

**WEST VIRGINIA  
SECRETARY OF STATE  
NATALIE E. TENNANT  
ADMINISTRATIVE LAW DIVISION**

Form #5

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OFFICE WEST VIRGINIA  
SECRETARY OF STATE

**NOTICE OF AGENCY ADOPTION OF A PROCEDURAL OR INTERPRETIVE RULE  
OR A LEGISLATIVE RULE EXEMPT FROM LEGISLATIVE REVIEW**

AGENCY: Public Service Commission of West Virginia TITLE NUMBER: 150

CITE AUTHORITY: W.Va. Code §24-2F-1 et, seq.

RULE TYPE: PROCEDURAL \_\_\_\_\_ INTERPRETIVE \_\_\_\_\_

EXEMPT LEGISLATIVE RULE \_\_\_\_\_  \_\_\_\_\_

CITE STATUTE(S) GRANTING EXEMPTION FROM LEGISLATIVE REVIEW

AMENDMENT TO AN EXISTING RULE: YES \_\_\_\_\_ NO  \_\_\_\_\_

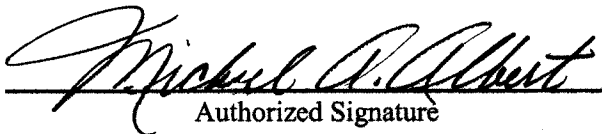
IF YES, SERIES NUMBER OF RULE BEING AMENDED: \_\_\_\_\_

TITLE OF RULE BEING AMENDED: \_\_\_\_\_

IF NO, SERIES NUMBER OF RULE BEING PROPOSED: 33

TITLE OF RULE BEING PROPOSED: Rules Governing Electric Utility Net Metering Arrangements and Interconnections

THE ABOVE RULE IS HEREBY ADOPTED AND FILED WITH THE SECRETARY OF STATE. THE  
EFFECTIVE DATE OF THIS RULE IS August 30, 2010

  
Authorized Signature

TITLE 150  
PROCEDURAL RULES  
PUBLIC SERVICE COMMISSION

SERIES 33

RULES GOVERNING ELECTRIC UTILITY  
NET METERING ARRANGEMENTS AND INTERCONNECTIONS

**§150-33-1. General.**

1.1. Scope. -- The following rules govern the net metering arrangements and interconnections between electric utilities and electric utility customers that are also generators of electricity using alternative and renewable resources. The rules also govern interconnection standards between electric utilities and small power producers, including net metering customers.

1.2. Authority. -- W. Va. Code § 24-2F-1 et seq.

1.3. Filing Date. -- June 30, 2010

1.4. Effective Date. -- August 30, 2010

1.5. Application of Rules

1.5.a. If hardship results from the application of any rule contained herein or if unusual difficulty is involved in immediately complying with any rule, or upon other good cause shown, application may be made to the Commission for a temporary or permanent exemption or waiver from its provisions. No application for modification or exemption will be considered by the Commission unless the application includes a full and complete justification for such action. Furthermore, to the extent the rule is based on a specific statutory requirement, the Commission is unable to waive such a rule based upon specific statutory requirement.

**150-33-2. Definitions.**

2.1. "The Act" - The Alternative and Renewable Energy Portfolio Act codified in Article 2F of Chapter 24 of the West Virginia Code, as it may be amended in the future.

2.2. "Alternative energy resources" - The following resources, methods, projects

or technologies for the production or generation of electricity:

2.2.a. Advanced coal technology- A technology used in a new or existing energy generating facility to reduce airborne carbon emissions associated with the combustion or use of coal and includes, but is not limited to, carbon dioxide capture and sequestration technology, supercritical technology, advanced supercritical technology as that technology is determined by the Public Service Commission, ultrasupercritical technology and pressurized fluidized bed technology and any other resource, method, project or technology certified by the Commission as advanced coal technology.

2.2.b. Coal bed methane;

2.2.c. Natural gas;

2.2.d. Fuel produced by a coal gasification or liquification facility;

2.2.e. Synthetic gas;

2.2.f. Integrated gasification combined cycle technologies;

2.2.g. Waste coal - A technology by which electricity is produced by the combustion of the by-product, waste or residue created from processing coal (such as gob);

2.2.h. Tire-derived fuel;

2.2.i. Pumped storage hydroelectric projects;

2.3. "Alternative energy resource facility" - A facility or equipment that generates electricity from alternative energy resources.

2.4. "Commission" - The Public Service Commission of West Virginia.

2.5. "Customer-generator" - An electric retail customer who owns or leases, and operates an alternative or renewable energy resource facility ("generation project") within this state that meets the following criteria: the generation project is located on the same tract of land as its metering point(s) or if the generation facility is located on contiguous tract(s), the generation project is located within two miles of the customer's metering point(s); the tract or contiguous tracts are owned, leased, or operated by the customer as a private residence or used by a commercial or industrial customer in the normal course of business; the generation project has a nameplate capacity of not greater than 25 kilowatts if installed

at a residential service location, not greater than 500 kilowatts if installed at a commercial service location, or not greater than 2 megawatts if installed at an industrial service location; provided that, the maximum nameplate capacity for a Customer-generator served by rural electric cooperatives, municipally-owned electric utilities or utilities serving less than thirty-thousand residential customers shall be 50 kilowatts; and, the generation project is designed and installed to operate in parallel with the electric utility distribution system without adversely affecting the operation of equipment and service of the electric utility and its customers and without presenting safety hazards to the electric utility and customers.

2.6. "Customer-generator facility" - The alternative or renewable energy resource equipment operated by a Customer-generator to generate, manage, monitor and deliver electricity to the electric utility.

2.7. "Electric distribution system" - A portion of an electric system which delivers electricity from transformation points on the transmission system to points of connection at a customer premises.

2.8. "Electric retail customer" - A direct purchaser of electric power whose service is billed by a utility based on meter reading, but excludes an occupant of a building or facility where the occupants are not direct purchasers of electricity.

2.9. "Electric utility" - The electric distribution company or electric generation supplier that sells electricity to retail customers in West Virginia.

2.10. "kW" - Kilowatt - A unit of power representing 1,000 watts. A kW equals 1/1000 of a MW.

2.11. "MW" - Megawatt - A unit of power representing 1,000,000 watts. A MW equals 1,000 kW.

2.12. "Meter aggregation" - The combination of readings from and billing for all meters regardless of rate class on eligible properties owned or leased and operated by a Customer-generator for eligible properties located within the service territory of a single electric utility. Meter aggregation may be completed through physical or virtual meter aggregation.

2.13. "Net metering" - The means of measuring the difference between the electricity supplied by an electric utility and the electricity generated from an alternative or renewable energy resource facility owned or operated by an Electric retail customer when any portion of the electricity generated by the alternative energy resource facility is used to offset part

or all of the Electric retail customer requirements for electricity.

2.14. "Physical meter aggregation" - The physical rewiring of all meters regardless of rate class on properties owned or leased and operated by a Customer-generator to provide a single point of contact for a meter or meters to measure net electric service for that Customer-generator.

2.15. "Renewable energy resources" - The following resources, methods, projects or technologies for the production or generation of electricity:

2.15.a. Solar photovoltaic or other solar electric energy;

2.15.b. Solar thermal energy;

2.15.c. Wind power;

2.15.d. Run of river hydropower - A hydropower facility that, during normal operating conditions, does not utilize storage and that has outflow from the project equal to inflow of the project on an instantaneous basis. The flow regime below a run of the river hydropower project will essentially be the river's natural regime, except in special circumstances, such as might follow reinstallation of flashboards, project shutdowns, or as required pursuant to the terms and conditions of the facility's Federal Energy Regulatory Commission license to promote the environment, recreation, or fish habitat. Under those circumstances, a change in storage contents is necessary, and outflow is reduced below inflow for a period. Another circumstance is the flow transition after an idle station is brought on line, causing initial flows downstream to exceed inflow.

2.15.e. Geothermal energy - Electricity produced by extracting hot water or steam from geothermal reserves in the earth's crust and supplied to steam turbines that drive generators.

2.15.f. Biomass energy - A technology by which electricity is produced from a nonhazardous organic material that is available on a renewable or recurring basis, including pulp mill sludge;

2.15.g. Biologically derived fuel - Methane gas, ethanol, or biodiesel fuel;

2.15.h. Fuel cell technology - Any electrochemical device that converts chemical energy in a hydrogen-rich fuel directly into electricity, heat and water without combustion; and,

2.15.i. Recycled energy - useful thermal, mechanical or electrical energy produced from: (i) exhaust heat from any commercial or industrial process; (ii) waste gas, waste fuel or other forms of energy that would otherwise be flared, incinerated, disposed of or vented; and (iii) electricity or equivalent mechanical energy extracted from a pressure drop in any gas, excluding any pressure drop to a condenser that subsequently vents the resulting heat.

2.16. "Renewable energy resource facility" - A facility or equipment that generates electricity from renewable energy resources.

2.17. "Reporting period" - The 12-month period from June 1 through May 31.

2.18. "Virtual meter aggregation" - The combination of readings and billing for all meters regardless of rate class on eligible properties owned or leased and operated by a Customer-generator by means of the electric utility billing process, rather than through physical rewiring of the Customer-generator property for a physical, single point of contact.

### **150-33-3. General provisions.**

3.1. An electric utility shall offer net metering to a Customer-generator that generates electricity on the Customer-generator side of the meter using alternative or renewable energy sources, on a first come, first served basis based on the date of application for interconnection as provided in these rules and pursuant to a standard tariff. An electric utility may offer net metering to Customer-generators, on a first-come, first-served basis so long as the total generation capacity installed by all Customer-generators is no greater than three percent (3%) of the electric utility aggregate customer peak demand in the State during the previous year, of which no less than one-half percent (0.5%) is reserved for residential Customer-generators.

3.2. An electric utility may apply to the Commission for authority to limit the addition of net metering facilities when the capacity of all distributed generation and net metering facilities on a distribution line section exceeds fifteen percent (15%) of the peak load on that line section for three-phase circuits, and five percent (5%) of the peak load on that section for single-phase circuits.

3.3. An electric utility shall file a tariff with the Commission consistent with these rules, in the form of Form No. 1 attached to these rules, that provides for net metering and net metering protocols that enable the electric utility to offer net metering to Customer-generators taking service from the electric utility.

3.4. An electric utility shall prepare information about net metering consistent with these rules and disclose that information annually to its customers by bill insert and by posting information on its web site.

3.5. If construction or upgrades of the electric utility system is required in order to interconnect the Customer-generator facility, additional charges to cover costs incurred by the electric utility shall be determined by the electric utility and paid by the Customer-generator. The Customer-generator shall pay any additional charges, as determined by the electric utility, for equipment, labor, testing or inspections requested by the customer.

3.6. A Customer-generator shall install, operate and maintain its Customer-generator facility in accordance with the requirements of these rules.

3.7. An electric utility may not require additional equipment or insurance or impose any other fee or requirement unless the additional equipment, insurance or other requirement is specifically authorized under these rules or by order of the Commission.

#### **150 -33-4. Continuing Obligations**

4.1. A Customer-generator shall maintain general liability insurance providing the following coverage:

4.1.a. A Customer-generator with a Customer-generator facility with a nameplate capacity of up to 50 kW shall maintain general liability insurance in the amount of one hundred thousand dollars (\$100,000).

4.1.b. A Customer-generator with a Customer-generator facility with a nameplate capacity of greater than 50 kW and up to 500 kW shall maintain general liability insurance in the amount of five hundred thousand dollars (\$500,000).

4.1.c. A Customer-generator with a Customer-generator facility with a nameplate capacity of greater than 500 kW shall maintain general liability insurance in the amount of one million dollars (\$1,000,000).

4.2. A Customer-generator facility is transferable to other persons or service locations only after written notification by the Customer-generator to the electric utility and verification by a licensed electrician that the installation is in compliance with all applicable safety and power quality standards, and that the transferee has met all insurance requirements.

#### **150-33-5. Netting Monthly Charges**

5.1 Monthly charges for energy, and demand where applicable, to serve the Customer-generator net or total load shall be determined according to the electric utility standard service tariff under which the Customer-generator would otherwise be served, absent operation of the Customer-generator facility.

5.2. Measurement and Charges. The measurement of net electrical energy supplied or generated will be calculated as follows:

5.2.a. The net electrical energy produced or consumed during the billing period shall be measured in accordance with normal metering practices

5.2.b. The electric utility shall credit a Customer-generator at the full retail rate for each kW hour produced by an alternative or renewable energy resource installed on the Customer-generator side of the electric meter and delivered to the utility's distribution system through the Customer-generator's electric meter, up to the total amount of electricity

delivered by the utility to that Customer-generator during the billing period.

5.2.c. Rate credits shall not be applied to reduce any fixed monthly minimum bill, customer charge, demand charges or other charges not related to energy consumption.

5.2.d. If a Customer-generator supplies more electricity to the electric distribution system than the electric utility delivers to the Customer-generator in a given billing period, the excess kW hours shall be carried forward and credited against the Customer-generator usage in subsequent billing periods at the full retail rate. Provided that, if a Customer-generator terminates service with the electric utility, the utility is not required to provide compensation to the Customer-generator for any outstanding kW hour credits.

5.2.e. For Customer-generators involved in virtual meter aggregation programs, a credit shall be applied first to the meter through which the Customer-generator facility supplies electricity to the distribution system, then prorated equally to the remaining meters for the Customer-generator accounts.

#### **150-33-6. Meters and Metering.**

6.1. Net energy metering shall be accomplished by (i) using a standard meter capable of measuring the flow of electricity in two (2) directions, or (ii) two separate meters.

6.2. If the existing electrical meter installed at the Customer-generator facility is not capable of measuring the flow of electricity in two directions, the electric utility shall install new metering equipment for the Customer-generator at the expense of the electric utility. Any subsequent metering equipment change necessitated by the Customer-generator shall be paid by the Customer-generator.

6.3. If two meters are used to measure energy flows, for each applicable billing period including time-of-day billing periods, the reading of the meter measuring the flow of energy from the Customer-generator to the electric utility shall be subtracted from the reading of the meter measuring the flow of energy from the electric utility to the Customer-generator to obtain a measurement of net kW hours for billing purposes.

6.4. The electric utility shall offer Customer-generators a time-differentiated energy tariff rate or a non-time-differentiated energy rate, if the electric utility offers the choice to other customers in the same rate class as the Customer-generator. If the Customer-generator uses a meter and billing arrangement that has time-differentiated rates, the electric utility shall calculate net bills for each time period.

6.5. Virtual meter aggregation on properties owned or leased and operated by a Customer-generator shall be allowed for purposes of net metering. Virtual meter aggregation shall be limited to active meters serving a Customer-generator located on properties owned or leased within two (2) miles of the boundaries of the Customer-generator single or contiguous property, as provided in Rule 2.5, and within a single electric utility's service territory. Physical meter aggregation shall be at the expense of the Customer-generator. The electric utility shall provide the necessary equipment to complete physical aggregation. If the Customer-generator requests virtual meter aggregation, it shall be provided by the electric utility at the expense of the Customer-generator. The Customer-generator shall be responsible only for any incremental expense entailed in processing his account on a virtual meter aggregation basis.

**150-33-7. Report to the Commission.**

7.1. An electric utility that offers net metering shall submit an annual net metering report to the Commission. The report shall be submitted by July 30 of each year, and shall include the following information for the Reporting period ending May 31 of that year: (i) the total number of net metered Customer-generator facilities, by resource type; (ii) the total estimated rated generating capacity of net metering Customer-generators by resource type; (iii) total kW hours received from net metered Customer-generators; and (iv) total estimated kW hours produced by net metered Customer-generators, provided that this estimate does not require additional metering equipment.

**150-33-8. Interconnection Obligation.**

8.1. Subject to the requirements of these rules and the authorizing statute, a utility is obligated to interconnect a Customer-generator facility to its system. The utility and the customer must enter into an interconnection agreement, as set forth in the interconnection standards and technical requirements incorporated by reference in these rules as Form No. 2.

TARIFF N.M.S  
(Net Metering Service)  
Form No. 1

**Availability of Service**

Available to residential and general service customers who own and operate an eligible electric generating facility designed to operate in parallel with the Company system. Customers served under this tariff must also take service from the Company under the applicable standard service tariff. The total rated generating capacity of all customers served under this tariff shall be limited to three percent (3%) of the Company single hour peak load during the previous year, of which one-half percent (0.5%) is reserved for residential Customer-generators.

**Conditions of Service**

1. For the purposes of this tariff, an eligible Customer-generator must meet the definition of "Customer-generator as set forth in the Commission Rules Governing Electric Utility Net Metering Arrangements and Interconnections, 150 C.S.R. 33 ("Net Metering Rules").
2. A Customer-generator seeking to interconnect an eligible electric generating facility to the Company system must submit to designated Company personnel a completed interconnection application, and a one-line diagram showing the configuration of the proposed net metering facility. The Company will provide copies of all applicable forms upon request.
3. An interconnection agreement between the Company and the Customer-generator must be executed before the Customer-generator facility may be interconnected with the Company system.
4. All generator equipment and installations must comply with the Company's technical requirements. All generator equipment shall be installed in accordance with the manufacturer specifications as well as all applicable provisions of the National Electrical Code and state and local codes. All generator equipment and installations

shall comply with all applicable safety, performance and power quality standards, established by the National Electrical Code, the Institute of Electrical and Electronic Engineers and accredited testing laboratories.

5. The Customer-generator shall provide the Company proof of qualified installation of the Customer-generator facility. Certification by a licensed electrician shall constitute acceptable proof.
6. The Customer-generator shall install, operate, and maintain the Customer-generator facility in accordance with the manufacturer suggested practices for safe, efficient, and reliable operation in parallel with the Company system.
7. The Company may, at its own discretion, isolate any Customer-generator facility if the Company has reason to believe that continued interconnection with the Customer-generator facility creates or contributes to a system of emergency.
8. The Company may perform reasonable on-site inspections to verify the proper installation and continuing safe operation of the Customer-generator facility and the interconnection facilities, at reasonable times and upon reasonable advance notice to the Customer-generator.
9. A Customer-generator shall maintain general liability insurance providing the following coverage: 1) a Customer-generator with a Customer-generator facility with a nameplate capacity of up to 50kW shall maintain general liability insurance in the amount of one hundred thousand dollars (\$100,000); 2) a Customer-generator with a nameplate capacity of greater than 50kW and up to 500 kW shall maintain general liability insurance in the amount of five thousand dollars (\$500,000); and 3) a Customer-generator with a Customer-generator facility with a nameplate capacity of greater than 500 kW shall maintain general liability coverage in the amount of one million (\$1,000,000). The Customer-generator must submit evidence of such insurance to the Company with the interconnection application. The Company's receipt of evidence of liability insurance does not imply an endorsement of the terms and conditions of the coverage.
10. An eligible Customer-generator facility is transferable to other persons or service locations only upon written notification by the Customer-generator to the Company and verification by a licensed electrician that the facility is in compliance with all applicable safety and power quality standards. All other conditions of service apply.

## **Metering**

Net energy metering shall be accomplished by (i) using a standard meter capable of measuring the flow of electricity in two directions, or (ii) two separate meters. If offered to other customers in the same class as the Customer-generator, net energy flows may also be measured by time-of-day at the Customer-generator's option by (i) using a standard meter capable of measuring the flow of electricity in two directions by time-of-day, or (ii) two separate meters capable of measuring flows by time-of-day.

If the existing electrical meter installed at the Customer-generator facility is not capable of measuring the flow of electricity in two directions and by time-of-day as required above, the Company shall install new metering equipment for the Customer-generator at Company expense. Any subsequent metering equipment change necessitated by the Customer-generator shall be paid for by the Customer-generator.

If two meters are used to measure energy flows, for each applicable billing period including time-of-day billing periods, the reading of the meter measuring the flow of energy from the Customer-generator to the Company shall be subtracted from the reading of the meter measuring the flow of energy from the Company to the Customer-generator to obtain a measurement of net kW hours for billing purposes.

## **Monthly Charges**

Monthly charges shall be calculated using an identical rate structure to the structure that would apply to the customer if it were not a Customer-generator.

Measurement and Charges. The measurement of net electrical energy supplied or generated will be calculated as follows:

1. The net electrical energy produced or consumed during the billing period shall be measured in accordance with normal metering practices
2. The Company shall credit a Customer-generator for each kW hour produced by an alternative or renewable energy resource installed on the Customer-generator side of the electric meter and delivered to the utility's electric distribution system through the Customer-generator's electric revenue meter, up to the total amount of electricity delivered by the utility to that customer during the billing period.
3. If a Customer-generator supplies more electricity to the electric distribution system than the Company delivers to the Customer-generator in a given billing

period, the excess kW hours shall be carried forward and credited against the Customer-generator usage in subsequent billing periods at the full retail rate. Provided that, if a Customer-generator terminates service with the electric utility, the utility is not required to provide compensation to the Customer-generator for any outstanding kW hour credits.

4. Rate credits shall not be applied to reduce any fixed monthly minimum bill, customer charge, demand charges or other charges not related to energy consumption.
5. For Customer-generators involved in virtual meter aggregation programs, a credit shall be applied first to the meter through which the Customer-generator facility supplies electricity to the distribution system, and then prorated equally to the remaining meters for the Customer-generator's accounts.

### **Equipment Design Requirements**

Data for all major equipment proposed by the Customer to satisfy the Technical Requirements must be submitted for review and approval by the Company with a completed interconnection application. To facilitate review and approval, the Company will maintain a list of Pre-certified equipment.

The Company List of Pre-certified equipment is available upon request and contains Pre-certified equipment types, makes, and models of manufactured generating equipment and interconnection system components. This listing is based upon equipment certified by recognized national testing laboratories as suitable for interconnection with a distribution system based upon compliance with IEEE 1547.

The use of equipment that is not pre-certified may delay the Company review and approval of the customer's design. All interconnection equipment must be approved by the Company prior to being connected to the Company distribution system and before parallel operation is allowed.

The interconnection system hardware and software design requirements in the Technical Requirements are intended to assure protection of the Company distribution system.

## INTERCONNECTION STANDARDS

## 1. Scope and Applicability.

1.1 These standards establish interconnection requirements for Distributed Resources (DR) units up to 2 MW in nameplate capacity, operating in parallel with the Electric Distribution System, that are not required to execute an interconnection agreement with PJM Interconnect (PJM). However, nothing in these procedures shall prevent PJM from subsequently requiring an Interconnection Customer to enter into a separate Interconnection Agreement with PJM if the Small Generator Facility subsequently starts participating in a PJM market or otherwise falls under the scope of PJM Interconnection requirements. Small Generator Facilities that are not designed to operate in parallel are not subject to these procedures. These standards apply to all electric utilities in West Virginia.

1.2 There are two (2) levels, or categories, for the application, review, and approval of DR interconnections:

1.2.1 Level 1 — Small Generator Facilities with Electric Nameplate Capacities of 25 kW or less, are inverter-based and certified.

1.2.2 Level 2 — Small Generator Facilities with Electric Nameplate Capacities 2 MW or less that does not qualify under Level 1.

## 2. Definitions.

2.1 Unless the context clearly requires a different meaning, as read herein:

**Adverse system impact** — shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety, power quality, and reliability of the Electric Distribution System.

**Applicant** — shall mean a person who has submitted an Interconnection Request to interconnect a Small Generator Facility to a Utility's Electric Distribution System, sometimes also referred to as the "Interconnection Customer".

**Area network** — shall mean a type of electric distribution system served by multiple transformers interconnected in an electrical network circuit, which is generally used in large metropolitan areas that are densely populated, in order to provide high reliability of service. This term has the same meaning as the term "distribution secondary grid network" as stated in IEEE standard 1547 Section 4.1.4 (published July 2003), as amended and supplemented.

**Business day** — shall mean Monday through Friday, excluding Federal or State Holidays.

**Calendar day** — shall mean any day including Saturday, Sunday or Federal or State Holidays.

**Certificate of completion** — shall mean the certificate in the form provided in Appendix D.

**Certified** — shall mean the equipment that satisfies the requirements of Appendix C.

**Commission** — shall mean the Public Service Commission of West Virginia.

**Distribution upgrades** — shall mean the required additions and modifications to the Utility's Electric Distribution System on the supply side of the Point of Interconnection. Distribution Upgrades do not include the Applicant's Interconnection Facilities.

**Electric nameplate capacity** — shall mean the net maximum or net instantaneous peak electric output capability measured in either watts or volt-amps of a Small Generator Facility as designated by the manufacturer.

**Utility**— shall mean the electric utility entity that owns the Electric Distribution System serving the DR.

**Electric distribution system** — shall mean the facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries from interchanges with higher voltage transmission networks that transport bulk power over longer distances. The voltage levels at which Electric Distribution Systems operate differ among areas but generally carry less than 69 kilovolts of electricity. Electric Distribution System has the same meaning as the term Area EPS defined in 3.1.6.1 of IEEE 1547.

**Fault current** — shall mean the electrical current that flows through a circuit during an electrical fault condition. A fault condition occurs when one or more electrical conductors contact ground and/or each other. Types of faults include phase to ground, double-phase to ground, three-phase to ground, phase-to-phase, and three-phase. A Fault Current is several times larger in magnitude than the current that normally flows through a circuit.

**IEEE 1547** — shall mean the most current official published version of IEEE 1547 "Standard for Interconnecting Distributed Resources with Electric Power Systems" at the time the Interconnection Request is submitted.

**IEEE 1547.1** — shall mean the most current official published version of IEEE 1547

"Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems" at the time the Interconnection Request is submitted.

**Interconnection Agreement** — shall mean an agreement between an Interconnection Customer and a Utility, which in addition to these procedures governs the connection of the Small Generator Facility to the Electric Distribution System, as well as the ongoing operation of the Small Generator Facility after it is connected to the system.

**Interconnection Customer** — shall mean any entity that proposes to interconnect a Small Generator Facility to an Electric Distribution System.

**Interconnection Equipment** — shall mean a group of components or integrated system connecting an electric generator with an electric distribution system that includes all interface equipment including switchgear, protective devices, inverters, or other interface devices. Interconnection Equipment may be installed as part of an integrated equipment package that includes a generator or other electric source.

**Interconnection Facilities** — shall mean facilities and equipment required by the Utility to interconnect the Small Generator Facility and the Interconnection Customer's Interconnection Equipment to the electric distribution system. Collectively, Interconnection Facilities include all facilities and equipment between the Small Generator Facility and the Point of Common Coupling, including any modification, additions or Distribution Upgrades that are necessary to physically and electrically interconnect the Small Generator Facility to the Utility's Electric Distribution System. Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades.

**Interconnection Request** — shall mean an Interconnection Customer's request, in the form of Appendix A or B of these Interconnection Standards to interconnect a new Small Generator Facility, or to increase the capacity of, or operating characteristics of an existing Small Generator Facility that is interconnected with the Utility's Electric Distribution System.

**Line section** — shall mean that portion of a Utility's distribution system connected to an Interconnection Customer, bounded by automatic sectionalizing devices or the end of the distribution line.

**Minor equipment modification** — shall mean minor changes to the proposed Small Generator Facility that do not have a material impact on safety or reliability of the Electric Distribution System.

**Nationally Recognized Testing Laboratory (NRTL)** — shall mean a qualified private organization that meets the requirements of OSHA regulations. NRTLs perform independent safety testing and product certification. Each NRTL must meet the requirements as set forth by OSHA in the NRTL program.

**Parallel operation** — shall mean a Small Generator Facility that connects electrically to the Electric Distribution System and the potential exists for electricity to flow from the Small Generator Facility to the Electric Distribution System. This may be contrasted with a stand-alone generator that operates isolated from the Electric Distribution System.

**Point of Common Coupling (PCC)** — shall mean the point where the Customer's Interconnection Equipment connects to the Electric Distribution System at which harmonic limits or other operational characteristics such as IEEE 1547 requirements are applied.

**Point of Interconnection (POI)** — shall mean the point where the Interconnection Equipment connects to the Electric Distribution System.

**PJM Interconnection LLC (PJM)** — shall mean FERC-approved regional transmission organization that operates the electric transmission system.

**PJM Small Generator Technical Requirements and Standards** — shall mean the most current version of PJM's interconnection technical requirements applicable to small generators 10 MVA or smaller.

**Queue position** — shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests, that is established based upon the date and time of receipt of the valid Interconnection Request by the Utility. An Interconnection Request shall not be deemed to be invalid by virtue of its being finally evaluated under different procedures from those under which it was originally considered, e.g., an Interconnection Request originally submitted as a Level 1 Interconnection Request but eventually evaluated under Level 2 procedures is still a valid interconnection request and is to be assigned a Queue Position based on the date of its original submission as a Level 1 Interconnection Request.

**Scoping meeting** — shall mean the meeting between representatives of the Interconnection Customer and the Utility conducted for the purpose of discussing alternative interconnection options, to exchange information including any Electric Distribution System data and earlier study evaluations that would be reasonably expected to impact such interconnection options, to analyze such information, and to determine the potential feasible Points of Interconnection.

**Small generator facility** — shall mean the equipment used by an Interconnection Customer to generate or store electricity that operates in parallel with the Electric Distribution System. A Small Generator Facility has an Electric Nameplate Capacity rating of 2 MW or less and typically includes an electric generator, prime mover, and the Interconnection Equipment required to safely interconnect with the Electric Distribution System.

**Spot network** — shall have the same meaning assigned to the term under IEEE Standard 1547 Section 4.1.4, as amended and supplemented. A Spot Network is generally used to supply power to a single customer or a small group of customers.

**Standard small generator interconnection agreement** — shall mean the form of Interconnection Agreement applicable to Level 1 Interconnection Request as provided in Appendix A, or Level 2 Interconnection Request as provided in Appendix B. These agreements shall apply to all Small Generating Facilities as described herein.

**UL 1741** — shall mean Underwriters Laboratories (UL) Standard "Inverters, Converters, and Controllers for Use in Independent Power Systems"

**Conformance**— shall mean the interconnection installation evaluation required by IEEE 1547 Section 5.3 and the commissioning test required by IEEE 1547 Section 5.4. For interconnection equipment that has not been Certified, the Conformance Test shall also include the on-site design tests as required by IEEE 1547 Section 5.1 and witnessing by the Utility of production tests required by IEEE 1547 Section 5.2. All tests witnessed by the Utility are to be performed in accordance with IEEE 1547.1

### 3. General Provisions.

3.1. **Interconnection Requests.** The Interconnection Customer desiring to interconnect a Small Generator Facility shall submit an Interconnection Request to the Utility. Interconnection Requests are to be made using the standardized forms contained in Appendix A for Level 1 applications, and Appendix B for Level 2 applications. All Electric Distribution Companies shall accommodate the filing of Interconnection Requests electronically.

3.2 **Utility Designated Point of Contact.** The Utility shall designate an employee or office from which information on the interconnection of Small Generator Facilities can be obtained through informal requests by prospective Interconnection Customers. The level of information to be made available to the prospective Interconnection Customer should include, but not necessarily be limited to, information on the affected Electric Distribution System or portion thereof including any relevant system studies or interconnection studies

to the extent that such provision does not violate confidentiality provisions or critical infrastructure requirements.

3.3 Technical Standard. The most current version of IEEE 1547 "Standard for Interconnecting Distributed Resources with Electric Power Systems" will be adopted as the technical standard for the interconnection of Small Generator Facilities in the State.

3.4 Modification of the Application. Any modification to machine data or equipment configuration or to the interconnection site of the Small Generator Facility not agreed to in writing by the Utility and the Interconnection Customer may be deemed a withdrawal of the Application and may require submission of a new Application, unless proper notification of each party by the other and a reasonable time to cure the problems created by the changes are undertaken.

3.5 Site Control. Documentation of site control must be submitted for Small Generator Facility additions with the Complete Application. Site control may be demonstrated through:

3.5.1 Ownership of, a leasehold interest in, or a right to develop a site for the purpose. of constructing a Small Generator Facility.

3.5.2 An option to purchase or acquire a leasehold site for such purpose.

3.5.3 An exclusive or other business relationship between Small Generator Facility and the entity having the right to sell, lease or grant the Small Generator Facility the right to possess or occupy a site for such purpose.

3.6 Dispute Resolution. Each Party shall make every reasonable attempt to resolve disputes in a prompt, equitable, good faith manner. Where possible, dispute resolution will be conducted in an informal, expeditious manner in order to reach resolution with minimal costs and delay. If the parties fail to settle their dispute, either party may make a filing with the Commission for adjudication of the dispute (e.g., file a complaint).

3.7 If the Interconnection Request is for a Small Generator Facility that includes multiple energy production devices at a site for which the Interconnection Customer seeks a single Point of Interconnection, the Interconnection Request shall be evaluated on the basis of the aggregate Electric Nameplate Capacity of multiple devices.

3.8 If the Interconnection Request is for an increase in capacity for an existing Small Generator Facility, the Interconnection Request shall be evaluated on the basis of the new total Electric Nameplate Capacity of the Small Generator Facility.

3.9 The Utility shall maintain records of all Interconnection Requests received, the times required to complete Interconnection Request approvals and disapprovals, and any justification for the actions taken on the Interconnection Requests. The Utility shall keep such records on file for a minimum of three years.

3.10 Once an Interconnection Request is deemed complete by the Utility, any modification other than a Minor Equipment Modification to the proposed Small Generator Facility or Interconnection Equipment, or Minor Equipment Modification that would not affect the application of the screens in Levels 1 or 2, and that is not agreed to in writing by the Utility, shall require submission of a new Interconnection Request.

3.11 To minimize costs, the Utility may propose to interconnect more than one Small Generator Facility of a single customer at a single Point of Interconnection provided such interconnection is supportable by the customer's facilities. A request for such interconnection shall not be unreasonably refused. An Interconnection Customer, however, may elect to pay the entire cost of a separate Interconnection Facility.

3.12 Maintenance and Testing. Each Interconnection Customer shall conduct periodic maintenance and testing of its Small Generator Facility in accordance with the provisions of IEEE 1547 relating to maintenance and testing.

#### 4. Interconnection Request, Review, and Approval Procedures.

##### 4.1 Level 1 Interconnections.

4.1.1 Application. All Level 1 Small Generator Facilities shall use the standard Interconnection Request Form contained in Appendix A.

4.1.2 Application Fees. A maximum fee of Thirty Dollars (\$30) shall be charged for all Level 1 applications.

4.1.3 Each Utility shall adopt a Level 1 interconnection review procedure as set forth in Section 4.1.6 for all Small Generator Facilities that meet the screening criteria in Section 3.6. A Utility shall not impose additional requirements not specifically authorized under this Section.

4.1.4 Level 1 Screening Criteria. For interconnection of a proposed Small Generator Facility the Utility shall utilize the Level 1 procedure set forth in 4.1.6 if the Small Generator Facility meets the following criteria:

- a. The Small Generator Facility utilizes inverter-based technology and customer Interconnection Equipment that is non-islanding, UL listed, and Certified in accordance with the provisions contained in Appendix C.
- b. The Small Generator Facility has an Electric Nameplate Capacity of 25 kW or less and is proposing to interconnect to distribution facilities operating at 69kV or less.
- c. The interconnection will not cause the aggregated generation on the radial distribution circuit including the proposed generator to exceed 15% of the Line Section annual peak, three-phase load or 5% of the Line Section annual peak, single-phase load as measured at the substation. Should the generator fail this screening criterion, the Utility shall proceed with interconnection if it determines that the generator can still be interconnected in a safe, reliable manner.
- d. For interconnection to the load side of Spot Network protectors, the aggregated generation including the proposed generator must not exceed 5% of a Spot Network's maximum load.
- e. If the proposed Small Generator Facility is to be interconnected on a single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed Small Generator Facility, will not exceed 25 kW.
- f. If the proposed Small Generator Facility is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, its addition shall not create an imbalance between the two sides of the 240 volt service of more than 20% of the nameplate rating of the service transformer.

#### 4.1.5 Level 1 Review Procedure.

- a. Upon receipt of a standard Level 1 Interconnection Request provided in Appendix A the Utility shall within ten (10) Business Days inform the Applicant that the Interconnection Request is either complete or incomplete, and if incomplete provide a list of the missing items.
- b. In the event the Utility does not have a record of receipt of the Interconnection Request, the Applicant will provide the Utility with an additional copy of the Interconnection Request. If the Applicant can

demonstrate by return mail receipt that the original Interconnection Request was delivered to the Utility, the Utility shall be required to forgo the initial 10-day response period and immediately complete their evaluation of the Interconnection Request within 3 business days of receipt of the Applicant's re-submittal.

c. **Utility Verification.** The Utility verifies Small Generator Facility equipment can be interconnected safely and reliably using Level 1 screens set forth in Section 4.1.4. This can take up to 15 Business Days after receipt of a complete Interconnection Request.

d. **Certificate of Completion.** Before service is provided by the Utility, the Interconnection Customer shall submit a Certificate of Completion as provided in Appendix D to the EDC.

e. **Conformance Test.** The Interconnection Customer shall provide the completed Certificate of Completion, three executed copies of the Interconnection Agreement and the proposed schedule and plan for completing the tests required by IEEE 1547 to the Utility. Within ten (10) Business Days following the receipt of the above items by the Utility or within the time limits agreed to by the Parties, the Interconnection Customer shall complete all testing required by IEEE 1547. The Utility may choose to be present at the Small Generator Facility during the testing of the proposed interconnection. The Interconnection Customer shall provide the test results to the Utility. If the Utility identifies problems with the inspection, if the test results are unsatisfactory, or if the Utility does not agree with the customer's periodic test procedures, the Utility will notify the customer in writing within ten (10) Business Days with the deficiencies clearly identified. The Utility may withhold authorization for parallel operation until such deficiencies have been properly corrected.

f. The Small Generator Facility shall obtain approval by all local or municipal electric code officials with jurisdiction over the interconnection.

4.1.6 Unless the Utility can demonstrate that the Small Generator Facility cannot be interconnected safely and reliably, the Utility shall execute the standard Level 1 Interconnection Agreement as provided in Appendix E.

4.1.7 If the Small Generator Facility is not approved under a Level 1 review, the Interconnection Customer may submit a new Interconnection Request for consideration

under Level 2 procedures specified herein without sacrificing the original Queue Position.

#### 4.2 Level 2 Interconnections.

4.2.1 Application. Level 1 Small Generator Facilities that were not approved under a Level 1 review and all Level 2 Small Generator Facilities shall use the standard Interconnection Request Form contained in Appendix B.

4.2.2 Application Fees. A maximum fee of Fifty Dollars (\$50) plus \$1 per kW of capacity shall be charged for all Level 2 applications.

4.2.3 Each Utility shall adopt a Level 2 interconnection review procedure as set forth in Section 4.2.5 for all Small Generator Facilities that meet the screening criteria in Section 3.6. An EDC shall not impose additional requirements not specifically authorized under this Section.

4.2.4 Level 2 Screening Criteria. For interconnection of a proposed Small Generator Facility the Utility shall utilize the procedures set forth in 4.2.5 if the Small Generator Facility meets all of the following screening criteria:

- a. The Small Generator Facility has an Electric Nameplate Capacity of 2 MW or less, is Certified in accordance with the provisions contained in Appendix C, does not qualify under the requirements for a Level 1 interconnection, and is proposing to interconnect to distribution facilities operating at 69kV or less, provided that an industrial customer that is served at a higher transmission level may meet this criteria.
- b. The interconnection will not cause the aggregated generation on the radial distribution circuit including the proposed generator to exceed 15% of the Line Section annual peak, three-phase load or 5% of the Line Section annual peak, single-phase load as measured at the substation. If the generator fails this screening criterion, the Utility shall proceed with interconnection if it determines that the generator can still be interconnected in a safe, reliable manner.
- c. For interconnection to the load side of Spot Network protectors, the aggregated generation including the proposed generator must not exceed 5% of a Spot Network's maximum load.
- d. The aggregated generation on the radial distribution circuit including the

proposed generator will not contribute more than 10% to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed point of common coupling.

e. The proposed Small Generating Facility, in aggregate with other generation on the distribution circuit, will not cause any distribution protective devices and equipment (including but not limited to substation breakers, fuse cutouts, and line reclosers), or Interconnection Customer equipment on the system to exceed 80% of the short circuit interrupting capability; nor is the interconnection proposed for a circuit that already exceeds 80% of the short circuit interrupting capability.

f. The proposed Small Generating Facility, in aggregate with other generation interconnected to the distribution low voltage side of the substation transformer feeding the distribution circuit where the Small Resource proposes to interconnect, will not exceed 10 MW in an area where there are known or posted transient stability limitations to generating units located in the general electrical vicinity (e.g., 3 or 4 transmission voltage level busses from the point of interconnection).

g. If the proposed Small Generator Facility is to be interconnected on a single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed Small Generator Facility, will not exceed 25 kW.

#### 4.2.5 Level 2 Review Procedure.

a. Upon receipt of a standard Level 2 Interconnection Request provided in Appendix B, the Utility shall within ten (10) Business Days inform the Applicant that the Interconnection Request is either complete or incomplete, along with a list of the missing items.

b. In the event the Utility does not have a record of receipt of the Interconnection Request, the Applicant shall provide the Utility with an additional copy of the Interconnection Request. If the Applicant can demonstrate by return mail receipt that the original Interconnection Request was delivered to the Utility, the Utility shall be required to forgo the initial 10-day response period and immediately complete their evaluation of the Interconnection Request within 3 business days of receipt of the Applicant's re-submittal.

c. The Utility verifies Small Generator Facility equipment can be interconnected safely and reliably using the Level 2 screens set forth in Section 4.2.4. This can take up to 25 Business Days after receipt of a complete Interconnection Request.

d. Certificate of Completion. Before service is provided by the Utility, the Interconnection Customer shall submit a Certificate of Completion as provided in Appendix D to the Utility.

e. Conformance Test. The interconnection customer shall provide the completed Certificate of Completion, three executed copies of the Interconnection Agreement and the proposed schedule and plan for completing the tests required by IEEE 1547 to the Utility. Within ten (10) Business Days following the receipt of the above items by the Utility or within the time limits agreed to by the Parties, the Interconnection Customer shall complete all testing required by IEEE 1547. The Utility may choose to be present at the Small Generator Facility during the testing of the proposed interconnection. The Interconnection Customer shall provide the test results to the Utility. If the Utility identifies problems with the inspection, if the test results are unsatisfactory, or if the Utility does not agree with the customer's periodic test procedures, the Utility shall notify the customer in writing within ten (10) Business Days with the deficiencies clearly identified. The Utility may withhold authorization for parallel operation until such deficiencies have been properly corrected.

f. The Small Generator Facility shall obtain approval by all local or municipal electric code officials with jurisdiction over the interconnection.

4.2.6 Unless the Utility can demonstrate that the Small Generator Facility cannot be interconnected safely and reliably, the Utility shall sign the approval line on the Interconnection Request Form and execute the standard Level 2 Interconnection Agreement as provided in Appendix F.

4.2.7 Isolation Device. Unless otherwise prohibited by state regulation and if required by Utility operating practices, all Level 2 Small Generator Facilities shall be capable of being isolated from the Utility by means of a lockable, visible-break isolation device readily accessible by the Utility. Unless a readily accessible load break device is otherwise provided in the interconnection system, the isolation device shall be capable of interrupting load. The isolation device shall be installed, owned, and maintained by the owner of the Small Generator Facility and located between the Small Generator Facility and the Point of

Interconnection. A draw-out type circuit breaker with the provision for padlocking at the draw-out position can be considered an isolation device for purposes of this requirement. Alternatively, the Interconnection Customer, at its option, may elect to provide the Utility access to an isolation device that is contained in a building or area that may be unoccupied and locked or not otherwise readily accessible to the Utility, by providing a lockbox capable of accepting a lock provided by the Utility that will provide ready access to the isolation device. Where a lockbox is required, the Interconnection Customer shall install the lockbox in a location that is readily accessible by the Utility and the Interconnection Customer shall affix a placard in a location acceptable to the Utility that provides clear instructions to its operating personnel on how to gain access to the isolation device.

