DEPARTMENT: ELECTRIC OPERATIONS & ENGINEERING POLICY # 3.19
REVISION DATE: 12/13/2020
SUBJECT: INTERCONNECTION REQUIREMENTS FOR CUSTOMER OWNED NET METERED SOLAR GENERATION FACILITIES

This policy sets forth interconnection requirements, equipment specifications, and proposed metering for customers who may choose self-generation of electric energy using solar renewable energy sources with or without battery storage.

SELCO may set the maximum kW of solar energy panels connected to our facilities through net metering. The amount may be adjusted from time to time as SELCO's Electric Peak changes. The purpose of this limit is to avoid an uncontrolled growth, which could jeopardize the integrity of the local electric system. The Electric System Manager has the discretion to increase or decrease this limit.

1. APPLICABILITY OF POLICY

1. Eligible customer-generators are existing SELCO customers in good standing that own the property on which the proposed net metering facility will be installed. The net metering facility must be installed behind a retail meter, whether served by a single meter or separate meter, owned by the customer and used in connection with the customer's structure.

2. Only photovoltaic generation with or without battery storage is covered by this policy.

3. All projects will be evaluated on a case-by-case basis prior to approval for net metering.

4. Installations are subject to review by SELCO's engineering division to ensure that the amount of electricity projected to migrate to the distribution system does not exceed the capacity of the transformer serving the Customer, or adversely impact SELCO's distribution system in any other way. If it is determined that significant system upgrade costs are required due to facility installation(s) and the upgrades can be attributed to the Customer(s), an estimate will be provided to the Customer(s).

5. The primary intent of the net metering facility must be to offset the customer's electric power requirements. The majority of the energy generated annually from the system must be consumed onsite.

6. The customer is solely responsible for securing and complying with all local permitting processes including zoning, electrical, building inspection, and any and all other special permits that may be required.

7. Customers interested in pursuing any other type of generation facility must submit a written request to the Electric System Manager.

8. SELCO customers wishing to install solar must: Own the structure where the facility will be installed. Own the facility equipment. Own all power produced by the facility. Panel leasing arrangements or third-party power purchase agreements within the SELCO service territory are not permitted.

9. SELCO may determine that a power purchase agreement (PPA) is a more appropriate arrangement for certain proposed facilities.

2. POWER PURCHASE AGREEMENTS

Customers interested in developing a larger system must submit a proposal for a power purchase agreement (PPA). The General Manager has the discretion to accept or deny any PPA proposals and to negotiate their terms. Each PPA proposal will be evaluated on a case-by-case basis for its economic, engineering, and environmental merit. SELCO may determine that a PPA proposal may require a nonrefundable application fee for the purposes of conducting a system impact study.

3. BILLING & CREDITING

At the end of the monthly billing period, the customer-generator will be billed for the electricity consumed at the designated service rate.

Residential

At the end of the monthly billing period, the residential customer-generator's account will be credited for the electricity provided into the SELCO system at an amount equal to the designated rate. These customer-generators will receive monetary credits to their electric account for their excess generation based on their class of service.

Upon the customer's request, for the billing period ending in March of each year (or at the termination of service), any remaining credit balance in a customer-generator's account will be returned to the customer by check. The customer charge, distribution/standby, and minimum charge associated with the customer's class of service will still apply.

Commercial

If during a billing period, the commercial customer- generator feeds back on to the SELCO system more electricity than is supplied by SELCO, the customer will be billed the minimum charge applicable to the customer-generator's class of service and be credited for the excess electricity (kWh) generated and fed on to the SELCO system.

Any excess kWh shall carry forward from billing period to billing period, until any excess has been utilized.

For the billing period ending in the first month following each anniversary date of the project going into service (or at the termination of service), if any unused credits have been accumulated during the previous 12 months, SELCO will credit the commercial customer account an amount equal to the unused credited kilowatt hours times the average of the wholesale cost of energy, excluding transmission, and distribution costs, for the previous 12-month period.

In the event that the commercial customer installs a facility that exceeds 50% of its historic peak demand, SELCO may choose to not reimburse the customer-generator for any excess electricity fed back to the SELCO system.

Interconnection

The customer-generator must complete and sign the SELCO Interconnection Application & Agreement. The customer generator will be required to pay all applicable application fees, meter installation, and electrical permitting fees. Service is subject to SELCO's written requirements and SELCO's Electric Service Requirements.

The customer-generator shall build, operate, and maintain the net metering facility so that it meets or exceeds all applicable safety and performance standards established by the Massachusetts State Building Codes, the Massachusetts Department of Public Utilities, the National Electric Code, the Institute of Electrical and Electronics Engineers, Underwriters Laboratories, the Town of Shrewsbury and SELCO.

