DISTRIBUTED RESOURCE GENERATION
Feed-In Tariff
Single Phase

USE: Requirements and guidelines for interconnection of single phase customer owned, (DR) Distributed Resource generation source, to NIPSCO's electric system, configured for "Feed-in Tariff."

PREVIOUS REVISION	ORIGINATED	PREVIOUS NUMBER
04-01-15	01-12	

LATEST REVISION: Updated References, Eligibility, and General specifications for customer responsibilities.

REFERENCE: 170 IAC 4-4.3-12, IURC Rule for "Interconnection"
Electric Service Tariff - Rider 879, latest revision
IEEE 1547, latest revision
EPRI TR-111489
UL 1741 SA, latest revision
ANSI/IEEE C37.2 (Device Function Numbers), latest revision
NIPSCO's Standard ER 16-600, latest revision
National Electric Safety Code, latest revision
IEC/NEC (Indiana Electrical Code/National Electrical Code), latest revision
Other applicable national, state, and local codes and ordinances.

SPECIFICATION:

1. DEFINITIONS:

1.1 Distributed Resource (DR) Generation - The use of **power generation technology**, which may be interconnected with NIPSCO's electric system.

1.2 Feed-in Tariff - A tariff that allows a customer to interconnect to NIPSCO's electric system and to sell electric production to NIPSCO.

1.3 Islanding - A condition when the DR generation unit becomes separated from NIPSCO's electric system, but continues to operate in an energized state. Islanding may be intentional for reliability purposes when NIPSCO's electric system has an outage. Intentional islanding is allowed only if the DR generation unit and load are isolated from NIPSCO's de-energized electric system prior to islanding. (See Spec. 6)

1.4 Static Power Converters (SPC) (Also known as Inverter.) - A device used to convert DC power into AC power. SPC's may be line-commutated or self commutated. SPC's solid state components may include such protective functions as over current protection, phase sequence, synchronizing, under/over voltage, under/over frequency, etc.

1.4.1 Line-Commutated - The SPC requires the presence of NIPSCO's electric line frequency for it's internal switching devices, in order to operate. (Also known as Grid Tie Inverter.)

1.4.2 Self-Commutated - The SPC does not require NIPSCO's electric line frequency for it's internal switching devices, in order to operate.

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2. ELIGIBILITY:

Any single phase customer in good standing may install, own, and operate a "Feed-in Tariff" generation source(s), interconnected with NIPSCO's electric system if the following are met:

2.1 The generation source is of a solar, wind type, or biomass.

2.2 The total nameplate capacity of the generation source is 5 kilowatts (kW) to 10 kW for solar. The total nameplate capacity of the generation source is 3 kW to 10 kW for wind. The generation source shall be a single arrangement of equipment at a distinct service address with a given site or customer not to exceed 10 kW.

2.3 A "Feed-in Tariff" customer shall sell the total production to NIPSCO and shall receive service for their load separately at the appropriate retail rate. A Feed-in Tariff customer may not simultaneously qualify for "Net Metering" for any generation produced.

2.4 The generation source is located on the eligible customer's premises, is operated by said customer, and is interconnected with NIPSCO's electric system.

2.5 The customer must submit the "Interconnection Application" to NIPSCO, with proof of insurance coverage to be considered for, and to obtain approval for Feed-in Tariff.

2.6 NIPSCO shall perform a feasibility review for the proposed generation source interconnection as an initial screening for the impact it may have to its electric system. The feasibility review will evaluate system readiness for the interconnection and will determine if there is a need for a more extensive study. If an Interconnection Evaluation Study needs to be performed by NIPSCO, any fees associated with this study will be the responsibility of the customer. Additionally if it is found that the proposed generation source requires system infrastructure upgrades to NIPSCO's electric system, the customer will be required to pay the total cost of the required system improvements. During the feasibility review or Interconnection Evaluation Study, if additional customer owned equipment is necessary to meet NIPSCO safety and interconnection practices, NIPSCO shall inform the customer at this time.