APPENDICES:

- APPENDIX A - INTERCONNECTION REQUEST FORM (LEVEL 1)
- APPENDIX B - INTERCONNECTION REQUEST FORM (LEVEL 2)
- APPENDIX C - CERTIFICATION REQUIREMENTS
- APPENDIX D - CERTIFICATE OF COMPLETION
- APPENDIX E - INTERCONNECTION AGREEMENT (LEVEL 1)
- APPENDIX F - INTERCONNECTION AGREEMENT (LEVEL 2)
- APPENDIX G - RELEVANT CODES AND STANDARDS

**APPENDIX A - INTERCONNECTION REQUEST FORM (LEVEL 1)**

**Contact Information**

Interconnection Customer \_\_\_\_\_  
Company Name or Individual: \_\_\_\_\_ Contact Person: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_  
Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Alternative Contact Information (if different from Applicant)

Name: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_  
Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

**Facility Information**

Location (if different from above): \_\_\_\_\_  
Utility: \_\_\_\_\_  
Account Number (existing Utility customers): \_\_\_\_\_  
Inverter Manufacturer: \_\_\_\_\_  
Model \_\_\_\_\_  
Nameplate Rating: \_\_\_\_\_ (kW) \_\_\_\_\_ (kVA) \_\_\_\_\_ (AC Volts) Single or Three Phase \_\_\_\_\_  
System Design Capacity: \_\_\_\_\_ (kW) \_\_\_\_\_ (kVA)  
Prime Mover: Photovoltaic  Reciprocating Engine  Fuel Cell  Turbine   
Other \_\_\_\_\_  
Energy Source: Solar  Wind  Hydro  Natural Gas  Fuel Oil   
Other \_\_\_\_\_

Is the inverter Certified?  Yes  No (If yes, attach manufacturer's cut sheet showing listing and label information from the appropriate listing authority, e.g. UL 1741 listing)

Estimated Install Date: \_\_\_\_\_ Est. In-Service Date: \_\_\_\_\_

**APPENDIX B - INTERCONNECTION REQUEST FORM (LEVEL 2)**

Customer:

Name: \_\_\_\_\_ Phone: (    )  
Address: \_\_\_\_\_ Municipality: \_\_\_\_\_

Consulting Engineer or Contractor:

Name: \_\_\_\_\_ Phone: (    )  
Address: \_\_\_\_\_  
Estimated In-Service: \_\_\_\_\_

Existing Electric Service:

Capacity: \_\_\_\_\_ Amps Voltage: \_\_\_\_\_ Volts  
Service Character:    Single Phase     Three Phase  Secondary   
3 Phase Transformer Connection     Wye     Delta

Location of Protective Interface Equipment on Property:  
(include address if different from customer address) Attention:

Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

List interconnection components/system(s) to be used in the Small  
Generators Facility that are Certified

Component/System	NRTL Providing Label & Listing
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

*Please provide copies of manufacturer brochures or technical specification*

Energy Production Equipment/Inverter Information:

Synchronous     Induction     Inverter  Other \_\_\_\_\_  
Rating: \_\_\_\_\_ kW    Rating: \_\_\_\_\_ kVA  
Rated Voltage: \_\_\_\_\_ Amps  
System Type Tested (Total System):     Yes     No; attach product literature  
System Design Capacity: \_\_\_\_\_ (kW) \_\_\_\_\_ (kVA)

For Synchronous Machines:

Manufacturer: \_\_\_\_\_  
Model No. \_\_\_\_\_ Version No. \_\_\_\_\_

Submit copies of the Saturation Curve and the Vee Curve

Salient  Non-Salient

Torque: \_\_\_\_\_ lb-ft Rated RPM: \_\_\_\_\_ Field Amperes \_\_\_\_\_ at  
rated generator voltage and current and \_\_\_\_\_ % PF over-excited

Type of Exciter: \_\_\_\_\_

Output Power of Exciter: \_\_\_\_\_

Type of Voltage Regulator: \_\_\_\_\_

Locked Rotor Current: \_\_\_\_\_ Amps Synchronous Speed: \_\_\_\_\_ RPM

Winding Connection: \_\_\_\_\_ Min. Operating Freq./Time: \_\_\_\_\_

Generator Connection:  Delta  Wye  Wye Grounded

Direct-axis Synchronous Reactance (Xd) \_\_\_\_\_ ohms

Direct-axis Transient Reactance (X'd) \_\_\_\_\_ ohms

Direct-axis Sub-transient Reactance (X''d) \_\_\_\_\_ ohms

For Induction Machines:

Manufacturer: \_\_\_\_\_

Model No. \_\_\_\_\_ Version No. \_\_\_\_\_

Locked Rotor Current: \_\_\_\_\_ Amps

Rotor Resistance (Rr) \_\_\_\_\_ ohms Exciting Current \_\_\_\_\_ Amps

Rotor Reactance (Xr) \_\_\_\_\_ ohms Reactive Power Required: \_\_\_\_\_

Magnetizing Reactance (Xm) \_\_\_\_\_ ohms \_\_\_\_\_ VARs (Full Load)

Stator Reactance (Rs) \_\_\_\_\_ ohms \_\_\_\_\_ VARs (Full Load)

Stator Reactance (Xs) \_\_\_\_\_ ohms

Short Circuit Reactance (X''d) \_\_\_\_\_ ohms

Phases:  Single  Three-Phase

Frame Size: \_\_\_\_\_ Design Letter: \_\_\_\_\_ Temp. Rise: \_\_\_\_\_ O C.

For Inverter Based Facilities:

Inverter:

Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_

Type: Forced Commutated Line Commutated

Rated Output \_\_\_\_\_ Amps \_\_\_\_\_ Volts

Efficiency \_\_\_\_\_ % Power Factor \_\_\_\_\_ %

DC Source/Prime Mover:

Solar  Wind  Hydro  Other \_\_\_\_\_

Rating: \_\_\_\_\_ kW Rating: \_\_\_\_\_ kVA

Rated Voltage: \_\_\_\_\_ Volts

Open Circuit Voltage (If applicable): \_\_\_\_\_ Volts

Rated Current: \_\_\_\_\_ Amps

Short Circuit Current (If applicable): \_\_\_\_\_ Amps

Other Facility Information

The following items must be attached to this form to be considered complete:

One Line Diagram attached:  Yes  No

Plot Plan attached:  Yes  No

Installation Test Plan attached:  Yes  No

Customer Signature:

\_\_\_\_\_  
CUSTOMER

\_\_\_\_\_  
TITLE

\_\_\_\_\_  
DATE

## APPENDIX C — CERTIFICATION REQUIREMENTS

1. Small Generating Facility equipment proposed for use separately or packaged with other equipment in an interconnection system shall be considered certified for interconnected operation if it has been tested in accordance IEEE 1547.1 in compliance with the appropriate codes and standards referenced below in Appendix G by any Nationally Recognized Testing Laboratory (NRTL) recognized by the United States Occupational Safety and Health Administration to test and certify interconnection equipment pursuant to the relevant codes and standards listed in Appendix G, (2) it has been labeled and is publicly listed by such NRTL at the time of the interconnection application, and (3) such NRTL makes readily available for verification all test standards and procedures it utilized in performing such equipment certification, and, with consumer approval, the test data itself. The NRTL may make such information available on its web site and by encouraging such information to be included in the manufacturer's literature accompanying the equipment.
2. The Interconnection Customer must verify that the intended use of the Interconnection Equipment falls within the use or uses for which the Interconnection Equipment was labeled, and listed by the NRTL.
3. Certified Interconnection Equipment shall not require further type-test review, testing, or additional equipment to meet the requirements of this Standard Small Generator Interconnection Procedure; however, nothing herein shall preclude the need for an on-site Witness Test nor follow-up production testing by the Interconnection Customer.
4. If the Certified Interconnection Equipment package includes only interface components (switchgear, inverters, or other interface devices), then an Interconnection Customer must show that the generator or other electric source being utilized with the equipment package is compatible with the equipment package and is consistent with the testing and listing specified for this type of interconnection equipment.
5. Provided the generator or electric source, when combined with the equipment package, is within the range of capabilities for which it was tested by the NRTL, and does not violate the interface components' labeling and listing performed by the NRTL, no further design review, testing or additional equipment on the customer side of the point of common coupling shall be required to meet the requirements of this interconnection procedure.
6. Interconnection Equipment does not include equipment provided by the utility.

**APPENDIX D - SMALL GENERATOR FACILITY CERTIFICATE OF COMPLETION**

**Installation Information**

Check if owner-installed

Interconnection Customer: \_\_\_\_\_ Contact Person: \_\_\_\_\_

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

Location of Small Generator Facility (if different from above):  
\_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

**Electrician:**

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

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

License number: \_\_\_\_\_

Date Interconnection Agreement approved by the Company: \_\_\_\_\_

Application ID number: \_\_\_\_\_

**Electrical Inspection:**

The system has been installed and inspected in compliance with the local Building/Electrical Code of \_\_\_\_\_

Signed \_\_\_\_\_

Name (printed): \_\_\_\_\_

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

## APPENDIX E — INTERCONNECTION AGREEMENT (LEVEL 1)

This Agreement is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_ by and between \_\_\_\_\_, a \_\_\_\_\_, organized and existing under the laws of the State of \_\_\_\_\_, ("Interconnection Customer,") and \_\_\_\_\_, a \_\_\_\_\_, existing under the laws of the State of \_\_\_\_\_, ("Utility"). Interconnection Customer and Utility each may be referred to as a "Party," or collectively as the "Parties."

### Recitals:

**Whereas**, Interconnection Customer is proposing to develop a Small Generator Facility, or generating capacity addition to an existing Small Generator Facility, consistent with the Interconnection Request completed by Interconnection Customer on \_\_\_\_\_; and

**Whereas**, Interconnection Customer desires to interconnect the Small Generator Facility with Utility's Electric Distribution System.

**Now, therefore**, in consideration of and subject to the mutual covenants contained herein, the Parties agree as follows:

- 1) Construction of the Small Generator Facility. The Interconnection Customer may proceed to construct (including operational testing not to exceed 2 hours) the Small Generator Facility once conditional approval to interconnect a Small Generator Facility has been provided by the Utility.
- 2) Final Interconnection and Operation. The Interconnection Customer may operate the Small Generator Facility and interconnect with the Utility's Electric Distribution System once all of the following have occurred:
  - a) Electrical Inspection: Upon completing construction, the Interconnection Customer will cause the Small Generator Facility to be inspected by the local electrical wiring inspector with jurisdiction.
  - b) Certificate of Completion: The Interconnecting Customer returns the Certificate of Completion to the Utility at address noted.
  - c) Utility has either waived the right to a Witness Test in the Interconnection Request, or completed its Witness Test as per the following:
    - i) Utility Right of Inspection. Within ten business days after receipt of the

Certificate of Completion, the Utility may, upon reasonable notice and at a mutually convenient time, conduct a Witness Test of the Small Generator Facility to ensure that all equipment has been appropriately installed and that all electrical connections have been made in accordance with applicable codes.

ii) If the Utility does not perform the Witness Test within ten business Days or by mutual agreement of the Parties, the Witness Test is deemed waived.

d) Suitable Utility metering equipment required under applicable tariffs must be installed and tested in accordance with applicable ANSI standards.

3) Periodic Testing. All interconnection-related protective functions and associated batteries shall be periodically tested at intervals specified by the manufacturer, system integrator, or authority having jurisdiction over the DR interconnection. Periodic test reports or a log for inspection shall be maintained in accordance with the provisions of IEEE 1547.

4) Access. The Utility shall have access to the disconnect switch and metering equipment of the Small Generator Facility at all times. The Utility shall provide reasonable notice to the customer when possible prior to using its right of access.

5) Disconnection. The Utility may temporarily disconnect the Small Generator Facility upon the following conditions:

a) For scheduled outages upon reasonable notice

b) For unscheduled outages or emergency conditions

c) If the Small Generating Small Generator Facility does not operate in the manner consistent with this Agreement

d) The Utility has the right to disconnect the Small Generator Facility in the event of improper installation or failure to pass the Witness Test.

e) The Interconnection Equipment used by the Small Generator Facility is de-listed by the Nationally Recognized Testing Laboratory that provided the listing at the time the interconnection was approved and the Utility shows that the Interconnection Equipment has the potential to cause a safety, reliability or a power quality problem.

6) Termination. This Agreement may be terminated under the following conditions:

a) By Interconnection Customer. The Interconnection Customer may terminate

this Agreement by providing written notice to the Utility.

b) By the Utility. The Utility may terminate this Agreement (1) if the Small Generator Facility fails to operate for any consecutive 12-month period, or (2) the Customer fails to remedy a violation of terms of this Agreement.

7) Permanent Disconnection. In the event the agreement is terminated, the Utility shall have the right to disconnect its facilities or direct the customer to disconnect its Small Generator Facility.

8) Disputes. Each Party agrees to attempt to resolve all disputes regarding the provisions of the interconnection procedures promptly, equitably and in a good faith manner

9) Governing Law, Regulatory Authority, and Rules. The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of West Virginia, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

10) Survival Rights. This agreement shall continue in effect after termination to the extent necessary to allow or require either Party to fulfill rights or obligations that arose under the Agreement.

11) Assignment/Transfer of Ownership of the Small Generator Facility: This Agreement shall survive the transfer of ownership of the Small Generator Facility to a new owner when the new owner agrees in writing to comply with the terms of this Agreement and so notifies the Utility.

12) Insurance. The Interconnection Customer with a Small Generator Facility with an Electric Nameplate Capacity of 25kW or less shall be required to maintain general liability insurance in the amount of one hundred thousand dollars (\$100,000) under the terms of this Agreement.

13) Notice. Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given if delivered in person, delivered by recognized national courier service, or sent by first class mail, postage prepaid, to the person specified below:

If to Interconnection Customer:

Interconnection Customer:

Attention: \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

If to Utility:

Attention: \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For Utility:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

For the Interconnection Customer:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

## APPENDIX F - INTERCONNECTION AGREEMENT (LEVEL 2)

This Agreement is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_ by and between \_\_\_\_\_, a \_\_\_\_\_ organized and existing under the laws of the State of \_\_\_\_\_, ("Interconnection Customer,") and \_\_\_\_\_, a \_\_\_\_\_, existing under the laws of the State of \_\_\_\_\_, ("Utility"). Interconnection Customer and Utility each may be referred to as a "Party," or collectively as the "Parties."

### Recitals:

**Whereas**, Interconnection Customer is proposing to develop a Small Generator Facility, or generating capacity addition to an existing Small Generator Facility, consistent with the Interconnection Request completed by Interconnection Customer on \_\_\_\_\_; and

**Whereas**, Interconnection Customer desires to interconnect the Small Generator Facility with Utility's Electric Distribution System.

**Now, therefore**, in consideration of and subject to the mutual covenants contained herein, the Parties agree as follows:

### Article 1. Scope and Limitations of Agreement

1.1 This Agreement shall be used for all approved Level 2 Interconnection Requests according to the procedures set forth in the Standard Small Generator Interconnection Procedures.

1.2 This Agreement governs the terms and conditions under which the Small Generator Facility will interconnect to, and operate in Parallel with, Utility's Electric Distribution System.

1.3 This Agreement does not constitute an agreement to purchase or deliver the Interconnection Customer's power.

1.4 Nothing in this Agreement is intended to affect any other agreement between Utility and the Interconnection Customer. However, in the event that the provisions of this agreement are in conflict with the provisions of other Utility tariffs, the Utility tariff shall control,

#### 1.5 Responsibilities of the Parties

1.5.1 The Parties shall perform all obligations of this Agreement in accordance with all Applicable Laws and Regulations, Codes and Standards, Operating Requirements, and Good Utility Practice.

1.5.2 The Interconnection Customer shall construct, interconnect, operate and

maintain its Small Generator Facility, and construct, operate, and maintain its Interconnection Equipment in accordance with the applicable manufacturer's recommended maintenance schedule, in accordance with this Agreement, and with Good Utility Practice.

1.5.3 Utility shall construct, own, operate, and maintain its Electric Distribution System and Interconnection Facilities in accordance with this Agreement, and with Good Utility Practice.

1.5.4 The Interconnection Customer agrees to construct its facilities or systems in accordance with applicable specifications that meet or exceed those provided by PJM's Small Generator Technical Requirements and Standards, the National Electrical Code, National Electrical Safety Code, the American National Standards Institute, IEEE, Underwriters Laboratories, any Operating Requirements in effect at the time of construction, and other applicable national and State codes and standards. The Interconnection Customer agrees to design, install, maintain, and operate its Small Generator Facility so as to reasonably minimize the likelihood of a disturbance adversely affecting or impairing the Electric Distribution System or equipment of the Utility.

1.5.5 Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for the facilities that it now or subsequently may own unless otherwise specified in the Attachments to this Agreement. Each Party shall be responsible for the safe installation, maintenance, repair and condition of their respective lines and appurtenances on their respective sides of the Point of Interconnection.

1.6 Parallel Operation Obligations. Once the Small Generator Facility has been authorized to commence parallel operation, the Interconnection Customer shall abide by all written rules and procedures developed by the Utility which pertain to the Parallel operation of the Small Generator Facility, copies of which are provided in Attachment to this Agreement.

1.7 Metering. The Interconnection Customer shall not be responsible for the cost of the purchase, installation, operation, maintenance, testing, repair, and replacement of metering and data acquisition equipment unless obligations consistent with the Rules of the Public Service Commission of West Virginia are specified in Attachments to this Agreement.

1.8 Reactive Power, The Interconnection Customer shall design its Small Generator Facility to maintain a composite power delivery at continuous rated power output at the Point of Common Coupling at a power factor within the range of 0.95 leading to 0.95 lagging. Utility may also require the Interconnection Customer to follow a voltage or VAR schedule applicable to similarly situated generators in the control area on a comparable basis and which shall be clearly specified in the Attached Utility procedures. Under no circumstance shall these additional requirements for reactive power support exceed the normal operating capabilities of the Small Generator Facility.

1.9 Capitalized Terms, Capitalized terms used herein shall have the meanings specified in the Interconnections Standards or the body of this Agreement.

## **Article 2. Inspection, Testing, Authorization, and Right of Access**

2.1 Equipment Testing and Inspection. The Interconnection Customer shall test and inspect its Small Generator Facility and Interconnection Facilities prior to interconnection, and in accordance with the PJM Small Generator Technical Requirements and Standards. The Interconnection Customer shall not operate its Small Generator Facility in Parallel with Utility's Electric Distribution System without prior written authorization by the Utility as provided for in 2.1.1.

2.1.1 Prior to Parallel Operation, the Interconnection Customer shall provide the Utility a completed Certificate of Completion. Within ten Business Days after receipt of the Certificate of Completion, the Utility may conduct a Witness Test, The Witness Test shall be conducted only upon reasonable notice and at a mutually convenient time within the ten day period. If the Utility does not conduct the Witness Test within ten Business Days or within the time otherwise mutually agreed to by the Parties, the Witness Test is deemed waived. If the Witness Test is successful or alternatively if the Witness Test is waived, the Utility shall affix an authorized signature to the Certificate of Completion and return it to the Interconnection Customer approving the interconnection and authorizing Parallel Operation. Such authorization shall not be unreasonably withheld, conditioned, or delayed.

2.1.2 If the Witness Test is not successful, the Utility shall have the right to disconnect the Small Generator Facility until such time as changes are made to address the deficiencies identified in the Witness Test and another Witness Test can be scheduled.

2.1.3 To the extent that the Interconnection Customer decides to conduct interim testing of the Small Generator Facility prior to the Witness Test, it may request that the Utility observe these tests and that these tests be deleted from the final Witness Test. The Utility may, at its own expense, send qualified personnel to the Small Generator Facility to observe such interim testing.

2.2 Right of Access, The Utility shall have access to the disconnect switch and metering equipment of the Small Generator Facility at all times. The Utility shall provide reasonable notice to the customer when possible prior to using its right of access.

## **Article 3. Effective Date, Term, Termination, and Disconnection**

3.1 Effective Date. This Agreement shall become effective upon execution by the Parties.

3.2 Term of Agreement. This Agreement shall become effective on the Effective Date and

shall remain in effect for a period of ten years from the Effective Date or such other longer period as the Interconnection Customer may request and shall be automatically renewed for each successive one-year period thereafter, unless terminated earlier in accordance with Article 3.3 of this Agreement.

3.3 Termination. No termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination. 3.3.1 The Interconnection Customer may terminate this Agreement at any time by giving the Utility 20 Business Days written notice.

3.3.2 Either Party may terminate this Agreement after Default pursuant to Article 6.6.

3.3.3 Upon termination of this Agreement, the Small Generator Facility will be disconnected from the Utility's Electric Distribution System. The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of the termination.

3.3.4 This provisions of this Article shall survive termination or expiration of this Agreement.

3.4 Temporary Disconnection. The Utility may temporarily disconnect the Small Generator Facility from its Electric Distribution System for so long as reasonably necessary in the event one or more of the following conditions or events occurs: 3.4.1 Emergency Conditions- "Emergency Condition" shall mean a condition or situation: (1) that in the judgment of the Party making the claim is imminently likely to endanger life or property; or (2) that, in the case of the Utility, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Electric Distribution System, the Utility's Interconnection Facilities or (3) that, in the case of the Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Small Generator Facility or the Interconnection Equipment. Under Emergency Conditions, the Utility or the Interconnection Customer may immediately suspend interconnection service and temporarily disconnect the Small Generator Facility, The Utility shall notify the Interconnection Customer promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Interconnection Customer's operation of the Small Generator Facility. The Interconnection Customer shall notify the Utility promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect Utility's Electric Distribution System, To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of both Parties' facilities and operations, its anticipated duration, and the necessary corrective action.

3.4.2 Routine Maintenance, Construction, and Repair - the Utility may interrupt interconnection service or curtail the output of the Small Generator Facility and temporarily disconnect the Small Generator Facility from the Utility's Electric Distribution System when necessary for routine maintenance, construction, and repairs on Electric Distribution System. The Utility shall provide the Interconnection Customer with five Business Days notice prior to such interruption. The Utility shall use reasonable efforts to coordinate such reduction or temporary disconnection with the Interconnection Customer.

3.4.3 Forced Outages - During any forced outage, the Utility may suspend interconnection service to effect immediate repairs on the Utility's Electric Distribution System. The Utility shall use reasonable efforts to provide the Interconnection Customer with prior notice. If prior notice is not given, the Utility shall, upon request, provide the Interconnection Customer written documentation after the fact explaining the circumstances of the disconnection.

3.4.4 Adverse Operating Effects - the Utility shall provide the Interconnection Customer with a written notice of its intention to disconnect the Small Generator Facility if, based on Good Utility Practice, the Utility determines that operation of the Small Generator Facility will likely cause disruption or deterioration of service to other customers served from the same electric system, or if operating the Small Generator Facility could cause damage to the Utility's Electric Distribution System. Supporting documentation used to reach the decision to disconnect shall be provided to the Interconnection Customer upon request. The Utility may disconnect the Small Generator Facility if, after receipt of the notice, the Interconnection Customer fails to remedy the adverse operating effect within a reasonable time which shall be at least five Business Days from the date the Interconnection Customer receives the Utility's written notice supporting the decision to disconnect, unless Emergency Conditions exist in which case the provisions of Article 3.4.1 apply.

3.4.5 Modification of the Small Generator Facility - The Interconnection Customer must receive written authorization from the Utility before making any change to the Small Generator Facility that may have a material impact on the safety or reliability of the Electric Distribution System. Such authorization shall not be unreasonably withheld, Modifications shall be done in accordance with Good Utility Practice, If the Interconnection Customer makes such modification without the Utility's prior written authorization, the latter shall have the right to temporarily disconnect the Small Generator Facility.

3.4.6 Reconnection - The Parties shall cooperate with each other to restore the Small Generator Facility, Interconnection Facilities, and Utility's Electric Distribution System to their normal operating state as soon as reasonably practicable following a temporary disconnection.

## **Article 4. Cost Responsibility for Interconnection Facilities and Distribution Upgrades**

### **4.1 Interconnection Facilities.**

4.1 .I The Interconnection Customer shall be responsible for its share of all reasonable expenses, including overheads, associated with (1) owning, operating, maintaining, repairing, and replacing its Interconnection Equipment, and (2) operating, maintaining, repairing, and replacing the Utility's Interconnection Facilities.

4.2 Distribution Upgrades. The Utility shall design, procure, construct, install, and own any Distribution Upgrades. The actual cost of the Distribution Upgrades, including overheads, shall be directly assigned to the Interconnection Customer.

## **Article 5. Billing, Payment, Milestones, and Financial Security**

### **5.1 Billing and Payment Procedures and Final Accounting**

5.1.1 The Utility shall bill the Interconnection Customer for the design, engineering, construction, and procurement costs of Utility provided Interconnection Facilities and Distribution Upgrades contemplated by this Agreement on a monthly basis, or as otherwise agreed by the Parties. The Interconnection Customer shall pay each bill within thirty (30) calendar days of receipt, or as otherwise agreed to by the Parties.

5.1.2 Within ninety (90) calendar days of completing the construction and installation of the Utility's Interconnection Facilities and Distribution Upgrades to this Agreement, the Utility shall provide the Interconnection Customer with a final accounting report of any difference between (1) the actual cost incurred to complete the construction and installation and the budget estimate provided to the Interconnection Customer and a written explanation for any significant variation. (2) the Interconnection Customer's previous deposit and aggregate payments to the Utility for such Interconnection Facilities and Distribution Upgrades. If the Interconnection Customer's cost responsibility exceeds its previous deposit and aggregate payments, the Utility shall invoice the Interconnection Customer for the amount due and the Interconnection Customer shall make payment to the Utility within thirty (30) calendar days. If the Interconnection Customer's previous deposit and aggregate payments exceed its cost responsibility under this Agreement, the Utility shall refund to the Interconnection Customer an amount equal to the difference within thirty (30) calendar days of the final accounting, report.

5.2 Interconnection Customer Deposit, At least twenty (20) Business Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of the Utility's Interconnection Facilities and Distribution Upgrades, the Interconnection

Customer shall provide the Utility with a deposit equal to 50% of the cost estimated for its Interconnection Facilities prior to its beginning design of such facilities.

## **Article 6. Assignment.**

6.1 Assignment. This Agreement may be assigned by either Party upon fifteen (15) Business Days prior written notice, and with the opportunity to object by the other Party. When required, consent to assignment shall not be unreasonably withheld; provided that:

6.1.1 Either Party may assign this Agreement without the consent of the other Party to any affiliate of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this Agreement;

6.1.2 The Interconnection Customer shall have the right to assign this Agreement, without the consent of the Utility, for collateral security purposes to aid in providing financing for the Small Generator Facility.

6.1.3 Any attempted assignment that violates this Article is void and ineffective, Assignment shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof, An assignee is responsible for meeting the same obligations as the Interconnection Customer.

## **Article 7. Insurance.**

The Interconnection Customer shall be required to maintain liability coverage under the terms of this Agreement based upon the Electric Nameplate Capacity of the Small Generator Facility as follows:

7.1 The Interconnection Customer with a Small Generator Facility with an Electric Nameplate Capacity up to 50 kW shall maintain general liability insurance in the amount of one hundred thousand dollars (\$100,000).

7.2 The Interconnection Customer with a Small Generator Facility with an Electric Nameplate Capacity of greater than 50 kW and up to 500 kW shall maintain general liability insurance in the amount of five hundred thousand dollars (\$500,000).

7.3 The Interconnection Customer with a Small Generator Facility with an Electric Nameplate Capacity of greater than 500 kW shall maintain general liability insurance in the amount of one million dollars (\$1,000,000).

## **Article 8. Dispute Resolution.**

Each Party agrees to attempt to resolve all disputes regarding the provisions of these interconnection procedures promptly, equitably and in a good faith manner.

## **Article 9. Miscellaneous**

9.1 Governing Law, Regulatory Authority, and Rules. The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of West Virginia, without regard to its conflicts of law principles, This Agreement is subject to all Applicable Laws and Regulations, Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

9.2 Amendment. The Parties may amend this Agreement by a written instrument duly executed by both Parties.

9.3 No Third-party Beneficiaries. This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

9.4 Waiver.

9.4.1 The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

9.4.2 Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this Agreement, Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from Utility. Any waiver of this Agreement shall, if requested, be provided in writing.

9.5 Entire Agreement. This Agreement, including all Attachments, constitutes the entire Agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants which constitute any part of the consideration for, or any condition to, either Party's compliance with its obligations under this Agreement.

9.6 Multiple Counterparts. This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

9.7 No Partnership. This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

9.8 Severability. If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

9.9 Environmental Releases. Each Party shall notify the other Party, first orally and then in writing, of the release any hazardous substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Small Generator Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall (1) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than 24 hours after such Party becomes aware of the occurrence, and (2) promptly furnish to the other Party copies of any publicly available reports filed with any governmental authorities addressing such events.

9.10 Subcontractors. Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

9.10.1 The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall the Utility be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

9.10.2 The obligations under this Article will not be limited in any way by any limitation of subcontractor's insurance.

## Article 10. Notices

### 10.1 General.

Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given if delivered in person, delivered by recognized national courier service, or sent by first class mail, postage prepaid, to the person specified below:

If to Interconnection Customer:

Interconnection Customer: \_\_\_\_\_

Attention: \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-mail \_\_\_\_\_

If to Utility:

Utility: \_\_\_\_\_

Attention: \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-mail \_\_\_\_\_

10.2 Billing and Payment, Billings and payments shall be sent to the addresses set out below:

Interconnection Customer: \_\_\_\_\_

Attention: \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Interconnection Customer: \_\_\_\_\_

Attention: \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

10.3 Designated Operating Representative. The Parties may also designate operating representatives to conduct the communications which may be necessary or convenient for the administration of this Agreement. This person will also serve as the point of contact with respect to operations and maintenance of the Party's facilities.

Interconnection Customer's

Operating representative: \_\_\_\_\_

Attention: \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-Mail \_\_\_\_\_

Utility's Operating Representative: \_\_\_\_\_

Attention: \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

10.4 Changes to the Notice Information. Either Party may change this notice information by giving five Business Days written notice prior to the effective date of the change.

**Article 11. Signatures**

**IN WITNESS WHEREOF**, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For Utility:

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

Title: \_\_\_\_\_

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

For the Interconnection Customer

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

Title: \_\_\_\_\_

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

## **APPENDIX G - RELEVANT CODES AND STANDARDS**

IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems (including use of IEEE 1547.1 testing protocols to establish conformity)

UL 174 1 Inverters, Converters, and Controllers for Use in Independent Power Systems

IEEE Std 929-2000 IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems

NFPA 70 National Electrical Code

IEEE Std C37.90.1-1989 (R1944) IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems

IEEE Std C37.90.2 (1995) IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers

IEEE Std C3 7.108- 1989 (R2002) IEEE Guide for the Protection of Network Transformers

IEEE Std C257.12.44-2000, IEEE Standard Requirements for Secondary Network Protectors

IEEE Std C62.41.2-2002, IEEE Recommended Practice on Characterization of Surges in Low Voltage (1000V and Less) AC Power Circuits

IEEE Std C62.45-1992 (R2002) IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V) and Less) Power Circuits

ANSI C84.1-1995 Electric Power Systems and Equipment -Voltage Ratings (60 Hertz)

IEEE Std 100-2000, IEEE Standard Dictionary of Electrical and Electronic

NEMA MG 1-1998, Motors and Small Resources, Revision 3

IEEE Std 519-1992, IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems

NEMA MG 1-2003 (Rev 2004), Motors and Generators, Revision 1

TITLE 150  
PROCEDURAL RULES  
PUBLIC SERVICE COMMISSION

SERIES 33

RULES GOVERNING ELECTRIC UTILITY  
NET METERING ARRANGEMENTS AND INTERCONNECTIONS

**§150-33-1. General.**

1.1. Scope. -- The following rules govern the net metering arrangements and interconnections between electric utilities and electric utility customers that are also generators of electricity using alternative and renewable resources. The rules also govern interconnection standards between electric utilities and small power producers, including net metering customers.

1.2. Authority. -- W. Va. Code § 24-2F-1 et seq.

1.3. Filing Date. -- June 30, 2010

1.4. Effective Date. -- August 30, 2010

1.5. Application of Rules

1.5.a. If hardship results from the application of any rule contained herein or if unusual difficulty is involved in immediately complying with any rule, or upon other good cause shown, application may be made to the Commission for a temporary or permanent exemption or waiver from its provisions. No application for modification or exemption will be considered by the Commission unless ~~there is submitted therewith~~ the application includes a full and complete justification ~~of~~ for such action. Furthermore, to the extent the rule is based on a specific statutory requirement, the Commission is unable to waive such a ~~provisions rule based upon specific statutory requirement.~~

**150-33-2. Definitions.**

2.1. "The Act" - The Alternative and Renewable Energy Portfolio Act codified in Article 2F of Chapter 24 of the West Virginia Code, as it may be amended in the future.

2.2. "Alternative energy resources" - ~~include~~ The following resources, methods,

projects or technologies for the production or generation of electricity:

2.2.a. Advanced coal technology, ~~which means a~~ - A technology used in a new or existing energy generating facility to reduce airborne carbon emissions associated with the combustion or use of coal and includes, but is not limited to, carbon dioxide capture and sequestration technology, supercritical technology, advanced supercritical technology as that technology is determined by the Public Service Commission, ultrasupercritical technology and pressurized fluidized bed technology and any other resource, method, project or technology certified by the Commission as advanced coal technology.

2.2.b. Coal bed methane;

2.2.c. Natural gas;

2.2.d. Fuel produced by a coal gasification or liquification facility;

2.2.e. Synthetic gas;

2.2.f. Integrated gasification combined cycle technologies;

2.2.g. Waste coal - ~~a~~ A technology by which electricity is produced by the combustion of the by-product, waste or residue created from processing coal (such as gob);

2.2.h. Tire-derived fuel;

2.2.i. Pumped storage hydroelectric projects;

~~2.2.j. Recycled energy - useful thermal, mechanical or electrical energy produced from: (i) exhaust heat from any commercial or industrial process; (ii) waste gas, waste fuel or other forms of energy that would otherwise be flared, incinerated, disposed of or vented; and (iii) electricity or equivalent mechanical energy extracted from a pressure drop in any gas, excluding any pressure drop to a condenser that subsequently vents the resulting heat.~~

2.3. "Alternative energy resource facility" - A facility or equipment that generates electricity from alternative energy resources.

2.4. "Commission" - The Public Service Commission of West Virginia.

2.5. "Customer-generator" - An electric retail customer who owns or leases, and

operates an alternative or renewable energy resource facility ("generation project") within this state that meets the following criteria: and located the generation project is located on the same tract of land as its metering point(s) or if the generation facility is located on contiguous tract(s), the generation project is located within two miles of the customer's metering point(s); the tract or contiguous tracts are owned, leased, or operated by the customer as a private residence or used by a commercial or industrial customer in the normal course of business; the generation project has a with a nameplate capacity of not greater than 25 kilowatts if installed at a residential service location, not greater than 500 kilowatts if installed at a commercial service location, or not greater than 2 megawatts if installed at an industrial service location; provided that, the maximum nameplate capacity for a Customer-generator served by rural electric cooperatives, municipally-owned electric utilities or utilities serving less than thirty-thousand residential customers shall be 50 kilowatts; and, the generation project system is designed and installed to operate in parallel with the electric utility distribution system without adversely affecting the operation of equipment and service of the electric utility and its customers and without presenting safety hazards to the electric utility and customers.

2.6. "Customer-generator facility" - The alternative or renewable energy resource equipment operated by a Customer-generator to generate, manage, monitor and deliver electricity to the electric utility.

2.7. "Electric distribution system" - ~~That~~ A portion of an electric system which delivers electricity from transformation points on the transmission system to points of connection at a customer premises.

2.8. "Electric retail customer" - A direct purchaser of electric power whose service is billed by a utility based on meter reading.

~~2.8.a. The term "Electric retail customer" but~~ but excludes an occupant of a building or facility where the occupants are not direct purchasers s of electricity.

2.9. "Electric utility" - The electric distribution company or electric generation supplier that sells electricity to retail customers in West Virginia.

2.10. "kW" - Kilowatt - A unit of power representing 1,000 watts. A kW equals 1/1000 of a MW.

2.11. "MW" - Megawatt - A unit of power representing 1,000,000 watts. A MW equals 1,000 kW.

2.12. "Meter aggregation" - The combination of readings from and billing for all meters regardless of rate class on eligible properties owned or leased and operated by a Customer-generator for eligible properties located within the service territory of a single electric utility. Meter aggregation may be completed through physical or virtual meter aggregation.

2.13. "Net metering" - The means of measuring the difference between the electricity supplied by an electric utility and the electricity generated from an alternative or renewable energy resource facility owned or operated by an Electric retail customer when any portion of the electricity generated by the alternative energy resource facility is used to offset part or all of the Electric retail customer requirements for electricity.

2.14. "Physical meter aggregation" - The physical rewiring of all meters regardless of rate class on eligible properties owned or leased and operated by a Customer-generator to provide a single point of contact for a single meter or meters to measure net electric service for that Customer-generator.

2.15. "Renewable energy resources" - The following resources, methods, projects or technologies for the production or generation of electricity:

2.15.a. Solar photovoltaic or other solar electric energy;

2.15.b. Solar thermal energy;

2.15.c. Wind power;

2.15.d. Run of river hydropower - A hydropower facility that, during normal operating conditions, does not utilize storage and that has outflow from the facility project equal to inflow of the facility impoundment project on an instantaneous basis. The flow regime below a run of the river hydropower project will essentially be the river's natural regime, except in special circumstances, such as might follow reinstallation of flashboards or project shutdowns, or as required pursuant to the terms and conditions of the facility's Federal Energy Regulatory Commission license to promote the environment, recreation, or fish habitat. Under those circumstances, a change in storage contents is necessary, and outflow is reduced below inflow for a period. Another circumstance is the flow transition after an idle station is brought on line, causing initial flows downstream to exceed inflow.

2.15.e. Geothermal energy - Electricity produced by extracting hot water or steam from geothermal reserves in the earth's crust and supplied to steam turbines that drive generators.

2.15.f. Biomass energy - A technology by which electricity is produced from a nonhazardous organic material that is available on a renewable or recurring basis, including pulp mill sludge;

2.15.g. Biologically derived fuel - Methane gas, ethanol ~~not produced from corn~~, or biodiesel fuel; and

2.15.h. Fuel cell technology - Any electrochemical device that converts chemical energy in a hydrogen-rich fuel directly into electricity, heat and water without combustion: ; and,

2.15.i. Recycled energy - useful thermal, mechanical or electrical energy produced from: (i) exhaust heat from any commercial or industrial process; (ii) waste gas, waste fuel or other forms of energy that would otherwise be flared, incinerated, disposed of or vented; and (iii) electricity or equivalent mechanical energy extracted from a pressure drop in any gas, excluding any pressure drop to a condenser that subsequently vents the resulting heat.

2.16. "Renewable energy resource facility" - A facility or equipment that generates electricity from renewable energy resources.

2.17. "Reporting period" - The 12-month period from June 1 through May 31. ~~A Reporting period shall be numbered according to the calendar year in which it begins and ends.~~

2.18. "Virtual meter aggregation" - The combination of readings and billing for all meters regardless of rate class on eligible properties owned or leased and operated by a Customer-generator by means of the electric utility billing process, rather than through physical rewiring of the Customer-generator property for a physical, single point of contact.

### 150-33-3. General provisions.

3.1. An electric utility shall offer net metering to a Customer-generator that generates electricity on the Customer-generator side of the meter using alternative or renewable energy sources, on a first come, first served basis based on the date of application for interconnection as provided in these rules; and pursuant to a standard tariff. An electric utility may offer net metering to Customer-generators, on a first-come, first-served basis so long as the total generation capacity installed by all Customer-generators is less no greater than one percent (1%) three percent (3%) of the electric utility aggregate customer peak demand in the State during the previous year, of which no less than one-half percent (0.5%) is reserved for residential Customer-generators.

3.2. An electric utility may apply to the Commission for authority to limit the addition of net metering facilities when the capacity of all distributed generation and net metering facilities on a distribution line section exceeds fifteen percent (15%) of the peak load on that line section for three-phase circuits, and five percent (5%) of the peak load on that section for single-phase circuits.

3.3. An electric utility shall file a tariff with the Commission consistent with these rules, in the form of Form No. 1 attached to these rules, that provides for net metering and net metering protocols that enable the electric utility to offer net metering to Customer-generators taking service from the electric utility.

3.4. An electric utility shall prepare information about net metering consistent with these rules and disclose that information annually to its customers by bill insert and by posting information on its web site.

3.5. ~~Should~~ If construction or upgrades of the electric utility system ~~be~~ is required in order to interconnect the Customer-generator facility, additional charges to cover costs incurred by the electric utility shall be determined by the electric utility and paid by the Customer-generator. The Customer-generator shall pay any additional charges, as determined by the electric utility, for equipment, labor, ~~metering~~, testing or inspections requested by the customer.

3.6. A Customer-generator shall install, operate and maintain its Customer-generator facility in accordance with the requirements of these rules.

~~3.7. A Customer-generator that is eligible for net metering owns the alternative energy credits of the electricity it generates, unless there is a contract with an express provision that assigns ownership of the alternative energy credits to another entity or the~~

~~Customer-generator expressly rejects any ownership interest in alternative energy credits.~~

~~3-8.3.7. An electric utility may not require additional equipment or insurance or impose any other fee or requirement unless the additional equipment, insurance or other requirement is specifically authorized under these rules or by order of the Commission.~~

~~150-33-4. Interconnection.~~

~~4.1. A Customer-generator seeking to interconnect a Customer-generator alternative or renewable energy resource facility with an electric utility system shall submit to the electric utility a completed application, which shall include a one-line diagram showing the configuration of the proposed facility.~~

~~4.2. A Customer-generator of 25 kW or less must pay a nonrefundable application for interconnection fee (a "NAFI fee") of \$30.00. For a Customer-generator of more than 25 kW, the electric utility shall calculate the amount of the NAFI fee based on the estimated costs of interconnection. The NAFI fee will cover the electric utility cost to inspect the Customer-generator facility.~~

~~4.3. For Customer-generators of more than 25 kW, should the electric utility determine that an interconnection study is required to determine if installation of the Customer-generator facility will have significant impact on the electric utility system, the electric utility will advise the Customer-generator of the estimated cost of performing such study. Upon payment by the Customer-generator of the estimated study costs, the electric utility will proceed with the interconnection study.~~

~~4.4. The Customer-generator must submit to the electric utility evidence of homeowner, commercial or other insurance providing coverage in the amount of at least one hundred thousand dollars (\$100,000) for the liability of the insured against losses or damages arising from the use of the Customer-generator facility.~~

~~4.5. A Customer-generator and an electric utility shall execute a Commission-approved interconnection agreement prior to interconnection of a Customer-generator facility with an electric utility system.~~

~~4.6. Prior to interconnection, a Customer-generator facility must:~~

~~4.6.a. Comply with the electric utility technical requirements.~~

~~4.6.b. Be installed in accordance with manufacturer specifications and~~

~~applicable provisions of the National Electrical Code and state and local codes. The Customer-generator will provide the electric utility with proof of such installation. Certification by a licensed electrician shall constitute acceptable proof:~~

~~4.6.c. Comply with all applicable safety, performance and power quality standards established by the National Electrical Code, the Institute of Electrical and Electronic Engineers and accredited testing laboratories.~~

#### ~~150-33-5. Technical Requirements~~

~~5.1. A Customer-generator facility net metering installation must operate in parallel with the electric utility distribution system.~~

~~5.2. A Customer-generator facility must meet the technical requirements of IEEE 1547 "Standard for Interconnecting Distributed Resources with Electric Power Systems".~~

~~5.3. A Customer-generator facility must include a visibly open, lockable, manual disconnect switch, that is accessible by the electric utility and is clearly labeled.~~

#### ~~150 -33-64. Continuing Obligations~~

~~6.4.1. A Customer-generator shall maintain homeowner, commercial or other general liability insurance providing the following coverage: in the amount of at least one hundred thousand dollars (\$100,000) for the liability of the insured against losses or damages arising from the use of the Customer-generator facility.~~

~~4.1.a. A Customer-generator with a Customer-generator facility with a nameplate capacity of up to 50 kW shall maintain general liability insurance in the amount of one hundred thousand dollars (\$100,000).~~

~~4.1.b. A Customer-generator with a Customer-generator facility with a nameplate capacity of greater than 50 kW and up to 500 kW shall maintain general liability insurance in the amount of five hundred thousand dollars (\$500,000).~~

~~4.1.c. A Customer-generator with a Customer-generator facility with a nameplate capacity of greater than 500 kW shall maintain general liability insurance in the amount of one million dollars (\$1,000,000).~~

~~6.4.2. A Customer-generator facility is transferable to other persons or service~~

locations only after written notification by the Customer-generator to the electric utility and verification by a licensed electrician that the installation is in compliance with all applicable safety and power quality standards, and that the transferee has met all insurance requirements.