The net metering facility must operate in parallel with SELCOs existing transmission and distribution facilities.

The customer-generator shall provide a safety disconnect device located adjacent to SELCO's metering equipment and shall be accessible to SELCO's personnel at all times. The disconnect switch must be lockable by means of a padlock in either the open or closed position. SELCO shall have the option of requiring ongoing testing of the disconnect equipment. SELCO may disconnect the customer-generator's facility from SELCO's distribution system at any time if it deems the safety and stability of the system could be compromised. SELCO will when possible notify the customer prior to disconnecting the generating facility.

SELCO will install bi-directional (net) metering equipment that is capable of registering the flow of electricity in each direction. SELCO will also install a production meter to monitor total system generation. SELCO will be responsible for the maintenance and service of the bi-directional and production metering equipment.

SELCO reserves the right to inspect net metering facilities at any time with proper notice to the customer.

Legal

SELCO shall not be liable, directly or indirectly, for permitting or continuing to allow the attachment of a net metering facility, or for the acts or omissions of the customer-generator that cause property damage, or loss, or injury, including death, to any party.

SELCO reserves the right to change this policy at any time to reflect changes in its Schedule of Electric Rates, or to bill the customer-generator for any costs that occur as a result of charges directly related to the customer-generator.

SELCO reserves the right to delay or reject any application if it threatens the performance or reliability of SELCO's distribution system, or the safety of SELCO's customers or employees.

Any and all aspects of this policy may be changed at any time to better serve the objectives of SELCO and the needs of its customers.

2. APPLICATION

Applications

Application Forms – All applications must be submitted online using the link found at www.SELCO.ShrewsburyMA.gov/solar

Application Process

1. Read and become familiar with the Policy "Interconnection Requirements for Customer Owned Generation Facilities."
2. Submit an application through the online portal. An application fee of $250 will be charged upon submission of the application.
3. The applicant will be notified of all application updates and approvals through the online application portal.
4. Customer must apply for and pay for all applicable permit fees (e.g. electrical and building) prior to the start of any work.
5. Contact the Town of Shrewsbury's Wiring Inspector and request for approval of location for the required disconnect switch and relation of the service entrance and revenue meter.
6. Once the work has been completed, contact the Town of Shrewsbury's Wiring Inspector to request a final inspection of the Facility and sign the "Certificate of Completion"
7. Upload the completed Certificate of Completion to SELCO's online application portal.
    a. Pay the $200.00 net and production meter installation fee online at the application portal.
    b. Include a contact name and phone number for SELCO to schedule the net meter installation.
    c. SELCO will confirm the installation of the production meter socket is located near the utility meter and in an accessible location. The meter installed here will measure the output of the PV system.
    d. SELCO will confirm the installation of a safety disconnect device located adjacent to SELCO's revenue and production meters that shall be accessible to SELCO personnel at all times.
    e. SELCO will install the net and production meters and authorize operation of the system.
8. For battery addition to an existing solar facility, the Customer must apply online using the "Interconnection Application Supplement: Battery Addition to Existing Photovoltaic Array" application and pay a fee of $50.

3. GENERAL PROVISION

Notice Provisions

If at any time, in the reasonable exercise of SELCO's judgment, operation of the facility adversely affects the quality of service to SELCO's customers or interferes with the safe and reliable operation of the Distribution System, SELCO may discontinue interconnection service to the Interconnecting Customer until the condition has been corrected. Unless an emergency exists or the risk of one is imminent, SELCO shall give Interconnecting Customer reasonable notice of its intention to discontinue service and, where practical, allow suitable time for interconnecting Customer to remedy the offending condition. SELCO's judgment with regard to discontinuance of deliveries or disconnection of facilities under this paragraph shall be made in accordance with Good Utility Practice. In the case of such discontinuance, SELCO shall immediately confer with Interconnecting Customer regarding the conditions causing such discontinuance and its recommendation concerning the timely correction thereof.

Access and Control

Representatives of SELCO shall, at all reasonable times, have access to the Facility to make reasonable inspections. At the Facility, such representatives shall make themselves known to the Interconnecting Customer's personnel, state the object of their visit, and conduct themselves in a manner that will not interfere with the construction or operation of the Facility. SELCO will have control such that it may open or close the circuit breaker or disconnect.

