



# Wind & Solar Regulations



**This publication may not contain all of the information that you need to know. It is intended to provide you with assistance as you navigate toward installing “Behind the Meter” wind or solar generation. It is your responsibility to determine what information you need to obtain from other sources such as an electrical engineer or your local electrician. The City of Mannford and Mannford Public Works Authority assumes no liability in your decisions.**

### **Contents:**

- > Considerations**
- > Distributed Generation Guidelines**
- > Electric Rates for customers with Wind or Solar Generation**
- > Ordinance on Wind & Solar Generation Structures**
- > Application for a permit to install Wind or Solar Generation**

# Considerations

## Get Your Permits

A Distributed Generation Permit is required before you install any solar or wind generators that are connected to MPWA's power grid. Permit fee is \$100.00 plus MPWA's engineer's plan inspection fee (to be determined by the engineer) and the Electric Inspection Fee of \$25.00. City permits are also required before you erect any kind of tower.

## Know The Rates

MPWA charges a "Connection Charge" to all Distributed Generation customers to pay the cost of providing equipment such as power poles, transformers, switches, meter boxes & meters along with the employees and equipment needed to keep everything working safely. Rates are charged using "net metering". This means if you produce enough extra power above and beyond what you use - you could conceivably sell MPWA enough kWh's to cover your monthly Connection Charge and any standby power that you had to use from MPWA's power grid. You will need to evaluate your cost of producing your own power to see if you are able to attain your desired goals.

## Determine Demand

Before installing solar, you need to know your individual energy needs. You can use past utility bills to check for your usage in kilowatt hours. Peak usage is the most important number in sizing a system that either aims to reduce its power demand from MPWA's power grid or to take a structure off of the grid.

## Maximum Generation Allowed

Current power contract between MPWA and GRDA (MPWA's power provider) only allows for up to 100 kW nameplate capacity per utility customer. Larger capacities require a three party interconnection agreement between the customer, MPWA, and GRDA. GRDA may also require "Make-Whole Demand Adjustment" and "Make-Whole Energy Adjustment" payments to offset their losses. These costs will be passed on to you, as the producer of the distributed generation.

## Height Regulations

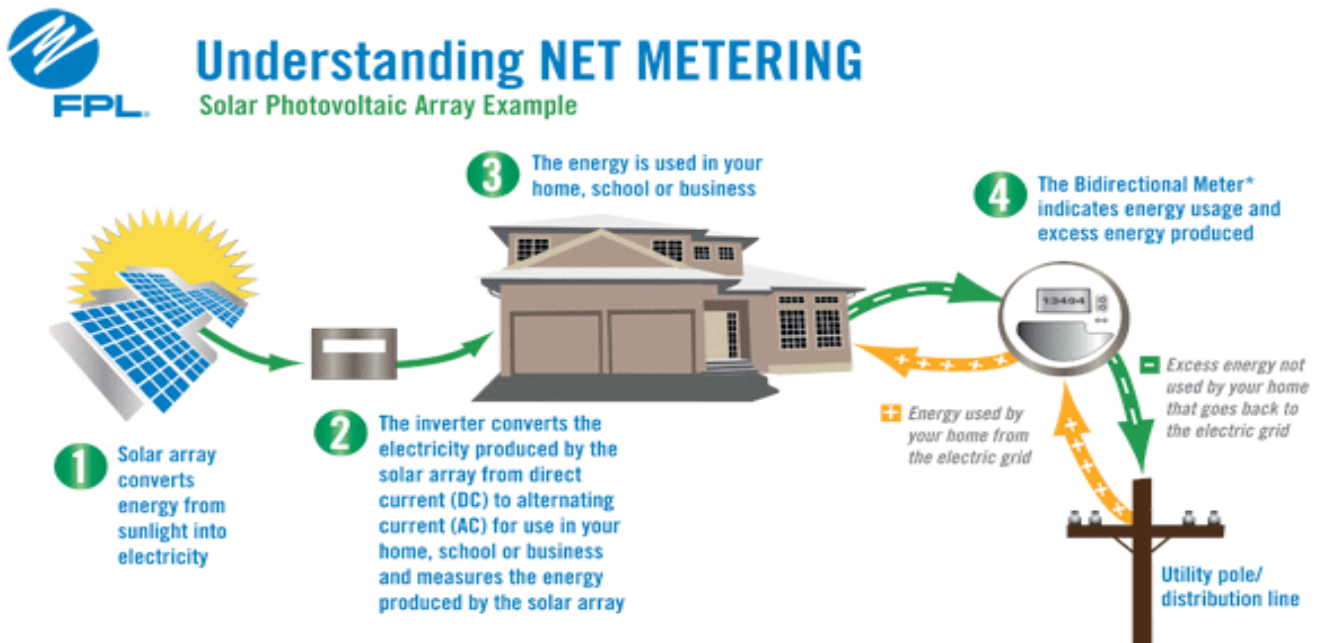
Power Generation Structures and Towers are regulated by City Ordinance. You must have sufficient space on your property so that if the structure topples over all parts of the structure shall come to rest within the confines of the property on which it is emplaced.