### **150-33-7.5. Netting Monthly Charges**

7.5.1 Monthly charges for energy, and demand where applicable, to serve the Customer-generator net or total load shall be determined according to the electric utility standard service tariff under which the Customer-generator would otherwise be served, absent operation of the eCustomer-generator facility.

7.5.2. Measurement and Charges. The measurement of net electrical energy supplied or generated will be calculated as follows:

7.5.2.a. The net electrical energy produced or consumed during the billing period shall be measured in accordance with normal metering practices

7.2.5.2.b. The electric utility shall credit a Customer-generator at the full retail rate for each kW hour produced by an alternative or renewable energy resource installed on the Customer-generator side of the electric revenue meter and delivered to the utility's distribution system through the Customer-generator's electric revenue meter, up to the total amount of electricity used by delivered by the utility to that Customer-generator during the billing period.

5.2.c. Rate credits shall not be applied to reduce any fixed monthly minimum bill, customer charge, demand charges or other charges not related to energy consumption.

~~7.2.c5.2.d.~~ If a Customer-generator supplies more electricity to the electric distribution system than the electric utility delivers to the Customer-generator in a given billing period, the excess kW hours shall be carried forward and credited against the Customer-generator usage in subsequent billing periods at the full retail rate. Any excess kW hours shall continue to accumulate until the end of the Reporting period. Provided that, if a Customer-generator terminates service with the electric utility, the utility is not required to provide compensation to the Customer-generator for any outstanding kW hour credits.

~~7.2.d.~~ At the end of each Reporting period, the electric utility shall compensate the Customer-generator for any excess kW hours generated by the Customer-generator over the amount of kW hours delivered by the electric utility during the same Reporting period at the electric utility's average cost of generation during the twelve month Reporting period.

7.5.5.2.e. For Customer-generators involved in virtual meter aggregation programs, a credit shall be applied first to the meter through which the Customer-generator facility supplies electricity to the distribution system, then prorated equally to the remaining meters for the Customer-generator accounts.

#### 150-33-86. Meters and Metering.

86.1. Net energy metering shall be accomplished by (i) using a standard kW meter capable of measuring the flow of electricity in two (2) directions, or (ii) two separate meters.

86.2. If the existing electrical meter installed at the Customer-generator facility is not capable of measuring the flow of electricity in two directions, the electric utility shall install new metering equipment for the Customer-generator at electric utility the expense of the electric utility. Any subsequent metering equipment change necessitated by the Customer-generator shall be paid for by the Customer-generator.

86.3. If two meters are used to measure net kW energy flows, for each applicable billing period including time-of-day billing periods, the reading of the meter measuring the flow of energy from the Customer-generator to the electric utility shall be subtracted from the reading of the meter measuring the flow of energy from the electric utility to the Customer-generator to obtain a measurement of net kW hours for billing purposes.

6.4. The electric utility shall offer Customer-generators a time-differentiated energy tariff rate or a non-time-differentiated energy rate, if the electric utility offers the choice to other customers in the same rate class as the Customer-generator. If the Customer-generator uses a meter and billing arrangement that has time-differentiated rates, the electric utility shall calculate net bills for each time period.

~~8.4. When the Customer-generator intends to take title or transfer title to any alternative energy credits which may be produced by the Customer-generator facility, the Customer-generator shall bear the cost of additional net metering equipment required to qualify the alternative energy credits in accordance with the Act and Public Service Commission rules.~~

~~8.5. When the Customer-generator expressly rejects ownership of alternative energy credits produced by the Customer-generator facility, the electric utility may supply additional metering equipment required to qualify the alternative energy credit at electric utility~~

~~expense. In those circumstances, the electric utility shall take title to any alternative energy credit produced. An electric utility shall, prior to taking title to any alternative energy credits produced by a Customer-generator, fully inform the Customer-generator of the potential value of the alternative energy credits and other options available to the Customer-generator for the disposition of those credits. A Customer-generator is not prohibited from having a qualified meter service provider install metering equipment for the measurement of generation, or from selling alternative energy credits to a third party other than an electric utility.~~

8.6.6.5. Virtual meter aggregation on properties owned or leased and operated by a Customer-generator shall be allowed for purposes of net metering. Virtual meter aggregation shall be limited to active meters serving a Customer-generator located on properties owned or leased ~~and operated~~ within two (2) miles of the boundaries of the Customer-generator single or contiguous property, as provided in Rule 2.5, and within a single electric utility's service territory. Physical meter aggregation shall be at the ~~Customer-generator's~~ expense of the Customer-generator. The electric utility shall provide the necessary equipment to complete physical aggregation. If the Customer-generator requests virtual meter aggregation, it shall be provided by the electric utility at the ~~Customer-generator's~~ expense of the Customer-generator. The Customer-generator shall be responsible only for any incremental expense entailed in processing his account on a virtual meter aggregation basis.

#### **150-33-97. Report to the Commission.**

97.1. An electric utility that offers net metering shall submit an annual net metering report to the Commission. The report shall be submitted by July 30 of each year, and shall include the following information for the Reporting period ending May 31 of that year: (i) the total number of net metered Customer-generator facilities, by resource type; and (ii) the total estimated rated generating capacity of net metering Customer-generators by resource type; (iii) total kW hours received from net metered Customer-generators; and (iv) total estimated kW hours produced by net metered Customer-generators, provided that this estimate does not require additional metering equipment.

#### **150-33-8. Interconnection Obligation.**

8.1. Subject to the requirements of these rules and the authorizing statute, a utility is obligated to interconnect a Customer-generator facility to its system. The utility and the customer must enter into an interconnection agreement, as set forth in the interconnection standards and technical requirements incorporated by reference in these rules as Form No. 2.



TARIFF N.M.S  
(Net Metering Service)  
Form No. 1

**Availability of Service**

Available to residential and general service customers who own and operate an eligible electric generating facility designed to operate in parallel with the Company system. Customers served under this tariff must also take service from the Company under the applicable standard service tariff. The total rated generating capacity of all customers served under this tariff shall be limited to ~~one percent (1%)~~ three percent (3%) of the Company single hour peak load during the previous year, of which one-half percent (0.5%) is reserved for residential Customer-generators.

**Conditions of Service**

1. For the purposes of this tariff, an eligible Customer-generator must meet the definition of "Customer-generator as set forth in the Commission Rules Governing Electric Utility Net-Metering Arrangements and Interconnections, 150 C.S.R. 33 (Net Metering Rules)".
2. A Customer-generator seeking to interconnect an eligible electric generating facility to the Company system must submit to designated Company personnel a completed interconnection application, and a one-line diagram showing the configuration of the proposed net metering facility. The Company will provide copies of all applicable forms upon request.
3. An interconnection agreement between the Company and the Customer-generator must be executed before the Customer-generator facility may be interconnected with the Company system.
4. All generator equipment and installations must comply with the Company's technical requirements. All generator equipment shall be installed in accordance with the manufacturer specifications as well as all applicable provisions of the National Electrical Code and state and local codes. All generator equipment and installations shall comply with all applicable safety, performance and power quality standards, established by the National Electrical Code, the Institute of Electrical and Electronic

Engineers and accredited testing laboratories.

5. The Customer-generator shall provide the Company proof of qualified installation of the Customer-generator facility. Certification by a licensed electrician shall constitute acceptable proof.
6. The Customer-generator shall install, operate, and maintain the Customer-generator facility in accordance with the manufacturer suggested practices for safe, efficient, and reliable operation in parallel with the Company system.
- ~~7. The Customer must provide a visibly open, lockable, manual disconnect switch, which is accessible by the Company and is clearly labeled.~~
87. The Company may, at its own discretion, isolate any Customer-generator facility if the Company has reason to believe that continued interconnection with the Customer-generator facility creates or contributes to a system of emergency.
98. The Company may perform reasonable on-site inspections to verify the proper installation and continuing safe operation of the Customer-generator facility and the interconnection facilities, at reasonable times and upon reasonable advance notice to the Customer-generator.
109. A Customer-generator shall maintain ~~homeowner, commercial or other~~ general liability insurance providing the following coverage: in the amount of at least one hundred thousand dollars (\$100,000) or such amount of coverage reasonably deemed necessary by the Company to protect its plant and other customers for the liability of the insured against losses or damages arising from the use of the Customer-generator facility: 1) a Customer-generator with a Customer-generator facility with a nameplate capacity of up to 50kW shall maintain general liability insurance in the amount of one hundred thousand dollars (\$100,000); 2) a Customer-generator with a nameplate capacity of greater than 50kW and up to 500 kW shall maintain general liability insurance in the amount of five thousand dollars (\$500,000); and 3) a Customer-generator with a Customer-generator facility with a nameplate capacity of greater than 500 kW shall maintain general liability coverage in the amount of one million (\$1,000,000). The Customer-generator must submit evidence of such insurance to the Company with the interconnection application. The Company's receipt of evidence of liability insurance does not imply an endorsement of the terms and conditions of the coverage.

H10. An eligible Customer-generator facility is transferable to other persons or service locations only upon written notification by the Customer-generator to the Company and verification by a licensed electrician that the facility is in compliance with all applicable safety and power quality standards. All other conditions of service apply.

### **Metering**

Net energy metering shall be accomplished by (i) using a standard kW meter capable of measuring the flow of electricity in two directions, or (ii) two separate meters. If offered to other customers in the same class as the Customer-generator, net energy flows may also be measured by time-of-day at the Customer-generator's option by (i) using a standard meter capable of measuring the flow of electricity in two directions by time-of-day, or (ii) two separate meters capable of measuring flows by time-of-day.

If the existing electrical meter installed at the Customer-generator facility is not capable of measuring the flow of electricity in two directions and by time-of-day as required above, the Company shall install new metering equipment for the Customer-generator at Company expense. Any subsequent metering equipment change necessitated by the Customer-generator shall be paid for by the Customer-generator.

If two meters are used to measure ~~net kW~~ energy flows, for each applicable billing period including time-of-day billing periods, the reading of the meter measuring the flow of energy from the Customer-generator to the Company shall be subtracted from the reading of the meter measuring the flow of energy from the Company to the Customer-generator to obtain a measurement of net kW hours for billing purposes.

### **Monthly Charges**

Monthly charges shall be calculated using an identical rate structure to the structure that would apply to the customer if it were not a Customer-generator.

Measurement and Charges. The measurement of net electrical energy supplied or generated will be calculated as follows:

1. The net electrical energy produced or consumed during the billing period shall be measured in accordance with normal metering practices
2. The Company shall credit a Customer-generator for each kW hour produced by an alternative or renewable energy resource installed on the Customer-generator side of the electric ~~revenue~~ meter and delivered to the utility's electric distribution system through the Customer-generator's electric revenue

meter, up to the total amount of electricity ~~used by~~ delivered by the utility to that customer during the billing period.

3. If a Customer-generator supplies more electricity to the electric distribution system than the Company delivers to the Customer-generator in a given billing period, the excess kW hours shall be carried forward and credited against the Customer-generator usage in subsequent billing periods at the full retail rate. ~~Any excess kW hours shall continue to accumulate until the end of the Reporting period.~~ Provided that, if a Customer-generator terminates service with the electric utility, the utility is not required to provide compensation to the Customer-generator for any outstanding kW hour credits.
  
- ~~4. At the end of each Reporting period, the Company shall compensate the Customer-generator for any excess kW hours generated by the Customer-generator over the amount of kW hours delivered by the Company during the same year at the Company average avoided cost of generation during the twelve (12) month Reporting period.~~
  
4. Rate credits shall not be applied to reduce any fixed monthly minimum bill, customer charge, demand charges or other charges not related to energy consumption.
  
5. For Customer-generators involved in virtual meter aggregation programs, a credit shall be applied first to the meter through which the Customer-generator facility supplies electricity to the distribution system, and then prorated equally to the remaining meters for the Customer-generator's accounts.

### **Other Charges**

~~Except for the cost of the first meter as provided in Net Metering Rule 8.2., the Customer-generator is responsible for all equipment and installation costs of the electric generating facility.~~

~~As specified in the interconnection application, a Customer-generator of 25 kW or less must pay a nonrefundable application for interconnection fee ("NAFI fee") of \$30.00. For a Customer-generator of more than 25 kW, the electric utility shall calculate the amount of the NAFI fee based on the estimated costs of interconnection. The NAFI fee will include the cost of inspection of the Customer-generator facility if the Company deems such inspection is necessary.~~

~~For Customer-generators of more than 25 kW, should the Company determine that an interconnection study is required to determine if installation of the Customer-generator facility will have significant impact on the Company system, the Company will advise the~~

~~Customer-generator of the estimated cost of performing such study. Upon payment by the Customer-generator of the estimated study costs, the Company will proceed with the interconnection study.~~

~~Should construction or upgrades of the Company system be required in order to interconnect the Customer-generator facility, additional charges to cover costs incurred by the Company shall be determined by the Company and paid by the Customer-generator. The Customer-generator shall pay any additional charges, as determined by the Company, for equipment, labor, metering, testing or inspections requested by the customer.~~

### **Technical Requirements**

~~The technical requirements for interconnection of Customer-generator facilities to the Company distribution system are as follows: Interconnection enables the Customer-generator facility to operate in parallel with the Company distribution system. An Interconnection Study may be required to determine the impact of the Customer-generator facility on the Company distribution system beyond the point of common coupling.~~

~~The Customer-generator facility shall comply with the requirements specified in IEEE 1547, "Standard for Interconnecting Distributed Resources with Electric Power Systems" and other technical requirements stated herein and in the Net Metering Rules.~~

~~IEEE 1547 contains the majority of the technical requirements necessary for interconnection. IEEE 1547 is limited to an aggregate capacity of 10 MW or less interconnected at typical primary and/or secondary voltages, IEEE 1547 does not address planning, designing, operating, or maintaining the Company distribution system and it does not identify or address all of the potential system impacts the proposed net metering installation may create beyond the point of common coupling. Due to the limitations of IEEE 1547, additional technical requirements apply.~~

~~These Technical Requirements are supplementary to and do not intentionally conflict with or supersede applicable laws, ordinances, rules or regulations established by Federal, State and other governmental bodies. The Customer-generator is responsible for conforming to all applicable laws, ordinances, rules or regulations established by Federal, State and other governmental bodies. Additional requirements for interconnection may be imposed by the regional transmission operator to address transmission system operating issues related to the proposed Customer-generator facility. Additional requirements may also be necessary to comply with the requirements of other approved tariffs associated with the Company or other third parties providing services.~~

~~To assure that the safety, reliability and power quality of the distribution system is not degraded by interconnection of the Customer-generator facility:~~

- ~~1) The Customer-generator facility shall comply with the Technical Requirements stated herein.~~
- ~~2) Any distribution system modifications and/or modifications to the Customer-generator facility identified by the interconnection study shall be completed~~
- ~~3) The Customer-generator facility shall be operated and maintained in compliance with this Tariff and the Net Metering Rules.~~

~~IEEE publications are available from the Institute of Electrical and Electronics Engineers, 433 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331 (<http://standards.ieee.org>).~~

### **Equipment Design Requirements**

Data for all major equipment proposed by the Customer to satisfy the Technical Requirements must be submitted for review and approval by the Company with a completed interconnection application. To facilitate review and approval, the Company will maintain a list of Pre-certified equipment.

The Company List of Pre-certified equipment is available upon request and contains Pre-certified equipment types, makes, and models of manufactured generating equipment and interconnection system components. This listing is based upon equipment certified by recognized national testing laboratories as suitable for interconnection with a distribution system based upon compliance with IEEE 1547. ~~Suitability for interconnection does not imply that Pre-certified equipment may be interconnected without a study to determine system impact.~~

The use of equipment that is not pre-certified may delay the Company review and approval of the customer's design. All interconnection equipment must be approved by the Company prior to being connected to the Company distribution system and before parallel operation is allowed.

The interconnection system hardware and software design requirements in the Technical Requirements are intended to assure protection of the Company distribution system.

INTERCONNECTION STANDARDS

1. Scope and Applicability.

1.1 These standards establish interconnection requirements for Distributed Resources (DR) units up to 2 MW in nameplate capacity, operating in parallel with the Electric Distribution System, that are not required to execute an interconnection agreement with PJM Interconnect (PJM). However, nothing in these procedures shall prevent PJM from subsequently requiring an Interconnection Customer to enter into a separate Interconnection Agreement with PJM if the Small Generator Facility subsequently starts participating in a PJM market or otherwise falls under the scope of PJM Interconnection requirements. Small Generator Facilities that are not designed to operate in parallel are not subject to these procedures. These standards apply to all electric utilities in West Virginia.

1.2 There are two (2) levels, or categories, for the application, review, and approval of DR interconnections:

1.2.1 Level 1 — Small Generator Facilities with Electric Nameplate Capacities of 25 kW or less, are inverter-based and certified.

1.2.2 Level 2 — Small Generator Facilities with Electric Nameplate Capacities 2 MW or less that does not qualify under Level 1.

2. Definitions.

2.1 Unless the context clearly requires a different meaning, as read herein:

Adverse system impact — shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety, power quality, and reliability of the Electric Distribution System.

Applicant — shall mean a person who has submitted an Interconnection Request to interconnect a Small Generator Facility to a Utility's Electric Distribution System, sometimes also referred to as the "Interconnection Customer".

Area network — shall mean a type of electric distribution system served by multiple transformers interconnected in an electrical network circuit, which is generally used in large metropolitan areas that are densely populated, in order to provide high reliability of service. This term has the same meaning as the term "distribution secondary grid network" as stated in IEEE standard 1547 Section 4.1.4 (published July 2003), as amended and supplemented.

**Business day** — shall mean Monday through Friday, excluding Federal or State Holidays.

**Calendar day** — shall mean any day including Saturday, Sunday or Federal or State Holidays.

**Certificate of completion** — shall mean the certificate in the form provided in Appendix D.

**Certified** — shall mean the equipment that satisfies the requirements of Appendix C.

**Commission** — shall mean the Public Service Commission of West Virginia.

**Distribution upgrades** — shall mean the required additions and modifications to the Utility's Electric Distribution System on the supply side of the Point of Interconnection. Distribution Upgrades do not include the Applicant's Interconnection Facilities.

**Electric nameplate capacity** — shall mean the net maximum or net instantaneous peak electric output capability measured in either watts or volt-amps of a Small Generator Facility as designated by the manufacturer.

**Utility** — shall mean the electric utility entity that owns the Electric Distribution System serving the DR.

**Electric distribution system** — shall mean the facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries from interchanges with higher voltage transmission networks that transport bulk power over longer distances. The voltage levels at which Electric Distribution Systems operate differ among areas but generally carry less than 69 kilovolts of electricity. Electric Distribution System has the same meaning as the term Area EPS defined in 3.1.6.1 of IEEE 1547.

**Fault current** — shall mean the electrical current that flows through a circuit during an electrical fault condition. A fault condition occurs when one or more electrical conductors contact ground and/or each other. Types of faults include phase to ground, double-phase to ground, three-phase to ground, phase-to-phase, and three-phase. A Fault Current is several times larger in magnitude than the current that normally flows through a circuit.

**IEEE 1547** — shall mean the most current official published version of IEEE 1547 "Standard for Interconnecting Distributed Resources with Electric Power Systems" at the time the Interconnection Request is submitted.

**IEEE 1547.1** — shall mean the most current official published version of IEEE 1547

"Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems" at the time the Interconnection Request is submitted.

**Interconnection Agreement** — shall mean an agreement between an Interconnection Customer and a Utility, which in addition to these procedures governs the connection of the Small Generator Facility to the Electric Distribution System, as well as the ongoing operation of the Small Generator Facility after it is connected to the system.

**Interconnection Customer** — shall mean any entity that proposes to interconnect a Small Generator Facility to an Electric Distribution System.

**Interconnection Equipment** — shall mean a group of components or integrated system connecting an electric generator with an electric distribution system that includes all interface equipment including switchgear, protective devices, inverters, or other interface devices. Interconnection Equipment may be installed as part of an integrated equipment package that includes a generator or other electric source.

**Interconnection Facilities** — shall mean facilities and equipment required by the Utility to interconnect the Small Generator Facility and the Interconnection Customer's Interconnection Equipment to the electric distribution system. Collectively, Interconnection Facilities include all facilities and equipment between the Small Generator Facility and the Point of Common Coupling, including any modification, additions or Distribution Upgrades that are necessary to physically and electrically interconnect the Small Generator Facility to the Utility's Electric Distribution System. Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades.

**Interconnection Request** — shall mean an Interconnection Customer's request, in the form of Appendix A or B of these Interconnection Standards to interconnect a new Small Generator Facility, or to increase the capacity of, or operating characteristics of an existing Small Generator Facility that is interconnected with the Utility's Electric Distribution System.

**Line section** — shall mean that portion of a Utility's distribution system connected to an Interconnection Customer, bounded by automatic sectionalizing devices or the end of the distribution line.

**Minor equipment modification** — shall mean minor changes to the proposed Small Generator Facility that do not have a material impact on safety or reliability of the Electric Distribution System.

**Nationally Recognized Testing Laboratory (NRTL)** — shall mean a qualified private organization that meets the requirements of OSHA regulations. NRTLs perform independent safety testing and product certification. Each NRTL must meet the requirements as set forth by OSHA in the NRTL program.

**Parallel operation** — shall mean a Small Generator Facility that connects electrically to the Electric Distribution System and the potential exists for electricity to flow from the Small Generator Facility to the Electric Distribution System. This may be contrasted with a stand-alone generator that operates isolated from the Electric Distribution System.

**Point of Common Coupling (PCC)** — shall mean the point where the Customer's Interconnection Equipment connects to the Electric Distribution System at which harmonic limits or other operational characteristics such as IEEE 1547 requirements are applied.

**Point of Interconnection (POI)** — shall mean the point where the Interconnection Equipment connects to the Electric Distribution System.

**PJM Interconnection LLC (PJM)** — shall mean FERC-approved regional transmission organization that operates the electric transmission system.

**PJM Small Generator Technical Requirements and Standards** — shall mean the most current version of PJM's interconnection technical requirements applicable to small generators 10 MVA or smaller.

**Queue position** — shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests, that is established based upon the date and time of receipt of the valid Interconnection Request by the Utility. An Interconnection Request shall not be deemed to be invalid by virtue of its being finally evaluated under different procedures from those under which it was originally considered, e.g., an Interconnection Request originally submitted as a Level 1 Interconnection Request but eventually evaluated under Level 2 procedures is still a valid interconnection request and is to be assigned a Queue Position based on the date of its original submission as a Level 1 Interconnection Request.

**Scoping meeting** — shall mean the meeting between representatives of the Interconnection Customer and the Utility conducted for the purpose of discussing alternative interconnection options, to exchange information including any Electric Distribution System data and earlier study evaluations that would be reasonably expected to impact such interconnection options, to analyze such information, and to determine the potential feasible Points of Interconnection.

**Small generator facility** — shall mean the equipment used by an Interconnection Customer to generate or store electricity that operates in parallel with the Electric Distribution System. A Small Generator Facility has an Electric Nameplate Capacity rating of 2 MW or less and typically includes an electric generator, prime mover, and the Interconnection Equipment required to safely interconnect with the Electric Distribution System.

**Spot network** — shall have the same meaning assigned to the term under IEEE Standard 1547 Section 4.1.4, as amended and supplemented. A Spot Network is generally used to supply power to a single customer or a small group of customers.

**Standard small generator interconnection agreement** — shall mean the form of Interconnection Agreement applicable to Level 1 Interconnection Request as provided in Appendix A, or Level 2 Interconnection Request as provided in Appendix B. These agreements shall apply to all Small Generating Facilities as described herein.

**UL 1741** — shall mean Underwriters Laboratories (UL) Standard "Inverters, Converters, and Controllers for Use in Independent Power Systems"

**Conformance**— shall mean the interconnection installation evaluation required by IEEE 1547 Section 5.3 and the commissioning test required by IEEE 1547 Section 5.4. For interconnection equipment that has not been Certified, the Conformance Test shall also include the on-site design tests as required by IEEE 1547 Section 5.1 and witnessing by the Utility of production tests required by IEEE 1547 Section 5.2. All tests witnessed by the Utility are to be performed in accordance with IEEE 1547.1

### 3. General Provisions.

**3.1. Interconnection Requests.** The Interconnection Customer desiring to interconnect a Small Generator Facility shall submit an Interconnection Request to the Utility. Interconnection Requests are to be made using the standardized forms contained in Appendix A for Level 1 applications, and Appendix B for Level 2 applications. All Electric Distribution Companies shall accommodate the filing of Interconnection Requests electronically.

**3.2 Utility Designated Point of Contact.** The Utility shall designate an employee or office from which information on the interconnection of Small Generator Facilities can be obtained through informal requests by prospective Interconnection Customers. The level of information to be made available to the prospective Interconnection Customer should include, but not necessarily be limited to, information on the affected Electric Distribution System or portion thereof including any relevant system studies or interconnection studies

to the extent that such provision does not violate confidentiality provisions or critical infrastructure requirements.

3.3 Technical Standard. The most current version of IEEE 1547 "Standard for Interconnecting Distributed Resources with Electric Power Systems" will be adopted as the technical standard for the interconnection of Small Generator Facilities in the State.

3.4 Modification of the Application. Any modification to machine data or equipment configuration or to the interconnection site of the Small Generator Facility not agreed to in writing by the Utility and the Interconnection Customer may be deemed a withdrawal of the Application and may require submission of a new Application, unless proper notification of each party by the other and a reasonable time to cure the problems created by the changes are undertaken.

3.5 Site Control. Documentation of site control must be submitted for Small Generator Facility additions with the Complete Application. Site control may be demonstrated through:

3.5.1 Ownership of, a leasehold interest in, or a right to develop a site for the purpose. of constructing a Small Generator Facility.

3.5.2 An option to purchase or acquire a leasehold site for such purpose.

3.5.3 An exclusive or other business relationship between Small Generator Facility and the entity having the right to sell, lease or grant the Small Generator Facility the right to possess or occupy a site for such purpose.

3.6 Dispute Resolution. Each Party shall make every reasonable attempt to resolve disputes in a prompt, equitable, good faith manner. Where possible, dispute resolution will be conducted in an informal, expeditious manner in order to reach resolution with minimal costs and delay. If the parties fail to settle their dispute, either party may make a filing with the Commission for adjudication of the dispute (e.g., file a complaint).

3.7 If the Interconnection Request is for a Small Generator Facility that includes multiple energy production devices at a site for which the Interconnection Customer seeks a single Point of Interconnection, the Interconnection Request shall be evaluated on the basis of the aggregate Electric Nameplate Capacity of multiple devices.

3.8 If the Interconnection Request is for an increase in capacity for an existing Small Generator Facility, the Interconnection Request shall be evaluated on the basis of the new total Electric Nameplate Capacity of the Small Generator Facility.

3.9 The Utility shall maintain records of all Interconnection Requests received, the times required to complete Interconnection Request approvals and disapprovals, and any justification for the actions taken on the Interconnection Requests. The Utility shall keep such records on file for a minimum of three years.

3.10 Once an Interconnection Request is deemed complete by the Utility, any modification other than a Minor Equipment Modification to the proposed Small Generator Facility or Interconnection Equipment, or Minor Equipment Modification that would not affect the application of the screens in Levels 1 or 2, and that is not agreed to in writing by the Utility, shall require submission of a new Interconnection Request.

3.11 To minimize costs, the Utility may propose to interconnect more than one Small Generator Facility of a single customer at a single Point of Interconnection provided such interconnection is supportable by the customer's facilities. A request for such interconnection shall not be unreasonably refused. An Interconnection Customer, however, may elect to pay the entire cost of a separate Interconnection Facility.

3.12 Maintenance and Testing. Each Interconnection Customer shall conduct periodic maintenance and testing of its Small Generator Facility in accordance with the provisions of IEEE 1547 relating to maintenance and testing.

#### 4. Interconnection Request, Review, and Approval Procedures.

##### 4.1 Level 1 Interconnections.

4.1.1 Application. All Level 1 Small Generator Facilities shall use the standard Interconnection Request Form contained in Appendix A.

4.1.2 Application Fees. A maximum fee of Thirty Dollars (\$30) shall be charged for all Level 1 applications.

4.1.3 Each Utility shall adopt a Level 1 interconnection review procedure as set forth in Section 4.1.6 for all Small Generator Facilities that meet the screening criteria in Section 3.6. A Utility shall not impose additional requirements not specifically authorized under this Section.

4.1.4 Level 1 Screening Criteria. For interconnection of a proposed Small Generator Facility the Utility shall utilize the Level 1 procedure set forth in 4.1.6 if the Small Generator Facility meets the following criteria:

a. The Small Generator Facility utilizes inverter-based technology and customer Interconnection Equipment that is non-islanding, UL listed, and Certified in accordance with the provisions contained in Appendix C.

b. The Small Generator Facility has an Electric Nameplate Capacity of 25 kW or less and is proposing to interconnect to distribution facilities operating at 69kV or less.

c. The interconnection will not cause the aggregated generation on the radial distribution circuit including the proposed generator to exceed 15% of the Line Section annual peak, three-phase load or 5% of the Line Section annual peak, single-phase load as measured at the substation. Should the generator fail this screening criterion, the Utility shall proceed with interconnection if it determines that the generator can still be interconnected in a safe, reliable manner.

d. For interconnection to the load side of Spot Network protectors, the aggregated generation including the proposed generator must not exceed 5% of a Spot Network's maximum load.

e. If the proposed Small Generator Facility is to be interconnected on a single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed Small Generator Facility, will not exceed 25 kW.

f. If the proposed Small Generator Facility is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, its addition shall not create an imbalance between the two sides of the 240 volt service of more than 20% of the nameplate rating of the service transformer.

#### 4.1.5 Level 1 Review Procedure.

a. Upon receipt of a standard Level 1 Interconnection Request provided in Appendix A the Utility shall within ten (10) Business Days inform the Applicant that the Interconnection Request is either complete or incomplete, and if incomplete provide a list of the missing items.

b. In the event the Utility does not have a record of receipt of the Interconnection Request, the Applicant will provide the Utility with an additional copy of the Interconnection Request. If the Applicant can

demonstrate by return mail receipt that the original Interconnection Request was delivered to the Utility, the Utility shall be required to forgo the initial 10-day response period and immediately complete their evaluation of the Interconnection Request within 3 business days of receipt of the Applicant's re-submittal.

c. Utility Verification. The Utility verifies Small Generator Facility equipment can be interconnected safely and reliably using Level 1 screens set forth in Section 4.1.4. This can take up to 15 Business Days after receipt of a complete Interconnection Request.

d. Certificate of Completion. Before service is provided by the Utility, the Interconnection Customer shall submit a Certificate of Completion as provided in Appendix D to the EDC.

e. Conformance Test. The Interconnection Customer shall provide the completed Certificate of Completion, three executed copies of the Interconnection Agreement and the proposed schedule and plan for completing the tests required by IEEE 1547 to the Utility. Within ten (10) Business Days following the receipt of the above items by the Utility or within the time limits agreed to by the Parties, the Interconnection Customer shall complete all testing required by IEEE 1547. The Utility may choose to be present at the Small Generator Facility during the testing of the proposed interconnection. The Interconnection Customer shall provide the test results to the Utility. If the Utility identifies problems with the inspection, if the test results are unsatisfactory, or if the Utility does not agree with the customer's periodic test procedures, the Utility will notify the customer in writing within ten (10) Business Days with the deficiencies clearly identified. The Utility may withhold authorization for parallel operation until such deficiencies have been properly corrected.

f. The Small Generator Facility shall obtain approval by all local or municipal electric code officials with jurisdiction over the interconnection.

4.1.6 Unless the Utility can demonstrate that the Small Generator Facility cannot be interconnected safely and reliably, the Utility shall execute the standard Level 1 Interconnection Agreement as provided in Appendix E.

4.1.7 If the Small Generator Facility is not approved under a Level 1 review, the Interconnection Customer may submit a new Interconnection Request for consideration

under Level 2 procedures specified herein without sacrificing the original Queue Position.

#### 4.2 Level 2 Interconnections.

4.2.1 Application. Level 1 Small Generator Facilities that were not approved under a Level 1 review and all Level 2 Small Generator Facilities shall use the standard Interconnection Request Form contained in Appendix B.

4.2.2 Application Fees. A maximum fee of Fifty Dollars (\$50) plus \$1 per kW of capacity shall be charged for all Level 2 applications.

4.2.3 Each Utility shall adopt a Level 2 interconnection review procedure as set forth in Section 4.2.5 for all Small Generator Facilities that meet the screening criteria in Section 3.6. An EDC shall not impose additional requirements not specifically authorized under this Section.

4.2.4 Level 2 Screening Criteria. For interconnection of a proposed Small Generator Facility the Utility shall utilize the procedures set forth in 4.2.5 if the Small Generator Facility meets all of the following screening criteria:

a. The Small Generator Facility has an Electric Nameplate Capacity of 2 MW or less, is Certified in accordance with the provisions contained in Appendix C, does not qualify under the requirements for a Level 1 interconnection, and is proposing to interconnect to distribution facilities operating at 69kV or less, provided that an industrial customer that is served at a higher transmission level may meet this criteria.

b. The interconnection will not cause the aggregated generation on the radial distribution circuit including the proposed generator to exceed 15% of the Line Section annual peak, three-phase load or 5% of the Line Section annual peak, single-phase load as measured at the substation. If the generator fails this screening criterion, the Utility shall proceed with interconnection if it determines that the generator can still be interconnected in a safe, reliable manner.

c. For interconnection to the load side of Spot Network protectors, the aggregated generation including the proposed generator must not exceed 5% of a Spot Network's maximum load.

d. The aggregated generation on the radial distribution circuit including the

proposed generator will not contribute more than 10% to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed point of common coupling.

e. The proposed Small Generating Facility, in aggregate with other generation on the distribution circuit, will not cause any distribution protective devices and equipment (including but not limited to substation breakers, fuse cutouts, and line reclosers), or Interconnection Customer equipment on the system to exceed 80% of the short circuit interrupting capability; nor is the interconnection proposed for a circuit that already exceeds 80% of the short circuit interrupting capability.

f. The proposed Small Generating Facility, in aggregate with other generation interconnected to the distribution low voltage side of the substation transformer feeding the distribution circuit where the Small Resource proposes to interconnect, will not exceed 10 MW in an area where there are known or posted transient stability limitations to generating units located in the general electrical vicinity (e.g., 3 or 4 transmission voltage level busses from the point of interconnection).

g. If the proposed Small Generator Facility is to be interconnected on a single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed Small Generator Facility, will not exceed 25 kW.

#### 4.2.5 Level 2 Review Procedure.

a. Upon receipt of a standard Level 2 Interconnection Request provided in Appendix B, the Utility shall within ten (10) Business Days inform the Applicant that the Interconnection Request is either complete or incomplete, along with a list of the missing items.

b. In the event the Utility does not have a record of receipt of the Interconnection Request, the Applicant shall provide the Utility with an additional copy of the Interconnection Request. If the Applicant can demonstrate by return mail receipt that the original Interconnection Request was delivered to the Utility, the Utility shall be required to forgo the initial 10-day response period and immediately complete their evaluation of the Interconnection Request within 3 business days of receipt of the Applicant's re-submittal.

c. The Utility verifies Small Generator Facility equipment can be interconnected safely and reliably using the Level 2 screens set forth in Section 4.2.4. This can take up to 25 Business Days after receipt of a complete Interconnection Request.

d. Certificate of Completion. Before service is provided by the Utility, the Interconnection Customer shall submit a Certificate of Completion as provided in Appendix D to the Utility.

e. Conformance Test. The interconnection customer shall provide the completed Certificate of Completion, three executed copies of the Interconnection Agreement and the proposed schedule and plan for completing the tests required by IEEE 1547 to the Utility. Within ten (10) Business Days following the receipt of the above items by the Utility or within the time limits agreed to by the Parties, the Interconnection Customer shall complete all testing required by IEEE 1547. The Utility may choose to be present at the Small Generator Facility during the testing of the proposed interconnection. The Interconnection Customer shall provide the test results to the Utility. If the Utility identifies problems with the inspection, if the test results are unsatisfactory, or if the Utility does not agree with the customer's periodic test procedures, the Utility shall notify the customer in writing within ten (10) Business Days with the deficiencies clearly identified. The Utility may withhold authorization for parallel operation until such deficiencies have been properly corrected.

f. The Small Generator Facility shall obtain approval by all local or municipal electric code officials with jurisdiction over the interconnection.

4.2.6 Unless the Utility can demonstrate that the Small Generator Facility cannot be interconnected safely and reliably, the Utility shall sign the approval line on the Interconnection Request Form and execute the standard Level 2 Interconnection Agreement as provided in Appendix F.

4.2.7 Isolation Device. Unless otherwise prohibited by state regulation and if required by Utility operating practices, all Level 2 Small Generator Facilities shall be capable of being isolated from the Utility by means of a lockable, visible-break isolation device readily accessible by the Utility. Unless a readily accessible load break device is otherwise provided in the interconnection system, the isolation device shall be capable of interrupting load. The isolation device shall be installed, owned, and maintained by the owner of the Small Generator Facility and located between the Small Generator Facility and the Point of

Interconnection. A draw-out type circuit breaker with the provision for padlocking at the draw-out position can be considered an isolation device for purposes of this requirement. Alternatively, the Interconnection Customer, at its option, may elect to provide the Utility access to an isolation device that is contained in a building or area that may be unoccupied and locked or not otherwise readily accessible to the Utility, by providing a lockbox capable of accepting a lock provided by the Utility that will provide ready access to the isolation device. Where a lockbox is required, the Interconnection Customer shall install the lockbox in a location that is readily accessible by the Utility and the Interconnection Customer shall affix a placard in a location acceptable to the Utility that provides clear instructions to its operating personnel on how to gain access to the isolation device.

APPENDICES:

APPENDIX A - INTERCONNECTION REQUEST FORM (LEVEL 1)

APPENDIX B - INTERCONNECTION REQUEST FORM (LEVEL 2)

APPENDIX C - CERTIFICATION REQUIREMENTS

APPENDIX D - CERTIFICATE OF COMPLETION

APPENDIX E - INTERCONNECTION AGREEMENT (LEVEL 1)

APPENDIX F - INTERCONNECTION AGREEMENT (LEVEL 2)

APPENDIX G - RELEVANT CODES AND STANDARDS

**APPENDIX A - INTERCONNECTION REQUEST FORM (LEVEL 1)**

**Contact Information**

Interconnection Customer  
Company Name or Individual: \_\_\_\_\_ Contact Person: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_  
Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Alternative Contact Information (if different from Applicant)

Name: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_  
Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

**Facility Information**

Location (if different from above): \_\_\_\_\_  
Utility: \_\_\_\_\_  
Account Number (existing Utility customers): \_\_\_\_\_  
Inverter Manufacturer: \_\_\_\_\_  
Model \_\_\_\_\_  
Nameplate Rating: \_\_\_\_\_ (kW) \_\_\_\_\_ (kVA) \_\_\_\_\_ (AC Volts) Single or Three Phase  
System Design Capacity: \_\_\_\_\_ (kW) \_\_\_\_\_ (kVA)  
Prime Mover: Photovoltaic  Reciprocating Engine  Fuel Cell  Turbine   
Other \_\_\_\_\_  
Energy Source: Solar  Wind  Hydro  Natural Gas  Fuel Oil   
Other \_\_\_\_\_

Is the inverter Certified?  Yes  No (If yes, attach manufacturer's cut sheet showing listing and label information from the appropriate listing authority, e.g. UL 1741 listing)

Estimated Install Date: \_\_\_\_\_ Est. In-Service Date: \_\_\_\_\_

**APPENDIX B - INTERCONNECTION REQUEST FORM (LEVEL 2)**

Customer:

Name: \_\_\_\_\_ Phone: (    ) \_\_\_\_\_  
Address: \_\_\_\_\_ Municipality: \_\_\_\_\_

Consulting Engineer or Contractor:

Name: \_\_\_\_\_ Phone: (    ) \_\_\_\_\_  
Address: \_\_\_\_\_  
Estimated In-Service: \_\_\_\_\_

Existing Electric Service:

Capacity: \_\_\_\_\_ Amps Voltage: \_\_\_\_\_ Volts  
Service Character: Single Phase  Three Phase  Secondary   
3 Phase Transformer Connection  Wye  Delta

Location of Protective Interface Equipment on Property:  
(include address if different from customer address) Attention:

Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

List interconnection components/system(s) to be used in the Small  
Generators Facility that are Certified

<u>Component/System</u>	<u>NRTL Providing Label&amp; Listing</u>
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

*Please provide copies of manufacturer brochures or technical specification*

Energy Production Equipment/Inverter Information:

Synchronous       Induction       Inverter  Other \_\_\_\_\_  
Rating: \_\_\_\_\_ kW      Rating: \_\_\_\_\_ kVA  
Rated Voltage: \_\_\_\_\_ Amps  
System Type Tested (Total System):  Yes  No; attach product literature  
System Design Capacity: \_\_\_\_\_ (kW)      \_\_\_\_\_ (kVA)

For Synchronous Machines:

Manufacturer: \_\_\_\_\_  
Model No. \_\_\_\_\_ Version No. \_\_\_\_\_

Submit copies of the Saturation Curve and the Vee Curve

Salient  Non-Salient

Torque: \_\_\_\_\_ lb-ft Rated RPM: \_\_\_\_\_ Field Amperes \_\_\_\_\_ at  
rated generator voltage and current and \_\_\_\_\_ % PF over-excited

Type of Exciter: \_\_\_\_\_

Output Power of Exciter: \_\_\_\_\_

Type of Voltage Regulator: \_\_\_\_\_

Locked Rotor Current: \_\_\_\_\_ Amps Synchronous Speed: \_\_\_\_\_ RPM

Winding Connection: \_\_\_\_\_ Min. Operating Freq./Time: \_\_\_\_\_

Generator Connection:  Delta  Wye  Wye Grounded

Direct-axis Synchronous Reactance (Xd) \_\_\_\_\_ ohms

Direct-axis Transient Reactance(X'd) \_\_\_\_\_ ohms

Direct-axis Sub-transient Reactance (X''d) \_\_\_\_\_ ohms

For Induction Machines:

Manufacturer: \_\_\_\_\_

Model No. \_\_\_\_\_ Version No. \_\_\_\_\_

Locked Rotor Current: \_\_\_\_\_ Amps

Rotor Resistance (Rr) \_\_\_\_\_ ohms Exciting Current \_\_\_\_\_ Amps

Rotor Reactance (Xr) \_\_\_\_\_ ohms Reactive Power Required: \_\_\_\_\_

Magnetizing Reactance (Xm) \_\_\_\_\_ ohms VARs (Full Load) \_\_\_\_\_

Stator Reactance (Rs) \_\_\_\_\_ ohms VARs (Full Load) \_\_\_\_\_

Stator Reactance (Xs) \_\_\_\_\_ ohms

Short Circuit Reactance(X''d) \_\_\_\_\_ ohms

Phases:  Single  Three-Phase

Frame Size: \_\_\_\_\_ Design Letter: \_\_\_\_\_ Temp. Rise: \_\_\_\_\_ O C.

For Inverter Based Facilities:

Inverter:

Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_

Type: Forced Commutated Line Commutated

Rated Output \_\_\_\_\_ Amps \_\_\_\_\_ Volts

Efficiency \_\_\_\_\_ %Power Factor \_\_\_\_\_ %

DC Source/Prime Mover:

Solar  Wind  Hydro  Other \_\_\_\_\_

Rating: \_\_\_\_\_ kW Rating: \_\_\_\_\_ kVA

Rated Voltage: \_\_\_\_\_ Volts

Open Circuit Voltage (If applicable): \_\_\_\_\_ Volts

Rated Current: \_\_\_\_\_ Amps

Short Circuit Current (If applicable): \_\_\_\_\_ Amps

Other Facility Information

The following items must be attached to this form to be considered complete:

One Line Diagram attached:  Yes  No

Plot Plan attached:  Yes  No

Installation Test Plan attached:  Yes  No

Customer Signature:

\_\_\_\_\_  
CUSTOMER

\_\_\_\_\_  
TITLE

\_\_\_\_\_  
DATE

## APPENDIX C — CERTIFICATION REQUIREMENTS

1. Small Generating Facility equipment proposed for use separately or packaged with other equipment in an interconnection system shall be considered certified for interconnected operation if it has been tested in accordance IEEE 1547.1 in compliance with the appropriate codes and standards referenced below in Appendix G by any Nationally Recognized Testing Laboratory (NRTL) recognized by the United States Occupational Safety and Health Administration to test and certify interconnection equipment pursuant to the relevant codes and standards listed in Appendix G, (2) it has been labeled and is publicly listed by such NRTL at the time of the interconnection application, and (3) such NRTL makes readily available for verification all test standards and procedures it utilized in performing such equipment certification, and, with consumer approval, the test data itself. The NRTL may make such information available on its web site and by encouraging such information to be included in the manufacturer's literature accompanying the equipment.
2. The Interconnection Customer must verify that the intended use of the Interconnection Equipment falls within the use or uses for which the Interconnection Equipment was labeled, and listed by the NRTL.
3. Certified Interconnection Equipment shall not require further type-test review, testing, or additional equipment to meet the requirements of this Standard Small Generator Interconnection Procedure; however, nothing herein shall preclude the need for an on-site Witness Test nor follow-up production testing by the Interconnection Customer.
4. If the Certified Interconnection Equipment package includes only interface components (switchgear, inverters, or other interface devices), then an Interconnection Customer must show that the generator or other electric source being utilized with the equipment package is compatible with the equipment package and is consistent with the testing and listing specified for this type of interconnection equipment.
5. Provided the generator or electric source, when combined with the equipment package, is within the range of capabilities for which it was tested by the NRTL, and does not violate the interface components' labeling and listing performed by the NRTL, no further design review, testing or additional equipment on the customer side of the point of common coupling shall be required to meet the requirements of this interconnection procedure.
6. Interconnection Equipment does not include equipment provided by the utility.