Force Majeure

An event of Force Majeure means any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any curtailment, order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond either party's control. A Force Majeure event does not include an act of negligence intentional wrongdoing. Neither SELCO nor the Interconnecting Customer will be considered in default as to any obligation under Interconnection Requirements if prevented from fulfilling the obligation due to an event of Force Majeure. However, a party whose performance is hindered by an event of Force Majeure shall make all reasonable efforts to perform its obligations under this Interconnection Requirements.

Indemnification

The Interconnecting Customer shall at all times indemnify, defend, and save SELCO harmless from any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demands, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from SELCO's performance of its obligations under this Interconnection Requirements on behalf of the Interconnecting Customer, except in cases of gross negligence or intentional wrongdoing by SELCO.

4. PROTECTION REQUIREMENTS

General Requirements

a. If, due to the interconnection of the Facility, when combined with preexisting facilities interconnected to SELCO's system, the rating of any of SELCO's equipment or the equipment of others connected to SELCO's system will be exceeded or its control function will be adversely affected, SELCO shall have the right to require the Interconnecting Customer to pay for the purchase, installation, replacement or modification of equipment to eliminate the condition. Where such action is deemed necessary by SELCO, SELCO will, where possible, permit the Interconnecting Customer to choose among two or more options for meeting SELCO's requirements as described in this Protection Policy.

b. The Facility shall provide a disconnect switch at the interconnection point with SELCO that can be opened for isolation. The switch shall be in a location accessible to Company personnel at all times. SELCO shall have the right to open this disconnect switch during emergency conditions and with reasonable notice to the Interconnecting Customer at other times. SELCO shall exercise such right in accordance with Good Utility Practice. The switch shall be gang operated, have a visible break when open, be rated to interrupt the maximum generator or photovoltaic output and be capable of being locked open, tagged and grounded on the SELCO side by SELCO personnel. The switch shall be code compliant and of a type generally accepted for use in this application. The switch should be located within view of the revenue meter.

c. If a customer's facility damages the SELCO system, the customer shall be responsible for all costs associated with the repair and/or replacement of the damaged portion of the SELCO system and that names SELCO as an additional insured. Commercial customers shall maintain insurance coverage that would cover any damage to SELCO's system in the event of the operation or misoperation of the facility.

5. REQUIREMENTS FOR INVERTER-BASED INSTALLATIONS

Facilities

a. SELCO's distribution circuits generally operate with automatic reclosing following a breaker trip due to a fault. The Interconnecting customer is responsible for protecting their equipment from being re-connected out of synchronism when SELCO's system is re-energized manually or by an automatic re-closure operation.

b. The following information must be submitted by the Interconnecting Customer for review and acceptance by SELCO prior to SELCO's approving the Interconnecting Customer's request for interconnection:

- An electrical one-line diagram or sketch depicting how the inverter will be interconnected relative to the production meter, the electric revenue meter, the battery (if applicable) and the service entrance panel. The diagram must show all devices for the system, including equipment ratings, wire sizes and a visible accessible and lockable disconnect switch ("safety switch"). The disconnect switch must be installed in a readily accessible location normally within view of the SELCO revenue and production meters, where utility personnel can operate the switch if required.

- The make, model and manufacturer's specification sheet for the inverter.

c. For Facilities that utilize photovoltaic technology, it is required that the system be installed in compliance with IEEE Standard 929-2000, "IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems". The inverter shall meet the Underwriters Laboratories Inc. Standard UL 1741 SA, Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems". Based on the information supplied by the Interconnecting Customer, if SELCO determines the inverter is in compliance with UL 1741 SA, the Interconnecting Customer's request for interconnection will be approved.

6. REQUIREMENTS FOR INSTALLATIONS WITH BATTERY STORAGE

a. For Facilities that utilize battery storage (a power source stored as chemical energy that can be converted into electricity), specifications must be provided to SELCO and included in all one-line and/or three diagrams.

b. The meter socket for SELCO's production meter must be wired such that all solar output is metered through the SELCO production meter. Energy storage units such as batteries must not be wired as to draw load before reaching SELCO's PV production meter.

c. Addition of battery storage to an existing solar system already interconnected with SELCO must be approved by SELCO through an online application.

7. METERING

Metering, Monitoring, and Communication

This Section sets forth the rules, procedures, and requirements for metering, monitoring and communication between the Facility and SELCO where the interconnected facility exports power or is net metered or may otherwise be subject to ISO requirements. Interconnecting Customer will be responsible for reasonable and necessary costs incurred by SELCO for the purchase, installation, operation, maintenance, testing, repair and replacement of metering and data acquisition equipment. Interconnecting Customer's metering (and data acquisition, as required) equipment shall conform to rules and applicable operating requirements.