2.7 Eligible customers shall enter into an "Interconnection Agreement" with NIPSCO; and if any upgrades to NIPSCO's electric system are required, the customer must pay for these, in full, before the generation source is allowed to interconnect to NIPSCO's electric system or any work is performed by NIPSCO.

3. GENERAL:

3.1 Listed below are the minimum requirements for Distributed Resource (DR) generation and more stringent requirements may be imposed if warranted by conditions existing on NIPSCO's electric system. NIPSCO **shall** be contacted, and the installation must be approved, before any DR generation facility will be interconnected to NIPSCO's electric system. The appropriate Electric Planning Department will approve the interconnection plan. (See 2.5 and 2.6)

3.2 All DR generation facility installations shall comply with all applicable codes and standards, including but not limited to the codes listed in the reference section of this standard.

3.3 DR generation shall not adversely affect NIPSCO's electric system or any of its customers. Refer to standard ER 16-600 for power quality requirements.

3.4 It shall be the responsibility of the DR generation customer to protect their own equipment and facilities. This protection shall include protection against electrical system over voltages, line frequency disturbances, faults, lightning surges, and any other phenomenon resulting from the interconnection.

3.5 The DR generation customer shall be responsible for costs incurred for any modifications to NIPSCO's electric system, which are required for the DR generation interconnection. (See 2.6 and 2.7)

3.6 The DR generation customer shall be responsible for costs and installation of equipment (which the customer shall own and maintain) that are required to meet NIPSCO safety and interconnection practices. Equipment such as, but not limited to - poles, switches, reclosers, pad switchgear, etc. may be necessary. (See 2.6 and 2.7)

3.7 If a customer-generator facility is to be connected to a single phase shared secondary, the aggregate generation nameplate capacity connected to the shared secondary, including the proposed nameplate capacity, shall not exceed the lesser of twenty (20) kVA (kilovolt amps) or the nameplate rating of the service transformer.

3.8 Interconnection will not be allowed to NIPSCO's electric system until the installation has been approved by an authorized municipal, county, or other governmental inspector where such inspection procedures are established.; and, by a final inspection, and system checks if necessary, by a NIPSCO Representative.

4. INTERCONNECTION:

4.1 The eligible customer shall install, operate, and maintain the generation source in accordance with the manufacturer's suggested practices.

4.2 The generation source shall be connected to a dedicated one way feed from the generation source to NIPSCO's electric system in such a manner that the customer shall not have any loads connected to this feed.

4.3 A lockable manual or power operable disconnect switch, or lockable circuit breaker shall be installed between the generation source, and NIPSCO's electric system, and be accessible to NIPSCO personnel at all times. This switch shall be labeled "Utility-Generator Disconnect Switch" on an engraved plaque.

4.4 Inverters shall comply with IEEE 1547 and UL 1741 SA Standards and be line-commutated. (Also known as Grid Tie Inverters.)

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4.5 DR generation service entrances shall be determined by the NIPSCO Engineer and the customer, and will be group metered (see ER 19-235) or individually metered (see ER 19-240 or ER 19-270) depending on the DR generation installation. The customer will be required to pay for any additional service as needed. (Typically, there is only one service entrance location per property.)

4.6 In all cases, an engraved plaque shall be placed next to NIPSCO's electric meter providing the location of the utility-generator disconnect switch and the generation source. Furthermore, all buildings or structures with both a utility service and a generation source shall have a permanent engraved plaque or directory providing the location of the utility-generator disconnect switch and the generation source.