**APPENDIX D - SMALL GENERATOR FACILITY CERTIFICATE OF COMPLETION**

**Installation Information**

Check if owner-installed

Interconnection Customer: \_\_\_\_\_ Contact Person: \_\_\_\_\_

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

Location of Small Generator Facility (if different from above):

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

**Electrician:**

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

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

License number: \_\_\_\_\_

Date Interconnection Agreement approved by the Company: \_\_\_\_\_

Application ID number: \_\_\_\_\_

**Electrical Inspection:**

The system has been installed and inspected in compliance with the local Building/Electrical

Code of \_\_\_\_\_

Signed \_\_\_\_\_

Name (printed): \_\_\_\_\_

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

**APPENDIX E — INTERCONNECTION AGREEMENT (LEVEL 1)**

This Agreement is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_ by and between \_\_\_\_\_, a \_\_\_\_\_, organized and existing under the laws of the State of \_\_\_\_\_, ("Interconnection Customer,") and \_\_\_\_\_, a \_\_\_\_\_, existing under the laws of the State of \_\_\_\_\_, ("Utility"). Interconnection Customer and Utility each may be referred to as a "Party," or collectively as the "Parties."

**Recitals:**

**Whereas, Interconnection Customer is proposing to develop a Small Generator Facility, or generating capacity addition to an existing Small Generator Facility, consistent with the Interconnection Request completed by Interconnection Customer on \_\_\_\_\_; and**

**Whereas, Interconnection Customer desires to interconnect the Small Generator Facility with Utility's Electric Distribution System.**

**Now, therefore, in consideration of and subject to the mutual covenants contained herein, the Parties agree as follows:**

1) **Construction of the Small Generator Facility. The Interconnection Customer may proceed to construct (including operational testing not to exceed 2 hours) the Small Generator Facility once conditional approval to interconnect a Small Generator Facility has been provided by the Utility.**

2) **Final Interconnection and Operation. The Interconnection Customer may operate the Small Generator Facility and interconnect with the Utility's Electric Distribution System once all of the following have occurred:**

a) **Electrical Inspection: Upon completing construction, the Interconnection Customer will cause the Small Generator Facility to be inspected by the local electrical wiring inspector with jurisdiction.**

b) **Certificate of Completion: The Interconnecting Customer returns the Certificate of Completion to the Utility at address noted.**

c) **Utility has either waived the right to a Witness Test in the Interconnection Request, or completed its Witness Test as per the following:**

i) **Utility Right of Inspection. Within ten business days after receipt of the**

Certificate of Completion, the Utility may, upon reasonable notice and at a mutually convenient time, conduct a Witness Test of the Small Generator Facility to ensure that all equipment has been appropriately installed and that all electrical connections have been made in accordance with applicable codes.

ii) If the Utility does not perform the Witness Test within ten business Days or by mutual agreement of the Parties, the Witness Test is deemed waived.

d) Suitable Utility metering equipment required under applicable tariffs must be installed and tested in accordance with applicable ANSI standards.

3) Periodic Testing. All interconnection-related protective functions and associated batteries shall be periodically tested at intervals specified by the manufacturer, system integrator, or authority having jurisdiction over the DR interconnection. Periodic test reports or a log for inspection shall be maintained in accordance with the provisions of IEEE 1547.

4) Access. The Utility shall have access to the disconnect switch and metering equipment of the Small Generator Facility at all times. The Utility shall provide reasonable notice to the customer when possible prior to using its right of access.

5) Disconnection. The Utility may temporarily disconnect the Small Generator Facility upon the following conditions:

a) For scheduled outages upon reasonable notice

b) For unscheduled outages or emergency conditions

c) If the Small Generating Small Generator Facility does not operate in the manner consistent with this Agreement

d) The Utility has the right to disconnect the Small Generator Facility in the event of improper installation or failure to pass the Witness Test.

e) The Interconnection Equipment used by the Small Generator Facility is de-listed by the Nationally Recognized Testing Laboratory that provided the listing at the time the interconnection was approved and the Utility shows that the Interconnection Equipment has the potential to cause a safety, reliability or a power quality problem.

6) Termination. This Agreement may be terminated under the following conditions:

a) By Interconnection Customer. The Interconnection Customer may terminate

this Agreement by providing written notice to the Utility.

b) By the Utility. The Utility may terminate this Agreement (1) if the Small Generator Facility fails to operate for any consecutive 12-month period, or (2) the Customer fails to remedy a violation of terms of this Agreement.

7) Permanent Disconnection. In the event the agreement is terminated, the Utility shall have the right to disconnect its facilities or direct the customer to disconnect its Small Generator Facility.

8) Disputes. Each Party agrees to attempt to resolve all disputes regarding the provisions of the interconnection procedures promptly, equitably and in a good faith manner

9) Governing Law, Regulatory Authority, and Rules. The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of West Virginia, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

10) Survival Rights. This agreement shall continue in effect after termination to the extent necessary to allow or require either Party to fulfill rights or obligations that arose under the Agreement.

11) Assignment/Transfer of Ownership of the Small Generator Facility: This Agreement shall survive the transfer of ownership of the Small Generator Facility to a new owner when the new owner agrees in writing to comply with the terms of this Agreement and so notifies the Utility.

12) Insurance. The Interconnection Customer with a Small Generator Facility with an Electric Nameplate Capacity of 25kW or less shall be required to maintain general liability insurance in the amount of one hundred thousand dollars (\$100,000) under the terms of this Agreement.

13) Notice. Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given if delivered in person, delivered by recognized national courier service, or sent by first class mail, postage prepaid, to the person specified below:

If to Interconnection Customer:

Interconnection Customer:

Attention: \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

If to Utility:

Attention: \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For Utility:

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

Title: \_\_\_\_\_

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

For the Interconnection Customer:

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

Title: \_\_\_\_\_

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

**APPENDIX F - INTERCONNECTION AGREEMENT (LEVEL 2)**

This Agreement is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_ by and between \_\_\_\_\_, a \_\_\_\_\_ organized and existing under the laws of the State of \_\_\_\_\_, (“Interconnection Customer,”) and \_\_\_\_\_, a \_\_\_\_\_, existing under the laws of the State of \_\_\_\_\_, (“Utility”). Interconnection Customer and Utility each may be referred to as a “Party,” or collectively as the “Parties.”

**Recitals:**

**Whereas, Interconnection Customer is proposing to develop a Small Generator Facility, or generating capacity addition to an existing Small Generator Facility, consistent with the Interconnection Request completed by Interconnection Customer on \_\_\_\_\_; and**

**Whereas, Interconnection Customer desires to interconnect the Small Generator Facility with Utility’s Electric Distribution System.**

**Now, therefore, in consideration of and subject to the mutual covenants contained herein, the Parties agree as follows:**

**Article 1. Scope and Limitations of Agreement**

**1.1 This Agreement shall be used for all approved Level 2 Interconnection Requests according to the procedures set forth in the Standard Small Generator Interconnection Procedures.**

**1.2 This Agreement governs the terms and conditions under which the Small Generator Facility will interconnect to, and operate in Parallel with, Utility’s Electric Distribution System.**

**1.3 This Agreement does not constitute an agreement to purchase or deliver the Interconnection Customer’s power.**

**1.4 Nothing in this Agreement is intended to affect any other agreement between Utility and the Interconnection Customer. However, in the event that the provisions of this agreement are in conflict with the provisions of other Utility tariffs, the Utility tariff shall control.**

**1.5 Responsibilities of the Parties**

**1.5.1 The Parties shall perform all obligations of this Agreement in accordance with all Applicable Laws and Regulations, Codes and Standards, Operating Requirements, and Good Utility Practice.**

**1.5.2 The Interconnection Customer shall construct, interconnect, operate and**

maintain its Small Generator Facility, and construct, operate, and maintain its Interconnection Equipment in accordance with the applicable manufacturer's recommended maintenance schedule, in accordance with this Agreement, and with Good Utility Practice.

1.5.3 Utility shall construct, own, operate, and maintain its Electric Distribution System and Interconnection Facilities in accordance with this Agreement, and with Good Utility Practice.

1.5.4 The Interconnection Customer agrees to construct its facilities or systems in accordance with applicable specifications that meet or exceed those provided by PJM's Small Generator Technical Requirements and Standards, the National Electrical Code, National Electrical Safety Code, the American National Standards Institute, IEEE, Underwriters Laboratories, any Operating Requirements in effect at the time of construction, and other applicable national and State codes and standards. The Interconnection Customer agrees to design, install, maintain, and operate its Small Generator Facility so as to reasonably minimize the likelihood of a disturbance adversely affecting or impairing the Electric Distribution System or equipment of the Utility.

1.5.5 Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for the facilities that it now or subsequently may own unless otherwise specified in the Attachments to this Agreement. Each Party shall be responsible for the safe installation, maintenance, repair and condition of their respective lines and appurtenances on their respective sides of the Point of Interconnection.

1.6 Parallel Operation Obligations. Once the Small Generator Facility has been authorized to commence parallel operation, the Interconnection Customer shall abide by all written rules and procedures developed by the Utility which pertain to the Parallel operation of the Small Generator Facility, copies of which are provided in Attachment to this Agreement.

1.7 Metering. The Interconnection Customer shall not be responsible for the cost of the purchase, installation, operation, maintenance, testing, repair, and replacement of metering and data acquisition equipment unless obligations consistent with the Rules of the Public Service Commission of West Virginia are specified in Attachments to this Agreement.

1.8 Reactive Power. The Interconnection Customer shall design its Small Generator Facility to maintain a composite power delivery at continuous rated power output at the Point of Common Coupling at a power factor within the range of 0.95 leading to 0.95 lagging. Utility may also require the Interconnection Customer to follow a voltage or VAR schedule applicable to similarly situated generators in the control area on a comparable basis and which shall be clearly specified in the Attached Utility procedures. Under no circumstance shall these additional requirements for reactive power support exceed the normal operating capabilities of the Small Generator Facility.

1.9 Capitalized Terms, Capitalized terms used herein shall have the meanings specified in the Interconnections Standards or the body of this Agreement.

## **Article 2. Inspection, Testing, Authorization, and Right of Access**

2.1 Equipment Testing and Inspection. The Interconnection Customer shall test and inspect its Small Generator Facility and Interconnection Facilities prior to interconnection, and in accordance with the PJM Small Generator Technical Requirements and Standards. The Interconnection Customer shall not operate its Small Generator Facility in Parallel with Utility's Electric Distribution System without prior written authorization by the Utility as provided for in 2.1.1.

2.1.1 Prior to Parallel Operation, the Interconnection Customer shall provide the Utility a completed Certificate of Completion. Within ten Business Days after receipt of the Certificate of Completion, the Utility may conduct a Witness Test. The Witness Test shall be conducted only upon reasonable notice and at a mutually convenient time within the ten day period. If the Utility does not conduct the Witness Test within ten Business Days or within the time otherwise mutually agreed to by the Parties, the Witness Test is deemed waived. If the Witness Test is successful or alternatively if the Witness Test is waived, the Utility shall affix an authorized signature to the Certificate of Completion and return it to the Interconnection Customer approving the interconnection and authorizing Parallel Operation. Such authorization shall not be unreasonably withheld, conditioned, or delayed.

2.1.2 If the Witness Test is not successful, the Utility shall have the right to disconnect the Small Generator Facility until such time as changes are made to address the deficiencies identified in the Witness Test and another Witness Test can be scheduled.

2.1.3 To the extent that the Interconnection Customer decides to conduct interim testing of the Small Generator Facility prior to the Witness Test, it may request that the Utility observe these tests and that these tests be deleted from the final Witness Test. The Utility may, at its own expense, send qualified personnel to the Small Generator Facility to observe such interim testing.

2.2 Right of Access. The Utility shall have access to the disconnect switch and metering equipment of the Small Generator Facility at all times. The Utility shall provide reasonable notice to the customer when possible prior to using its right of access.

## **Article 3. Effective Date, Term, Termination, and Disconnection**

3.1 Effective Date. This Agreement shall become effective upon execution by the Parties.

3.2 Term of Agreement. This Agreement shall become effective on the Effective Date and

shall remain in effect for a period of ten years from the Effective Date or such other longer period as the Interconnection Customer may request and shall be automatically renewed for each successive one-year period thereafter, unless terminated earlier in accordance with Article 3.3 of this Agreement.

3.3 Termination. No termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination. 3.3.1 The Interconnection Customer may terminate this Agreement at any time by giving the Utility 20 Business Days written notice.

3.3.2 Either Party may terminate this Agreement after Default pursuant to Article 6.6.

3.3.3 Upon termination of this Agreement, the Small Generator Facility will be disconnected from the Utility's Electric Distribution System. The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of the termination.

3.3.4 This provisions of this Article shall survive termination or expiration of this Agreement.

3.4 Temporary Disconnection. The Utility may temporarily disconnect the Small Generator Facility from its Electric Distribution System for so long as reasonably necessary in the event one or more of the following conditions or events occurs: 3.4.1 Emergency Conditions- "Emergency Condition" shall mean a condition or situation: (1) that in the judgment of the Party making the claim is imminently likely to endanger life or property; or (2) that, in the case of the Utility, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Electric Distribution System, the Utility's Interconnection Facilities or (3) that, in the case of the Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Small Generator Facility or the Interconnection Equipment. Under Emergency Conditions, the Utility or the Interconnection Customer may immediately suspend interconnection service and temporarily disconnect the Small Generator Facility. The Utility shall notify the Interconnection Customer promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Interconnection Customer's operation of the Small Generator Facility. The Interconnection Customer shall notify the Utility promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect Utility's Electric Distribution System. To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of both Parties' facilities and operations, its anticipated duration, and the necessary corrective action.

3.4.2 Routine Maintenance, Construction, and Repair - the Utility may interrupt interconnection service or curtail the output of the Small Generator Facility and temporarily disconnect the Small Generator Facility from the Utility's Electric Distribution System when necessary for routine maintenance, construction, and repairs on Electric Distribution System. The Utility shall provide the Interconnection Customer with five Business Days notice prior to such interruption. The Utility shall use reasonable efforts to coordinate such reduction or temporary disconnection with the Interconnection Customer.

3.4.3 Forced Outages - During any forced outage, the Utility may suspend interconnection service to effect immediate repairs on the Utility's Electric Distribution System. The Utility shall use reasonable efforts to provide the Interconnection Customer with prior notice. If prior notice is not given, the Utility shall, upon request, provide the Interconnection Customer written documentation after the fact explaining the circumstances of the disconnection.

3.4.4 Adverse Operating Effects - the Utility shall provide the Interconnection Customer with a written notice of its intention to disconnect the Small Generator Facility if, based on Good Utility Practice, the Utility determines that operation of the Small Generator Facility will likely cause disruption or deterioration of service to other customers served from the same electric system, or if operating the Small Generator Facility could cause damage to the Utility's Electric Distribution System. Supporting documentation used to reach the decision to disconnect shall be provided to the Interconnection Customer upon request. The Utility may disconnect the Small Generator Facility if, after receipt of the notice, the Interconnection Customer fails to remedy the adverse operating effect within a reasonable time which shall be at least five Business Days from the date the Interconnection Customer receives the Utility's written notice supporting the decision to disconnect, unless Emergency Conditions exist in which case the provisions of Article 3.4.1 apply.

3.4.5 Modification of the Small Generator Facility - The Interconnection Customer must receive written authorization from the Utility before making any change to the Small Generator Facility that may have a material impact on the safety or reliability of the Electric Distribution System. Such authorization shall not be unreasonably withheld. Modifications shall be done in accordance with Good Utility Practice. If the Interconnection Customer makes such modification without the Utility's prior written authorization, the latter shall have the right to temporarily disconnect the Small Generator Facility.

3.4.6 Reconnection - The Parties shall cooperate with each other to restore the Small Generator Facility, Interconnection Facilities, and Utility's Electric Distribution System to their normal operating state as soon as reasonably practicable following a temporary disconnection.

## **Article 4. Cost Responsibility for Interconnection Facilities and Distribution Upgrades**

### **4.1 Interconnection Facilities.**

4.1 .I The Interconnection Customer shall be responsible for its share of all reasonable expenses, including overheads, associated with (1) owning, operating, maintaining, repairing, and replacing its Interconnection Equipment, and (2) operating, maintaining, repairing, and replacing the Utility's Interconnection Facilities.

4.2 Distribution Upgrades. The Utility shall design, procure, construct, install, and own any Distribution Upgrades. The actual cost of the Distribution Upgrades, including overheads, shall be directly assigned to the Interconnection Customer.

## **Article 5. Billing, Payment, Milestones, and Financial Security**

### **5.1 Billing and Payment Procedures and Final Accounting**

5.1.1 The Utility shall bill the Interconnection Customer for the design, engineering, construction, and procurement costs of Utility provided Interconnection Facilities and Distribution Upgrades contemplated by this Agreement on a monthly basis, or as otherwise agreed by the Parties. The Interconnection Customer shall pay each bill within thirty (30) calendar days of receipt, or as otherwise agreed to by the Parties.

5.1.2 Within ninety (90) calendar days of completing the construction and installation of the Utility's Interconnection Facilities and Distribution Upgrades to this Agreement, the Utility shall provide the Interconnection Customer with a final accounting report of any difference between (1) the actual cost incurred to complete the construction and installation and the budget estimate provided to the Interconnection Customer and a written explanation for any significant variation. (2) the Interconnection Customer's previous deposit and aggregate payments to the Utility for such Interconnection Facilities and Distribution Upgrades. If the Interconnection Customer's cost responsibility exceeds its previous deposit and aggregate payments, the Utility shall invoice the Interconnection Customer for the amount due and the Interconnection Customer shall make payment to the Utility within thirty (30) calendar days. If the Interconnection Customer's previous deposit and aggregate payments exceed its cost responsibility under this Agreement, the Utility shall refund to the Interconnection Customer an amount equal to the difference within thirty (30) calendar days of the final accounting, report.

5.2 Interconnection Customer Deposit. At least twenty (20) Business Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of the Utility's Interconnection Facilities and Distribution Upgrades, the Interconnection

Customer shall provide the Utility with a deposit equal to 50% of the cost estimated for its Interconnection Facilities prior to its beginning design of such facilities.

#### **Article 6. Assignment.**

6.1 Assignment. This Agreement may be assigned by either Party upon fifteen (15) Business Days prior written notice, and with the opportunity to object by the other Party. When required, consent to assignment shall not be unreasonably withheld; provided that:

6.1.1 Either Party may assign this Agreement without the consent of the other Party to any affiliate of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this Agreement;

6.1.2 The Interconnection Customer shall have the right to assign this Agreement, without the consent of the Utility, for collateral security purposes to aid in providing financing for the Small Generator Facility.

6.1.3 Any attempted assignment that violates this Article is void and ineffective. Assignment shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. An assignee is responsible for meeting the same obligations as the Interconnection Customer.

#### **Article 7. Insurance.**

The Interconnection Customer shall be required to maintain liability coverage under the terms of this Agreement based upon the Electric Nameplate Capacity of the Small Generator Facility as follows:

7.1 The Interconnection Customer with a Small Generator Facility with an Electric Nameplate Capacity up to 50 kW shall maintain general liability insurance in the amount of one hundred thousand dollars (\$100,000).

7.2 The Interconnection Customer with a Small Generator Facility with an Electric Nameplate Capacity of greater than 50 kW and up to 500 kW shall maintain general liability insurance in the amount of five hundred thousand dollars (\$500,000).

7.3 The Interconnection Customer with a Small Generator Facility with an Electric Nameplate Capacity of greater than 500 kW shall maintain general liability insurance in the amount of one million dollars (\$1,000,000).

## Article 8. Dispute Resolution.

Each Party agrees to attempt to resolve all disputes regarding the provisions of these interconnection procedures promptly, equitably and in a good faith manner.

## Article 9. Miscellaneous

9.1 Governing Law, Regulatory Authority, and Rules. The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of West Virginia, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

9.2 Amendment. The Parties may amend this Agreement by a written instrument duly executed by both Parties.

9.3 No Third-party Beneficiaries. This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

### 9.4 Waiver.

9.4.1 The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

9.4.2 Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from Utility. Any waiver of this Agreement shall, if requested, be provided in writing.

9.5 Entire Agreement. This Agreement, including all Attachments, constitutes the entire Agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants which constitute any part of the consideration for, or any condition to, either Party's compliance with its obligations under this Agreement.

9.6 Multiple Counterparts. This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

9.7 No Partnership. This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

9.8 Severability. If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

9.9 Environmental Releases. Each Party shall notify the other Party, first orally and then in writing, of the release any hazardous substances, any asbéstos or lead abatement activities, or any type of remediation activities related to the Small Generator Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall (1) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than 24 hours after such Party becomes aware of the occurrence, and (2) promptly furnish to the other Party copies of any publicly available reports filed with any governmental authorities addressing such events.

9.10 Subcontractors. Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

9.10.1 The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall the Utility be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

9.10.2 The obligations under this Article will not be limited in any way by any limitation of subcontractor's insurance.

**Article 10. Notices**

**10.1 General.**

Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given if delivered in person, delivered by recognized national courier service, or sent by first class mail, postage prepaid, to the person specified below:

If to Interconnection Customer:

Interconnection Customer:  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-mail \_\_\_\_\_

If to Utility:

Utility: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-mail \_\_\_\_\_

10.2 Billing and Payment, Billings and payments shall be sent to the addresses set out below:

Interconnection Customer: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Interconnection Customer: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

10.3 Designated Operating Representative. The Parties may also designate operating representatives to conduct the communications which may be necessary or convenient for the administration of this Agreement. This person will also serve as the point of contact with respect to operations and maintenance of the Party's facilities.

Interconnection Customer's

Operating representative: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-Mail \_\_\_\_\_  
Utility's Operating Representative: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

10.4 Changes to the Notice Information. Either Party may change this notice information by giving five Business Days written notice prior to the effective date of the change.

**Article 11. Signatures**

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For Utility:

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

Title: \_\_\_\_\_

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

For the Interconnection Customer

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

Title: \_\_\_\_\_

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

## APPENDIX G - RELEVANT CODES AND STANDARDS

IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems (including use of IEEE 1547.1 testing protocols to establish conformity)

UL 174 1 Inverters, Converters, and Controllers for Use in Independent Power Systems

IEEE Std 929-2000 IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems

NFPA 70 National Electrical Code

IEEE Std C37.90.1-1989 (R1944) IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems

IEEE Std C37.90.2 (1995) IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers

IEEE Std C37.108- 1989 (R2002) IEEE Guide for the Protection of Network Transformers

IEEE Std C257.12.44-2000, IEEE Standard Requirements for Secondary Network Protectors

IEEE Std C62.41.2-2002, IEEE Recommended Practice on Characterization of Surges in Low Voltage (1000V and Less) AC Power Circuits

IEEE Std C62.45-1992 (R2002) IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V) and Less) Power Circuits

ANSI C84.1-1995 Electric Power Systems and Equipment -Voltage Ratings (60 Hertz)

IEEE Std 100-2000, IEEE Standard Dictionary of Electrical and Electronic

NEMA MG 1-1998, Motors and Small Resources, Revision 3

IEEE Std 519-1992, IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems

NEMA MG 1-2003 (Rev 2004), Motors and Generators, Revision 1

# Public Service Commission

Richard E. Hitt, General Counsel



201 Brooks Street, P.O. Box 812  
Charleston, West Virginia 25323

Phone: (304) 340-0450  
FAX: 1-866-336-2893  
E-mail: rhitt@psc.state.wv.us

June 30, 2010

## Via Hand Delivery

Judy Cooper, Director  
Administrative Law Division  
Secretary of State's Office  
Building 1, Suite 157K  
1900 Kanawha Boulevard, East  
Charleston, West Virginia 25305-0771

Re: Public Service Commission; Rules Governing Electric  
Utility Net Metering Arrangements and Interconnections,  
150 C.S.R. Series 33

Dear Ms. Cooper:

Enclosed for filing is a copy of the Commission's final rules in the above series in response to the Alternative and Renewable Energy Portfolio Act, enacted by the West Virginia Legislature in 2009 with the enactment of House Bills 103 and 408, as later amended in 2010 with the enactment of Senate Bill 350. The relevant statutory provisions are codified in W.Va. Code §§24-2-F-1 *et seq.* The rules are promulgated under the Commission's existing rulemaking authority, exempt from legislative rulemaking review pursuant to W.Va. Code §24-1-7 and under specific rulemaking authority pursuant to W.Va. Code §24-2F-12.

Enclosed are a notice of adoption, a fiscal note, a summary of the rule and statement of circumstances.

Enclosed you will also find the final Commission General Order No. 258, attaching the final rules in both a clean copy and a blackline copy indicating amendments from the proposed rules. Enclosed is a copy on a CD of a clean version of the final rules. By prior Order issued February 2, 2010, the Commission issued the proposed rules, provided notice

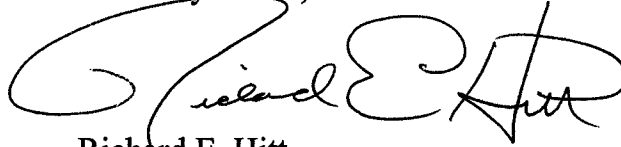
Page 2  
June 30, 2010  
Letter to Judy Cooper

and publication of the rulemaking and provided a comment period for interested parties. Enclosed is a copy of the comments received in response to the Commission Order of February 2, 2010. The Final Order contains the Commission's responses to the filed comments.

Because the Commission is not part of the Cabinet structure, the Commission Order is the evidence of the approval of the filing by the agency head, Chairman Michael A. Albert.

Please date stamp the enclosed three extra copies of the filing packet and return them with our messenger. If you have any questions or if there are any problems please bring them to my attention.

Sincerely Yours,

A handwritten signature in black ink, appearing to read "Richard E. Hitt". The signature is fluid and cursive, with a large initial "R" and "H".

Richard E. Hitt  
General Counsel

cc: Amy Haden, Law Clerk

APPENDIX B

**FISCAL NOTE FOR PROPOSED RULES**

Rules Governing Utility Net Metering Arrangements and Interconnections, 150 C.S.R. Series 33

Rule Title: \_\_\_\_\_

Type of Rule:  Legislative  Interpretive  Procedural

Agency: Public Service Commission of West Virginia

Address: 201 Brooks Street  
Charleston, WV 25301

Phone Number: 304-340-0435 Email: ahaden@psc.state.wv.us

**Fiscal Note Summary**

Summarize in a clear and concise manner what impact this measure will have on costs and revenues of state government.

There will be no significant implementation cost relating to this rulemaking for the State of West Virginia. The Commission does not anticipate additional costs to be incurred as a result of the rulemaking. This rulemaking will have no effect on the costs or revenues of state government. This rulemaking could have beneficial economic impact on the state and some of its residents, through the development and construction of alternative and renewable energy facilities.

**Fiscal Note Detail**

Show over-all effect in Item 1 and 2 and, in Item 3, give an explanation of Breakdown by fiscal year, including long-range effect.

<b>FISCAL YEAR</b>			
Effect of Proposal	Current Increase/Decrease (use "-")	Next Increase/Decrease (use "-")	Fiscal Year (Upon Full Implementation)
1. Estimated Total Cost	0.00	0.00	0.00
Personal Services	0.00	0.00	0.00
Current Expenses	0.00	0.00	0.00
Repairs & Alterations	0.00	0.00	0.00
Assets	0.00	0.00	0.00
Other	0.00	0.00	0.00
2. Estimated Total Revenues	0.00	0.00	0.00

Rules Governing Utility Net Metering Arrangements and Interconnections, 150 C.S.R. Series 33

Rule Title: \_\_\_\_\_

Rule Title: \_\_\_\_\_

**3. Explanation of above estimates (including long-range effect):**

Please include any increase or decrease in fees in your estimated total revenues.

Not Applicable

**MEMORANDUM**

Please identify any areas of vagueness, technical defects, reasons the proposed rule **would not** have a fiscal impact, and/or any special issues **not** captured elsewhere on this form.

The rulemaking will not have fiscal impact on the agency because the Commission will utilize existing staff and fiscal resources to work on these rules as well as the cases and projects that come about following adoption of these rules. The Commission received a federal grant in 2009 pursuant to the American Recovery and Reinvestment Act to pay for staff activities to work on cases and projects related to the rules.

Date: June 30, 2010

Signature of Agency Head or Authorized Representative

Michael R. Albert

### **Statement of Circumstances**

In the 2009 West Virginia Legislative Session, the Legislature enacted House Bill 103, as later amended by House Bill 408, the Alternative and Renewable Energy Portfolio Act (Act), codified in Article 2F of Chapter 24 of the West Virginia Code. In the 2010 West Virginia Legislative Session, the Legislature enacted Senate Bill 350, which further amended the Act.

In order to encourage the development of alternative and renewable energy resources within the state, the Act, *inter alia*, requires the West Virginia Public Service Commission to promulgate rules governing net metering and interconnection standards under W.Va. Code §24-2F-8 within twelve months of the effective date of the Act of July 1, 2009, or by July 1, 2010.

This rulemaking is responsive to that legislation.

By order entered February 2, 2010, the Commission issued the proposed rules and provided a comment period. After receipt and review of the comments, the Commission finds that the public interest is served by the issuance of the Commission Final Rules, Rules Governing Electric Utility Net Metering Arrangements and Interconnections, 150 C.S.R. 33 as required by W.Va. Code §24-2F-8.

### Summary of the Rule

The Commission has proposed Rules Governing Electric Utility Net Metering Arrangements and Interconnections, 150 C.S.R. 33. The new rules are responsive to newly codified Section 24-2F-1 *et seq.*, the Alternative and Renewable Energy Portfolio Act, enacted by the West Virginia Legislature in 2009 with the enactment of House Bills 103 and 408. In 2010, the West Virginia Legislature further amended the Act with the enactment of Senate Bill 350.

The Alternative and Renewable Energy Portfolio Act, *inter alia*, requires the Public Service Commission of West Virginia to promulgate rules governing net metering and interconnection standards under West Virginia Code§24-2F-8 within twelve months of the effective date of the Act of July 1, 2009, or by July 1, 2010.

The Rules govern the net metering arrangements and interconnections between electric utilities and electric utility customers that are also generators of electricity using alternative and renewable energy resources, as defined in the Act. The Rules include eligibility, technical requirements, interconnection, metering, tariff filing and reporting requirements related to net metering.

**PUBLIC SERVICE COMMISSION  
OF WEST VIRGINIA  
CHARLESTON**

At a session of the PUBLIC SERVICE COMMISSION OF WEST VIRGINIA in the City of Charleston on the 30<sup>th</sup> day of June 2010.

**GENERAL ORDER NO. 258**

In the matter of a General Investigation to adopt rules for net metering arrangements and interconnections pursuant to West Virginia House Bill 103, and House Bill 408, effective July 1, 2009: Alternative and Renewable Energy Portfolio Act, codified as W. Va. Code §24-2F-1 *et seq.*

**COMMISSION ORDER**

This Commission order adopts final rules relating to net metering arrangements and interconnections.

**BACKGROUND**

In the 2009 West Virginia Legislative Session, the Legislature enacted House Bill 103, as later amended by House Bill 408, the Alternative and Renewable Energy Portfolio Act (Portfolio Act or Act), codified in Article 2F of Chapter 24 of the West Virginia Code. In the 2010 West Virginia Legislative Session, the Legislature enacted Senate Bill 350, which further amended the Portfolio Act to change certain definitions under the Act.

In order to encourage the development of alternative and renewable energy resources within the state, the Act, *inter alia*, requires the Public Service Commission of West Virginia to promulgate rules governing net metering and interconnection standards under W. Va. Code §24-2F-8 within twelve months of the effective date of the Act of July 1, 2009, or by July 1, 2010.

W. Va. Code §24-2F-8 (a) provides that the Commission shall adopt a rule requiring that all electric utilities, as defined in the Act, provide “a rebate or discount at fair value,” to be determined by the Commission, to eligible Customer-generators for any electricity generation that is delivered to the utility under a net metering arrangement. Net metering is defined under W. Va. Code §24-2F-3(11) as “the difference between electricity supplied by an electric utility and electricity generated from an alternative or renewable energy resource

facility owned or operated by an electric retail customer when any portion of the electricity generated from the alternative or renewable energy resource is used to offset part or all of the electric retail customer's requirements for electricity."

The Act requires the Commission to institute a general investigation for the purpose of adopting rules pertaining to net metering and the interconnection of eligible electric generating facilities intended to operate in parallel with an electric utility's system pursuant to W.Va. Code §24-2F-8(c). On February 2, 2010, the Commission entered an Order, (i) initiating a general investigation and issuing legislative proposed rules, Rules Governing Electric Utility Net Metering Arrangements and Interconnections, 150 C.S.R. 33; (ii) providing notice and publication of the rulemaking by the Commission Executive Secretary; and (iii) providing a comment period for interested parties.

In issuing the proposed rules, the Commission stated that the provisions of the Act required that the Commission should consider (i) requiring all sellers of electricity to retail customers in the state, including rural electric cooperatives, municipally-owned electric facilities or utilities serving less than thirty-thousand residential electric customers, to offer net metering rebates or discounts to Customer-generators; (ii) rules of other states located within the PJM regional transmission organization;<sup>1</sup> (iii) increasing the allowed kilowatt capacity for commercial customer-generators to an amount not to exceed five hundred kilowatts and for industrial customer-generators to an amount not to exceed two megawatts; and (iv) interconnection standards for combined heat and power.

In the Order entered February 2, 2010, the Commission stated that it proposed to limit the capacity that may be contributed by residential Customer-generators to 25 kW, although commercial and industrial Customer-generators may contribute more. The Commission stated that it intended for the proposed rules to apply to rural electric cooperatives, municipally-owned electric facilities and utilities serving less than thirty-thousand residential electric customers. The Commission invited comment upon the proposal to apply the proposed rules to these entities. In addition, the Commission invited comment on language regarding the location requirement under the definition of a "Customer-generator" in the proposed rules. The Commission further stated that upon final adoption of the rules, electric utilities would be required to file interconnection agreements for Commission approval.

By the Commission Order dated February 2, 2010, as corrected on February 22, 2010, the Commission invited interested parties to file initial comments by April 5, 2010 by 4:00 p.m. and to file reply comments no later than May 5, 2010 by 4:00 p.m.

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<sup>1</sup> PJM Interconnection LLC is the regional transmission organization that coordinates the transmission grid and the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia.

On March 29, 2010, the individuals, Donna J. Dean and John L. Meyer, filed initial comments.

On April 2, 2010, Brookfield Renewable Power (Brookfield) and PIMBY Energy, LLC (PIMBY) filed initial comments.

On April 5, 2010, Appalachian Power Company and Wheeling Power Company (collectively the AEP Companies), the West Virginia Energy Users Group (WVEUG), and Commission Staff (Staff) filed initial comments. Joint comments were filed by the City of New Martinsville, the City of Phillipi, Harrison Rural Electrification Association, Inc., Craig-Botetourt Electric Cooperative and Shenandoah Valley Electric Cooperative (collectively the Public Systems). The individuals, Kevin Fooce, and Arthur W. and Pamela C. Dodds, filed initial comments.

On April 5, 2010, Potomac Edison and Monongahela Power Company, dba Allegheny Power (Allegheny Power), requested an extension of time to file comments.

On April 6, 2010, Staff filed a Further Staff Memo, correcting its initial comments.

On April 7, 2010, IREC filed initial comments.

On April 7, 2010, the Commission issued a Procedural Order, granting an extension of time for Allegheny Power to file initial comments until April 9, 2010, at 4:00 p.m., and accepting the initial comments filed by IREC on April 7, 2010.

On April 15, 2010, Allegheny Power filed initial comments.

On April 16, 2010, the AEP Companies filed an attachment to its initial comments, the letter of the AEP Companies dated October 1, 2009, previously filed by the AEP Companies in General Order No. 184.25, a separate general investigation proceeding initiated by the Commission Order entered July 28, 2009, to establish a credit trading program under the Act. The AEP Companies inadvertently failed to attach the letter dated October 1, 2009, with the initial comments filed on April 5, 2010.

On May 5, 2010, Staff filed reply comments.

On May 6, 2010, IREC filed reply comments.

On May 27, 2010, Robert Harrington filed a letter of protest.

On June 2, 2010, ThompsonGas & Electric Service, Inc. filed comments.

## DISCUSSION

The Commission has reviewed and considered the comments filed by the interested parties in this proceeding in promulgating final Rules Governing Electric Utility Net Metering Arrangements and Interconnections, 150 C.S.R. 33, attached hereto as Attachment A. Based on the comments received and its own review, the Commission has made a number of revisions to the proposed rules, as shown in the strikethrough version of the rules, attached hereto as Attachment B.

The Commission will address the main issues raised in the context of this rulemaking proceeding. In addition, the Commission has a response to some of the comments filed, as discussed below.

### Application of the Rules to All Sellers of Electricity in the State

W.Va. Code §24-2F-8 (b) requires the Commission to consider requiring all sellers of electricity to retail customers in the state, including rural electric cooperatives, municipally-owned electric facilities or utilities serving less than thirty-thousand residential electric customers, to offer net metering rebates or discounts to Customer-generators. By Commission Order dated February 2, 2010, the Commission stated that it intended to apply the proposed rules to all sellers of electricity to retail customers in the state. The Commission invited comment on the application of the proposed rules to the rural electric cooperatives, municipally-owned electric facilities and utilities serving less than thirty-thousand residential electric customers.

In the joint comments filed by the Public Systems, the Public Systems opposed the application of the proposed rules to the rural electric cooperatives, municipally-owned electric facilities and utilities serving less than thirty-thousand residential electric customers. Among other things, the Public Systems assert that systems of the small electric utilities may not have the ability to comply with the rule requirements providing for the increased system capacity limits for commercial Customer-generators of up to 500 kilowatts and for industrial Customer-generators of up to 2 megawatts.

The comments filed by the AEP Companies, Staff, and IREC supported the application of the net metering and interconnection standards to rural electric cooperatives, municipally-owned electric utilities and utilities serving less than thirty-thousand electric customers in the state. In its comments, Staff recommended that the Commission include a provision in the final rules to limit Customer-generator participation in net metering within the service territories of these entities to small scale generators with a nameplate capacity of up to 50 kW, in order to address the limitations of the members of the Public Systems and other small electric utilities operating in the state.

The Commission finds that it is important to provide access to net metering for all electric retail customers in the state, including those provided electric service by rural electric cooperatives, municipally-owned electric facilities or utilities serving less than thirty-thousand residential electric customers. However, the Commission recognizes the concern of the Public Systems regarding the impact of the rules on the small electric utilities.

In response to the comments filed by Staff and the Public Systems, the Commission has amended the rules under Section 150-33-2.5 to limit the application of the rules to the rural electric cooperatives, municipally-owned electric facilities and utilities serving less than thirty-thousand residential electric customers. Under Section 150-33-2.5, as revised, the final rules specify that the maximum nameplate capacity for a Customer-generator to be served by rural electric cooperatives, municipally-owned electric utilities or utilities serving less than thirty-thousand customers shall be 50 kilowatts.

#### Definitions under Section 150-33-2

The definitions under Section 150-33-2 parallel the definitions set forth in the Portfolio Act under W.Va. Code §24-2F-3. On its own review, the Commission has found that certain definitions under Section 150-33-2 must be amended to reflect the definitions provided under the Portfolio Act. The Commission has revised the definition of “advanced coal technology” under Section 150-33-2 to reflect the amendment of the definition by the West Virginia Legislature with the enactment of House Bill 408 on November 20, 2009, with an effective date of February 17, 2010.

In addition, the Commission has revised the definitions under Section 150-33-2 to reflect recent statutory changes. In 2010, the West Virginia Legislature amended the Portfolio Act with the enactment of Senate Bill 350 on March 13, 2010, with an effective date of June 11, 2010. Senate Bill 350 amended the definitions under W.Va. Code §24-2F-3 to recategorize recycled energy from an alternative energy resource to a renewable energy resource and to remove the restriction that ethanol be produced from sources other than corn in order to be a renewable energy resource. The Commission has revised Section 150-33-2 to be consistent with the statutory changes under Senate Bill 350.

In addition, the Commission received comments from interested parties on specific definitions in the proposed rules under Section 150-33-2, and has a response to those comments below.

#### Section 150-33-2.5

The Commission invited comment on the definition of “Customer-generator” under Section 150-33-2.5 with the following language in the proposed rule:

“Customer-generator” - An electric retail customer who owns and operates an alternative or renewable energy resource facility (“generation project”) within

this state and located *the Commission invites comments on the following alternatives [at the customer's service location] [on property owned or leased by the customer and within two miles of the customer's service location] [location not relevant]* with a nameplate capacity of not greater than 25 kilowatts if installed at a residential service location, not greater than 500 kilowatts if installed at a commercial service location, or not greater than 2 megawatts if installed at an industrial service location, and which system is designed and installed to operate in parallel with the electric utility distribution system without adversely affecting the operation of equipment and service of the electric utility and its customers and without presenting safety hazards to the electric utility and customers.

The alternative language under Section 150-33-2.5 stating, "on property owned or leased by the customer and within two miles of the customer's service location," is similar to language in the Pennsylvania net metering rules that provide for meter aggregation. The Commission received numerous comments from interested parties on the policy of meter aggregation, as referenced under Section 150-33-2.5 and throughout the proposed rules. In addition to the proposed alternative language under Section 150-33-2.5, the rules contain other provisions relating to meter aggregation by physical meter aggregation or by virtual meter aggregation, as found in Sections 150-33-2.12, 150-33-2.14, 150-33-2.18, 150-33-7.2.e, and 150-33-8.6 of the proposed rules.

The AEP Companies suggested that the provisions related to meter aggregation should be eliminated under Section 150-33-2.5 and throughout the rules. The Public Systems agreed with the AEP Companies that meter aggregation should not be included within the rules. Among other points raised by these parties, the AEP Companies and the Public Systems suggested that meter aggregation by virtual aggregation would require costly manual billing procedures and expensive system upgrades in order for the utilities to implement virtual meter aggregation.

IREC filed comments supporting the provisions allowing for meter aggregation for facilities within two miles of the customer location under Section 150-33-2.5 and throughout the rules. IREC stated that the purpose of meter aggregation is to simplify net metering for Customer-generators who have multiple meters located at a single or several locations by allowing them to net those meters against a single eligible generating facility. IREC stated that the meter aggregation policy primarily benefits agricultural customers who have multiple meters at various locations throughout a farm property. IREC stated that its experience with meter aggregation in other states shows that virtual meter aggregation is not used often, but that it can be extremely advantageous to agricultural customers. PIMBY and Staff filed comments in support of the meter aggregation policy as well.

In its comments, Allegheny Power noted that West Penn Power, its sister company operating in Pennsylvania, has had occasional customer inquiries about meter aggregation. Allegheny Power stated, however, that no customer has been served with physical or virtual

meter aggregation by West Penn Power because of the costs associated with meter aggregation. Allegheny Power suggested that if the Commission elects to keep the meter aggregation provisions in the rules, the costs associated with meter aggregation should be borne by the Customer-generator as currently provided in the proposed rules. Staff agreed with the comments of Allegheny Power that the costs associated with meter aggregation should be borne by the Customer-generator.

