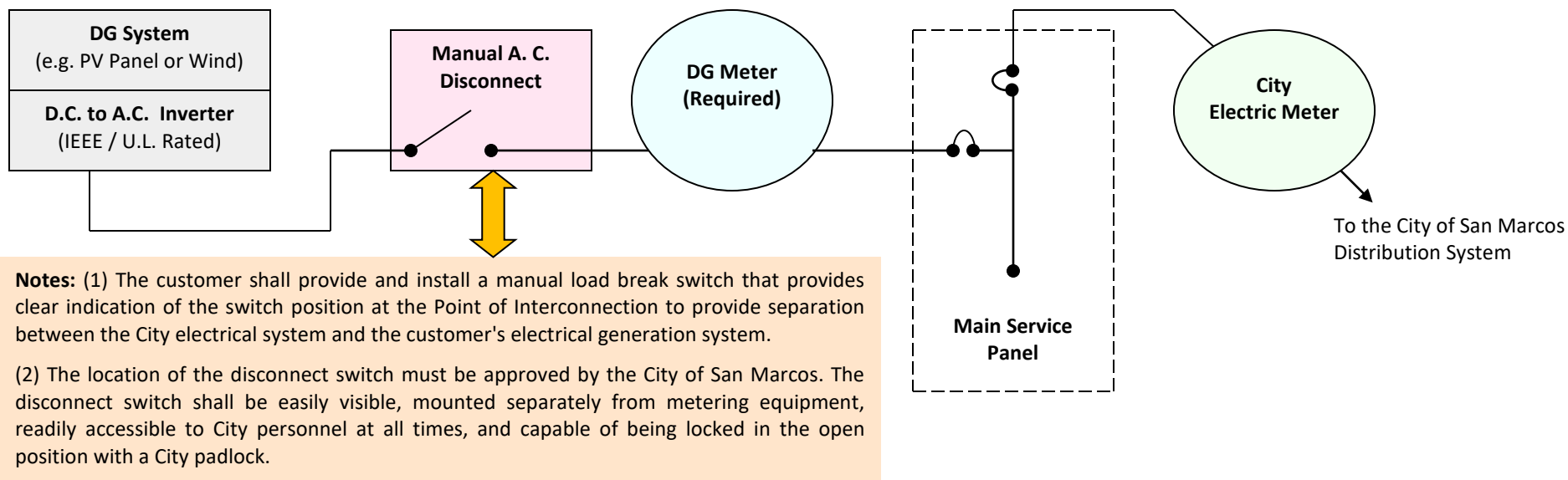
City of San Marcos	
By (Signature):	_____
Name (Print):	_____
Title:	_____
Date:	_____
Customer	
By (Signature):	_____
Name (Print):	_____
Date:	_____



Section 6: Distributed Generation Interconnection Diagram



City of San Marcos Distributed Generation (DG) Interconnection Diagram



Distributed Generation (DG) Interconnection Process

Step 1: Make application for your planned “grid-connected” project. Pick up application at the City Office (Building Code Department) or download from the City of San Marcos website (www.sanmarcostx.gov)

Recommendation: Contact the City early in the process. Much of the information on the application is specific to the respective DG system.

Step 2: City of San Marcos Building official will review the application within a reasonable timeframe and will determine if a study is required.

Recommendation: The City may need to ask follow-up questions. Pre-certified equipment is a big plus in this phase.

Step 3: City of San Marcos will prepare DG Agreement. Both parties must sign agreement before system can be connected to the City’s distribution system.

Note: The DG agreement documents the requirements and obligations of both parties and addresses the rate and billing aspects of the DG interconnection.

City of San Marcos DG Contact:

Email: _____ **Phone:** _____