Metering, Related Equipment and Billing Options

SELCO shall furnish, read and maintain all revenue and production meters.

The Interconnecting Customer shall furnish and maintain all meter mounting equipment and meet the requirements below:

- Install meter sockets (i.e. for both SELCO's revenue meter and production meters), test switches, conduits, and enclosures.
- Install an inter system bonding terminal shall be provided if not presently installed.
- For solar installations, SELCO requires an Emergency Disconnect meeting the following requirements:
    - For one- and two-family dwelling units, all service conductors shall terminate in disconnecting means having a short-circuit current rating equal to or greater than the available fault current, installed in a readily accessible outdoor location. If more than one disconnect is provided, they shall be grouped. Each disconnect shall be one of the following:

      (1) Service disconnects marked as follows: EMERGENCY DISCONNECT, SERVICE DISCONNECT

      (2) Meter disconnects installed per NEC 230.82(3) and marked as follows:EMERGENCY DISCONNECT, METER DISCONNECT, NOT SERVICE EQUIPMENT

      (3) Other listed disconnect switches or circuit breakers on the supply side of each service disconnect that are suitable for use as service equipment and marked as follows: EMERGENCY DISCONNECT, NOT SERVICE EQUIPMENT

Markings shall comply with NEC 110.21(B).

- For solar installations, SELCO requires replacing Federal Pacific electrical panels and breakers in the home or business that will connect to the solar system regardless of whether the panel is to be back-fed or a line side tap is used.

- Load or Line side taps **are not** acceptable within any portion of the utility meter socket.

- SELCO requires that the Solar Production meter socket be wired with the line side (top) from the output of the solar system and the load side (bottom) be wired to the building load (e.g. breaker in the service panel or service panel line side tap.)

- Submit photos of the grounding/bonding of the solar arrays to the structure via upload to the associated electrical permit.

For billing rates, please refer to SELCO residential net metering rate, NR-1, and commercial net metering rate, NC-1, available on the SELCO website: SELCO.ShrewsburyMA.gov/electric rates.

Except as provided below, SELCO shall own the utility revenue and solar production meters and the Interconnecting Customer shall pay to SELCO a monthly charge to cover meter maintenance, incremental reading and billing costs, the allowable return on the invoice cost of the meter and the depreciation of the meter, if any. These charges, if any, are set forth in the applicable SELCO rates, as amended from time to time.

All metering equipment installed pursuant to this Policy and associated with the Facility may be routinely tested by SELCO at Interconnecting Customer's expense, in accordance with applicable Company and/or ISO-NE criteria, rules and standards. If, at any time, any metering equipment is found to be inaccurate by a margin greater than that allowed under applicable criteria, rules and standards, SELCO shall cause such metering equipment to be made accurate or replaced. The cost to repair or replace the meter shall be borne by SELCO, if SELCO owns the meter. Meter readings for the period of inaccuracy shall be adjusted so far as the same can be reasonably ascertained; provided, however, no adjustment prior to the beginning of the preceding month shall be made except by agreement of the Parties. Each Party shall comply with any reasonable request of the other concerning the sealing of meters, the presence of a representative of the other Party when the seals are broken and the tests are made, and other matters affecting the accuracy of the measurement of electricity delivered from the Facility. If either Party believes that there has been a meter failure or stoppage, it shall immediately notify the other.

The type of equipment to be installed at a Facility is:

- Net Metering

- Net meter – SELCO's utility meter will be replaced with a NET meter. The meter register subtracts reverse (received by the utility) energy from forward (delivered to the customer) energy. The Customer will receive a credit when the received energy is greater and will be billed when the delivered energy is greater.

- Any net metering credits first will be applied to the net metering account and any surplus net metering credits remaining after six (6) months may be applied to another "linked" residential account of the same customer.

- Installation of the net generation electric output meter (SELCO owned).

Effective 03/04/2016:
All interconnect agreements submitted for net metering will be subject to future revisions of SELCO's net metering tariff. This includes revisions to the tariff that will credit the wholesale rate for electricity generated onto our system and or add a solar demand or additional distribution charge to the net metered customer.

Effective 05/01/2016:
All net metered interconnections to the SELCO grid will be subject to a monthly Distribution Standby Charge of $2.50 per kW of Maximum System Output (AC) of installed solar capacity. This will be added to the monthly electric bill following the interconnection to the SELCO electric system

All interconnect agreements submitted for net metering are subject to future revisions of SELCO's net metering tariff. This includes revisions to the tariff that may affect the rate credited for the electricity generated onto our system.