The Commission declines the suggestion of the AEP Companies and Public Systems to eliminate the provisions related to meter aggregation under Section 150-33-2.5 and throughout the rules. The Commission agrees with the comments filed by IREC. The Commission believes that the meter aggregation policy may have a positive effect in encouraging the development of alternative and renewable energy resource facilities on farms and agricultural operations throughout the state. In addition, based upon a review of the comments filed, the Commission believes that the potential negative impact of the meter aggregation policy on the utilities is likely to be minimal. The Commission agrees with Staff and Allegheny Power that the Customer-generator should be responsible for the expense associated with meter aggregation and has retained this requirement in the final rules.

Under Section 150-33-2.5, Staff suggested a revision to permit the electric retail customer to lease the alternative or renewable energy resource facility equipment. IREC agrees with Staff that the electric retail customer should be able to lease the facility equipment to be eligible for net metering. The Commission agrees with the comments filed by IREC and Staff and has amended the final rules to reflect this decision.

Under Section 150-33-2.5, both Staff and IREC suggested a revision to include the term "agricultural customers". The Commission declines the recommendation of IREC and Staff to include the term "agricultural customers" under Section 150-33-2.5.

Under Section 150-33-2.5, Staff suggested revisions to Section 150-33-2.5 and throughout the rules, regarding the location requirement and the meter aggregation policy. The Commission has included the revisions suggested by Staff, with its own modifications in the final rules.

#### Section 150-33-2.15.d

Under Section 150-33-2.15.d, the proposed rules contain a definition of "run of river hydropower." The commentator, Brookfield, owns two hydroelectric generating facilities in West Virginia located at Hawks Nest and Glen Ferris, West Virginia that are federally licensed by the Federal Energy Regulatory Commission (FERC). Brookfield suggested that the definition of "run of river hydropower" under Section 150-33-2.15.d should be modified to be consistent with the federal licencing requirements of FERC. The Commission agrees with Brookfield. Accordingly, the Commission will adopt the language suggested by Brookfield under Section 150-33-2.15.d in the final rules.

### Section 150-33-3.1

Under Section 150-33-3.1, the proposed rules provide a limit on participation in net metering to one percent (1%) of the electric utility aggregate customer peak demand in the State. The Commission believes that the proposed rules omit language specifying that the limit is based on the utility aggregate customer peak demand in the State during the previous year [emphasis added]. The Commission has corrected the omission of the phrase, “during the previous year” in the final rules.

In the comments filed by PIMBY and Staff, the parties recommended that Section 150-33-3.1 be revised to provide no cap or limit on the aggregate of installed capacity. Staff stated that there should be no cap or limit on the aggregate capacity unless the distribution utility makes a showing that customer-generated capacity above a certain level represents a threat to system reliability. IREC recommended that the Commission increase the capacity limit to at least five percent (5%), based on the net metering rules in Delaware and Maryland, states within the territory of PJM Interconnection that have aggregate capacity limits of five percent (5%) and eight percent (8%), respectively.

The Commission has taken into consideration the net metering rules of the other states within the territory of PJM Interconnection and will increase the limit on participation in net metering to three percent (3%) of the electric utility aggregate customer peak demand in the State during the previous year. The Commission declines the recommendation of the commentators to have no cap or limit on the aggregate of installed capacity. Instead, the Commission has adopted a limit that is within a reasonable range of those states within the territory of PJM Interconnection that do provide a specific percentage limit on the aggregate of installed capacity. In addition to the states of Delaware and Maryland, the Commission considered the net metering rules of other states within the territory of PJM Interconnection, including the states of Illinois, Indiana, Kentucky, Michigan and Virginia that specify a percentage limit of one percent (1%) or less on the aggregate of installed capacity. In addition, the Commission will reserve at least one-half percent (0.5%) of the electric utility aggregate customer peak demand for net metering participation by residential customers, in order to assure that the residential customers have a fair share of the opportunity to participate in net metering.

### Section 150-33-3.4

Under Section 150-33-3.4, the proposed rules require the utilities to prepare information about net metering and to disclose that information annually to its customers by bill insert and by posting information on its web site. The AEP Companies and the Public Systems suggested that the Commission eliminate the requirement for the utilities to provide information by the annual bill insert in order to reduce the costs associated with the bill insert. The AEP Companies and the Public Systems maintained that the public will receive adequate information about net metering by posting the information on the utility web site.

The Commission believes that many customers still rely on the information received in their utility bills to update the customers on current utility policies. In addition, the Commission believes that information about the net metering program should be widely distributed to the public in order to promote participation in net metering. Accordingly, the Commission declines the suggestion of the AEP Companies and the Public Systems to change the electric utility information requirement under Section 150-33-3.4.

#### Section 150-33-3.7

Under Section 150-33-3.7, the proposed rules provide that a Customer-generator that is eligible for net metering owns the alternative energy credits of the electricity it generates unless there is a contract with an express provision that assigns ownership of the alternative energy credits to another entity or the Customer-generator expressly rejects any ownership interest in the alternative energy credits. The proposed rules contain other references to the Customer-generator ownership of alternative energy credits, including at Sections 150-33-8.4 and 150-33-8.5.

As noted in the joint comments of the Public Systems, the Commission has not made a determination that third parties other than electric utilities are eligible for alternative energy credits under the Act in the context of the Commission proceeding in General Order No. 184.25, In the matter of a proceeding to seek preliminary comments from interested parties regarding the scope of a proposed rulemaking to establish a credit trading program pursuant to West Virginia House Bill 103, effective July 1, 2009: Alternative and Renewable Energy Portfolio Act, codified as W.Va. Code §24-2F-1 et seq.

By Commission order entered July 28, 2009, the Commission initiated a general investigation proceeding in General Order No. 184.25 to invite comments prior to promulgating rules to provide a system of tradeable credits to establish, verify and monitor the generation and sale of electricity generated from alternative and renewable energy resources under the Portfolio Act. In the Commission order dated July 28, 2009, the Commission invited comment from interested parties regarding the content, extent and nature of the proposed rules to establish a credit trading program. Among other issues, the Commission invited and has received many comments from interested parties in General Order No. 184.25 as to whether the Commission should extend by rule the award of alternative and renewable energy resource credits to electric distribution companies or electric generators other than electric utilities. As stated in the Commission Order of July 28, 2009, the Commission will promulgate rules to establish a system of tradeable credits prior to the date of January 1, 2011, the deadline date for electric utilities to file compliance plans under the Act pursuant to W.Va. Code §24-2F-4.

Upon further reflection of Section 150-33.3.7 and related rule provisions, the Commission believes that it is premature to address the issue of Customer-generator ownership of alternative energy credits in the Rules Governing Electric Utility Net Metering Arrangements and Interconnections, 150 C.S.R. 33, prior to addressing the issue of Customer-generator ownership of alternative and renewable energy credits in the context of

General Order No. 184.25. Thus, the Commission has revised the proposed rules to remove the references to Customer-generator ownership of alternative energy credits and will address that issue in the context of the rulemaking proceeding in General Order No. 184.25.

#### Sections 150-33-4 and 150-33-5

The Commission received numerous comments regarding the interconnection standards under Section 150-33-4 and the technical requirements under Section 150-33-5. Many of the comments filed in this proceeding discuss prior policy adopted by the Commission. In order to fully address the comments filed, the Commission will provide a brief overview of prior policy. The Commission previously considered net metering and interconnection standards in Case No. 06-0708-E-GI, General Investigation into Net metering, Smart Metering and Interconnection standards set forth in the Federal Energy Policy Act of 2005. By Commission Order dated December 12, 2006, the Commission adopted a Consensus Statement filed by the parties as a resolution to that proceeding. By Commission order dated January 26, 2007, the Commission required all electric utilities in the state to file net metering tariffs consistent with the net metering and interconnection standards set forth in the Consensus Statement approved by the Commission in Case No. 06-0708-E-GI.

In the comments filed by the individuals, Donna J. Dean and John L. Meyer, the parties stated that the interconnection fees, charges and terms are not clearly specified under the proposed rules. The comments filed by Staff and IREC stated that the proposed rules lack important provisions including: (i) standardized terms and definitions, (ii) standardized agreements and applications, (iii) a multilevel review process, (iv) general interconnection requirements, (v) certification requirements, (vi) a dispute resolution process, and (vii) review timelines.

In its comments, Staff recommended that the Commission eliminate the interconnection standards and technical requirements under the proposed rules in Sections 150-33-4 and 150-33-5 and adopt the interconnection standards previously approved by the Commission in Case No. 06-0708-E-GI.

In its comments, the AEP Companies noted that many of the interconnection issues were resolved in Case No. 06-0708-E-GI. The AEP Companies maintained that the proposed rules unnecessarily address interconnection technical and equipment details that are better addressed in the Commission approved interconnection standards in the existing tariffs. The AEP Companies assert that the Commission approved interconnection standards in the tariffs have the advantage of greater flexibility as compared to interconnection standards adopted by rule. The Commission declines the suggestion of the AEP Companies because we believe that the Act requires the Commission to promulgate rules governing interconnection standards under W.Va. Code §24-2F-8(c).

The Commission agrees with the Staff recommendation. We have adopted detailed interconnection standards that are incorporated by reference into the final rules as Form No.

2. The standards in Form No. 2 are modeled after the interconnection standards approved by the Commission in Case No. 06-0708-E-GI, with modifications to reflect the final rules as adopted by the Commission in this proceeding and the requirements of the Portfolio Act. The Commission believes that the interconnection standards in Form No. 2 address and include the necessary technical requirements for interconnection that were previously included in the proposed rules under Section 150-33-5.

There were several comments filed regarding specific proposed rule provisions under proposed Sections 150-33-4 and 150-33-5. The final rules reflect the decision of the Commission on these specific rule provisions. However, the Commission has a response to the comments filed by the parties regarding proposed Section 150-33-4.4 and Section 150-33-5.3, as discussed below.

Under Section 150-33-4.4, the proposed rules require a Customer-generator to maintain homeowner, commercial or other insurance in the amount of at least one hundred thousand dollars (\$100,000) for the liability of the insured against the losses or damages arising from the use of the Customer-generator facility. In the comments filed by Public Systems and IREC, the parties suggested the Commission should adopt a graduated level of insurance requirements based on the increased system sizes of the generating facilities for commercial and industrial Customer-generators. The Commission agrees and has adopted a graduated level of insurance requirements for eligible generating facilities in the final rules.

Under Section 150-33-5.3, the proposed rules required a Customer-generator facility to have a visibly open, lockable, manual disconnect switch, that is accessible by the electric utility and is clearly labeled. In the comments filed by the individuals, Kevin Fooce, Donna J. Dean and John L. Meyer, PIMBY, IREC and Staff, the parties suggested that the Commission should eliminate the requirement for the external disconnect switch, particularly for small inverter-based systems. The Commission agrees and has modified the requirement for the external disconnect switch. Under the interconnection standards approved in Form No. 2, a Customer-generator facility that meets the requirements of a Level 1 generator facility, with an electric nameplate capacity of 25 kW or less, that is inverter-based and certified, is not required to install an external disconnect switch.

### Section 150-33-7

#### Section 150-33-7.2.b

Under Section 150-33-7.2.b of the proposed rules, the AEP Companies suggested that the language should be modified to specify (i) that a Customer-generator would receive only credit for electricity generated by the Customer-generator and which flows back into the electric grid through the customer's meter (ii) that a Customer-generator's credit offsets energy delivered by the electric utility to the Customer-generator through location's net meter, and (iii) that the Customer-generator receive credit on the basis of the generation component of retail rate. The Commission agrees with the language suggested by the AEP

Companies under Section 150-33-7.2.b, except that the Commission will retain the language providing that the electric utility credit a Customer-generator at full retail rate.

In its comments, Staff stated that it supports the use of the full retail rate as the credit mechanism for the billing period up to the Customer-generator's full energy consumption provided that the credits are not used to offset any monthly minimum bill, customer charge, demand charges or other charges not related to energy consumption. Under Section 150-33-7, Staff recommended that the Commission add a subsection to specifically provide that the Customer-generator credits shall not be applied to reduce any monthly minimum bill, customer charge, demand charges or other charges not related to energy consumption. The Commission agreed with Staff and has included this revision in the final rules.

#### Section 150-33-7.2.d

Under Section 150-33-7.2.d., the proposed rules provide that the electric utility shall compensate the Customer-generator for any excess kW hours generated by the Customer-generator beyond the twelve month Reporting period.

In its comments, Staff recommended that the provision in Section 150-33-7.2.d be omitted in view of FERC rulings that indicate FERC will assert jurisdiction over transactions in which a Customer-generator is compensated at the end of the Reporting period under a net metering arrangement. In support of its recommendation to delete proposed Section 150-33-7.2.d, Staff cited the FERC orders in MidAmerican Energy Company, Docket EL99-3-000, 94 F.E.R.C. P61, 340; 2001 FERC LEXIS 630, entered on March 28, 2001, and in Sun Edison, LLC, Docket No. EL09-31-000, 129 F.E.R.C. P61, 146; 2009 FERC LEXIS 2263, entered November 19, 2009.

In the 2001 MidAmerican Energy Company order, FERC declined to issue the request of MidAmerican Energy Company for a declaratory order that certain actions of the Iowa Utilities Board implementing the Iowa net metering rules were preempted by federal law under the Public Utilities Regulatory Policies Act of 1978 (PURPA). However, in the 2009 SunEdison, LLC order, FERC indicated that it may assert jurisdiction over net metering programs at paragraph 18 of the order wherein it stated:

Only if the end-use customer participating in the net metering program produces more energy than it needs over the applicable billing period, and thus is considered to have made a net sale of energy to a utility over the applicable billing period, has the Commission asserted jurisdiction. If the entity making a net sale is a QF that has been exempted from section 250 of the FPA by section 292.601 of our regulations, no filing under the FPA is necessary to permit the net sale; however, if the entity is either not a QF or is a QF that is not exempted from section 205 of the FPA by section 292.601 of our regulations, a filing under the FPA is necessary to permit the sale.

Staff has interpreted the FERC ruling in the SunEdison, LLC order to indicate that payment to the Customer-generator by the utility for excess net generation after the end of the Reporting period would constitute a sale of energy to the utility subject to FERC jurisdiction. Staff recognized that the net metering rules in a number of states allow for compensation to the Customer-generator for net excess generation at the end of the Reporting period. However, Staff recommended that the Commission delete proposed Section 150-33-7.2.d to avoid a potential conflict with FERC jurisdiction. Instead, Staff recommended that the Commission adopt a provision that allows an indefinite rollover of net excess generation to the Customer-generator. The Commission agrees with Staff. The final rules reflect that any net excess generation at the end of the Reporting period will roll over indefinitely to the Customer-generator.

#### Section 150-33-8

Under Section 150-33-8 of the proposed rules, Staff recommended that the Commission add a subsection including time-differentiated rates in the final rules. IREC supported the Staff proposal for the inclusion of time-differentiated rates in the final rules. The Commission agrees with Staff and has included language in the final rules reflecting the Staff recommendation.

#### Section 150-33-9.1

Under Section 150-33-9.1 of the proposed rules, Staff recommended that the Commission expand the reporting requirements of the utilities to the Commission regarding the net metering program. The Commission agrees with Staff and has included language in the final rules reflecting the Staff recommendation.

### **FINDINGS OF FACT**

1. In the 2009 West Virginia Legislative Session, the Legislature enacted House Bill 103, as later amended by House Bill 408, the Alternative and Renewable Energy Portfolio Act, codified in Article 2F of Chapter 24 of the West Virginia Code. In the 2010 West Virginia Legislative Session, the Legislature enacted Senate Bill 350, which further amended the Act. The Alternative and Renewable Energy Portfolio Act requires the Public Service Commission to promulgate rules governing net metering and interconnection standards within twelve months of the effective date of the Act of July 1, 2009, or by July 1, 2010.

2. By Order entered February 2, 2010, the Commission initiated a general investigation, issued legislative proposed rules, Rules Governing Electric Utility Net Metering Arrangements and Interconnections, 150 C.S.R.33, ordered public notice, and provided a comment period for the proposed legislative rules.

3. The Commission received comments from the following parties: Appalachian Power Company and Wheeling Power Company, Potomac Edison and Monongahela Power

Company, dba Allegheny Power, Brookfield Renewable Power, the West Virginia Energy Users Group, PIMBY Energy, LLC, the City of New Martinsville, the City of Phillipi, Harrison Rural Electrification Association, Inc., Craig-Botetourt Electric Cooperative and Shenandoah Valley Electric Cooperative, Interstate Renewable Energy Council, ThomasGas & Electric Service, Inc., Commission Staff, Donna J. Dean and John L. Meyer, Kevin Fooce, Arthur W. and Pamela C. Dodds, and Robert Harrington.

4. No party requested a hearing on the rule amendments.

### **CONCLUSION OF LAW**

The Commission has considered the comments filed in this proceeding and by this Order promulgates final Rules Governing Electric Utility Net Metering Arrangements and Interconnections, 150 C.S.R. 33.

### **ORDER**

IT IS THEREFORE ORDERED that the attached Rules Governing Electric Utility Net Metering Arrangements and Interconnections, 150 C.S.R. 33, and the forms attached thereto, attached hereto as Attachment A, are hereby adopted as final Commission rules.

IT IS FURTHER ORDERED that Attachment B hereto is a blackline version of the final rules, showing changes from the rules as proposed on February 2, 2010, and the final rules.

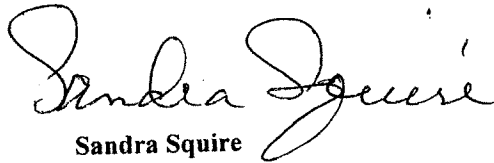
IT IS FURTHER ORDERED that the new Rules Governing Electric Utility Net Metering Arrangements and Interconnections, and the forms attached thereto, shall be effective sixty days from the date of this order, or on August 30, 2010.

IT IS FURTHER ORDERED that upon entry hereof, the Commission Executive Secretary shall file a copy of this order and the rules, together with the required forms, with the Secretary of State of West Virginia.

IT IS FURTHER ORDERED that on entry of this order the case shall be removed from the Commission docket of open cases.

IT IS FURTHER ORDERED that the Executive Secretary of the Commission serve a copy of this Order and the attached black lined version of the rules by electronic service on all parties of record who have filed an e-service agreement, by United States First Class Mail on all parties of record who have not filed an e-service agreement, and on Staff by hand delivery.

A True Copy, Teste:

  
Sandra Squire  
Executive Secretary

ASH/rmt  
GO258cd.wpd

Hard Copies of  
Comments filed in G.O.  
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June 2, 2010

Ms. Sandra Squire, Executive Secretary  
Public Service Commission of West Virginia  
Post Office Box 812  
Charleston, West Virginia 25323-0812

RECEIVED  
200 JUN - 2 P 4: 03  
WVA PUBLIC SERVICE  
COMMISSION  
SECRETARY'S OFFICE

Re: General Order No. 258

Dear Ms. Squire

I write on behalf of ThompsonGas & Electric Service, Inc., a Maryland corporation an affiliate of which is qualified and doing business in West Virginia. ThompsonGas is a regional propane distribution company serving over 50,000 customers in eight eastern States. ThompsonGas has a substantial business in the Eastern Panhandle, and is interested in exploring the business opportunities afforded by the rulemaking in the instant proceeding.

One of the requirements of West Virginia's Alternative and Renewable Energy Portfolio Act (the "Act"), codified at *West Virginia Code* § 24-2F-1 *et seq.* is for the Commission to promulgate, by July 1, 2010, rules for net metering and interconnection standards for alternative and renewal energy resources.

Accordingly, on February 2, 2010, the PSC initiated General Order No. 258, which proposed net metering and interconnection rules for alternative and renewal energy resources as required by Section 7 of the Act. Initial comments on this rulemaking were due by April 5, 2010 and reply comments were due by May 5, 2010.

General Order 258 has only recently come to the attention of ThompsonGas and it did not timely file initial or reply comments. However, because of its interest in this proceeding, it respectfully requests that the Commission consider the comments in this letter as it deliberates on language for the final rules.<sup>1</sup>

Although ThompsonGas has interest in a number of provisions of this rulemaking, its threshold interest is in the definitions which will govern participation by third parties in West Virginia's alternative and renewable energy markets. Specifically, with respect to the definitions

<sup>1</sup> The Commission has previously accepted late-filed comments in this docket; see order entered April 7, 2010 granting the request filed by Potomac Edison Company & Monongahela Power Company, dba Allegheny Power, for an extension of time until April 9, 2010 to file Initial Comments and accepting late-filed Initial Comments of the Interstate Renewable Energy Council.

of "customer-generator" and "net-metering" in both the Act and proposed rule, it is unclear whether the customer-generator must own the qualifying generating equipment. The definition of "customer-generator"<sup>2</sup> suggests that it does, while the definition of "net metering"<sup>3</sup> suggests that it does not.

Staff indirectly alluded to this uncertainty in its April 5, 2010 Initial Comments, wherein it observed

At 150-33-2.5 "Customer Generator" ... Staff further recommends that eligible customers not be limited to those who own the generating equipment. The Rule should permit the customer to operate leased off-the-shelf equipment or custom designed equipment so long as that equipment meets the definition of "renewable energy resources" or "alternative energy resources" as defined in the Rule and meets applicable technical requirements.

ThompsonGas notes that the Act and the implementing regulations are designed to promote the growth of alternate and renewable energy. It believes the marketplace will respond to these rulemakings, and if the marketplace helps further the goals of the Act, regulation should accommodate the requirements of the market.

Accordingly, ThompsonGas respectfully urges the Commission to adopt the Staff's suggestion that "eligible customers" not be limited to those who own generating equipment, but also includes those who operate generating equipment under some arrangement with third party suppliers or financiers.

Copies of this letter are being sent to all parties on the Commission's Service List.

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<sup>2</sup> W. Va. Code 24-2F-3 ... (7) "Customer-generator" means an electric retail customer who owns and operates a customer-sited generation project utilizing an alternative or renewable energy resource or a net metering system in this state.

Proposed Rule 2.5. "Customer-generator" - An electric retail customer who owns and operates an alternative or renewable energy resource facility ("generation project") within this state ....

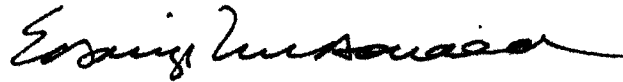
<sup>3</sup> W. Va. Code 24-2F-3 ...2. (11) "Net metering" means measuring the difference between electricity supplied by an electric utility and electricity generated from an alternative or renewable energy resource facility owned or operated by an electric retail customer when any portion of the electricity generated from the alternative or renewable energy resource facility is used to offset part or all of the electric retail customer's requirements for electricity.

Proposed Rule 2.13. "Net metering" - The means of measuring the difference between the electricity supplied by an electric utility and the electricity generated from an alternative or renewable energy resource facility owned or operated by an Electric retail customer when any portion of the electricity generated by the alternative energy resource facility is used to offset part or all of the Electric retail customer requirements for electricity.

Ms. Sandra Squire, Executive Secretary  
June 2, 2010  
Page 3

Thank you for your attention to this matter, and best wishes.

Sincerely,

A handwritten signature in black ink, appearing to read "E. Dandridge McDonald". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

E. Dandridge McDonald

cc: All parties  
Randy Thompson, CEO, ThompsonGas

**CERTIFICATE OF SERVICE**

I, E. Dandridge McDonald, counsel for ThompsonGas & Electric Service, Inc., do hereby certify that a copy of the foregoing letter has been served electronically upon the following this 2<sup>nd</sup> day of June 2010:

William C. Porth, Jr., Esq.  
Counsel, AEP  
Robinson & McElwee PLLC  
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Charleston, WV 25326  
wcp@ramlaw.com

Thomas N. Hanna, Esq.  
Counsel, Blk Diamond, Elk Power,  
and Union Power Companies  
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Charleston, WV 25339  
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Shawn C. Hildebrand  
General Manager  
Craig-Botetourt Electric Cooperative  
PO Box 265  
New Castle , VA 24127-0265  
shawnh.craigbot@tds.net

Myron D. Rummel  
Shenandoah Valley Electric Cooperative, Inc.  
President & CEO  
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PO Box 236  
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Consumer Advocate Division  
700 Union Building  
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Charleston, WV 25301  
tsade@cad.state.wv.us

The Honorable Lucille Blum  
Mayor, City of New Martinsville  
191 Main Street  
New Martinsville, WV 26155  
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The Honorable David C. Mulneix  
Mayor, The City of Philippi  
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Terry J. Stout, Office Mgr.  
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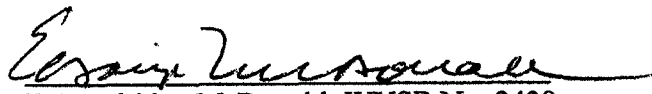
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Kevin Fox  
Keyes & Fox  
Interstate Renewable Energy Council  
5727 Keith Avenue  
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kfox@keyesandfox.com

  
E. Dandridge McDonald, WWSB No. 2439

RECEIVED

2010 MAY 27 AM 8 21

W VA PUBLIC SERVICE  
COMMISSION  
SECRETARY'S OFFICE

Robert Harrigan  
12617 Laurie Drive  
Silver Spring, MD  
20904-1504  
(301) 384-6926  
RJHARRIGAN@CAVTEL.NET

✓  
1 Protest Original

May 25, 2010

Governor Joe Manchin  
1900 Kanawha Boulevard, E  
Charleston, WV 25305

GO 258

Dear Governor Manchin.

A year ago I sent you the attached letter about the fact that The West Virginia legislature turned over the responsibility for writing the laws of West Virginia relating to wind generated electric power to Potomac Edison Company, dba Allegheny Power. The law written on the stationery of Allegheny Power favors, not the people that have homes in West Virginia, but only Allegheny Power. The law permits theft of money and electric power by Allegheny Power from home owners of West Virginia.

You forwarded my letter to the Director of Legislative Affairs. I do not know of any action that has been taken.

Does this remind you of what happens when gas companies are in the pocket of government. Note BP.



Robert Harrigan

CC: West Virginia Public Service Commission

I have a house in West Virginia.

RM

Robert Harrigan  
12617 Laurie Drive  
Silver Spring, MD  
20904-1504  
(301) 384-6926  
RJHARRIGAN @ CAVTEL.NET

~~May 25, 2010~~ *April 27, 2009*

Governor Joe Manchin  
1900 Kanawha Boulevard, E  
Charleston, WV 25305

Dear Governor Manchin.

Do you know that the Public Service Commission of West Virginia is condoning theft of electricity by electric companies doing business in West Virginia.

The West Virginia legislature turned over the responsibility for regulating electric companies to the Public Service Commission of West Virginia instead of enacting laws. The Public Service Commission redelegate the responsibility for writing regulatory requirements that govern electric companies in West Virginia to David E. Flitman, President of the Potomac Edison Company, dba Allegheny Power. WOW, talk about being in the pocket of and controlled by private industry. This is how banks and mortgage companies created the mess that the nation is now in. The Allegheny Power Company regulated that Allegheny Power could take electric power generated by wind powered electric turbines without paying for the electric power the taxpayers of West Virginia produce. That is nothing but theft.

All we hear on TV and in the papers is the idea that we should use wind power to produce energy including electricity. I have a cabin on top of a mountain in Great Cacapon, WV which has great amounts of wind most of the time. A windmill with a wind powered turbine would fit in nicely and produce adequate electrical power to justify the construction of a wind powered electrical turbine. What I need to go ahead is enough income to pay for the financing of the installation of the wind powered electrical generator.

I contacted Allegheny Power which is the company that provides electrical power to my vacation home and asked if they would provide net metering with a monetary refund if I produced more electricity than I use. With net metering I would get my electric needs met when the wind was strong enough. When there is not enough wind the electric company would supply my needs. When I produced more electricity than I use the electricity would go to the electric company. However, I would not receive monetary compensation for the excess electricity that I produce. My needs are not that great as it is a vacation house. Almost all the electricity would benefit Allegheny Power and I would receive no benefit for the extra energy that I produce. The electric company would get something for nothing. If I take electrical power from Allegheny Power without paying for it I would go to jail. What Allegheny Power is doing is not fair!

Allegheny Power wrote themselves the right to steal and be thieves.

Since the West Virginia Legislature turned over to you through the West Virginia Public Service Commission the power to regulate electric power in West Virginia you can correct this dishonest practice with the stroke of a pen.

When senators in Maryland found out the Allegheny Power was taking taxpayers electric power without paying for the electrical power they called me on the telephone and promised me that the Maryland law would be changed in the next session of their legislature.

Sincerely,

Robert Harrigan

West Virginia Public Service Commission

Robert Harrigan  
Patricia Harrigan  
12617 Laurie Drive  
Silver Spring, MD  
20904-1504  
(301) 384-6926  
RJHARRIGAN @ CAVTEL.NET

Public Service Commission of West Virginia  
201 Brooks Street  
P.O. Box 812  
Charleston, West Virginia 25323  
(304) 340-0325

May 6, 2009

Michael L. Fletcher,  
Manager, Customer Service Research,  
Solid Waste and Motor Carrier,  
Utilities Division,  
Public Service Commission of West Virginia,

Dear Mr. Fletcher,

Thank you for your letter dated April 30, 2009 stating that your Commission will initiate required rulemaking on wind powered electric turbines. When there is an opportunity for me to file my comments and/or my positions I would like to be notified. Also, if there are hearings I would like to be invited to attend and comment.

Thank you,

Robert Harrigan

# KEYES&FOX<sup>LLP</sup>

DISTRIBUTED GENERATION LAW

5727 Keith Avenue  
Oakland, CA 94618  
(510) 381-3052  
kfox@keyesandfox.com

VIA FAX AND OVERNIGHT MAIL

May 5, 2010

Sandra Squire, Executive Secretary  
Public Service Commission of West Virginia  
P.O. Box 812  
Charleston, WV 25323

RECEIVED  
10 MAY - 6 AM 9:26  
W VA PUBLIC SERVICE  
COMMISSION  
SECRETARY'S OFFICE

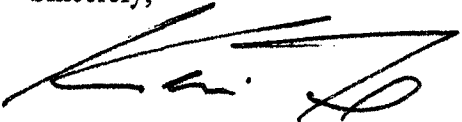
**RE: GENERAL ORDER NO. 258**

Dear Ms. Squire:

On behalf of the Interstate Renewable Energy Council, please accept the attached *Reply Comments of the Interstate Renewable Energy Council* for filing in the above referenced docket. An original and 12 copies will be delivered via overnight mail to your attention and a copy will be sent to all parties of record via first class U.S. mail.

If you have any questions regarding this filing, please do not hesitate to contact me.

Sincerely,



Kevin Fox  
*For the Interstate Renewable Energy Council*

**BEFORE THE  
PUBLIC SERVICE COMMISSION OF WEST VIRGINIA**

In the Matter of a General Investigation     )  
to Adopt Rules for Net Metering            )  
Arrangements and Interconnection         )     GENERAL ORDER NO. 258

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**REPLY INITIAL COMMENTS OF THE  
INTERSTATE RENEWABLE ENERGY COUNCIL**

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**RECEIVED**  
10 MAY - 6 AM 9:26  
W VA PUBLIC SERVICE  
COMMISSION  
SECRETARY'S OFFICE

On February 2, 2010, the Public Service Commission of West Virginia (“Commission”) issued General Order No. 258. In that order, the Commission promulgated proposed rules for net metering and interconnecting alternative and renewable energy facilities and established a comment period for interested persons to comment on the proposed rules. The Interstate Renewable Energy Council (“IREC”)<sup>1</sup> filed initial comments on April 7, 2010 and respectfully submits these reply comments in response to initial party comments filed in this docket. In particular, IREC responds to comments submitted by Commission Staff; Potomac Edison Company & Monongahela Power Company (“Allegheny Power”); Appalachian Power Company and Wheeling Power Company (the “AEP Companies”); and the joint comments of the City of

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<sup>1</sup> IREC is a non-profit organization that has worked for nearly three decades to accelerate the sustainable utilization of renewable energy resources through the development of programs and policies that reduce barriers to renewable energy deployment. With funding from the United States Department of Energy’s Solar Energy Technologies Program,<sup>1</sup> IREC has participated in workshops, proceedings and rulemakings before over thirty state public utility commissions during the past two years, addressing topics that directly impact the development of renewable energy resources, including net metering rules, interconnection standards, and third-party financing of renewable energy systems. IREC has also assembled model rules for interconnecting and net metering distributed generation that reflect “best practices” in these areas (i.e. those policies that have proven successful in facilitating growth in renewable and distributed generation markets).

New Martinsville, the City of Philippi, Harrison Rural Electrification Association, Inc., Craig-Botetourt Electric Cooperative, and Shenandoah Valley Electric Cooperative ("Public Systems").

**I. REPLY TO PARTY COMMENTS ON PROPOSED NET METERING RULES**

IREC supports the comments and recommendations of the Commission's Utility Division Staff submitted in its April 5, 2010 Initial Joint Staff Memorandum. In particular, IREC supports a number of Utility Division Staff's proposed modifications to the net metering rules, including:

- Modification of 150-33-2.5 to clarify that commonly used financing arrangements such as equipment leases may be used to finance alternative and renewable energy facilities without affecting a customer's eligibility for net metering.
- Modification of 150-33-7.2d to clarify the method of calculating avoided cost payments for net excess generation at the end of a Reporting period and to clarify that no payment will be provided for outstanding kilowatt-hour credits that may exist at the time a customer terminates service.
- Addition of 150.33-7 to clarify that monthly excess generation that is carried forward and applied to a subsequent month's bill shall not be applied to reduce fixed monthly customer charges, demand charges, or other applicable charges not related to energy consumption.
- Addition of 150-33-8 stating that "A Customer-generator owns any Renewable Energy Credits (RECs) associated with the electricity it generates, unless the RECs were explicitly contracted for through a separate transaction independent of the net metering or interconnection contract."

- Addition of a subsection to 150-33-8 to clarify that a Customer-generator may take service under time-of-use rates.
- Expansion of utility reporting requirements proposed in 150-33-9.1.

IREC believes Utility Division Staff's recommendations with regard to the above modifications, additions and expansions are well reasoned and reflect best practice approaches taken in a number of states, including other states within the PJM Interconnection.

In addition to these recommendations, there are two additional issues IREC believes require some additional discussion. First, Utility Division Staff recommends that the Commission remove the current percentage-based limitation on enrollment in 150-33-3.1 and instead allow distribution companies an opportunity to make a showing that the addition of Customer-generator capacity above a given level within its service territory represents a threat to system reliability or will unduly shift costs to non-net metering customers. In support of this recommendation, Staff notes that nearly half of states and other jurisdictions place no limit on aggregate participation levels on net metering.

IREC believes this is a reasonable approach and notes that this approach would also allow the Public Systems to address the concerns they have raised in their initial comments regarding possible system and rate impacts.<sup>2</sup> However, if the Commission feels that it must impose an aggregate enrollment cap at this time, IREC reiterates recommendations made in its initial comments that the Commission establish a limit of no less than 5% and that any cap be calculated as a percentage of exports from net metered systems relative to a utility's total annual sales. As discussed in IREC's initial comments, establishing an enrollment cap of no less than

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<sup>2</sup> Public Systems Initial Comments at pp. 2-8.

5% is consistent with approaches taken in PJM interconnection states such as Pennsylvania, Delaware and Maryland. Moreover, as Staff notes in its comments, “establishment of aggregate caps at too low a level may unnecessarily limit private investment in renewable and alternative resources and thereby also limit the potential system-wide benefits of customer-side generation.”<sup>3</sup>

Second, IREC concurs with Utility Division Staff’s recommendation that proposed rule 150-33-2.5 “should not place limits on the site locations or number of site locations at which a given customer may operate an eligible generator so long as those sites are within the state, under the customer’s control, and producing electricity exclusively for use at an owner occupied residence or at a location regularly used by a commercial or industrial customer in the normal course of business.” As IREC noted in its initial comments, a number of states take this approach, including Oregon, Washington, Nevada, Vermont, Rhode Island and Pennsylvania.<sup>4</sup>

Allegheny Power, which provides service in Pennsylvania, notes that Pennsylvania’s meter aggregation language is “nearly identical to the physical and virtual meter aggregation language proposed in this proceeding.”<sup>5</sup> Allegheny Power further notes that “although there has been an occasional customer inquiry regarding meter aggregation, no customer served by West Penn Power has ever had physical or virtual meter aggregation.”

IREC’s experience with virtual net metering programs has been similar in that such programs are not often used; however, for some customers, the existence of virtual net metering can be extremely advantageous. For example, IREC has worked with an agricultural customer in

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<sup>3</sup> Initial Joint Staff Memorandum at p. 2.

<sup>4</sup> IREC Initial Comments at p.8.

<sup>5</sup> Allegheny Power Initial Comments at p. 2.

Napa Valley, California that, due to the absence of a viable meter aggregation program in California, spent \$600,000 to install unnecessary and redundant cable to distribute electricity from a 400 kW solar array to buildings owned by that customer less than a quarter mile away. The customer would have gladly compensated the utility, which operated meters at both the point of generation and the point of load, for provision of billing services that could have saved the customer \$600,000 in wiring, installation and environmental compliance costs. For West Virginia customers with similar situations, virtual net metering can be extremely valuable and well worth the price of compensating a utility for providing associated billing services.

## **II. REPLY TO PARTY COMMENTS ON PROPOSED INTERCONNECTION RULES**

At the time IREC submitted its initial comments, IREC was not aware that the Commission had adopted state interconnection standards on December 12, 2006 as part of a Statement of Consensus.<sup>6</sup> In light of this new understanding, and having had an opportunity to review the Commission's existing interconnection procedures, which Staff submitted with its April 5, 2010 Initial Staff Memorandum, IREC believes the Commission has a solid foundation in place for interconnecting alternative and renewable fuel generators and supports the recommendation of the Commission's Engineering Division Staff to promulgate the interconnection rules published in the Statement of Consensus. Accordingly, IREC agrees with the AEP Companies that interconnection technical and equipment details in the proposed interconnection rules are better left to the Commission's approved interconnection standards.<sup>7</sup> However, in keeping with this approach, IREC believes the concern raised by the AEP

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<sup>6</sup> Engineering Staff Comments at pp. 4-5.

<sup>7</sup> AEP Companies Initial Comments at pp. 9-10.

Companies with regard to insurance requirements<sup>8</sup> is more appropriately addressed in the context of modifications to the existing interconnection standard. Imposing insurance requirements in interconnection rules has the benefit of ensuring that all generators of like size and type pay the same amount of insurance regardless of the type of retail or wholesale arrangement they may have entered with a utility.

Regardless of where the Commission decides this issue is most appropriately addressed (in net metering rules or interconnection standards), IREC agrees with the AEP Companies that establishing specific insurance requirements, rather than leaving levels to the discretion of utilities, will reduce possibility for disputes. Accordingly, IREC recommends the following insurance levels, which reflect amounts contained in IREC's Model Interconnection Procedures<sup>9</sup>:

*A utility may only require an Applicant to purchase insurance covering Utility damages, and then only in the following amounts:*

For inverter-based Generating Facilities:

Generating Capacity < 1 MW = no insurance  
1 MW < Generating Capacity < 2 MW = \$1,000,000

For non-inverter-based Generating Facilities:

Generating Capacity < 50 kW = no insurance  
50 kW < Generating Capacity < 500 kW = \$500,000  
500 kW < Generating Capacity < 2 MW = \$1,000,000

IREC also supports a number of Engineering Division Staff recommendations regarding essential issues that should be addressed in establishing sound interconnection procedures for

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<sup>8</sup> AEP Companies Initial Comments at pp. 11-12.

<sup>9</sup> <http://irecusa.org/wp-content/uploads/2010/01/IREC-Interconnection-Procedures-2010final.pdf>

alternative and renewable energy generators. In particular, IREC supports Engineering Staff recommendations<sup>10</sup> to:

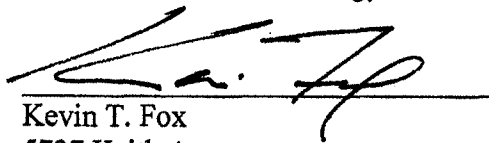
- Standardize interconnection applications and agreements.
- Extend eligibility for the first level of interconnection from 10 kW to 25 kW.
- Apply screening criteria for systems with capacity below 2 MW to determine whether an interconnection may be accomplished without additional study.
- Consider eliminating requirements for visible, lockable disconnect switches on small inverter-based systems.
- Establish application review deadlines of 10 to 15 days for systems less than or equal to 25 kW and 25 days for systems greater than 25 kW.

### III. CONCLUSION

IREC appreciates the opportunity to file these reply comments.

Respectfully submitted on this the 5<sup>th</sup> day of May, 2010.

For the Interstate Renewable Energy Council,



Kevin T. Fox  
5727 Keith Avenue  
Oakland, CA 94618  
Phone: (510) 381-3052  
Email: kfox@keyesandfox.com

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<sup>10</sup> Engineering Staff Comments at pp. 5-9; Corrected Comments at pp. 1-2.

**FINAL JOINT STAFF MEMORANDUM**

**TO: SANDRA SQUIRE**  
Executive Secretary

**DATE: May 5, 2011**

**FROM: LESLIE J. ANDERSON** *LJA*  
Staff Attorney

**RE: GENERAL ORDER NO. 258 (Rulemaking regarding net metering and interconnection)**

RECEIVED  
10 MAY -5 AM 11:52  
W VA PUBLIC SERVICES  
COMMISSION  
SECRETARY'S OFFICE

These Staff memoranda comprise Staff's replies to various initial comments.

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In the attached ~~Utilities Division Responsive Comments~~, Paul P. Stewart, Contractor in the Utilities Division, has provided a well-written explanation of the Utilities Division's responsive comments on various initial comments filed in this proceeding as well as comments on any new issues coming to Staff's attention. Mr. Stewart's comments focus on the proposed net metering rules.

In the attached Engineering Division Further Staff Memorandum, James W. Ellars, P.E., Senior Engineer, has provided an explanation of how his initial comments can be incorporated into the Commission's proposed rules as well as how the Commission's proposed rules need to be revised in order to incorporate the Staff recommended interconnection standards. Mr. Ellars made clear that he did not attempt to incorporate Mr. Stewart's comments and recommendations in these documents. Mr. Ellars also made clear nothing in his comments should be construed as being in opposition to Mr. Stewart's recommendations and comments. Mr. Ellars' comments focus on the proposed interconnection rules.

While not raised in Staff's initial comments, the Staff Attorney wishes to comment on a issue regarding electric utilities being required to compensate the Customer-generator at the end of each reporting period for any excess kW hours generated by the Customer-generator of the amount of kW hours delivered by the electric utility during the same Reporting period found in proposed Rule 150-33-7.2.d. Specifically, the Staff Attorney has discovered that the Federal Energy Regulatory Commission (FERC) has made clear in an order entered on March 28, 2001, in *MidAmerican Energy Company*, Docket No. EL99-3-000, 94 F.E.R.C. P61,340; 2001 FERC LEXIS 630, that FERC's jurisdiction is implicated in net metering situations when the end-use customer has made a net sale of energy to a utility over the applicable billing period. As FERC later explained its 2001 *MidAmerican Energy Company* decision in paragraph 17 of an order entered on November 19, 2009, in *Sun Edison, LLC*, Docket No. EL09-31-000, 129 F.E.R.C. P61,146; 2009 FERC LEXIS 2263,

FERC focuses on how it defines net metering in Order No. 2003-A entered in the *Standardization of Generator Interconnection Agreements and Procedures* case (FERC Stats. & Regs. P 31,160 at P 744):

‘Net metering allows a retail electric customer to produce and sell power onto the Transmission System without being subject to the Commission’s jurisdiction. A participant in a net metering program must be a net consumer of electricity—but for portions of the day or portions of the billing cycle, it may produce more electricity than it can use itself. This electricity is sent back onto the Transmission System to be consumed by other end-users. Since the program participant is still a net consumer of electricity, it receives an electric bill at the end of the billing cycle that is reduced by the amount of energy it sold back to the utility. Essentially, the electric meter “runs backwards” during the portion of the billing cycle when the load produces more than it needs, and runs normally when the load takes electricity off the system.’