## Insurance Costs

Insurance Companies vary on what their policies cover. You should check with your agent to see if you need to purchase additional insurance to cover the cost of your solar panels or wind generator in the event they are damaged or destroyed.

## Tax Credits

You should check with your tax professional to see if there are any tax credits available to you.



**CITY OF MANNFORD/MANNFORD PUBLIC WORKS AUTHORITY**  
**DISTRIBUTED GENERATION GUIDELINES**

**A. General**

This “Behind the Meter Policy” for Customer-Owned Grid-Connected Electric Generating Systems sets forth the requirements and conditions for interconnected non-utility-owned electric generation where such generation may be connected for parallel operation with the City’s electrical system. Generating systems will be permitted to interconnect to the City’s electric distribution system at the service level voltage only after a determination by the City that such interconnection will not interfere with the operation of the distribution or transmission system and that such interconnection ensures the safety of City employees and customers.

**B. Additional Fees Required**

Customers with nameplate capacities over one hundred (100) kW will be required to pay for any “Make-Whole Demand Adjustment” (“MWDA”) and “Make-Whole Energy Adjustment” (“MWEA”) payments that are due GRDA in accordance with MPWA’s power purchase contract.

**C. Interconnection Requirements**

- 1) Customer has elected to operate, at its own expense, a Customer-owned, utility-interconnected generation facility. Systems shall be limited in size to not more than one hundred (100) kW per customer, aggregated for a combined total of one thousand (1000) kW at the service interconnection point. The generating system is intended to offset either part of all of the Customer’s electrical requirements.
- 2) Customer’s generation shall supply alternating current power, 60 Hertz, at a voltage and phase of the City’s established secondary or primary distribution system.
- 3) If the Customer’s generation system full output capacity is larger than ten percent (10%) of the substation, feeder, or distribution line tap minimum load at the point of interconnection, additional studies and equipment may be required to provide proper line protection and voltage regulation. The Customer is responsible for the cost of any studies and/or upgrades required to allow safe interconnection of the Customer-owned generation.
- 4) Customer-owned generation which produces frequencies that result in interference or generates distorted wave forms into the 60 Hertz City electric system which adversely affects the operation of City’s electric system shall be corrected at the expense of the Customer.
- 5) Standard City retail rates for this installation shall apply, as defined in the City Electric Service Schedule, except as modified by this document or applicable state or federal law.
- 6) Any costs or expenses incurred by City due to modifications made to City’s existing electrical system as a result of the interconnection of Customer’s generating system shall be paid by the Customer.
- 7) Customer will be the owner of the renewable attributes of the electricity that is generated, to include any and all credits certificates, benefits, environmental attributes, emission reductions, offsets, and allowances, however entitled, attributable to the generation of electricity from the customer-owned renewable generation and its displacement of conventional energy generation.