4.7 NIPSCO may isolate the eligible customer's generation source at any time if it is believed that continued operation of the generation source will create or contribute to a system emergency. A system emergency is defined as any condition on the electric system likely to result in any of the following:

4.7.1 A significant disruption of service to any NIPSCO customer.

4.7.2 A substantial deviation from NIPSCO's normal service standard.

4.7.3 An endangerment to life or property.

4.8 NIPSCO may perform on-site inspections to verify the proper installation and continued safe operation of the generation source and interconnection equipment facilities. Inspections shall be done at reasonable times, and with reasonable advance notice to the eligible customer.

5. INTERCONNECTION:

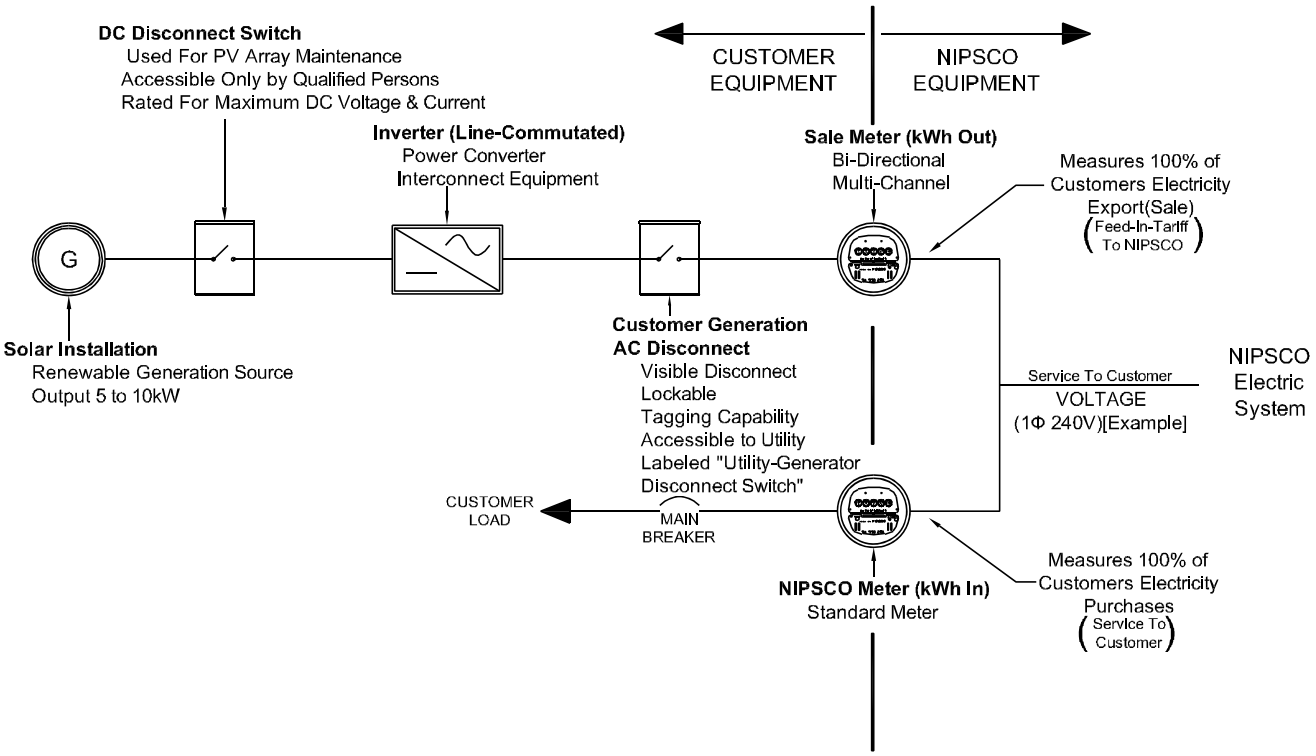
The DR generation source shall trip offline in the case of any fault conditions existing on NIPSCO's electric system. It shall remain isolated until all faults are cleared and NIPSCO's electric system is re-energized.

6. INTENTIONAL ISLANDING:

Intentional islanding is not permitted. Anti-islanding protection shall be incorporated into the inverter per IEEE 1547 and UL 1741 SA Standards.