(footnote omitted). Based on this definition of net metering, FERC went on to explain in paragraph 18 of the *Sun Edison LLC* case what it meant in its *MidAmerican Energy Company* 2001 order:

The Commission has explained that net metering is a method of measuring sales of electric energy. Where there is no net sale over the billing period, the Commission has not viewed its jurisdiction as being implicated; that is, the Commission does not assert jurisdiction when the end-use customer that is also the owner of the generator receives a credit against its retail power purchases from the selling utility. Only if the end-use customer participating in the net metering program produces more energy than it needs over the applicable billing period, and thus is considered to have made a net sale of energy to a utility over the applicable billing period, has the Commission asserted jurisdiction. If the entity making a net sale is a QF [Qualifying Facility] that has been exempted from *section 205 of the FPA [Federal Power Act]* by *section 292.601* of our regulations, no filing under the FPA is necessary to permit the net sale;

however, if the entity is either not a QF or is a QF that is not exempted from *section 205 of the FPA* by *section 292.601* of our regulations, a filing under the FPA is necessary to permit the sale.

(footnotes omitted and emphasis in original).

The Staff Attorney is concerned that if the Commission leaves in a provision whereby the Customer-generator is "compensated" at the end of each Reporting period for any excess kW hours generated by the Customer-generator over the amount of kW hours delivered by the electric utility, then the Commission is stepping into an issue over which FERC has clearly asserted jurisdiction. In other words, while FERC declined to issue a declaratory ruling in its 2001 order in the *MidAmerican Energy Company* case on whether certain actions of the Iowa Board were preempted under the Public Utility Regulatory Policies Act of 1978 (PURPA), 16 U.S.C. if the Alternate Energy facilities are QFs or by the Federal Power Act if the Alternate Energy facilities are not QFs, the FERC has indicated that if state regulatory agencies allow for a net sale in the net metering context, then FERC will assert jurisdiction. While the discussion is brief, the Commission may find the discussion on net metering on pages 185-193 of *Article: Fire and Ice: World Renewable Energy and Carbon Control Mechanisms Confront Constitutional Barriers*, 20 Duke Envtl. L. & Pol'y F. 125 (Winter 2010) helpful. However, the Staff Attorney notes the authors of this law review article do not expressly assert that a state provision compensating the Customer-generator at the end of each Reporting period for any excess kW hours generated by the Customer-generator over the amount of kW hours delivered by the electric utility runs afoul of FERC's jurisdiction. Indeed, the law review indicates that some states allow for compensation.

Based on a review of the above information regarding FERC's jurisdiction, the Staff Attorney and Mr. Stewart in his attached memorandum, are recommending that the Commission remove the provision whereby the Customer-generator is "compensated" at the end of each Reporting period for any excess kW hours generated by the Customer-generator over the amount of kW hours delivered by the electric utility in Rule 150-33-7.2.d. of the Commission's proposed rules. Mr. Stewart noted that as an alternative, the Commission may want to permit an indefinite rollover of excess usage with no annual true-up with any excess generation remaining at the time the Customer-generator leaves the system reverting to the electric utility. Mr. Stewart more fully discusses options to address this issue in his memorandum. The Staff notes that Customer-generator's are not prohibited from receiving "compensation" from utilities for excess electricity they generate, but they must do so in compliance with FERC requirements (meaning they will need to seek FERC's approval for

General Order No. 258  
May 5, 2010  
Page 4

such a transaction and/or meet the QF requirements).

LJA/s  
Attachment

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**PUBLIC SERVICE COMMISSION OF WEST VIRGINIA**  
**UTILITIES DIVISION RESPONSIVE COMMENTS**

TO: Staff Attorney  
Legal Division

FROM: Paul P. Stewart, Contractor *PPS/MSH*  
Utilities Division

DATE: May 5, 2010

SUBJECT: GENERAL ORDER NO. 258  
Proposed Net Metering Rules

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The following are the responsive comments of the Utilities Division to the comments filed by various parties with regard to the proposed net metering rules and accompanying tariff. Any additional comments with regard to interconnection rules will be filed under separate memorandum by Mr. James Ellars of the Engineering Division. Except as specifically discussed below, Staff continues to stand by its recommendations filed on April 5, 2010.

*Meter Aggregation:*

Although Staff's initial comments did not directly address meter aggregation, Staff is generally supportive of the concept, but with certain clarifications/limitations which would address some of the concerns raised by Appalachian Power Company and Wheeling Power Company (AEP Companies), The Potomac Edison Company and Monongahela Power Company (APS Companies), and the joint comments of The City of New Martinsville, the City of Philippi, Harrison Rural Electrification Association, Inc., Craig-Botetourt Electric Cooperative, and Shenandoah Valley Electric Cooperative (Public Systems).

Following review of the comments made by the parties with regard to meter aggregation, Staff now recommends that Section 150-33-2.5 be modified to read as follows as further explained below:

"Customer-generator" – An electric retail customer who owns or leases, and operates an alternative or renewable energy resource facility ("generation project") within this state and located within

two (2) miles of its metering point(s) within a single complex (single tract of land or property or adjoining, contiguous tracts of property) owned or operated by the customer as a private residence or used by a commercial, industrial or agricultural customer in its normal course of business with a nameplate capacity of not greater than 25 kilowatts if installed at a residential service location, not greater than 500 kilowatts if installed at a commercial location, or not greater than 2 megawatts if installed at an industrial or agricultural service location, and which system is designed and installed to operate in parallel with the electric utility distribution system without adversely affecting the operation of equipment and service of the electric utility and its customers and without presenting safety hazards to the electric utility and customers.

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Staff further recommends that conforming language changes be made at Section 150-33-2.12, Staff Section 150-33-2.15(Commission proposed rule section 150-33-2.14) and Staff recommended Section 150-33-2.19 (Commission proposed rule 150-33-2.18) to reflect the recommended changes at Section 150-33-2.5 as follow:

“Meter aggregation” – The combination of readings from and billing for all meters regardless of rate class on eligible properties owned or leased and operated by a Customer-generator for eligible properties located within the service territory of a single utility. Meter aggregation may be completed through physical or virtual meter aggregation.

“Physical meter aggregation” - The physical rewiring of all meters regardless of rate class on eligible properties owned or leased and operated by a Customer-generator to provide a single point of contact for a single meter to measure electric service for that Customer-generator.

“Virtual meter aggregation” – Then combination of readings and billing for all meters regardless of rate class on eligible properties owned or leased and operated by a Customer-generator by means of the electric utility billing process, rather than through physical rewiring of the Customer-generator property for a physical, single point of contact.

Staff agrees with AEP Companies that the net metering Rules should not be applied in such a way as to create a situation in which impermissible retail wheeling might take place. Although it seems highly unlikely that such a situation would occur with small-scale generators in the 25 kW to 50 kW range, the possibility of Customer-generators with installations up to 2 MW does raise that specter. In such an instance, location does matter as the APS Companies point out. A possible solution to a problem which at this point is only hypothetical would be to clarify the definition of an eligible Customer-generator so as to limit the physical proximity of the metering point(s) to the generator(s) to those within 2 miles of one another within a single complex owned and operated by a commercial or industrial customer. This would limit the possibility of the electric distribution company's infrastructure being used to transmit power from one customer location to another. Additionally, the electric utility would always have the option to refuse to enter into a net metering interconnection agreement where it believes retail wheeling is the intent of the Customer-generator. In such instance, the matter could be brought before the Commission via the formal complaint process for resolution.

The foregoing discussion notwithstanding, due to the expense involved in physical meter aggregation the experience of West Penn Power is probably instructive of the likelihood of requests for physical meter aggregation becoming a burden for electric distribution utilities. Staff agrees with APS Companies that the costs involved in physical meter aggregation should be paid by the customer up-front in order not to burden the utility or other customers in the event that the Customer-generator later has a change of mind with regard to aggregation. It should be up to the Customer-generator to decide if its perceived benefits of aggregation outweigh the costs thereof.

AEP Companies state that "the proposed rules on meter aggregation would likely result in very complicated, expensive, and burdensome billing calculations" and would also likely require costly system upgrades in addition to increasing the frequency of billing disputes. However, no examples of these expensive and burdensome costs are provided. Staff notes that AEP currently has 14 net metering customers in West Virginia which presumably are being accommodated without undue burden to existing resources. The proposed Rules provide that a customer-generator who requests virtual meter aggregation shall be responsible for any incremental expense entailed in processing its account. That cost should be readily ascertainable. Given that it is not expected that the utilities will be inundated with such a volume of virtual meter aggregation requests so as to require ubiquitous changes to their billing hardware or software systems, the incremental expense should be little more than the cost involved in the manual billing of

those customers. Once that cost is determined and may be recovered from the Customer-generator requesting virtual meter aggregation, as with physical aggregation, it should be left up to the customer to determine whether it wishes to incur that additional cost. So long as the utility can recover that cost, the customer's choice should be a matter of relative indifference to the utility.

*Customer-generator Credits:*

Although Staff does not share AEP Companies' concern that Section 150-33-7.2.b would somehow be misinterpreted so as to require the distribution utility to give the Customer-generator credit for all kWh produced by it or to require a credit for all of a customer's usage, Staff does not object to modifying the language of Section 150-33-7.2.b to achieve the degree of clarity sought. Accordingly, Staff recommends that the Commission adopt that portion of AEP Companies' modifications as follows:

**The electric utility shall credit a Customer-generator at the full retail rate for each kilowatt hour that the Customer-generator produces by an alternative or renewable energy resource installed on the Customer-generator's side of the electric revenue meter and that is delivered to the utility's electric distribution system through the Customer-generator's electric revenue meter, up to the total amount of electricity delivered by the utility to that Customer-generator during the billing period.**

It should be noted that Staff does not recommend that the Commission adopt that portion of AEP Companies' proposed modifications which would reduce the level of credit to the **generation component** of the retail rate rather than the full retail rate as stated in the proposed Rules. Staff continues to support use of the full retail rate as the credit mechanism for the billing period up to the Customer-generator's full energy consumption. However, Staff continues to recommend that reporting period credits should not be used to offset monthly customer charges or demand charges.

The APS Companies state that the term as found at Section 155-33-7.2.d is unclear and that it should be left to the individual electric utility to define "average cost of generation". Staff agrees that the exact mechanics of deriving the "average cost of generation" or "net average incremental cost of energy" as recommended by Staff will vary with the individual utility. Staff agrees with the APS Companies that the appropriate cost measure related to generation for the purpose of deriving the credit(s)

due Customer-generators for any excess generation at the end of the Reporting period for them would be the PJM Locational Marginal Price (LMP) for the AP Zone for the reporting period. This does not appear to be inconsistent with Staff's recommended language changes at Section 150-33-8.4. Furthermore, Staff believes that its definition of "Net average incremental cost of energy" at Section 150-33-2.13 is to sufficiently broad so as to accommodate appropriate calculations for the AEP Companies and the Public Systems.

However, Staff continues to recommend that time-of-day metering and rates be used optionally for Customer-generators operating equipment with nameplate capacity up to 500 kilowatts and be required for those Customer-generators operating equipment with ~~nameplate capacity greater than 500 kilowatts. In such instance, time interval data will~~ be available. This will provide for a better match between the value of the energy produced by the Customer-generator and the costs avoided by the distribution utility, and will send more meaningful price signals to the Customer-generator. The straight average LMP would be appropriate for those Customer-generators operating equipment with nameplate capacity up to 500 kilowatts who do not opt for time-differentiated metering. Staff further agrees with the APS Companies that payment to Customer-generators for excess generation remaining at the end of the Reporting period should be classified as purchased power for reconciliation in the Expanded Net Energy Proceedings, if the Commission ultimately determines that payments should be made for such generation.

The foregoing comments relate to methods of calculating the payments for excess generation in the event that the final Rules require that electric distribution utilities make such payments. Staff now has serious doubts as to whether cash payments of any sort based on any method of calculation for excess generation remaining at the end of the reporting period as provided at Section 150-33-7.2.d are permissible. Review of Federal Energy Regulatory Commission (FERC) orders in recent cases leads Staff to conclude that payment to the Customer-generator by the utility for excess generation after the end of the Reporting period would constitute a sale of energy to the utility which would be under FERC jurisdiction. For example, FERC Order in Sun Edison, LLC; Docket No. EL09-31-000 entered November 19, 2009 at paragraph 18 states:

The Commission has explained that net metering is a method of measuring sales of electric energy. Where there is no net sale over the billing period, the commission has not viewed its jurisdiction as being implicated; that is, the Commission does not assert jurisdiction when the end-use customer that

is also the owner of the generator receives a credit against its retail power purchases from the selling utility. Only if the end-use customer participating in a net metering program produces more energy than it needs over the applicable billing period, and thus is considered to have made a sale of energy to the utility over the applicable billing period, has the Commission asserted jurisdiction. If the entity making a net sale is a QF that has been exempted from *section 205 of the FPA by section 292.601* of our regulations, no filing under the FPA is necessary to permit the sale; however, if the entity is either not a QF or is QF that is not exempted from *section 205 of the FPA by section 292.601* of our regulation, a filing under the FPA is necessary to permit the sale.

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Staff's reading of this FERC order as well as others cited in the memorandum concurrently submitted by Ms. Leslie Anderson of the Legal Division lead Staff to conclude that although credits made to a Customer-generator's current monthly bill as a result of it having "made the meter run backwards" do not constitute a sale of electric power by it to the utility, cash payments made for excess generation remaining after the end of a twelve-month Reporting period would constitute payment by the electric utility to the Customer-generator for electric power which would be subject to FERC jurisdiction.

Accordingly, Staff now recommends that Section 150-33-7.2.d be deleted from the Commission's final Rules in this matter. As an alternative the Commission could permit an indefinite rollover of excess usage with no annual true-up as is done in Michigan and Louisiana. In this instance, any excess generation remaining at the time that the Customer-generator left the system or otherwise ceased to be a net metering customer should then revert to the electric utility. This would seem a more reasonable alternative than having any excess generation revert to the electric utility at the end of each twelve month period as is done in Kansas and Maine. As a practical matter, unless the Customer-generator's facility is greatly oversized, there should not be excess generation of any significance accumulated at the end of any twelve-month period. If the Customer-generator wishes to install generating facilities which are going to exceed its own power requirements on a regular basis, it would more properly be considered a co-generator rather than a net metering customer and should be provided service under an appropriate tariff other than Net Metering.

Staff further recommends that Section 150-33-7.2.c be modified as follows:

If a Customer-generator supplies more electricity to the electric distribution system than the electric utility delivers to the Customer-generator in a given billing period, the excess kW hours shall be carried forward and credited against the Customer-generator's usage in subsequent billing periods at the full retail rate. ~~Any excess kW hours shall continue to accumulate until the end of the Reporting period.~~ Provided that, if a Customer-generator terminates service with the electric utility, the utility is not required to provide compensation to the customer-generator for any outstanding kW hour credits.

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*Insurance:*

With regard to the insurance requirements referenced at Section 155-33-4.4, both the AEP Companies and the Public Systems have recommended that the flat requirement of \$100,000 of coverage for all Customer-generators contained in the proposed Rules be changed. AEP Companies suggest that the language of the proposed Rules be changed to provide for \$100,000 or "**such amount of coverage reasonably deemed necessary by the Company to protect its plant and other customers for liability of the insured against losses or damages arising from the use of the Customer-generator facility.**" Public Systems have recommended that that the level of insurance required begin at \$100,000 for generators with nameplate capacity of 25 kW or less and be increased by increments up to \$1,000,000 for generators over 25 kW. Staff would agree that it is entirely likely that some types generators would pose a greater potential danger to the utility's infrastructure than others, especially as those generators become larger. However, permitting the coverage level required to be such amount as deemed reasonably necessary by the Company opens up the possibility of undue barriers being raised by the electric distribution companies which would discourage the development of net metering customers. At this point there is nothing in the record which could be used by the Commission as a guide to determine how properly to distinguish between the potential risks posed by various types of Customer-generators based on either the scale or the technology of the generator. Should the Commission decide to select either of the other two options recommended by the parties, Staff believes that the step-wise approach based on scale offered by the Public Systems, though arbitrary, would be preferable.

*Bill Inserts:*

AEP Companies have stated that the annual bill insert requirement to disclose net metering information to customers would be unnecessarily expensive relative to the benefits it would offer either customers or the utility. AEP Companies recommend that the utilities only be required to post this information on their websites. The Public Systems made a similar comment. Although it is probable that many of the customers who would be interested in net metering are also web savvy, the need for paper communication with many of the other customers has not been obviated by the internet. Accordingly, Staff recommends that so long as the electric utility has a regular monthly bill insert or regular monthly electronic mailing such as Appalachian Power's *Watt, Why & How* newsletter in which it can provide the requisite net metering information annually, a separate insert not be required.

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*Public Systems:*

In its initial comments Staff did not directly address the issue of whether to require the Public Systems to offer net metering opportunities to their customers along with the other electric utilities. However, Staff supports making net metering opportunities available to their customers as well. The Public Systems' points are well taken that they lack the ability to control the source of the power they purchase and that serving net metering customers will add some costs they might not otherwise have incurred. That said, it is not expected that any additional costs incurred and spread over the whole of their customer bases will be unduly burdensome. The fact that their customer bases are comprised primarily of rural customers may make it even more likely that some of their customers might both want and be able to avail themselves of renewable technologies such as small wind turbines or biomass energy. Although the addition of some net metering customers within their service territories may add some small amount of direct costs to their other customers in the short-term, those costs will be outweighed by the longer-term societal benefits gained from the production of power from renewable resources.

In light of the general economic circumstances of the Public Systems and their lack of access to technical resources such as those available to the AEP Companies and the APS Companies, Staff recommends that Customer-generator participation in net metering within their service territories be limited to generators with nameplate capacity of up to 50 kW. This would provide for the development of net metering opportunities using small-scale generators within the largely rural customer bases of the Public Systems without imposing undue cost or technical challenge.

*Hydropower:*

Upon review of the comments filed by Brookfield Renewable Power (Brookfield), Staff agrees that the definition of Run of River Hydropower at 150-33-2.15.d could bring into question the eligibility of such hydro-electric facilities as those operated by Brookfield to be classified as eligible renewable resources. The facilities operated by Brookfield are doubtless valuable renewable electric generating resources. According, Staff recommends that the Commission adopt the language changes requested by Brookfield at Section 2.15.2.d. Staff further recommends that the Commission adopt AEP Companies' recommendation reflected in its filing of April 16, 2009, that the definition of "Run of the river hydropower" be modified to include any facility that is listed in the FERC Form 1 annual report as a conventional hydropower plant.

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*Comments filed by IREC:*

Staff supports the recommendation of the Interstate Renewable Energy Council (IREC) to add a specific reference to "agricultural" as a type of service location which may host generators of up to 2 kW of nameplate capacity at Section 150-33-2.5 for purposes of clarity. Staff also supports for purposes of clarity IREC's recommended language modification at Section 150-33-3.8 limiting the imposition of additional fees by electric utilities.

**ENGINEERING DIVISION FURTHER STAFF MEMORANDUM**

DATE: May 4, 2010

TO: Leslie Anderson, Staff Attorney  
Engineering Division

FROM: James W. Ellars, P.E., Senior Engineer **JWE**  
Engineering Division

SUBJECT: General Order No. 258  
Rulemaking Proceeding – Net Metering and Interconnection  
Reply Comments

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WV PUBLIC SERVICE COMM.  
LEGAL DIVISION

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Commission Staff filed its substantive comments in this matter as required by Commission Order on April 5, 2010. The purpose of this memorandum is to offer Engineering Staff's reply comments in this matter for the Commission's consideration.

To be consistent with the comments filed by other parties in this proceeding, attached are the Engineering Staff's comments in a form which hopefully will be more helpful to the Commission should it decide to embrace the Engineering Division's recommendations regarding interconnection standards.

It should be recognized that the comments and recommendations of Paul Stewart of the Utilities Division Staff have not been incorporated into the scope of these comments and nothing contained herein should be construed as being in opposition to those comments filed under separate cover. As before, the scope of these comments relate strictly to the interconnection issues.

JWE:s  
Attachment

**EEM**

**GENERAL ORDER NO. 258  
ENGINEERING DIVISION STAFF  
REPLY COMMENTS REGARDING INTERCONNECTION STANDARDS**

1) The following sections from the proposed rules should be stricken:

Section 150-33-4

Section 150-33-5

2) A new set of Interconnection Rules should be inserted using the approved rules from Case No. 06-0708-E-GI (the 2006 rules). The 2006 rules were provided in Staff's initial comments. However, consistent with Staff's previous recommendations the levels of interconnection should be changed throughout to reflect the following:

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- Level I interconnection: Renewable generators less than 25 kW;
- Level II interconnection: All non-renewable generators, or any generators with a capacity between 25 kW to 2 MVA;

3) The proposed tariff language should be stricken as provided for in the attachment to these comments in order to remain consistent with Staff's proposed interconnection rules as well as to avoid duplicating technical interconnection requirements between the rules and tariffs.

TARIFF N.M.S  
(Net Metering Service)  
Form No. 1

**Availability of Service**

Available to residential and general service customers who own and operate an eligible electric generating facility designed to operate in parallel with the Company system. Customers served under this tariff must also take service from the Company under the applicable standard service tariff. The total rated generating capacity of all customers served under this tariff shall be limited to one percent (1%) of the Company single hour peak load during the previous year.

**Conditions of Service**

1. For the purposes of this tariff, an eligible Customer-generator must meet the definition of "customer generator as set forth in the Commission Rules Governing Electric Utility Net-Metering Arrangements, 150 C.S.R. 33 ("Net Metering Rules").
2. A Customer-generator seeking to interconnect an eligible electric generating facility to the Company system must submit to designated Company personnel a completed interconnection application, and a one-line diagram showing the configuration of the proposed net metering facility. The Company will provide copies of all applicable forms upon request.
3. An interconnection agreement between the Company and the Customer-generator must be executed before the Customer-generator facility may be interconnected with the Company system.
4. All generator equipment and installations must comply with the Company's technical requirements. All generator equipment shall be installed in accordance with the manufacturer specifications as well as all applicable provisions of the National Electrical Code and state and local codes. All generator equipment and installations shall comply with all applicable safety, performance and power quality standards, established by the National Electrical Code, the Institute of Electrical and Electronic Engineers and accredited testing laboratories.
5. The Customer-generator shall provide the Company proof of qualified installation of the Customer-generator facility. Certification by a licensed electrician shall constitute acceptable proof.
6. The Customer-generator shall install, operate, and maintain the Customer-generator facility in accordance with the manufacturer suggested practices for safe, efficient, and reliable operation in parallel with the Company system.
- ~~7. The Customer must provide a visibly open, lockable, manual disconnect switch, which is accessible by the Company and is clearly labeled.~~
8. The Company may, at its own discretion, isolate any Customer-generator facility if the Company has reason to believe that continued interconnection with the Customer generator facility creates or contributes to a system of emergency.
9. The Company may perform reasonable on-site inspections to verify the proper installation and continuing safe operation of the Customer-generator facility and the interconnection facilities, at reasonable times and upon reasonable advance notice to the Customer-generator.

10. A Customer-generator shall maintain homeowner, commercial or other insurance providing coverage in the amount of at least one hundred thousand dollars (\$100,000) or such amount of coverage reasonably deemed necessary by the Company to protect its plant and other customers for the liability of the insured against losses or damages arising from the use of the Customer-generator facility. The Customer-generator must submit evidence of such insurance to the Company with the interconnection application. The Company's receipt of evidence of liability insurance does not imply an endorsement of the terms and conditions of the coverage.

11. An eligible Customer-generator facility is transferable to other persons or service locations only upon notification to the Company and verification that the facility is in compliance with all applicable safety and power quality standards. All other conditions of service apply.

### **Metering**

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~~Net energy metering shall be accomplished by (i) using a standard kW meter capable of accurately measuring the flow of electricity in two directions, or (ii) two separate meters. If the existing electrical meter installed at the Customer-generator facility is not capable of accurately measuring the flow of electricity in two directions, the Company shall install new metering equipment for the Customer-generator at Company expense. Any subsequent metering equipment change necessitated by the Customer-generator shall be paid for by the Customer generator.~~

If two meters are used to measure net kW energy, the reading of the meter measuring the flow of energy from the Customer-generator to the Company shall be subtracted from the reading of the meter measuring the flow of energy from the Company to the Customer generator to obtain a measurement of net kW hours for billing purposes. Monthly charges shall be calculated using an identical rate structure to the structure that would apply to the customer if it were not a Customer-generator.

Measurement and Charges. The measurement of net electrical energy supplied or generated will be calculated as follows:

1. The net electrical energy produced or consumed during the billing period shall be measured in accordance with normal metering practices.
2. The Company shall credit a Customer-generator for each kW hour produced by an alternative or renewable energy resource installed on the Customer generator side of the electric revenue meter, up to the total amount of electricity used by that customer during the billing period.
3. If a Customer-generator supplies more electricity to the electric distribution system than the Company delivers to the Customer-generator in a given billing period, the excess kW hours shall be carried forward and credited against the Customer-generator usage in subsequent billing periods at the full retail rate. Any excess kW hours shall continue to accumulate until the end of the Reporting period.
4. At the end of each Reporting period, the Company shall compensate the Customer-generator for any excess kW hours generated by the Customer generator over the amount

of kW hours delivered by the Company during the same year at the Company average avoided cost of generation during the twelve (12) month Reporting period.

5. For Customer-generators involved in virtual meter aggregation programs, a credit shall be applied first to the meter through which the Customer-generator facility supplies electricity to the distribution system, then prorated equally to the remaining meters for the Customer-generator's accounts.

~~Except for the cost of the first meter as provided in Net Metering Rule 8.2., the Customer generator is responsible for all equipment and installation costs of the electric generating facility. As specified in the interconnection application, a Customer generator of 25 kW or less must pay a nonrefundable application for interconnection fee ("NAFI fee") of \$30.00. For a Customer generator of more than 25 kW, the electric utility shall calculate the amount of the NAFI fee based on the estimated costs of interconnection. The NAFI fee will include the cost of inspection of the Customer generator facility if the Company deems such inspection is necessary. For Customer generators of more than 25 kW, should the Company determine that an interconnection study is required to determine if installation of the Customer generator facility will have significant impact on the Company system, the Company will advise the Customer generator of the estimated cost of performing such study. Upon payment by the Customer generator of the estimated study costs, the Company will proceed with the interconnection study.~~

~~Should construction or upgrades of the Company system be required in order to interconnect the Customer generator facility, additional charges to cover costs incurred by the Company shall be determined by the Company and paid by the Customer generator. The Customer generator shall pay any additional charges, as determined by the Company, for equipment, labor, metering, testing or inspections requested by the customer.~~

### **Technical Requirements**

~~The technical requirements for interconnection of Customer generator facilities to the Company distribution system are as follows: Interconnection enables the Customer generator facility to operate in parallel with the Company distribution system. An Interconnection Study may be required to determine the impact of the Customer generator facility on the Company distribution system beyond the point of common coupling. The Customer generator facility shall comply with the requirements specified in IEEE 1547, "Standard for Interconnecting Distributed Resources with Electric Power Systems" and other technical requirements stated herein and in the Net Metering Rules. IEEE 1547 contains the majority of the technical requirements necessary for interconnection. IEEE 1547 is limited to an aggregate capacity of 10 MW or less interconnected at typical primary and or secondary voltages, IEEE 1547 does not address planning, designing, operating, or maintaining the Company distribution system and it does not identify or address all of the potential system impacts the proposed net metering installation may create beyond the point of common coupling. Due to the limitations of IEEE 1547, additional technical requirements apply. These Technical Requirements are supplementary to and do not intentionally conflict with or supersede applicable laws,~~

~~ordinances, rules or regulations established by Federal, State and other governmental bodies. The Customer generator is responsible for conforming to all applicable laws, ordinances, rules or regulations established by Federal, State and other governmental bodies. Additional requirements for interconnection may be imposed by the regional transmission operator to address transmission system operating issues related to the proposed Customer generator facility. Additional requirements may also be necessary to comply with the requirements of other approved tariffs associated with the Company or other third parties providing services.~~

~~To assure that the safety, reliability and power quality of the distribution system is not degraded by interconnection of the Customer generator facility:~~

~~1) The Customer generator facility shall comply with the Technical Requirements stated herein.~~

~~2) Any distribution system modifications and/or modifications to the Customer generator facility identified by the interconnection study shall be completed~~

~~3) The Customer generator facility shall be operated and maintained in compliance with this Tariff and the Net Metering Rules.~~

~~IEEE publications are available from the Institute of Electrical and Electronics Engineers, 433 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331 (<http://standards.ieee.org>).~~

### **Equipment Design Requirements**

Data for all major equipment proposed by the Customer to satisfy the Technical Requirements must be submitted for review and approval by the Company with a completed interconnection application. To facilitate review and approval, the Company will maintain a list of Pre-certified equipment. The Company List of Pre-certified equipment is available upon request and contains Precertified equipment types, makes, and models of manufactured generating equipment and interconnection system components. This listing is based upon equipment certified by recognized national testing laboratories as suitable for interconnection with a distribution system based upon compliance with IEEE 1547. ~~Suitability for interconnection does not imply that Pre-certified equipment may be interconnected without a study to determine system impact.~~ The use of equipment that is not pre-certified may delay the Company review and approval of the customer's design. All interconnection equipment must be approved by the Company prior to being connected to the Company distribution system and before parallel operation is allowed. The interconnection system hardware and software design requirements in the Technical Requirements are intended to assure protection of the Company distribution system.



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April 16, 2010

**BY HAND DELIVERY**

Mrs. Sandra Squire  
Executive Secretary  
West Virginia Public Service Commission  
201 Brooks Street  
Charleston, WV 25301

RECEIVED  
10 APR 16 PM 3:49  
W VA PUBLIC SERVICE  
COMMISSION  
SECRETARY'S OFFICE

Re: **GENERAL ORDER NO. 285**

In the matter of a General Investigation to adopt rules for net metering arrangements and interconnection pursuant to West Virginia House Bill 103, and House Bill 408, effective July 1, 2009: Alternative and Renewable Energy Portfolio Act, codified as W.Va. Code §24-2F-1 et seq.

Dear Mrs. Squire:

On April 5, 2010, Appalachian Power Company and Wheeling Power Company (collectively "the Companies") submitted Joint Comments on the Commission's proposed legislative rules for net metering arrangements and interconnection. In the second paragraph of those comments, the Companies made reference to comments they had previously submitted by letter dated October 1, 2009. That prior submission was made in the docket of the Commission's General Order No. 184.25. Although the Companies' April 5, 2010 Joint Comments stated that the earlier comments were attached, the Companies inadvertently failed to attach them.

In order to remedy this oversight, I file herewith in the docket of General Order No. 285 thirteen (13) copies of the October 1, 2009 Joint Comments, which should be treated as an attachment to the Companies' April 5, 2010 Joint Comments.

Very truly yours,

William C. Porth  
(W.Va. State Bar #2943)

Counsel for Appalachian Power Company  
and Wheeling Power Company

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**PUBLIC SERVICE COMMISSION  
OF WEST VIRGINIA  
CHARLESTON**

**GENERAL ORDER NO. 184.25**

In the matter of a proceeding to seek preliminary comments from interested parties regarding the scope of a proposed rulemaking to establish a credit trading program pursuant to West Virginia House Bill 103, effective July 1, 2009: Alternative and Renewable Energy Portfolio Act, codified as W.Va. Code §§24-2F-1 et seq.

**JOINT COMMENTS OF APPALACHIAN POWER COMPANY  
AND WHEELING POWER COMPANY**

COME NOW Appalachian Power Company and Wheeling Power Company (collectively "the AEP Companies") and offer the following preliminary comments on the future rulemaking to establish a credit trading program pursuant to the Alternative and Renewable Energy Portfolio Act, W.Va. Code §§24-2F-1 et seq. ("the Act").

On July 28, 2009, the Public Service Commission of West Virginia ("Commission") issued an Order in the above-referenced matter in which it requested comments regarding the content, extent, and nature of the rules to be proposed under the Act. The Commission also requested that the comments address: (1) whether the Commission should adopt by rule portfolio requirements for rural electric cooperatives, municipally-owned electric facilities, or facilities serving less than thirty thousand residential customers in the state; (2) whether the Commission should extend by rule the award of alternative and renewable energy resource credits to electric distribution companies or electric generators other than electric utilities; and (3) the Commission's process to impose assessments for failure to comply with the alternative and renewable energy portfolio standards of the Act. In addition to providing the comments below,

the AEP Companies reserve their right to submit a reply to any comments filed by others in this matter and to submit comments on the proposed rules after they are issued by the Commission and during the public comment period.

### **I. Definitions**

In the definitions section of the Act, §24-2F-3, the terms "alternative energy resources" and "renewable energy resources" are defined separately. Each respective definition includes a number of specifically named resources and "any other resource, method, project or technology" certified by the Commission as either an alternative or renewable energy resource. §§24-2F-3(3)(k) and 25-2F-3(13)(I). Under the Act, facilities that use alternative or renewable energy resources are eligible to receive credits for such use to meet the Act's compliance requirements.

Run of river hydropower is specifically included in the Act as a form of a renewable energy resource. §24-2F-3(13)(D). However, the Act does not define the term "run of river hydropower." The AEP Companies request that the rule define run of river hydropower to include any facility that is listed in the Federal Energy Regulatory Commission's ("FERC") Form 1 Annual Report as a conventional hydropower plant so that such facility would be eligible for credits under this program. Conventional hydropower includes all types of hydropower but it is not specifically included in the Act as either a renewable or alternative energy resource. Pumped storage hydroelectric projects are included as a type of alternative energy resource. However, conventional hydropower differs from pumped storage hydroelectric projects. By defining run of river hydropower to include conventional hydropower plants listed in the FERC Form 1 Annual Report, such technology will be eligible for credits under the program. The Act defines the term "advanced coal technology" to mean a technology that is used to reduce

airborne carbon emissions associated with the combustion or use of coal and includes, but is not limited to, carbon dioxide capture and sequestration technology. W.Va. Code §24-2F-3(1). The capture of carbon dioxide for subsequent use in the extraction of oil, natural gas and/or coal-bed methane recovery (referred to as enhanced oil recovery or "EOR") is not specifically mentioned in the Act. Carbon dioxide ("CO<sub>2</sub>") can be a valuable commodity to the citizens of the state in enhancing the recovery of West Virginia's oil and gas resources; therefore, the AEP Companies suggest that the rule provide a broader definition of advanced coal technology to include carbon capture for EOR activities so that it is clearly eligible for credits.

## **II. Awarding of Alternative and Renewable Energy Resource Credits**

Section 24-2F-4 of the Act provides for the award of alternative and renewable energy resource credits. This section requires the Commission to establish a system of tradable credits that are awarded and/or purchased, verified, and monitored to ensure that such credits represent megawatt hours ("MWhs") from a facility meeting the criteria of the Act. The Act also requires that the credits must represent a unique unit of electrical power, must be used only once for compliance with the Act, and are not used to meet obligations under any other state law, policy, or regulation, and can be bought, sold, banked or otherwise transferred with no loss in compliance value.

In determining alternative and renewable energy credit criteria, the Commission should propose the specific criteria as part of its draft regulations, giving the public an opportunity to comment. Beyond what is required under the Act, the AEP Companies suggest that each facility participating in the program be required to register to be treated as a renewable or alternative resource under the Act, or in the alternative, allow renewable or alternative energy resource

credits registered in PJM's GATS (discussed in more detail below) to be used from a resource which qualifies under the Act and is within the service territory of PJM. Tracking of alternative and renewable energy credits should be done through an existing system, such as GATS used by the PJM transmission organization. Each utility subject to the Act would then periodically submit documentation of the credits needed to comply, along with other appropriate information to demonstrate compliance.

### **III. Awarding of Credits for Greenhouse Gas Emission Offsets**

The AEP Companies suggest that the Commission develop a system that uses a legally supported and established set of criteria for certification of CO<sub>2</sub> offsets, such as the Chicago Climate Exchange, Climate Action Registry, or the Voluntary Carbon Standard. The Commission should publish the criteria or direct the use of an existing standard that would be used in determining the offset credits. If and when federal legislation on CO<sub>2</sub> offsets is enacted, offset credits going forward should reflect the federal program.

### **IV. Issuance of Credits for Carbon Capture and Storage, Including Enhanced Oil Recovery Projects**

The West Virginia Legislature has determined that "[i]t is in the public interest to advance the implementation of carbon dioxide capture and sequestration technologies into the state's energy portfolio." §22-11A-1(a)(12). There are several projects already underway in the state to develop practical, commercially available technologies to achieve this goal. Projects located in West Virginia are currently further along in this process in the treatment of coal emissions than in any other place in the world. A fair treatment of carbon capture and sequestration ("CCS") facilities in the Commission's regulations would be in accord with the goals of the Act and could encourage further development of CCS in the state.

Under Section 24-2F-4(b) of the Act, credits are awarded for electricity generated or purchased from an alternative energy resource facility. Alternative energy resources include the use of advanced coal technology for the production or generation of electricity. Advanced coal technology includes, but is not limited to, CCS technology.

In the next few years, most carbon capture facilities in the state will be slipstream projects (e.g. where a small percentage (less than 50%) of the total CO<sub>2</sub> emissions from the stack is diverted for carbon capture purposes). Constructing a new facility that employs carbon capture technology or retrofitting an entire existing generation facility with carbon capture will have to wait until economically viable technology is commercially available with adequate provisions for cost recovery. Therefore, to fulfill the Act's designation of CCS as an advanced coal technology in the next few years, the Commission should provide credits for slipstream projects. We suggest that the Commission choose one of the following administrative treatments of awarding alternative energy credits to CCS facilities:

- As there is no guidance in the Act regarding the amount of CO<sub>2</sub> reduction needed to qualify a facility as an alternative energy resource facility ("AERF"), the Commission could decide that any slipstream addition would qualify the entire facility to be an AERF and make all energy produced at such a facility available for credit.
- The Commission could allow credits to be awarded based on the tons per year of CO<sub>2</sub> captured, (which is a quantity that most likely will be monitored) and either stored or used for EOR, related to the CO<sub>2</sub> that would have been emitted for a certain number of MWhs and credits awarded based on this (e.g., one ton of CO<sub>2</sub> captured from a coal unit would receive one credit).

## V. Tracking of Renewable and Alternative Resource Energy Credit Transactions

Under Section 24-2F-4(c)(3), the Commission must establish a registry of data that shall track credit transactions and list certain information for each transaction. A comprehensive tracking system should be required to ensure that renewable and alternative resources are appropriately credited. One renewable generation-attribute tracking system that provides an administrative structure for tracking renewable and alternative energy resource credits is the PJM Generation Attribute Tracking System ("GATS").

Administered by PJM Environmental Services, Inc., GATS is a database that tracks the generation attributes and ownership of Renewable Energy Credits ("RECs") that result from the generation of electricity as they are traded or used to meet government standards. GATS provides environmental attributes reporting and tracking services to its subscribers in support of RPS requirements that have been implemented by government agencies.

The system collects information on all generation resources and all MWh produced within the PJM Control Area. GATS is also designed to collect information and track ownership of imports of RECs to the PJM system in the same manner, whether from control areas outside of PJM or from behind the meter resources (such as solar). This information could be provided to the Commission on annual basis for it to use in part of the development of its registry.<sup>1</sup> GATS information can be accessed at <http://www.pjm-eis.com/>

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<sup>1</sup> Utilities would still have to track credits awarded for emissions offsets and advanced coal technology.

## **VI. REC Pricing Data**

The AEP Companies are concerned with the requirement under Section 24-2F-4(c)(2), that pricing information for credit transactions be included in the registry that will be made available to the public. The immediate disclosure of highly sensitive and confidential pricing information as it pertains to individual transactions may place the utilities at a disadvantage when purchasing and selling RECs in the market. Any reporting of such transactions should be done on an annual basis and require utilities to reveal an average price paid for RECs. In addition, utilities buying RECs that are part of a bundled transaction (i.e., the four wind power purchase agreements with the AEP Companies) that has already been approved by the Commission and where project details were disclosed confidentially and under seal, should be deemed to have already met the disclosure requirements for reporting transactions for REC purchases. Pricing disclosures under the Act should only apply to RECs acquired separately and then only on an average basis, as set forth above. If the Commission feels that it lacks discretion under the Act to allow for annual reporting of the average price paid for RECs that are acquired separately, then the AEP Companies suggest that it could seek amendment of the Act during the next legislative session to allow for such reporting.

## **VII. Verification and Certification of Energy Efficiency and Demand-Side Related Credits**

Section 24-2F-4(e)(1) of the Act states that savings associated with an approved energy efficiency or demand-side energy project must be verifiable and certified in accordance with the rule promulgated by the Commission. These rules should clearly define how and when energy and demand impacts should be counted. The AEP Companies suggest that existing industry

standards, such as the International Performance Measurement and Verification Protocol (IPMVP), be considered for use.

Exact determination of actual energy efficiency program impacts is challenging and costs of such programs can rise significantly if the Commission's rule requires impacts to be determined with unreasonable precision. For this reason, reasonable estimates of impacts should be acceptable whenever practical, with the estimates adjusted on a periodic basis and applied strictly a going-forward basis based upon a thorough evaluation performed under accepted industry standard practices.

#### **VIII. Prudence and Review of Renewable Energy and Renewable Credit Contracts**

Sections 24-2F-6(c), (d) & (e) of the Act provide that the utility will file a compliance plan which establishes the details for meeting the alternative and renewable energy requirements and that the Commission will approve, disapprove, or approve or disapprove in part. Also, a utility has the ability to reopen its compliance plan proceeding and modify that plan, if necessary, in accordance with Section 6(g). Section 6(h) states that approval of a compliance plan does not eliminate the need for a utility to otherwise obtain required approvals (including but not limited to certificates to construct, consent to enter into contracts, etc.) of its portfolio of projects necessary to meet the alternative and renewable standards. The AEP Companies request the Commission to clarify that the required approvals only apply to new alternative and renewable projects to be entered into to fulfill a utility's compliance plan.

In addition, the timing and length of the contract approval process is critical to utilities in many respects, especially when entering into a purchase power agreement with a renewable developer. Developers of renewable resources will not be willing to allow their quoted prices to

remain open for an extended length of time during the bid, negotiation, and/or regulatory approval process. A streamlined, finite approval process provides a utility with the ability to negotiate favorable terms since bidders may either withdraw their bids to sign a contract with another purchaser or increase their bid price to reflect the added risk of extending their offer for a longer period of time, given the uncertainty of regulatory approval. Therefore, timely approval of renewable energy purchase agreements by the Commission increases the likelihood of more favorable contract terms for the utility. Prompt action on all cost-recovery petitions filed within the context of a utility's Commission-approved renewable energy compliance plan should be taken by the Commission.

The AEP Companies have filed for, and received, timely approval of recent contracts for wind purchase power agreements with Fowler Ridge Wind Farm LLC (Case No. 07-1731-E-PC), Camp Grove Wind Farm, LLC (Case No. 07-1848-E-PC), Beech Ridge Energy, LLC (Case No. 08-1600-E-PC), and Grand Ridge Energy II, LLC and Grand Ridge Energy III, LLC (Case NO. 09-0305-E-PC). The AEP Companies commend the Commission for its diligence in these cases. The Companies respectfully request the Commission to continue this practice which will allow the AEP Companies and other utilities the ability to complete contractual negotiations quickly, thereby minimizing any risk premium a developer may add to its bid price and, assisting in securing reasonably and prudently incurred sources of alternative and/or renewable energy.

Once the contract approval is obtained, the cost of compliance, including any GATS fees associated with tracking and retirement of the RECs, can be included in either base rates or in the Expanded Net Energy Cost filing, as appropriate. Costs for existing resources that will be utilized to meet the compliance plan, such as generating facilities powered by natural gas,

pumped storage hydroelectric facilities, and run of river hydropower, etc. would continue to be recovered in regulated rates. In addition, the AEP Companies request that the Commission consider any long-term investment in offsets (e.g. forestation projects) as a regulatory asset similar to any other pollution control device and be given a rate of return on and of that investment.

#### **IX. Net Metering and Interconnection Standards**

Section 24-2F-8(b) requires the Commission to consider whether to issue regulations for net metering for all sellers of electricity to retail customers in the state, including customers of rural electric cooperatives, municipally owned electric facilities, or utilities serving less than 30,000 customers. The AEP Companies currently offer Net Metering Tariffs to their customers. These tariffs were approved by the Commission in Case No. 06-0708-E-GI:General Investigation into the Net Metering, Smart Metering and Interconnection standards set forth in the Federal Energy Policy Act of 2005. Many of the issues addressed in §24-2F-8 have already been addressed by the Commission in Case No. 06-0708-E-GI. The AEP Companies suggest that, to the extent not addressed in these comments, the terms and conditions of these tariffs should continue to provide appropriate arrangements between the Companies and their Net Metering customers. With regard to the extension of net metering arrangements to non-utility sellers of electricity, the AEP Companies see no logical reason to oppose such extension. Customers of these entities should have the same advantages in providing their Net Metering loads to the grid as those of existing regulated electric utilities.