- 8)** City may require customer to interrupt or reduce deliveries when necessary in order to construct, install, maintain, repair, replace, remove, investigate, or inspect any of its equipment or part of its system.
- 9)** Customer shall comply with all the latest applicable National Electric Code (NEC) requirements [NEC Articles 690 and 705], NESC requirements, State of Oklahoma requirements, building codes, and shall obtain electrical permits for the equipment installation. Installation shall comply with local site permitting requirements.
- 10)** The Meter and transformer or transformer pole serving the Customer-Generator shall be labeled to indicate potential electric current back feed.
- 11)** Customer shall provide space for metering equipment and meter base as per City's requirements.
- 12)** Customer's over-current device at the service panel shall be marked to indicate the type of back feed power source.
- 13)** Customer assumes full responsibility for all maintenance of generators, inverters, and associated equipment including protective equipment. Customer shall keep records of maintenance activities and provide such records to the City for inspection at all times.
- 14)** Customer's generation control systems shall comply with NEC articles 690 and 705 and applicable and current Institute of Electrical and Electronics Engineers (IEEE) standards including Standard 1547 "Interconnection Distributed Resources with Electric Power Systems" for parallel operation with the City's electric system,

In particular:

- a.** Power output control system shall automatically disconnect from the City's source upon loss of voltage and not reconnect until City's voltage has been restored for at least five (5) minutes continuously.
  - b.** Power output control system shall automatically initiate a disconnect from the City's Power source within six (6) cycles (0.1 second) if Customer's voltage falls below 50% of nominal on any phase.
  - c.** Power output control system shall automatically initiate a disconnect from the City's Power source within two (2) seconds if Customer's voltage falls below 88% of nominal or rises above 120% of nominal on any phase.
- 15)** Customer shall provide a written description of how the protection devices will achieve compliance with the requirements of this policy as part of the License Application.
  - 16)** Customer shall furnish and install on customer's side of meter, a UL-approved safety disconnect switch which shall be capable of fully disconnecting the Customer's generating facility from the City's electric system. The disconnect switch shall be located adjacent to the City's meter(s) and shall be of the visible break type in a metal enclosure which can be secured in the "Off" position with a padlock. The disconnect switch shall be accessible to City personnel at all times.
  - 17)** For systems up to one hundred (100) kW, customer shall, at its own expense, maintain in force general liability insurance in the amount of \$1,000,000 without any exclusion for liabilities related to the interconnection.
  - 18)** Additional metering: For purposes of gathering research data, City may at its expense install and operate additional metering and data-gathering devices.
  - 19)** Customer shall pay all costs incurred by the City to have a qualified engineer study, inspect and approve the customer's plans and installation.

## D. Specifications and System Diagram

- 1) Customer shall supply specifications for the proposed generation system.
- 2) Customer shall supply a system diagram for use of City in determining the safety and functionality of a grid-connected generator. This diagram will be kept on file at City offices.
- 3) Customer shall supply a certificate of completion from a qualified professional engineer or electrician that the generation system meets all the requirements of this Policy.

---

### RESIDENTIAL RATES FOR DG POWER CUSTOMERS

Convenience Fee if paid online or by phone is \$1.25 per transaction.

**Customer Connection Charge (to be connected to MPWA's Power Grid) = \$41.20/mo.**

**Plus**

**All kWh used = \$0.087550**

**Plus monthly Fuel Cost Adjustment**

**Excess Power purchase rate =**

**\$0.0371516 per kWh\***

(This is the rate that MWPA will purchase excess power from the DG customer.)

**Please contact our utility office if you are interested in Commercial or Industrial Rates.**

**\* Excess Power purchase rate will be adjusted annually to reflect GRDA's power production costs minus the cost of transmission. This figure will be GRDA's Fiscal Year average since April 2019 computed from GRDA's Invoice costs to Mannford as shown:**

**On-Peak Energy Rate +**

**Off-Peak Energy Rate +**

**Energy Charge +**

**Power Cost Adjustment =**

**GRDA Cost of Power Production**





City of Mannford

Ordinance

Section 12-369

Power-Generation Tower or Structure; Height Limitation and other Rules; Placement of Solar Panels.

Notwithstanding any provision in this municipal code to the contrary, this section shall apply throughout the corporate limits of the City of Mannford and in every zoning district contained therein:

DEFINITION. For purpose of this section, the following words shall have the meaning ascribed to it:

- A. Power-Generation Tower or Structure shall mean any tower or structure constructed, erected or set up upon the ground or attached to something having a permanent location on the ground, the purpose of which is to generate and supply power, through the assistance of a renewable energy source, to be utilized by an existing principal residential or nonresidential use of the property on which it is situated. A power-generation structure shall be deemed to include all structural and mechanical components thereof. Nothing herein shall be construed or deemed to authorize the construction or use of any such tower or structure in the absence of compliance with any applicable ordinances, building or electrical codes, tariffs, contracts, utility regulations or State or Federal requirements or statutes of any nature.
- B. Power-Generation Towers Or Structures may not exceed the height limitation of the district in which located, and in addition shall be placed in such manner that there shall be a distance from the base of the tower or structure to all property lines greater than the height of the tower or structure as measured from the base thereof to its highest point, to include height added by any blade in a vertical position if the power-generation tower or structure is wind-motivated, so that should said tower topple over it shall come to rest wholly within the confines of the property on which it is emplaced. All such towers and structures may not be attached or affixed to any residential structures.
- C. The owner of the property upon which any Power-Generating Tower Or Structure is proposed, shall provide to the City written authorization giving City employees the right to enter the subject property whenever deemed necessary by the City for the purpose of inspection of the structure, its supports and components for structural stability and integrity; provided, that any such right-to-enter shall not be deemed to relieve the owner of any of his duties under law, nor shall it be deemed to impose upon the City any obligations under law not existing prior to the execution of any such right-to-enter.
- D. Solar panels may be placed on roofs of structures of the owners using the electric power generated, pursuant to the permitting process provided in subsection E and relevant resolutions of the city or its authority, and no solar panels shall be erected on empty lots (solar farms) or on the front or side yards of any lot visible from the street.
- E. No Power-Generating Tower or Structure or Solar Panel shall be placed within the City of Mannford without filling out the application at city hall permitting its erection and placement and full compliance with this section and all other provisions contained in this municipal code. The permit fee shall be One Hundred Dollars (\$100.00) unless otherwise modified by council resolution.

Section VI. PENALTY. Any person who shall by action or omission violate the terms of this section shall be guilty of an offense and shall be subject to a fine of not more than Two Hundred Dollars (\$200.00) plus costs, penalty assessments and fees. Each day of continued violation shall give rise to an additional charge.



**Distributed Generation Permit Application**

(Behind the Meter Generation)

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Location Address: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Location of proposed Distributed Generation: \_\_\_\_\_

Is this location currently served by MPWA (Mannford's Electric)? \_\_\_\_\_

If so, what is the current account number? \_\_\_\_\_

Generator Type (Wind, Solar, Other): \_\_\_\_\_

Electric Contractor for project: \_\_\_\_\_

Electric Contractor's Phone #: \_\_\_\_\_

Generator to be located on existing building or free standing: \_\_\_\_\_

If on existing structure, is the structure designed to the additional weight? \_\_\_\_\_

How will unit be tied into your existing electric service? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Disconnect Switch Information: \_\_\_\_\_

\_\_\_\_\_

Voltage Output: \_\_\_\_\_; single phase or three phase? \_\_\_\_\_

Amps: \_\_\_\_\_; Power Factor (PF): \_\_\_\_\_ % Maximum

Available Fault Current from generation at point of interconnection: \_\_\_\_\_

(Needed for OSHA required Arc Flash Study)

(Over)--->

Automatic Transfer Switch: \_\_\_\_\_

How will unit be used? Day, night, emergency, etc.: \_\_\_\_\_

How is unit grounded? \_\_\_\_\_

Is there metering on the unit? \_\_\_\_\_

Protection system to prevent back feeds onto city system during outages to protect line-workers from electrocution: \_\_\_\_\_

Type of Insurance Coverage for unit and installation: \_\_\_\_\_

Attach a diagram showing location and how it is tied into home or business.

Permit Application Fee (Due at time of application): **\$100.00**

Plan Review (Engineer's) Fee: \_\_\_\_\_. *This fee is only charged if the City of Mannford is charged by the engineer for inspecting the plans. Fee must be paid before application can be approved.*

Electric Inspection Fee (Due before the inspection): **\$25.00**

\_\_\_\_\_  
(Applicant's Signature)

Permit Approved: \_\_\_\_ Yes or \_\_\_\_ No

Approved by: \_\_\_\_\_

City of Mannford Electrical Inspector

Approved by: \_\_\_\_\_

City of Mannford/MPWA Administrator

*Applicant must fill out a Contract for Service if permit is approved.*

## Did you know?

Your utility provider, Mannford Public Works Authority helps to fund your local:

Police

Ambulance

Fire Department

Parks

Street Improvements