7. EXAMPLES - Typical service installations:

7.1 Solar - Two Meter Concept example -



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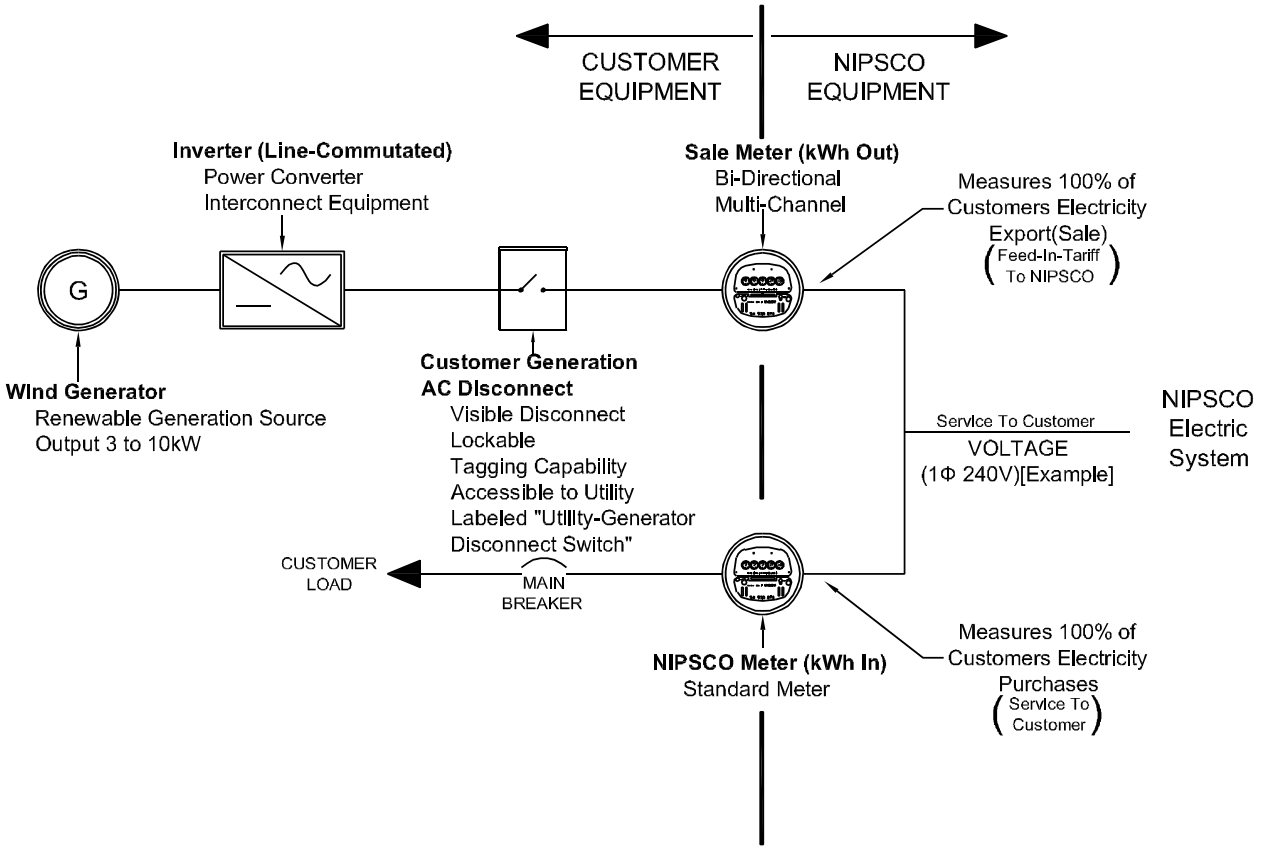
7.2 Wind - Two Meter Concept example -



7.3 Combination Solar and Wind - Three Meter Concept example -