Section 24-2F-8(a) requires the Commission to adopt a rule requiring all electric utilities to provide a rebate or discount at fair value, to be determined by the Commission, to customer-

generators for any electricity generation that is delivered to the utility under a net metering arrangement. With regard to the determination of "fair value" the AEP Companies believe that the appropriate metric for this determination is the generation component of rates. The costs of transmission and distribution reflected in rates, as well as any customer charges, should be excluded from such determination. The costs associated with these services continue to be incurred by the utilities serving net metering customers; therefore these customers should rightfully be expected to continue to pay for those services. It would be unfair to other ratepayers if these costs were inappropriately shifted to them. With regard to the provision that utilities offer a "rebate or discount" for the net metered generation, the AEP Companies suggest that a simple and least-cost method would be to retain the provisions in the existing tariffs. Namely, that compensation amounts be conveyed through billing credits, utilizing the arrangements detailed in the tariffs.

Section 24-2F-8(c) requires the Commission to consider increasing the kilowatt capacity for commercial customer-generators to an amount not to exceed five hundred kilowatts and for industrial customer-generators to an amount not to exceed two megawatts. These capacities are unreasonably high. Customers of this size have more appropriate tariffs in which they are eligible to participate, including cogeneration arrangements. Net Metering tariffs are principally designed to provide opportunities for renewable generation sources of smaller customers to provide energy to the grid, and are not designed to handle the numerous technical and economic complexities of large commercial and industrial customers.

In addition to the comments above, the AEP Companies offer these policy principles as being sound and reasonable suggestions with respect to the topic of net metering:

- Stakeholders should acknowledge that net metering customers will likely result in utilities incurring additional operating reserves and other charges that are not borne by the net metering customer. Such charges will be socialized to all customers as there currently is not a way to attribute such charges to a specific customer.
- Net metering arrangements result in a reduction in utility revenues, a portion of which are designed to recover Commission-approved investment in embedded fixed-cost assets. As a result, some type of regulatory recovery mechanism is necessary to avoid under-recovery between rate cases. This is analogous to the "net lost revenue" recovery arrangements of utility energy efficiency programs.
- Eligibility for net metering arrangements should be limited to customers that own renewable (solar, wind, biomass, hydro, or other renewable energy source) electrical generating facilities or combined heat & power systems, including fuel cells.
- The generating facility must be intended primarily to offset all or part of the customer's own usage.
- Customers not qualifying under the net metering criteria above should be considered for service under cogeneration tariffs.
- Metering should be capable of measuring and registering energy flows in each direction.
- The generation component of rates should be netted and any credit to customers should be based on generation (i.e., utilities should not have to pay the customer the transmission and distribution portion of rates on energy provided by customers).
- The transmission and distribution components of rates for energy flows to net metering customers should be charged at the peak amount of power delivered to the premises.

- If the customer is paying a bundled rate on the net energy, any excess credit on a monthly basis should be retained by the utility.
- Utility costs incurred as a result of serving net metering customers (including application processing, metering, facility upgrades, study fees, inspection and testing, special manual billings, etc.) should be paid by those customers.
- Customer facilities must be installed and operated in a manner consistent with utility tariffs, terms and conditions of service, and applicable national standards (i.e., IEEE 1547) such that the customer's generation does not adversely affect the operation of the utility's equipment and service and without presenting safety hazards to utility and customer personnel.

In addition to general comments regarding the future rules, the Commission has also requested comments on the following issues:

- 1) **Whether the Commission should adopt by rule the portfolio requirements for rural electric cooperative and municipally-owned electric facilities.**

The AEP Companies suggest that the Commission require each electric cooperative and municipally-owned electric provider to submit by July 1, 2010 a written explanation as to why extension of the portfolio standards to them would cause a disproportionate disadvantage or cost for their customers as compared to the customers of electric providers explicitly covered by the portfolio standard. Unless the explanations convince the Commission that it would be inequitable to do so, the AEP Companies suggest that the portfolio standard be extended to all electric service providers.

**(2) Whether the Commission should extend by rule the award of alternative and renewable energy resource credits to electric distribution companies or electric generators other than electric utilities**

If the Commission determines that the portfolio standard be extended to non-utility electric distribution and generators, then it seems logical that the award of alternative and renewable energy resource credits be extended accordingly.

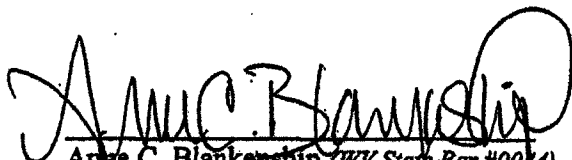
**3) The Commission's process to impose assessments for failure to comply with the alternative and renewable energy portfolio standards of the Act**

Section 24-2F-5 requires the Commission to determine yearly compliance for each covered utility. If a utility is determined not to be in compliance, the Commission must issue notice and hold a hearing. Commission must also, under this section, impose compliance assessment on utilities failing to achieve compliance. The AEP Companies request that a fair and reasonable amount of notice be provided to the utilities that are alleged not to be in compliance. In addition, prior to an evidentiary hearing on any noncompliance issue, the utility should be given an opportunity to correct such alleged noncompliance by the methods set forth in Section 4 of the Act. Finally, any decision by the Commission should be subject to the appeal provisions in Chapter 24 of the West Virginia Code.

Respectfully submitted,

APPALACHIAN POWER COMPANY  
WHEELING POWER COMPANY

By Counsel

  
Anne C. Blankenship (WV State Bar #9044)  
William C. Porth (WV State Bar # 2943)

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**Counsel for Appalachian Power Company**  
**and Wheeling Power Company**

**Dated: October 1, 2009**

**PUBLIC SERVICE COMMISSION  
OF WEST VIRGINIA  
CHARLESTON**

**GENERAL ORDER NO. 285**

In the matter of a General Investigation to adopt rules for net metering arrangements and interconnection pursuant to West Virginia House Bill 103, and House Bill 408, effective July 1, 2009: Alternative and Renewable Energy Portfolio Act, codified as W.Va. Code §24-2F-1 et seq.

**CERTIFICATE OF SERVICE**

I, William C. Porth, counsel for Appalachian Power Company and Wheeling Power Company, do hereby certify that true copies of the foregoing comments were served upon all parties to this general investigation by hand delivery or first-class U.S. Mail this 16<sup>th</sup> day of April, 2010, addressed to the following:

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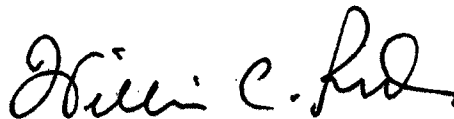
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April 15, 2010

Sandra Squire  
Executive Secretary  
Public Service Commission of West Virginia  
201 Brooks Street  
Charleston, WV 25301

RECEIVED  
2010 APR 15 PM 3 09  
W VA PUBLIC SERVICE  
COMMISSION  
SECRETARY'S OFFICE

Re: **General Order Number 258**  
**In the matter of a General Investigation to adopt rules for net metering arrangements and interconnection pursuant to West Virginia House Bill 103, and House Bill 408, effective July 1, 2009; Alternative and Renewable Energy Portfolio Act, codified as W. Va. Code § 24-2F-1 et seq.**

Dear Ms. Squire:

The Potomac Edison Company & Monongahela Power Company (both doing business as "Allegheny Power") respectfully requests leave to file, in late order, the attached Comments in the above-mentioned General Order. If such leave is not granted, Allegheny Power respectfully requests to be added to the Service List for the General Order.

Please contact the undersigned should the Commission have any questions or concerns regarding this request.

Sincerely,

A handwritten signature in cursive script that reads "Edward G. Kennedy".

Edward G. Kennedy  
Senior Attorney  
WV State Bar No. 2009

cc: Jennifer Petrisek, Sr. Attorney - Regulatory & Contracts  
George Blankenship, Director of External Affairs

**BEFORE THE  
PUBLIC SERVICE COMMISSION  
OF WEST VIRGINIA**

In the matter of a General Investigation to )  
adopt rules for net metering arrangements )  
and interconnection pursuant to West )  
Virginia House Bill 103, and House Bill 408, ) **General Order Number 258**  
effective July 1, 2009; Alternative and )  
Renewable Energy Portfolio Act, codified )  
as W. Va. Code § 24-2F-1 et seq )

**COMMENTS OF  
THE POTOMAC EDISON COMPANY  
and  
MONONGAHELA POWER  
both d/b/a ALLEGHENY POWER**

On February 2, 2010 the Public Service Commission of West Virginia (the "Commission") issued General Order Number 258 promulgating proposed rules for net metering and interconnecting alternative and renewable energy facilities in accordance with the Alternative and Renewable Energy Portfolio Act (the "Act"), which is codified in Article 2F of Chapter 24 of the West Virginia Code. General Order Number 258 invited interested persons to comment on the Commission's proposed rules. Pursuant to the notice in the General Order, The Potomac Edison Company and Monongahela Power, both doing business as Allegheny Power, ("Allegheny Power" or "Company") submit these comments pertaining to the following portions of the proposed rules:

- (a) Meter Aggregation: The costs associated with physical and virtual meter aggregation should be borne by the customer-generator requesting aggregation and should be paid up-front to protect the utility and its customers from the cost exposure should the customer-generator later change their mind regarding aggregation.
- (b) Location of Customer-Generation: In order to have net metering, the customer's generation project must be located at a point where it can actually net consumption, i.e. the customer's service location.

- (c) Compensation after Reporting Period: Compensation should not carry through reporting period. If such regulations survive and compensation is required, the term "average cost of generation" should be more clearly defined, and definable in by the each electric utility based upon their individual circumstances.
- (d) Total Generation Capacity: Any increase in the total generations capacity should keep in mind the subsidy burden the net metering regulations place on customers without generation.

These comments are not intended to be exhaustive and the Company reserves its right to submit replies to any comments filed by others in this matter and, furthermore, to submit comments on any subsequent proposed rules issued by the Commission and during public comment periods.

## I. COMMENTS

### (a) Meter Aggregation

Allegheny Power's sister operating company in Pennsylvania (West Penn Power Company) has had Commission-mandated meter aggregation in its net metering tariff since December 16, 2006. The meter aggregation language is, in fact, nearly identical to the physical and virtual meter aggregation language proposed in this proceeding. In Pennsylvania, although there has been an occasional customer inquiry regarding meter aggregation, no customer served by West Penn Power has ever had physical or virtual meter aggregation. This is likely due to the costs associated with either arrangement. Physical meter aggregation is likely the most costly due to the rearrangement of existing facilities and/or installation of new facilities. In the event physical meter aggregation necessitates primary metering, it is quite easily too costly as compared to the customer benefits obtained via aggregation. Although virtual meter aggregation doesn't involve a physical rewiring of facilities, it can involve incremental programming changes to the utility billing system and/or on-going incremental monthly costs should any special handling be required. The Commission has correctly identified that the costs associated with physical and virtual meter aggregation should be borne by the customer-generator requesting aggregation. This is an important and critical tenant of the net metering regulations since it prevents other customers from having to finance the cost associated with aggregation. With this in mind, should the Commission elect to keep physical and/or virtual meter aggregation in the net metering regulations, the customer should be obligation to pay such costs up-front to protect the utility and

its customers from the cost exposure should the customer-generator later change their mind regarding aggregation.

(b) Definition of Customer-Generator

In Section 2.5 of the proposed rules, the Commission invites comments on the definition of "Customer-generator" and whether the customer generation project should be: (1) located at the customer's service location; (2) on property owned or leased by the customer and within two miles of the customer's service location; or (3) whether the location is not relevant. Allegheny Power believes the location of the customer generation project is relevant and should be located at the customer's actual service location. Section 24-2F-8(a) of the West Virginia Code states

"The commission shall adopt a rule requiring that all electric utilities provide a rebate or discount at fair value, to be determined by the commission, to customer-generators for any electricity generation that is delivered to the utility under a net metering arrangement."

The plain language of the West Virginia Code is that the Commission-adopted rules are for generation that is delivered to the utility under a *net metering* arrangement. In order to have net metering, the customer's generation project must be located at a point where it can actually net consumption, i.e. the customer's service location. If the customer's generation project were not located at the service location, there would be no metering point to net consumption under a net metering arrangement. The supply of customer generation to the utility grid at a point not at the customer's service location is merchant generation rather than net metering.

(c) Compensation after the Reporting Period

The Commission's proposed rules indicate that at the end of each reporting period (defined as June 1 through May 31), the electric utility shall compensate the customer-generator for any excess kilowatt-hours generated by the customer at the electric utility's average cost of generation during the 12-month reporting period. The definition of "net metering" in Section 24-2F-3 of the West Virginia Code is clear that a customer-generator "is used to offset part or all of the electric retail customer's requirements for electricity". Since customer-generators cannot be intentionally oversized, the propensity for compensation after the reporting period is assumed to be minimal

and perhaps can be removed entirely from the net metering regulations. However, should such regulations survive and compensation is required, Allegheny Power is not clear what is intended by the term "average cost of generation". Such definition should be left to each electric utility to define based upon their individual circumstances. The generation produced by Allegheny Power's merchant generation plants is not tied to the load requirement of its retail customers. Instead, the load requirements of Allegheny Power's retail customers are related to PJM pricing. As such, Allegheny Power believes its definition of "average cost of generation" should be the average Locational Marginal Price ("LMP") for the AP Zone during the reporting period. It would not be possible to load weight LMP since the majority of customers receiving net metering likely will not have interval metered data that would facilitate such a calculation. Since such a calculation is unnecessarily complex and costly, the average LMP should be a straight average without any load weighting. Further, since this is a customer subsidy built into the net metering regulations, such payment to the customer-generator should be classified as purchased power for reconciliation in the Expanded Net Energy Cost proceedings.

(d) Total Generation Capacity

The Commission rules have proposed to increase the total generation capacity by all customer-generators from 0.1% to 1.0% of the electric utility aggregate customer peak demand in the State. Any increase should keep in mind the subsidy burden the net metering regulations place on customers without generation. Since a customer-generator receives a credit at the full retail rate for each kilowatt-hour produced (up to the total amount of electricity used by the customer-generator), the customer-generator receives a discount on fixed costs for which no discount should reasonably be applied. For example, residential customer rates do not include a demand component, which means all costs are collected through the customer charge and the kilowatt-hour charge. However, the residential customer charge does not fully collect the fixed costs to provide electric service to the customer, which means the majority of such costs are collected through the kilowatt-hour charge. However, customer-generators are able to offset in part, or in full, their entire kilowatt-hour consumption requirements at the full kilowatt-hour rate. Since such customers are reducing their contribution to fixed costs to provide service, other customers will eventually subsidize the customer-generator through increased rates. The greater the increase in total generation capacity available to customer-generators, the greater the propensity that subsidization by other customers will occur.

**II. CONCLUSION**

In light of the reasons stated above, Allegheny Power respectfully requests that the recommendations herein be adopted, and that appropriate modifications to the proposed rules be incorporated into the final rules adopted by the Commission.

Respectfully submitted,

*Edward Kennedy*

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April 15, 2010

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VIA FEDEX

April 2, 2010

Sandra Squire  
Executive Secretary  
Public Service Commission of West Virginia  
P.O. Box 812  
Charleston, WV 25323

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**RE: General Order No. 258**

Dear Ms. Squire:

On behalf of the Interstate Renewable Energy Council, please find enclosed the original and 12 copies of the *Initial Comments of the Interstate Renewable Energy Council* for filing in the above referenced docket.

If you have any questions with this filing, please do not hesitate to contact me.

Sincerely,



Joseph F. Wiedman  
*for the Interstate Renewable Energy Council*

Enclosures

**BEFORE THE  
PUBLIC SERVICE COMMISSION OF WEST VIRGINIA**

In the Matter of a General Investigation     )  
to Adopt Rules for Net Metering            )  
Arrangements and Interconnection         )

GENERAL ORDER NO. 258

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**INITIAL COMMENTS OF THE  
INTERSTATE RENEWABLE ENERGY COUNCIL**

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On February 2, 2010, the Public Service Commission of West Virginia ("Commission") issued General Order No. 258 promulgating proposed rules for net metering and interconnecting alternative and renewable energy facilities in accordance with the Alternative and Renewable Energy Portfolio Act (the "Act"), which is codified in Article 2F of Chapter 24 of the West Virginia Code. General Order No. 258 invited interested persons to comment on the Commission's proposed rules.

The Interstate Renewable Energy Council ("IREC") is a non-profit organization that has worked for nearly three decades to accelerate the sustainable utilization of renewable energy resources through the development of programs and policies that reduce barriers to renewable energy deployment. With funding from the United States Department of Energy's Solar Energy Technologies Program,<sup>1</sup> IREC has participated in workshops, proceedings and rulemakings before over thirty state public utility commissions during the past two years, addressing topics that directly impact the development of renewable energy resources, including net metering

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<sup>1</sup> See [http://www1.eere.energy.gov/solar/state\\_technical\\_outreach.html](http://www1.eere.energy.gov/solar/state_technical_outreach.html)

rules, interconnection standards, and third-party financing of renewable energy systems. IREC has also assembled model rules for interconnecting and net metering distributed generation that reflect "best practices" in these areas (i.e. those policies that have proven successful in facilitating growth in renewable and distributed generation markets). IREC appreciates the opportunity to provide the following comments on the Commission's proposed rules.

## I. INTRODUCTION

In the 2009 session, the West Virginia Legislature made findings that increasing alternative and renewable generation is both vital to West Virginia's economic future and a necessary step in anticipation of the likely the intensification of federal air emissions regulation.<sup>2</sup> The Alternative and Renewable Energy Portfolio Act established that it is West Virginia's policy to "encourage the development of more efficient, lower-emitting and reasonably priced alternative and renewable energy resources" and to "encourage the construction of alternative and renewable energy resource facilities that increase the capacity to provide for current and anticipated energy demand at a reasonable price."<sup>3</sup>

In furtherance of these policy goals, the Legislature directed the Commission to promulgate rules and investigate policies and standards for net metering and interconnecting eligible alternative and renewable energy facilities.<sup>4</sup> In developing these rules, the Legislature directed the Commission to consider existing rules of states within the PJM interconnection.<sup>5</sup> IREC submits the following comments on the Commission's proposed rules for net metering and interconnection and respectfully suggests modifications to the proposed rules pursuant to the

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<sup>2</sup> See West Virginia House Bill 103 and House Bill 408 (2009 Session). See also WVC §§ 24-2F-2(3)-(6).

<sup>3</sup> See WVC § 24-2F-2(7).

<sup>4</sup> See WVC § 24-2F-8.

<sup>5</sup> See WVC § 24-2F-8(c).

statutory mandate to consider the relevant rules of other states in the PJM Interconnection,<sup>6</sup> the Regional Transmission Organization (“RTO”) covering the territory of West Virginia.<sup>7</sup>

## II. COMMENTS ON PROPOSED NET METERING RULES

The Commission’s proposed net metering rules represent a solid step forward in achieving the Legislature’s goal to “encourage the construction of alternative and renewable energy resource facilities that increase the capacity to provide for current and anticipated electric energy demand at a reasonable price.”<sup>8</sup> Effective net metering rules accomplish this by encouraging efficient development of generation resources, sized to match a customer-generator’s load profile. In particular, IREC supports the following features of the proposed net metering rules:

- An increase in individual system capacity above 25 kW
- An increase in enrollment above 0.1% of peak demand
- A grant of alternative energy credits to customer-generator unless expressly rejected
- Allowance for meter aggregation for facilities within 2 miles of a customer’s location
- Application of the proposed rules to a variety of utilities

Notwithstanding IREC’s general support for the proposed net metering rules, IREC believes a few clarifications or modifications might enhance the proposed rules’ effectiveness and ease administration. Specifically, IREC recommends the following:

- Clarification of individual system capacity for agricultural customers
- Increase the proposed 1% enrollment cap to at least 5%
- Calculate the enrollment cap based on annual sales instead of peak demand
- Develop a standardized fee for virtual meter aggregation services
- Prohibit unauthorized net metering fees and charges for customer-generators

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<sup>6</sup> PJM Interconnection is a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia.

<sup>7</sup> See WVC § 24-2F-8(c).

<sup>8</sup> WVC § 24-2F-2(7).

1. IREC Supports the Commission's Proposal to Increase Eligible System Size Above the Current 25 kW Limit.

The proposed definition of "customer-generator" allows residential customers to install a net metered system up to 25 kW in capacity, commercial customers to install a system up to 500 kW in capacity, and industrial customers to install a system up to 2 MW in capacity.<sup>9</sup> IREC believes these limits are appropriate to allowing customer-generators to size an onsite system in a way that is appropriate to meeting onsite electricity needs. Moreover, IREC notes that the proposed system size limits are consistent with the Alternative and Renewable Energy Portfolio Act and further that Act's goal of encouraging construction of energy facilities to meet current and anticipated energy demand at a reasonable price.

Although IREC supports the increased limits proposed by the Commission, IREC believes it would be helpful to address the classification of agricultural customers. Specifically, IREC suggests that agricultural customers be treated the same as industrial customers with regard to their ability to host a net metered system. As with industrial customers, agricultural customers frequently have suitable land for locating an alternative or renewable generator and may have sufficient alternative or renewable energy resources available onsite to fuel a larger generator. In addition, agricultural customers often have large and variable load of the sort that may make them particularly well situated to host a larger system and benefit from net metering. In light of these considerations, IREC respectfully proposes the following modifications to the proposed definition of "customer-generator":

“... with a nameplate capacity of not greater than 25 kilowatts if installed at a residential service location, not greater than 500

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<sup>9</sup> Proposed Rule 150-33-2 (2.5).

kilowatts if installed at a commercial service location, or not greater than 2 megawatts if installed at an industrial or agricultural service location, and ..." (additional language added in underline)

2. IREC urges the Commission to increase enrollment limits above 1% and to calculate the cap as a percentage of retail sales, not aggregate customer peak demand.

IREC applauds the proposed rules for raising the net metering cap from 0.1% to 1% of aggregate customer peak demand, but urges the Commission to consider increasing the limit to at least 5%. The Alternative and Renewable Energy Portfolio Act, itself, does not establish a limit on net metering enrollment. Thus, the Commission is not required to adopt a net metering cap at all. As an enrollment cap directly limits the deployment of alternative and renewable generation facilities, it necessarily cuts against the Act's goal to "encourage the development of more efficient, lower-emitting and reasonably priced alternative and renewable energy resources."<sup>10</sup>

The Act also notes that development of these resources has the potential to simultaneously lower the emissions associated with electrical production and expand the state's economic base.<sup>11</sup> In furtherance of these important state policies, IREC agrees that the current net metering cap of 0.1% needs to be increased. However, IREC respectfully suggests that the 1% cap introduced in proposed rule 150-33-3 (3.1) is low in light of West Virginia's aggressive policy goals. It also appears a bit arbitrary as no reason is given for choosing a 1% cap as opposed to any other percentage.

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<sup>10</sup> WVC § 24-2F-2(3).

<sup>11</sup> WVC § 24-2F-2 (3).

In regard to the Act's directive to consider other state's policies within the PJM Interconnection,<sup>12</sup> IREC notes that Pennsylvania, Delaware, and Maryland all allow net metering participation to at least 5% of aggregate customer peak demand. Pennsylvania does not specify an aggregate net metering limit.<sup>13</sup> Maryland sets its aggregate capacity limit for net metering at 8% of annual aggregate customer peak demand.<sup>14</sup> Delaware sets its aggregate capacity limit at 5% of annual aggregate customer peak demand, but allows utilities the option of increasing that limit.<sup>15</sup>

In light of the net metering policies of other states within the PJM Interconnection, and the legislative direction to take these policies into account, IREC supports an increase in net metering enrollment to at least 5% of aggregate customer peak demand. That figure is consistent with other PJM states and would help "encourage the development of more efficient, lower-emitting and reasonably priced alternative and renewable energy resources" in furtherance of West Virginia policy goals.<sup>16</sup>

Additionally, IREC encourages the Commission to calculate any cap that is imposed as a percentage of a utility's annual sales instead of aggregate customer peak demand. Annual kWh sales figures are easier to locate and would assist the Commission and utilities in more easily administering any net metering limit. Moreover, basing the limit on annual sales instead of installed capacity is the clearest way to address any concerns regarding rate impacts. Any potential rate impacts from net metering to non-participating customers are likely be related to

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<sup>12</sup> WVC § 24-2F-8(c).

<sup>13</sup> See 52 Pa. Code Chapter 75, Subchapter B.

<sup>14</sup> See Md. Publ. Util. Co. Code § 7-306; see also

[http://www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=MD03R&re=1&ee=1](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MD03R&re=1&ee=1).

<sup>15</sup> See CDR §§ 26-3000-3001; see also

[http://www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=DE02R&re=1&ee=1](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=DE02R&re=1&ee=1).

<sup>16</sup> WVC § 24-2F-2(3).

energy exported to the grid. Thus, a cap based on a percentage of retail sales will more directly address this potential concern. This approach also ensures that systems that export very little energy do not count toward a statewide cap.

In light of these suggestions, IREC proposes the following changes to the last sentence of proposed rule 150-33-3 (3.1):

“An electric utility may offer net metering to Customer-generators, on a first come, first served basis so long as the total ~~generation capacity installed~~ electricity supplied to the electric utility system by all Customer-generators is less than ~~one~~ five percent (5%) of the electric utility ~~aggregate customer peak demand~~ annual retail electricity sales in the State (measured in kWh).” (additional language added in underline)

3. IREC supports the proposed rules recognition that a customer-generator owns any Alternative Energy Credits associated with a net metered facility.

IREC supports proposed rules 150-33-3 (3.7) and 150-33-8 (8.4 and 8.5) regarding ownership of alternative energy credits. Specifically, IREC agrees that alternative energy credits generated by an alternative or renewable energy facility are the property of a customer-generator and should not transfer to a utility unless a customer-generator expressly authorizes that transaction or expressly rejects ownership of such credits. IREC notes that this approach is consistent with WVC § 24-2F-4(b)(4) and (c)(1) which state that a customer-generator is to be awarded credits for energy produced from alternative and renewable energy resource facilities. This approach also creates purchase and sale opportunities between customer-generators and electric utilities and also supports the creation of a marketable commodity that can figure into the economic viability of a particular project.

4. IREC supports the proposed rules' meter aggregation policy but urges the Commission to clarify how costs will be allocated among customers utilizing virtual meter aggregation.

Meter aggregation is a policy tool that simplifies net metering for customer-generators who have multiple meters located at a single or several locations by allowing them to net those meters against a single eligible generation facility. The Commission's proposed rules provide three alternatives regarding a location requirement for a customer-generator's alternative or renewable facility for meter aggregation purposes. Specifically, an alternative or renewable energy facility could be located either: (1) at a customer-generator's service location, (2) on property owned or leased by a customer and within two miles of a customer's service location, or (3) the location is not relevant.

A number of state net metering policies allow customer-generators to use generation to offset load at multiple metering points that are near to where a customer's generation facility is located. Oregon, Washington, Nevada, Vermont, Rhode Island and Pennsylvania all follow this approach. In Pennsylvania, a state within the PJM Interconnection, customer-generators may apply net metering bill credits to meters that are located on property that is owned, leased or operated by a customer-generator within two miles of a customer-generator's property where a generation facility is located.<sup>17</sup> This approach is reflected in proposed rule 150-33-8 (8.6).

Meter Aggregation can be particularly beneficial for agricultural customers who may have multiple meters located throughout a farm property for water pumping equipment or other fixed agricultural equipment. One of the key benefits of meter aggregation in such a situation is

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<sup>17</sup> Final Omitted Rulemaking Order, Pennsylvania Public Utility Commission Docket No. L-00050174 (Adopted May 22, 2008)

that it allows a single customer to place an alternative or renewable generation facility where it is most practicable. For example, a farmer may desire, or be required, to site a facility some distance from agricultural process, such as water pumping. Even if there is no onsite load where that facility is sited, and the agricultural customer could size a system to meet all aggregate load and obtain the same benefit otherwise only available by siting a proportion of the needed capacity at each meter location. Meter aggregation avoids this illogical result and provides flexibility to customer-generators in unique circumstances.

For these reasons, IREC supports the Commission's proposed rules with regard to meter aggregation and encourages the Commission to adopt net metering rules that allow generation from a centrally-located facility to be applied to meters located within 2 miles of the generation source. IREC also encourages the Commission to clarify what is meant in proposed rule 150-33-8 (8.6) with regard to any "incremental expense" entailed in processing an account under virtual aggregation. The rule states that a "Customer-generator shall be responsible only for any incremental expense entailed in processing his account on a virtual meter aggregation basis."<sup>18</sup> What is unclear in this statement is whether the first participating customer will be solely responsible for the costs of changes to a utility's accounting system for virtual meter aggregation. IREC's concern is that allocating costs of this sort to the first participating customer will create inequity and a serious disincentive to be that first customer.

One solution is to require utilities to submit an estimate of initial expenses required for implementation of meter aggregation so that costs can be fairly allocated over a larger group of anticipated participants. This will remove the disincentive to be the first customer-generator in

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<sup>18</sup> Proposed rule 150-33-8(8.6).

line to participate in this important program. This will also assist customer-generators who are interested in virtual meter aggregation with understanding its precise costs.

5. IREC supports the broad application of the proposed rules to include rural cooperatives, municipally-owned and smaller utilities.

The Act directs the Commission to “consider adopting, by rule, a requirement that all sellers of electricity to retail customers in the state, including rural electric cooperatives, municipally owned electric facilities or utilities serving less than thirty thousand residential electric customers in this state, offer net metering rebates or discounts to customer-generators.”<sup>19</sup> In keeping with the Act, the Commission’s proposed rules apply to rural electric cooperatives, municipally-owned electric facilities and utilities serving less than thirty thousand residential electric customers.

IREC supports extending the Commission’s net metering and interconnection rules to these entities. Extending the Commission’s rules to all retail electric providers will further West Virginia’s policy of encouraging the development of efficient, lower-emitting and reasonably priced alternative and renewable energy sources and expand the state’s economic base.<sup>20</sup> Lower emissions and economic growth are statewide benefits that flow from alternative and renewable generation facilities regardless of where they are located in the state. By extending the benefits of net metering eligibility to all residents of the state, the Commission can ensure that all residents have equal access to this important program and that the benefits of net metering to the state are maximized to the fullest extent possible.

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<sup>19</sup> WVC § 24-2F-8(b)

<sup>20</sup> See WVC § 24-2F-2(7).

6. IREC supports a prohibition on additional requirements imposed by utilities but suggests that the Commission also clearly prohibit additional fees and charges.

Proposed rule 150-33-3 (3.8) prohibits participating utilities from imposing requirements on net metering customers that may undermine the policy goals net metering attempts to achieve. It states that an "electric utility may not require additional equipment or insurance or impose any other requirement unless the additional equipment, insurance or other requirement is specifically authorized under these rules or by order of the Commission."<sup>21</sup>

IREC fully supports the intent embodied in this provision, but would like to suggest a slight modification of the language to ensure that the additional requirements the Commission seeks to prevent do not come in the way of *fees or charges* that have not been specifically authorized by the Commission.

In particular, IREC suggests the following modification:

"An electric utility may not require additional equipment or insurance or impose any other fee or requirement unless the additional equipment, insurance, fee or other requirement is specifically authorized under these rules or by order of the Commission." (additional language added in underline)

### III. COMMENTS ON PROPOSED INTERCONNECTION RULES

IREC appreciates that West Virginia is endeavoring to create effective uniform interconnection rules, however, the proposed rules leave too many important interconnection issues unaddressed to be fully effective. As such, IREC is concerned that the Commission's proposed interconnection rules may prove inadequate to provide customer-generators certainty and assurance regarding the time and cost involved with interconnecting a small generator

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<sup>21</sup> See Commission General Order No. 258, Proposed rule 150-33-3 (3.8).

facility in West Virginia. Most states' interconnection rules go into far more detail than the proposed rules and establish multi-level review processes, adopt specific technical screens for interconnecting smaller generators, institute review and study timelines, establish standard fees and charges, adopt a streamlined dispute resolution process, require standardized forms and contract agreements, and implement substantive requirements for system studies. The proposed interconnection rules do not address many of these important issues and create uncertainty for interconnection applicants.

In particular, one of the hallmarks of good interconnection rules is a clear statement of costs and time involved in the process. In the area of anticipated costs of interconnecting, the proposed rules are vague regarding proposed interconnection fees, terms and charges. For example, while the fees in proposed rule 150-33-4 (4.2) are reasonable for systems sized under 25 kW—the application for interconnection fee is \$30—the proposed rules leave fees open ended for systems above 25 kW.

In addition to uncertainty of costs, the proposed rules do not provide certainty with regard to the time involved in completing the interconnection process. In most states' interconnection rules, timelines are explicitly spelled out for the applicant, creating obligations on the utility to process and handle an application in an effective manner. Assuring timeliness in the interconnection process can be crucial for ensuring the viability of an alternative or renewable energy project. Moreover, established timelines, coupled with simplified processes for projects that meet technical screens, give developers the assurance that their investment of capital into alternative and renewable energy sources will not be tied up in arbitrary red tape. The proposed rules do not give any timeline assurances.

Similarly, the proposed rules do not provide any detail regarding what is required of a customer-generator system. In fact, proposed rule 150-33-4 (4.6.a) simply defers to utility discretion by requiring a customer-generator to “comply with the electric utility technical requirements.” Likewise, proposed rule 150-33-4(4.3) leaves it within utilities’ discretion to determine if an interconnection study is required for a system over 25 kW. This rule does not provide any technical screens to help customer-generators or utilities determine whether an interconnection study is required or what the study process should be if a study is required.

Interconnection studies can add significant time and expense to a project. If the Commission approves technical screens, customer-generators can design projects within the bounds of established screens in order to avoid costly delays. In the absence of clearly identified technical screens, a detrimental lack of uniformity can result and have serious consequences on consistency for alternative and renewable energy facility installers. In addition, by establishing clearly defined technical screens, the Commission can alleviate an area of potential disagreement between utilities and customer-generator applicants.

In summary, the proposed rules for interconnection leave too much discretion to utilities and fail to provide cost and time assurances to potential applicants. IREC urges the Commission to create a comprehensive and detailed set of interconnection rules to better guide customer-generators, installers and utilities in meeting the state’s policy mandate to achieve aggressive alternative and renewable energy resource goals.

1. IREC encourages the Commission to adopt more detailed interconnection procedures modeled on either FERC Standards, IREC’s Model Procedures, or existing interconnection procedures in use in any of the other PJM states.

Comprehensive, uniform interconnection procedures and standards help create favorable market conditions for alternative and renewable energy by making it easier for system sellers and installers to develop standard practices. In IREC's experience, lack of uniformity can disrupt this desired result and lead to increased cost and decreased safety. Moreover, when interconnection procedures vary widely between utilities within a state or between states, system sellers and installers face additional, often unnecessary, complexity and cost. This additional complexity and cost undermines the economics of small alternative and renewable energy facilities, hindering their deployment. In contrast, consistency in statewide and regional interconnection standards avoids or minimizes unnecessary interconnection costs. Consistency also promotes installer safety by ensuring an increased level of overall familiarity with interconnection procedures. A reduction in cost coupled with increased installer safety is a win-win policy outcome.

Thus, IREC encourages the Commission to take this opportunity to promulgate comprehensive and substantive standardized interconnection rules for all state jurisdictional facility interconnections. Although the promulgation of comprehensive rules for interconnecting generators may take some initial effort, that effort is likely to help the Commission and stakeholders avoid confusion, unnecessary expense and disputes down the road. Importantly, the Commission also need not reinvent the wheel in developing comprehensive state procedures. Uniform and comprehensive standard procedures for the interconnection of small generators have been developed and vetted by several agencies and organizations and are in effect in the majority of states, including all of the PJM interconnection states.

Among the available templates for Commission consideration are the Federal Energy Regulatory Commission's ("FERC") Small Generator Interconnection Procedures ("SGIP"),

which have been used as a model for many states' interconnection rules, IREC's Model Interconnection Standards and Procedures for Small Generator Interconnection ("IREC Model"),<sup>22</sup> and the interconnection rules of other states within the PJM Interconnection. The SGIP, the IREC Model, or the interconnection rules of other PJM states are all viable methods for the Commission to easily adopt interconnection procedures that will better accomplish the state's important policy goals of increasing development of alternative and renewable energy sources.

IREC notes that the PJM Interconnection itself includes within its Open Access Transmission Tariff a slightly modified SGIP, which is used to interconnect wholesale generation facilities less than 20 MW that are subject to FERC jurisdiction.<sup>23</sup> Because West Virginia is within the PJM Interconnection, SGIP is already in use in West Virginia. With slight modifications, the Commission could adopt a version of SGIP for use in interconnecting systems that are subject to the Commission's jurisdiction. Many states have traveled this well-worn path in developing state interconnection procedures.

The IREC Model is also heavily modeled on SGIP and the two models share many common elements, including: (i) coverage of all technologies, rather than just renewable technologies; (ii) pro forma interconnection agreements; (iii) a simplified procedure for small inverter-based systems covering most residential installations; (iv) a fast track procedure for systems up to 2 MW that allows interconnection without additional cost or delay if certain screens are met; (v) a scoping meeting if screens are not met to review expected costs and

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<sup>22</sup> IREC's Model Interconnection Procedures (2009 Edition) is available at: [http://irecusa.org/fileadmin/user\\_upload/ConnectDocs/IREC\\_IC\\_Model\\_October\\_2009.pdf](http://irecusa.org/fileadmin/user_upload/ConnectDocs/IREC_IC_Model_October_2009.pdf).

<sup>23</sup> See, e.g., *PJM Interconnection, L.L.C.*, "Order on Small Generator Interconnection Compliance Filing", Docket Nos. ER06-199-000, ER06-199-001, ER06-199-002, 116 FERC ¶ 61,021 (July 7, 2006).

duration of studies; (vi) a three-part study process (feasibility, impact, and facilities) for interconnection of larger systems and those that fail technical screens; and (vii) comprehensive coverage of issues. To the extent the IREC Model differs from SGIP that is because the IREC Model incorporates changes that have been demonstrated by states, utilities and other appropriate entities to remove unnecessary burdens on utility customers without impairing worker safety or grid reliability. The IREC Model also, generally, provides shorter timelines than the SGIP which helps expedite bringing new resources online.<sup>24</sup>

The IREC Model is particularly relevant to the Commission's consideration here, as it was utilized extensively in New Jersey, a PJM Interconnection state that has demonstrated significant growth in its distributed renewable energy markets. Although the development of a robust market for alternative and renewable generation relies on a number of factors, IREC believes its model procedures can help facilitate market growth in West Virginia. In light of the statutory mandate of WVC § 24-2F-8(c) to consider the rules of other states within the PJM Interconnection, IREC respectfully suggests that the Commission may wish to consider adopting IREC's Model for use in West Virginia. IREC notes that in addition to its rules being influential in New Jersey, IREC's Model was also adopted recently in slightly modified form by the Maine Public Utility Commission for use in that state.

Alternatively, West Virginia's neighbor, Virginia, also employs an interconnection procedure that warrants consideration.<sup>25</sup> IREC scored Virginia's interconnection rules as worthy

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<sup>24</sup> Order Adopting Rule and Statement of Factual and Policy Basis, Maine Docket No. 2009-219, Small Generator Interconnection Standards (filed Jan. 4, 2010).

<sup>25</sup> Virginia has two independent sets of interconnection rules, one for net metering facilities, 20 VAC § 5-315-40, and one for non-net metering small generators, 20 VAC § 5-314-10, *et seq.* Level 1 review is largely mirrored for net metering and non-net metering facilities under Virginia's rules.

of its highest rating in the 2009 edition of its publication *Freeing The Grid*,<sup>26</sup> which uses a grading methodology to compare the relative strength of net metering and interconnection policies among all states. In context of these comments, it is noteworthy that the Virginia interconnection rules are heavily influenced by SGIP and the IREC Model, but also include some policy innovations. Some highlights of the Virginia interconnection rules include: screens for area and spot networks taken from IREC Model, Level 1 review available for non-net metered systems up to 500 kW, Level 2 review consistent with SGIP, external disconnect switch not required but at discretion of utility, low-cost and expedient dispute resolution, and a simplified, expedited screening process for systems under 25 kW.

In summary, the Commission does not need to start from scratch in the eleventh hour. Under the statutory mandate of WVC § 24-2F-8(c), the Commission may consider the interconnection practices of its PJM neighbors, the IREC Model, SGIP or some combination thereof to achieve solid rules that will facilitate the rapid and safe deployment of alternative and renewable energy sources. IREC also stands ready to assist the Commission in working to modify any of these relevant models for use in West Virginia.

2. The proposed external disconnect switch requirement is unnecessary for certified inverter-based systems sized under 10 kW.

Proposed rule 150-33-5 (5.3) would require the use of a “visibly open, lockable, manual disconnect switch” for all customer-generator facilities. Although IREC supports this requirement for many systems, IREC believes this requirement may be dispensed with for small inverter-based systems without any negative impact on reliability or safety.

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<sup>26</sup> Publication available at: <http://www.newenergychoices.org/uploads/FreeingTheGrid2009.pdf>

Two comprehensive analyses of the external disconnect switch (“UEDS”) requirements were undertaken in 2008. Both concluded that for small inverter-based systems, a UEDS does not provide sufficient safety benefit to justify its cost; therefore, one should never be required at a customer’s expense.<sup>27</sup> The purpose of a UEDS is to disconnect generators from the electric grid when the grid is down, assuring that electricity will not flow to the grid when line workers are repairing lines. Inverters certified under UL 1741 provide this function already, and several other methods of disconnection are available, so the study authors concluded that disconnect switches are unnecessary, at least for smaller inverter-based systems and possibly even for larger systems.

Several states have incorporated this approach into their interconnection standards, including: California<sup>28</sup>, Florida<sup>29</sup>, Oregon<sup>30</sup>, Nevada<sup>31</sup>, New Jersey<sup>32</sup>, North Carolina<sup>33</sup>, New

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<sup>27</sup> M. Coddington, R. Margolis, and J. Aabakken, “Interconnected photovoltaic systems: Evaluating the rationale for the utility-accessible external disconnect switch,” National Renewable Energy Laboratory. January, 2008. Available at [www.nrel.gov/docs/fy08osti/42675.pdf](http://www.nrel.gov/docs/fy08osti/42675.pdf).

M. Sheehan, “Utility External Disconnect Switch,” Solar America Board for Codes and Standards. September, 2008. Available at [www.solarabcs.org/utilitydisconnect](http://www.solarabcs.org/utilitydisconnect).

<sup>28</sup> California prohibits utilities from requiring a UEDS for systems under 1 kVA. See, e.g., Pacific Gas & Electric Company Tariff Rule 21, Section D.1.d. Available at: [http://www.pge.com/tariffs/tm2/pdf/ELEC\\_RULES\\_21.pdf](http://www.pge.com/tariffs/tm2/pdf/ELEC_RULES_21.pdf)

<sup>29</sup> Florida grants utilities the discretion to require a UEDS for systems under 10 kW, but the utility must pay for its installation. See Order Approving Amended Tariffs and Interconnection Agreements, Order No. PSC-08-06240TRF-EI at p. 7 (Sep. 24, 2008)

<sup>30</sup> See New Rules Adopted, Order No. 07-319 at p. 7-9 (Jul. 14, 2007) (deciding, after close consultation with utilities, the Oregon State Fire Marshall and the chair of the Institute of Electrical and Electronics Engineers (IEEE) 1547.2 Standard Committee, not to require a manual, lockable disconnect switch for inverter-based systems with up to 30 amps of connected generation behind the inverter).

<sup>31</sup> Nevada prohibits utilities from requiring a UEDS for systems under 1 kVA. See, e.g., Sierra Pacific Power Company Tariff Rule 15, Section E.1.d. Available at: <http://www.sierrapacific.com/rates/nv/electric/rules/images/rule15.pdf>

<sup>32</sup> N.J.A.C. § 14:4-9.11(a)

<sup>33</sup> North Carolina grants utilities the discretion to require a UEDS for systems under 10 kW, but the utility must pay for its installation. See Order Granting Motion for Reconsideration and

Hampshire<sup>34</sup>, and Maine<sup>35</sup>. In addition, the Utah Public Service Corporation recently proposed small generator interconnection standards that do not require a UEDS for inverter-based systems under 10kW.<sup>36</sup>

Several utilities have also voluntarily dispensed with the need for a UEDS for small inverter-based generators. Pacific Gas & Electric, the nation's largest utility with half of the country's total installed solar photovoltaic capacity, and the Sacramento Municipal Utility District voluntarily dispensed with the requirement for a utility-accessible, external disconnect switch on inverter based systems with a self-contained meter.<sup>37</sup> These utilities took this action to help reduce costs and increase the number of installed solar systems. IREC believes this approach expands markets and lowers cost without impeding safety or reliability and so IREC has incorporated this best practice into its Model Interconnection Procedures.

In light of the considerable movement in favor of dispensing with UEDS requirements for small, inverter-based systems, IREC respectfully suggests that the Commission also adopt this approach and modify proposed rule 150-33-5 (5.3) to state:

"A Customer-generator facility that is larger than 10kW and uses non-inverter based technology must include a visibly open, lockable, manual disconnect

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Amending Generator Interconnection Standard, NCUC Docket No. E-100, Sub 101 (filed Dec. 16, 2008).

<sup>34</sup> N.H. Admin. Rules Section Puc 905.01

<sup>35</sup> Order Adopting Rule and Statement of Factual and Policy Basis, Maine Docket No. 2009-219, Small Generator Interconnection Standards (filed Jan. 4, 2010).

<sup>36</sup> Notice of Proposed Rule for Electrical Interconnection, Docket No. 09-R312-01, Proposed Rule 746-312-4 (2)(a)(i) ("For customer generating systems of 10 kilowatts or less that are inverter-based, a public utility shall not require a disconnect switch.")

<sup>37</sup> SMUD Press Release available at:

[http://www.smud.org/en/news/Documents/07archive/02\\_21solar.pdf](http://www.smud.org/en/news/Documents/07archive/02_21solar.pdf)

PG&E Press Release available at:

<http://www.pge.com/b2b/newgenerator/solarwindgenerators/disconnectswitches/>

switch, that is accessible by the electric utility and is clearly labeled.” (additional language added in underline)

#### IV. CONCLUSION

IREC appreciates the opportunity to file these comments.

Respectfully submitted on this the 5<sup>th</sup> day of April, 2010.

For the Interstate Renewable Energy Council,



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Kevin T. Fox  
5727 Keith Avenue  
Oakland, CA 94618  
Phone: (510) 381-3052  
Email: [kfox@keyesandfox.com](mailto:kfox@keyesandfox.com)

**FURTHER JOINT STAFF MEMORANDUM**

**TO: SANDRA SQUIRE**  
**Executive Secretary**

**DATE: April 6, 2010**

**FROM: LESLIE J. ANDERSON** *LJA*  
**Staff Attorney**

**RE: GENERAL ORDER NO. 258 (Rulemaking regarding net metering and interconnection)**

In the attached Engineering Division Further Staff Memorandum, James W. Ellars, P.E., Senior Engineer, explained that a small portion of the Engineering Division's comments were inadvertently omitted from pages 8 and 9 of the Engineering Division memorandum that was filed on April 5, 2010. Mr. Ellars has explained what was missing in the attached memorandum. Staff requests that the attached memorandum also be consider as Staff comments. Staff apologizes for any inconvenience this may have caused.

LJA/s  
Attachment

CWS *CWS*

H:\LANDERSON\wpdocs\G.O. 258 (gi to adopt rules for net metering and interconnection)\further initial memo.wpd

RECEIVED  
10 APR -6 PM 2:40  
W VA PUBLIC SERVICE  
COMMISSION  
SECRETARY'S OFFICE

ENGINEERING DIVISION FURTHER STAFF MEMORANDUM

DATE: April 5, 2010

TO: Leslie Anderson, Staff Attorney  
Legal Division

FROM: James W. Ellars, P.E., Senior Engineer **JWE**  
Engineering Division

SUBJECT: General Order 258  
Net Metering and Interconnection Rulemaking  
**CORRECTED COMMENTS**

RECEIVED  
10 APR -6 AM 10:25  
WV PUBLIC SERVICE COMM.  
LEGAL DIVISION

The Staff of the Engineering Division submitted its comments in this proceeding on April 5, 2010 as required by Commission Order. However, Staff learned of a typographical error in its filing which inadvertently omitted a portion of its comments. Below is a corrected version of the text on pages 8 and 9 of the Engineering Staff's comments, which contains the previously omitted portions in **Bold**:

"Should the Commission decline to adopt the rules from the 2006 consensus, then the following major issues should be addressed in any interconnection standards:

- Standardized documents: Standardized interconnection applications and agreements serve to add transparency to the process as well as eliminate potential barriers to DER development. *Almost all states in the PJM region have standardized agreements;*
- The first level of interconnection, i.e., less than 25kW should be a "fast-track" review process provided that the DER meets applicable screening criteria;
- **For any DER capacity below 2 MVA, it is generally accepted that expensive feasibility studies, impact studies, or facilities studies are not necessary provided that the DER meets clearly-defined screening criteria;**
- **Visible, lockable disconnect switches: It is widely accepted that small DERs based on certified, non-islanding, static inverters should not require additional disconnect switches.** However, this has traditionally been a "safety comfort" issue for the utilities in order to protect their employees;
- Application review deadlines: It is strongly recommended that utilities be required to act on DER applications within certain time frames. For example, small DERs less than 25kW should have their applications

2

processed within 10 to 15 days. Larger DERs should take no more than 25 days to review and process;

- Screening provisions: these serve to qualify a DER for a particular level of interconnection (i.e., Level 1 or 2) based on attributes such as:
  - Presence of static inverter-based equipment;
  - Line segment limitations;
  - Spot network protectors;
  - Voltage of distribution line;
  - Maximum fault current contribution;
  - Short-circuit interrupting capability;
  - Aggregated substation transformer limits;
  - Limits on single-phase shared secondaries;

In addition, it is recommended that any requirements the Commission decides to adopt be promulgated in either 1) a set of rules, or 2) the utility's tariffs, but not both. Having redundant provisions contained in both rules and tariffs only increase the likelihood of inconsistencies."

The Engineering Division Staff apologizes for this oversight and for any inconveniences it may have created.

JWE:s



**SPILMAN THOMAS & BATTLE, PLLC**  
ATTORNEYS AT LAW

April 5, 2010

RECEIVED  
10 APR -5 PM 3:51  
W VA PUBLIC SERVICE  
COMMISSION  
SECRETARY'S OFFICE

**VIA HAND DELIVERY**

Ms. Sandra Squire  
Executive Secretary  
Public Service Commission of West Virginia  
201 Brooks Street  
Charleston, West Virginia 25301

**RE: GENERAL ORDER NO. 258**

**In the matter of a General Investigation to adopt rules for net metering arrangements and interconnection pursuant to West Virginia House Bill 103, and House Bill 408, effective July 1, 2009: Alternative and Renewable Energy Portfolio Act, codified as W. Va. Code § 24-2F-1, et seq.**

Dear Ms. Squire:

By way of this letter, the West Virginia Energy Users Group ("WVEUG")<sup>1</sup> responds to the above-referenced Order regarding the proposed rules governing electric utility net metering arrangements and interconnections (the "Rules") pursuant to the provisions of the Alternative and Renewable Energy Portfolio Act (the "Act"), codified in Article 2F of Chapter 24 of the West Virginia Code, effective July 1, 2009.

WVEUG refrains from filing detailed Comments as it interprets the Commission's proposed Rules as not applying to customer-owned, on-site renewable or alternative generation facilities in excess of 2 megawatts, particularly where such facilities are otherwise registered and interconnected with PJM Interconnection, LLC ("PJM"). WVEUG believes that the Rules were not intended to displace or otherwise negate any PJM rule related to these types of facilities, and WVEUG submits that the Commission's proposed Rules should reflect that they are not intended to have that effect. Nonetheless, WVEUG asserts that industrial facilities can and should still realize the benefits outlined in the Act and in the Rules if a particular industrial customer develops a smaller alternative or renewable energy on-site generation project with output of less than 2 megawatts of electricity.

<sup>1</sup> Members include: Air Products & Chemicals, Inc.; Alcan Rolled Products; Alliant Techsystems, Inc.; Alpharma, Inc.; ArcelorMittal USA; Bayer CropScience; Bayer MaterialScience; E. I. du Pont de Nemours and Co.; Essroc Cement Company; EQT Production Company; GrafTech International Holdings, Inc.; Linde, LLC; Novellis Corporation; PPG Industries, Inc.; Quad/Graphics, Inc.; SFK Pulp Recycling U.S., Inc.; U.S. Silica; Weyerhaeuser.

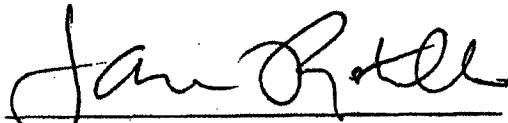
Ms. Sandra Squire  
Executive Secretary  
April 5, 2010  
Page 2 of 2

WVEUG reserves the right to submit and file Reply Comments, as appropriate.

Respectfully submitted,

SPILMAN THOMAS & BATTLE, PLLC

By:



Lee F. Feinberg  
Susan J. Riggs  
Jason C. Pizatella

Counsel to the West Virginia Energy Users Group

JCP/lhi/rad:2094842

cc: Leslie Anderson, Esq., Commission Staff  
Byron Harris, Consumer Advocate Division



WILLIAM C. PORTH  
ATTORNEY AT LAW

P.O. BOX 1791  
CHARLESTON, WV 25326

DIRECT DIAL: (304) 347-8340  
E-MAIL: [wcp@ramlaw.com](mailto:wcp@ramlaw.com)

April 5, 2010

**BY HAND DELIVERY**

Mrs. Sandra Squire  
Executive Secretary  
West Virginia Public Service Commission  
201 Brooks Street  
Charleston, WV 25301

RECEIVED  
2010 APR - 5 P 3 23  
WVA PUBLIC SERVICE  
COMMISSION  
SECRETARY'S OFFICE

Re: **GENERAL ORDER NO. 258**  
*In the matter of a General Investigation to adopt  
rules for net metering arrangements and  
interconnection pursuant to West Virginia House  
Bill 103, and House Bill 408, effective July 1, 2009:  
Alternative and Renewable Energy Portfolio Act,  
codified as W.Va. Code §24-2F-1 et seq.*

Dear Mrs. Squire:

I enclose herewith for filing jointly on behalf of Appalachian Power Company and Wheeling Power Company in the above-referenced general investigation an original and twelve (12) copies of their comments.

Very truly yours,

William C. Porth  
(W.Va. State Bar #2943)

Counsel for Appalachian Power Company  
and Wheeling Power Company

WCP:dlm  
Enclosures

cc: Service List

400 FIFTH THIRD CENTER • 700 VIRGINIA STREET, EAST • CHARLESTON, WV 25301 • (304) 344-5800  
140 WEST MAIN STREET • SUITE 300 • CLARKSBURG, WV 26302 • (304) 622-5022  
[www.ramlaw.com](http://www.ramlaw.com)

**PUBLIC SERVICE COMMISSION  
OF WEST VIRGINIA  
CHARLESTON**

**GENERAL ORDER NO. 258**

In the matter of a General Investigation to adopt rules for net metering arrangements and interconnection pursuant to West Virginia House Bill 103, and House Bill 408, effective July 1, 2009: Alternative and Renewable Energy Portfolio Act, codified as W.Va. Code §24-2F-1 et seq.

**JOINT COMMENTS OF APPALACHIAN  
POWER COMPANY AND WHEELING POWER COMPANY**

COME NOW Appalachian Power Company and Wheeling Power Company (collectively "the AEP Companies") and offer the following comments on the proposed legislative rules promulgated by the Public Service Commission of West Virginia ("Commission") in the context of the General Investigation to adopt rules for net metering arrangements and interconnection pursuant to West Virginia House Bill 103, and House Bill 408, effective July 1, 2009: Alternative and Renewable Energy Portfolio Act, codified as W.Va. Code §24-2F-1 et seq. ("the Act").

On February 2, 2010, the Commission issued an Order in the above-referenced matter in which it requested comments concerning proposed legislative rules promulgated by the Commission pursuant to the Act. By letter dated October 1, 2009, the AEP Companies submitted comments prior to the issuance of the proposed legislative rules. These comments continue to be applicable to the proposed rules, and therefore the AEP Companies reiterate the comments contained in their submission of October 1, 2009, a copy of which is attached and incorporated here by reference as if fully restated. In

addition, the AEP Companies provide herein further comments pertaining to the following matters:

1. "Customer-generator" should be defined as an alternative or renewable energy resource located at the Customer-generator's location; meter aggregation should be eliminated from the definition of Customer-generator and from the net metering rules;
2. Section 150-33-7.2b. should be modified so that the credit a Customer-generator receives is for each kWh the Customer-generator delivers to the utility's distribution system, and that the credit is calculated at the generation component of the retail rate;
3. The proposed rules unnecessarily address interconnection technical and equipment design details which are better left to the Commission's Approved Interconnection Standards;
4. Section 150-33-4.5 should establish greater insurance requirements for larger Customer-generators;
5. The requirement in § 150-33-3.4 for an annual bill insert should be eliminated.

The AEP Companies reserve their right to submit a reply to any comments filed by others in this matter and to submit comments on any subsequent proposed rules issued by the Commission and during public comment periods.

**1. "CUSTOMER-GENERATOR" SHOULD BE DEFINED AS AN ALTERNATIVE OR RENEWABLE ENERGY RESOURCE LOCATED AT THE CUSTOMER-GENERATOR'S LOCATION; METER AGGREGATION SHOULD BE ELIMINATED FROM THE DEFINITION OF CUSTOMER-GENERATOR AND FROM THE NET METERING RULES**

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The Act does not contemplate meter aggregation. Meter aggregation is not part of the statutory framework, and therefore should not be a part of this rulemaking.

As proposed, the definition of Customer-generator introduces into the net metering rules the requirement to aggregate meter readings of a Customer-generator's multiple accounts regardless of whether the accounts are associated with disparate locations and multiple tariffs. Such aggregation should be eliminated from the definition of "Customer-generator" and from the other sections making reference to meter aggregation for several reasons, the first of which is that meter aggregation is alien to both the letter and the substance of the Act.

Two important practical considerations support the elimination of meter aggregation from the definition of Customer-generator and other sections of the rules. First, meter aggregation must be prohibited to prevent impermissible retail wheeling. Second, meter aggregation would require either unduly complicated, burdensome, and costly manual billing or expensive system upgrades in order to commingle and offset readings from multiple different locations that often are subject to multiple different tariffs.

**a. Meter Aggregation Must Be Prohibited To Prevent Impermissible Retail Wheeling**

Regarding the first of these two considerations, the introduction of meter aggregation into the definition of "Customer-generator," as currently proposed in the

rules, would allow "retail wheeling," an impermissible practice by which multi-facility Customer-generators could use the utility's electric grid to distribute power from one Customer-generator account to another over utility-owned infrastructure. The following example illustrates how meter aggregation would have the unintended result of permitting retail wheeling:

Customer-generator X has three different accounts, for separate locations A, B and C. The Customer-generator operates an eligible generation facility at location A, which produces a surplus of electricity. The Customer-generator operates another generation facility at location B, but with a deficit of electricity. The Customer's location C does not include generation. By aggregating the meter readings of location A with either or both of the readings at locations B and C, meter aggregation would in fact allow Customer-generator X to transmit electric power from location A to either or both locations B and C.

Because net meter billing aggregation permits retail wheeling, the introduction of net meter billing aggregation into the definition of Customer-generator would effectively encourage certain Customer-generators to act as electric utilities without having met or being subject to all of the requirements imposed upon a public utility under state law. Additionally, under the current proposed rules, such a Customer-generator would be permitted to use a utility's distribution and transmission facilities for free, the cost of which would be borne, and improperly subsidized, by other customers and by the utilities that invest funds to build and maintain the electric grid. In order to prevent retail wheeling, the rules should not allow a Customer-generator with multiple facilities at different locations to receive a bill aggregating and offsetting the meter readings for these multiple locations.

**b. Meter Aggregation Would Require Either Unduly Complicated, Burdensome, And Costly Manual Billing Or Expensive System Upgrades In Order To Commingle And Offset Readings From Multiple Different Locations That Often Are Subject To Multiple Different Tariffs**

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Regarding the second of the considerations mentioned above, the proposed rules on meter aggregation billing would likely result in very complicated, expensive, and burdensome billing calculations for utilities serving Customer-generators with multiple facilities, particularly in cases in which those facilities are subject to multiple tariffs. Changes to the Companies' billing system enabling such aggregation would likely require costly system upgrades, and could in spite of efforts to the contrary result in disputes and complaints about the billing for these multiple locations.

As proposed, § 150-33-7.2.e. states that for customers involved in "virtual meter aggregation programs," a credit shall be applied first to the meter through which the Customer-generator facility supplies electricity to the distribution system, then prorated equally to the remaining meters for the Customer-generator accounts. Additionally, the proposed rules permit "the combination of readings and billing for all meters *regardless of rate class* on properties owned or leased and operated by a Customer-generator." (emphasis added).

Location is relevant. Customer accounts are linked to a particular service location; and each of these service locations is subject to a particular tariff. Although multiple service locations may be invoiced on a single bill, each service location is a unique account and the bill for each account is calculated separately under the appropriate tariff within the billing system.

Calculation of bills for net metering customers often requires manual billing. The complexity of billing these customers would be considerably increased if, as required by the proposed rule, utilities (and indirectly also the Customer-generators, who would be bound to review and pay these bills) were required to combine into a single calculation billing based on the readings of multiple meters at multiple locations, and subject to multiple tariffs. Adding these very significant levels of complexity to net meter billing would materially increase the time required to prepare these bills, or would likely require costly system upgrades, thus adding to the cost of billing these customers.

In addition to the increase in the costs associated with monitoring and billing meter aggregation customers, additional resources may be required to resolve any disputes that may arise with Customer-generators as a result of this type of billing.

**c. Recommendations**

On the basis of the reasons stated above, the AEP Companies make the following recommendations:

- i. The locational boundaries of a Customer-generator should be restricted exclusively to each of the Customer-generator's service locations, treated separately and without net meter aggregation. Such restriction would require, for example revising the definition of "Customer-generator" in § 2.5 so that the locational boundaries of a Customer-generator are limited to individual service locations.
- ii. The definition and references pertaining to "Meter aggregation" (including for example in § 2.12 and § 8.6),

and "Virtual meter aggregation" (for example in § 2.18) should be eliminated from the rules.

- iii. The definition of "Physical meter aggregation" in § 2.14, which would require the re-wiring of multiple meters regardless of rate class to provide a single point of contact to measure electric service, should also be eliminated from the rules. In addition to the reasons stated above, at a practical level such a requirement would be unnecessary and counterproductive. Customers have always had the ability to sub-meter on the customer side of the single point of service. The point of service meter at such location is necessarily linked to the customer account, and requires subscription to a single tariff offering.

**2. SECTION 150-33-7.2b. SHOULD BE MODIFIED SO THAT THE CREDIT A CUSTOMER-GENERATOR RECEIVES IS FOR EACH kWh THE CUSTOMER-GENERATOR DELIVERS TO THE UTILITY'S DISTRIBUTION SYSTEM, AND THAT THE CREDIT IS CALCULATED AT THE GENERATION COMPONENT OF THE RETAIL RATE**

The AEP Companies understand that the proposed rules provide a benefit to Customer-generators for the electric output they generate and put into the electric grid through their meters. The rule is not intended, however, to give credit to a Customer-generator for electricity that the Customer-generator itself consumes, and which does not flow into the electric grid for the benefit of other customers and the AEP Companies. Importantly, the credit to a Customer-generator for the electricity it generates and puts

into the electric grid for others to use should be calculated on the basis of the generation component of the retail rate.

In order to address these concerns, the AEP Companies recommend clarifying the language in § 150-33-7.2.b, to specify: a) that a Customer-generator would only receive credit for electricity generated by the Customer-generator and which flows back into the electric grid through the customer's meter; b) that a Customer-generator's credit offsets energy delivered by the electric public utility to the Customer-generator through the location's net meter; and c) that a Customer-generator would get credit on the basis of the generation component of the retail rate.

Section 150-33-7.2.b of the proposed rules states as follows:

The electric utility shall credit a Customer-generator at the full retail rate for each kW hour produced by an alternative or renewable energy resource installed on the Customer-generator side of the electric revenue meter, up to the total amount of electricity used by that Customer-generator during the billing period.

This statement could be misinterpreted in two important ways. First, it could be construed to mean that the utility must credit the customer for all of the kWh produced by the Customer-generator, regardless of whether that energy is consumed by the customer or delivered to the utility grid as unused excess. Second, this language could also be misinterpreted to give credit to the Customer-generator to the extent of all the energy used by the customer, including the energy generated by the customer on its own and for its own exclusive use.

To avoid these misconstructions of the rules, and to specify that the credit shall be calculated based upon the generation component of the retail rate, the AEP Companies recommend that the rule be modified to read as follows:

The electric utility shall credit a Customer-generator, *on the basis of the generation component of the retail rate*, for each kW hour that the Customer-generator produces by an alternative or renewable energy resource installed on the Customer-generator side of the electric revenue meter *and that is delivered to the utility's electric distribution system through the Customer-generator's electric revenue meter*, up to the total amount of electricity *delivered by the utility to that Customer-generator during the billing period.*

(additions in bolded italics, deletions omitted).

A similar change should be made in the Monthly Charges item number 2 of Form No. 1 (page 3 of 6). In both cases, the definition of "Customer-generator" is assumed to mean a single physical location, as discussed *supra*.

**3. THE PROPOSED RULES UNNECESSARILY ADDRESS INTERCONNECTION TECHNICAL AND EQUIPMENT DETAILS WHICH ARE BETTER LEFT TO THE COMMISSION'S APPROVED INTERCONNECTION STANDARDS**

The AEP Companies recommend eliminating from the proposed rules several items that relate to interconnection standards. Interconnection standards are a highly technical area currently governed under the Commission's Approved Interconnection Standards. The Commission's Approved Interconnection Standards have the advantage of greater flexibility than a rule-based regulatory framework, thus allowing for a quicker response to technological advances and the identification of problems that may require rapid analysis and resolution. The Commission's Approved Interconnection Standards have the additional advantage that they are already in place, and are presently

administered directly by a dedicated technical body within the Commission with extensive experience and expertise specific to interconnection standards.

Introducing interconnection standards into the rules governing net metering facilities would be counterproductive. First, two sets of rules governing interconnection standards would create the risk of inconsistent approaches to addressing the very subject-matters that such standards are intended to standardize. Second, by introducing a potentially different set of standards for Customer-generators, two sets of rules governing interconnection standards are likely to lead to reliability and safety problems.

Additionally, updating two separate sets of standards, even if initially consistent, would make unnecessarily cumbersome the development and adoption of updated standards, whether in response to advances in technology, the identification of new problems, or the development of better solutions.

The AEP companies therefore recommend limiting the references to interconnection standards in the proposed rules to simply indicating that Customer-generators are subject to the Commission's Approved Interconnection Standards and the approved Interconnection Agreements.

Such reference, for example, would obviate the need to create standards in § 3.2, pertaining to Limitation of Net Metering facilities, which is addressed in §§ 4.1.4c and 4.2.4b of the Commission's Approved Interconnection Standards. Similarly, a reference to the Commission's Approved Interconnection Standards would eliminate the need to address utility system upgrades in § 3.5, which are already covered in § 4.1.5 of the Commission's Approved Interconnection Standards. The same is true for the sections in the proposed rules addressing interconnection and technical requirements.

**4. SECTION 150-33-4.5 SHOULD ESTABLISH GREATER INSURANCE REQUIREMENTS FOR LARGER CUSTOMER-GENERATORS**

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The proposed rules do not require large net metering Customer-generators to obtain and carry sufficient homeowner, commercial or other liability insurance coverage. Section 150-33-4.4 states that a Customer-generator must submit evidence of homeowner, commercial or other liability insurance coverage in the amount of at least one hundred thousand dollars (\$100,000). Notably, this is the same level required under the existing West Virginia rules and under the AEP Companies' current net metering tariff. In contrast, the proposed rules expand the permitted size of Customer-generators to 2,000 kW, dwarfing the maximum generation facility size of 25 kW permitted under the present net metering scheme without a corresponding increase in insurance requirements.

The AEP Companies consider important that the proposed rules give utilities some discretion in setting appropriate insurance levels for large Customer-generators. Thus the AEP Companies recommend preserving the language in Condition of Service number 10 of Form No. 1 (page 2 of 6) which states that a Customer-generator shall maintain liability insurance in the amount of \$100,000 **"or such amount of coverage reasonably deemed necessary by the Company to protect its plant and other customers for the liability of the insured against losses or damages arising from the use of the Customer-generator facility."** (emphasis added).

However, to reduce the possibility of disputes, and to offer guidance about appropriate levels commensurate with generation capacity, the AEP Companies also recommend that the Commission establish the minimum insurance requirements under

the rules, and that these minimum requirements be increased to correspond to the also-increased generation capacity contemplated by the rules.

**5. THE REQUIREMENT IN § 150-33-3.4 FOR AN ANNUAL BILL INSERT SHOULD BE ELIMINATED**

Section 150-33-3.4 of the proposed rules would require that an electric utility disclose net metering information annually to its customers via bill insert and on its website. The AEP Companies consider that the bill insert requirement would cause unnecessary expense without a material corresponding benefit. The percentage of customers who would be interested in net metering service is in practice very small (the AEP Companies currently have only fourteen (14) net metering customers among over 480,000 total West Virginia customers in the Appalachian Power and Wheeling Power territory combined).

For the vast majority of customers that would receive an annual bill insert regarding net metering service, the insert would be a waste of resources in terms of cost of preparation and printing, paper use, and recycling or disposal.

Instead of requiring an annual bill insert, the AEP Companies recommend that information about net metering options and opportunities only be required to be posted on the Internet, where it can be accessed by anyone interested, without adding the material cost of preparing, printing, and disposing of a printed bill insert. .

**CONCLUSION**

In light of the reasons stated above, and the AEP Companies' comments previously submitted, the AEP Companies respectfully requests that their

recommendations be adopted, and that appropriate modifications to the proposed rules be incorporated into the final rules adopted by the Commission.

Respectfully submitted,

APPALACHIAN POWER COMPANY  
WHEELING POWER COMPANY

By Counsel



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Counsel for Appalachian Power Company and Wheeling Power Company

Dated: April 5, 2010

**PUBLIC SERVICE COMMISSION  
OF WEST VIRGINIA  
CHARLESTON**

**GENERAL ORDER NO. 258**

**In the matter of a General Investigation to adopt rules for net metering arrangements and interconnection pursuant to West Virginia House Bill 103, and House Bill 408, effective July 1, 2009; Alternative and Renewable Energy Portfolio Act, codified as W.Va. Code §24-2F-1 et seq.**

**CERTIFICATE OF SERVICE**

I, William C. Porth, counsel for Appalachian Power Company and Wheeling Power Company, do hereby certify that true copies of the foregoing comments were served upon all parties to this general investigation by hand delivery or first-class U.S. Mail this 5<sup>th</sup> day of April, 2010, addressed to the following:

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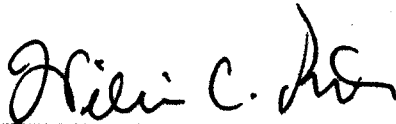
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---

William C. Porth (WV State Bar No. 2943)

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CHARLESTON, WEST VIRGINIA 25337

April 5, 2010

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343-1857

Sandra Squire  
Executive Secretary  
Public Service Commission  
of West Virginia  
201 Brooks Street  
Charleston, West Virginia 25301

**RECEIVED**  
2010 APR - 5 P 3 16  
WVA PUBLIC SERVICE  
COMMISSION  
SECRETARY'S OFFICE

RE: GENERAL ORDER NO. 258


Dear Ms. Squire:

Pursuant to the Commission Order entered February 2, 2010 Order in the above-referenced proceeding, enclosed herein please find the Joint Comments of The City of New Martinsville, The City of Philippi, Harrison Rural Electrification Association, Inc., Craig-Botetourt Electric Cooperative, and Shenandoah Valley Electric Cooperative ("Public Systems").

As evidenced by the Certificate of Service attached thereto, a copy of the filing is being served upon Staff Attorney Leslie Anderson.

Should you have any questions regarding this filing, please do not hesitate to contact me.

Sincerely,

  
Robert R. Rodecker  
WV State Bar No. 3145

bg  
enclosures

cc: Leslie Anderson, Esquire  
Public Systems Members

**BEFORE THE  
PUBLIC SERVICE COMMISSION  
OF WEST VIRGINIA  
CHARLESTON**

**GENERAL ORDER NO. 258**

In the matter of a General Investigation to adopt rules for net metering arrangements and interconnection pursuant to West Virginia House Bill 103, effective July 1, 2009; Alternative and Renewable Energy Portfolio Act, codified as W.Va. Code §24-2F-1 *et seq.*

**JOINT COMMENTS OF  
THE CITY OF NEW MARTINSVILLE,  
THE CITY OF PHILIPPI,  
HARRISON RURAL ELECTRIFICATION ASSOCIATION, INC.,  
CRAIG-BOTETOURT ELECTRIC COOPERATIVE,  
AND SHENANDOAH VALLEY ELECTRIC COOPERATIVE**

**I. INTRODUCTION**

Pursuant to the Public Service Commission of West Virginia's ("Commission") February 2, 2010 Order in the above-referenced proceeding, The City of New Martinsville, The City of Phillippi, Harrison Rural Electrification Association, Inc., Craig-Botetourt Electric Cooperative, and Shenandoah Valley Electric Cooperative ("Public Systems") offer these comments on the proposed rulemaking to adopt rules for net metering arrangements and interconnection pursuant to West Virginia Code §24-2F-1 et seq., the Alternative and Renewable Energy Portfolio Act ("Act"), enacted by the 2009 Legislature as House Bill 103.

The Public Systems are a group of municipal electric utilities and rural electric cooperatives that operate not for profit businesses to supply their customers with reliable and reasonably priced electricity in areas of West Virginia that have traditionally been expensive to serve. The Public Systems, unlike the investor-owned electric utilities operating in West Virginia who produce and transport electricity within and outside of the state of West Virginia, purchase power they sell to their customers from third parties over whom they have little, or no control. The Public Systems would urge the Commission to take into consideration the unique circumstances of the Public Systems when drafting rules for net metering and interconnection. With these principles in mind, the Public Systems now submit these comments.

## II. COMMENTS

### A. **Rural Electric Cooperatives or Municipally Owned Electric Facilities Should Not Be Required to Comply With The Net Metering and Interconnection Rules.**

On page 2 of the February 2, 2010 Order, the Commission states:

The Commission has proposed the rules to apply to rural electric cooperatives, municipally-owned electric facilities and utilities serving less than thirty thousand residential customers. These entities, as well as others, should comment on the need and desirability of including them in the final rules.

The Alternative and Renewable Energy Portfolio Act is intended to apply to electric distribution companies or electric generation suppliers that sell electricity

in this state. See, West Virginia Code §24-2F-3(8). However, that section of the Act also states that:

. . . . unless specifically provided for otherwise, for the purposes of this article, **the term "electric utility" may not include rural electric cooperatives, municipally-owned electric facilities or utilities serving less than thirty thousand residential electric customers in West Virginia.** (Emphasis added)

But for the Commission's proposed Rule, the language of the statute would exempt the Public Systems from the requirements of the proposed net metering and interconnection rules. Thus, there was a recognition by the Legislature that, unless there is an express inclusion of the Public Systems under the net metering and interconnection standards as proposed by the PSC, they would not be covered by the proposed Rule.

As stated in their Joint Comments filed on October 1, 2009 in General Order No. 184.25, there are good reasons for exclusion of the Public Systems from the coverage of this Rule.

Because of the inability of the Public Systems to control the source of production of the power which they purchase and resell to their customers, the Commission should not adopt mandatory net metering and interconnection requirements for rural electric cooperatives and municipally-owned electric utilities. Requiring rural electric cooperatives and municipally owned electric facilities to comply with the net metering and interconnection requirements would potentially put an additional economic burden on the Public Systems in order to serve customers that are already costly to serve.

The fact that the Public Systems purchase virtually all of the power they sell to their customers means that they are subject to long-term contractual commitments which are regulated by the Federal Energy Regulatory Commission ("FERC"). Thus, the extent of the Public Systems' ability to comply with net metering and interconnection requirements is to some extent dictated by the terms of those contracts and the FERC. The producers of power that is purchased by the Public Systems are not subject to this state's regulatory requirements. Thus, the Public Systems cannot affect the ordering of power production from generating facilities that they do not control.

Compliance with net metering and interconnection requirements is likely to lead to increased costs. In the case of the Public Systems who already provide service in areas that are generally more costly to serve than some of the other electric utilities, this additional cost will be more difficult for their customers to tolerate.

The Public Systems are all small utilities operating in basically rural areas of the state. The City of Philippi is located in north central West Virginia and has a population of less than 3,000 people. The City of New Martinsville is located on the western edge of West Virginia and has a population of less than 6,000 people.<sup>1</sup> The Harrison Rural Electrification Association, Inc. serves rural customers in north-central West Virginia. The Craig-Botetourt Electric Cooperative is headquartered in southwestern Virginia and serves only one rural

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<sup>1</sup> The population represents the number of people living in Philippi and New Martinsville during the 2000 census.

county (Monroe County) within West Virginia. The Shenandoah Valley Electric Cooperative serves rural customers in western Virginia and eastern West Virginia. The common characteristic of all the Public Systems is that they are not-for-profit organizations that serve customers that, at the time of their organization could not be or were not being served by the for-profit electric utilities because of the unusual cost of serving these customers.

The Public Systems' customers are typically more expensive to serve because they do not benefit from the economies of scale and the distribution and transmission cost savings that result from serving electric customers in denser population centers. For these reasons, for-profit utilities have traditionally been unwilling to serve customers located in rural areas. To ensure that everyone receives electric service, municipal utility systems and electric cooperatives provide reasonably priced and reliable electricity to those customers in areas with low population densities. While it helps that these organizations are operating not for profit, thus keeping the price of electricity down for customers, it is still difficult for the Public Systems to provide reasonably priced electricity for their customers due to the cost disadvantages of serving less densely populated areas. Requiring the Public Systems to comply with the proposed net metering and interconnection rules will only add to the cost disadvantages faced by these organizations, and drive up electric prices for the Public Systems' customers. This result may lead to greater economic hardship for the Public Systems' customers.

Not only are the members of the Public Systems unable to control the blend of generation utilized by their providers, the provisions of the net metering rules requiring that the Public Systems purchase power from a Customer-generator may cause the Public Systems to be in violation of their contract from their wholesale supplier. By requiring the Public Systems to accept energy produced by Customer-generators, the proposed Rule has the potential of indirectly causing the Public Systems and the Customer-generators to contribute to unnecessary excess capacity. Unlike electric utilities that generate their own energy, the Public Systems cannot control the construction of generation facilities and generation of power necessary to meet the Public Systems' load. Thus, the effect of requiring the Public Systems to participate in net metering could have the unintended consequence of defeating the purpose of the Act. Rather than encouraging the construction of alternative and renewable energy capacity to provide for current and anticipated electric energy demand at a reasonable price<sup>2</sup>; the effect on the Public Systems may be to encourage the duplication of power generating facilities at the expense of both the environment and the customers of the Public Systems.

Further, under the Rule, electric utilities are required to pay for Customer-generated power suppliers for excess energy at the electric utility's average cost of generation (Rule 7.2.d). Because the Public Systems do not generate power

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<sup>2</sup> See, *West Virginia Code* §24-2F-2(7).

for service to their customers, they would not be able to establish an average cost of generation.

Another reason that the public systems should be excluded from the proposed rules is that there already exists a rate subsidy that the net metering generators are receiving from the other utility consumers' associated distribution costs. Because the Public Systems do not have an average cost of generation, the Customer-generation will be credited at the total retail rate level. Applying these proposed Rules further enhances the rate subsidy to net metering consumers.

These Rules would also place additional costs on the Public Systems with the requirements for additional reporting to the Public Service Commission and the obligation to obtain approval for interconnection agreements.

Finally, application of these Rules to the Public Systems would expose the Public Systems to the possibility of commercial and industrial customers imposing net-metering obligations on the Public Systems beyond their ability to comply. In Case No. 06-0708-E-GI, Order entered December 12, 2006, the Public Systems, along with all other electric utilities in the state, entered into a Statement of Consensus, which was adopted by the Commission and made applicable to all electric utilities in the state. That Statement of Consensus limited net metering to residential and commercial customers whose individual generators could not exceed 25 kW. (See paragraph 16 of Statement of Consensus Among Parties attached to December 12, 2006 Order). Under the

proposed Rule and the Act, a Customer-generator is defined to include commercial customers with generation capacity of up to 500 kilowatts and industrial customers with generation capacity of up to 2 megawatts.<sup>3</sup>

For all of the reasons set forth herein, the Public Systems should not be required to comply with the net metering and interconnection rules.

**B. Comments on specific rules.**

**Rule 2.5.** – The Commission has requested comments as to where the Customer-generation facilities should be located. It is the Public Systems' position that there is only one reasonable alternative—that being, at the customer's service location. The size of the Customer-generator set forth in Rule 2.5, and established by the legislation, in addition to justifying exclusion of the Public Systems from compliance with the net metering and interconnection Rule, also establish the basis for the location of such facilities at the customer's location. These large net metering installations will require excess facilities and are essentially points of generation that could have undesirable effects on the operation of the utility's system. The complications that this increased size at random locations on a distribution system with regard to sectionalizing and circuit protection items alone are significant. Additionally, the net generator has no utility responsibility to supply any generation to the grid at any time; therefore, planning for power supply becomes extremely difficult when these large potential

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<sup>3</sup> See, proposed Rule 2.5 and *West Virginia Code* §24-2F-8(c).

generation components are considerable relative to the total size of each of the Public Systems.

**Rule 2.18.** – “Virtual Meter Aggregation” – This concept and definition appear to be unrealistic and difficult, if not impossible, to implement. The reading, billing, and crediting as proposed cannot be economically accomplished.

A simple example may help explain the unreasonableness of this concept and definition. Assume that the Customer-generator is a poultry processor having five (5) separate service locations and five (5) separate billing accounts in a utility's service area and all of the accounts are minimal usage requiring only 10 kW each of capacity. Under the proposed rule, the poultry processor could propose a 500 kW customer generated facility at one location. This would then require a utility to invest significant amounts of capital to essentially provide the excess generation (490 kW) back into its grid. Then the utility would have to establish some form of recordkeeping to credit the excess generation to the other four (4) accounts. However, the utility would receive no energy service revenue from any of the five (5) accounts and would face the possibility of paying for the remaining excess generation while incurring significant capital, operating, and billing expenses.

**Rule 3.4.** – Imposes additional costs upon the Public Systems requiring each to prepare information about net metering rules and to disclose such information annually to its customers by bill insert and posting information to its website. The Public Systems do not object to posting the information to the

website, but mailing such information in a billing insert will be costly and non-productive. The Commission should prepare the information it considers to be consistent with the rules. That information could be posted on the Commission's web site and all utilities could either provide a link to such information or a copy of same. Likewise, the web site could provide a link to the utility's net metering tariff (Form #1).

**Rule 4.2.** – To be consistent, all Customer-generators should be required to pay a non-refundable application fee for interconnect that covers all costs for the estimated interconnection and inspection thereof. There is no basis for requiring all non-generator customers to subsidize the interconnection of Customer-generators of 25kW or less. Each utility should calculate and file with the Commission its own costs for said services for each size of customer generation. The proposed \$30.00 fee for the 25 kW or less does not even cover the costs for the inspection of the facilities.

**Rule 4.4.** – One Hundred Thousand Dollars (\$100,000.00) of insurance coverage is insufficient even for the net generation of 25 kW and is extremely deficient when considering customer generation of 500 kilowatts to two megawatts. The insurance requirements should be based on the Customer-generator's size of generation load; starting with \$100,000.00 for 25kW and less, then increasing by increments up to \$1,000,000.00 for generators over 25kW.

**Rule 7.2.d.** – Because of their contractual obligations to their power suppliers, the Public Systems do not believe that Customer-generators should be

compensated for energy produced in excess of their consumption for the reporting period. As previously stated, the Public Systems do not have an average cost of generation. If the Public Systems are not excluded from all of the proposed rules, or this one in particular, then this Item should be changed specifically for the Public Systems or electric utilities purchasing entirely at wholesale such that compensation to the Customer-generator for excess generation would be based upon average annual avoided costs of energy purchased at wholesale.

**Rule 7.2.e.** – The Public Systems previously addressed the shortcomings of the concept of “virtual meter aggregation” under the comments to Rule 2.18. It is respectfully suggested that this Rule is unworkable and will impose unnecessary costs on the utility unless the Customer-generator is required to cover all costs, (capital and operating), imposed by the Customer-generator. As will be discussed below, it appears that the current language under Rule 8.6 would not sufficiently cover the costs of the utility to comply with the concept of “virtual meter aggregation”.

**Rule 8.2.** – The cost of installing new metering equipment for the Customer-generator should be borne by the Customer-generator, just as the cost of interconnection is the responsibility of the Customer-generator. The Customer-generator who is to receive the benefit of net metering should be responsible for paying all incremental costs necessary for that customer to comply with and receive the net metering benefits as proposed in these rules.

**Rule 8.5.** – This section would add an additional procedure at the utility's expense. It also provides that the Customer-generator can have metering equipment for the measurement of generation or selling alternate energy credits to a third party other than the electric utility. While the Public Systems supported the awarding of energy credits to non-utilities in General Order No. 185.24<sup>4</sup>, as of the date of these comments, there has not been a determination made that third parties other than electric utilities are eligible for energy credits under the Act. This section will provide for another level of interaction with more costs to perform particularly for the Public Systems.

**Rule 8.6.** – This rule encourages virtual meter aggregation. As discussed earlier, the Public Systems believe that there are substantial definitional and conceptual issues regarding "virtual meter aggregation". The Public Systems are especially concerned that all incremental costs associated with "virtual meter aggregation" be borne by the Customer-generator.

**TARIFF N.M.S. Form No. 1 – Availability of Service.** The last sentence of this section should be revised to reflect the fact that the one percent (1%) of the Company's peak hour load refers to the Company's **West Virginia** peak hour load.

The Net metering service tariff should also be revised to reflect the final rules as per the comments above.

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<sup>4</sup> See Comments of Public Systems dated October 1, 2009 in General Order No. 184.25.

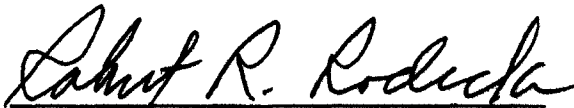
## CONCLUSION

The Public Systems respectfully request that the Commission consider these comments in its rulemaking process.

Respectfully submitted,

City of New Martinsville  
City of Philippi  
Harrison Rural Electrification Association, Inc.,  
Craig-Botetourt Electric Cooperative  
Shenandoah Valley Electric Cooperative

By Counsel



Robert R. Rodecker [WV Bar No. 3145]  
BB&T Square - Suite 1230  
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Post Office Box 3713  
Charleston, West Virginia 25337  
Telephone: (304)343-1654

## CERTIFICATE OF SERVICE

I, Robert R. Rodecker, counsel for the Cities of New Martinsville and Philippi, Harrison Rural Electrification Association, Inc., Craig-Botetourt Electric Cooperative and Shenandoah Valley Electric Cooperative, do hereby certify that a copy of the foregoing Joint Comments has been served upon Staff Attorney Leslie Anderson via hand delivery on this 5<sup>th</sup> day of April, 2010.

  
ROBERT R. RODECKER



LEGAL SERVICES

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ekenned@alleghenvenergy.com

April 5, 2010

Sandra Squire  
Executive Secretary  
Public Service Commission of West Virginia  
201 Brooks Street  
Charleston, WV 25301

**Re: General Order Number 258**  
**In the matter of a General Investigation to adopt rules for net metering arrangements and interconnection pursuant to West Virginia House Bill 103, and House Bill 408, effective July 1, 2009: Alternative and Renewable Energy Portfolio Act, codified as W. Va. Code § 24-2F-1 et seq.**

Dear Ms. Squire:

The Potomac Edison Company & Monongahela Power Company (both doing business as "Allegheny Power") respectfully requests an extension of time, until April 9, 2010, in which to file Comments in the above-mentioned General Order. Please contact the undersigned should the Commission have any questions or concerns regarding this request.

Sincerely,

Edward G. Kennedy  
Senior Attorney  
WV State Bar No. 2009

cc: Jennifer Petrisek, Sr. Attorney - Regulatory & Contracts  
George Blankenship, Director of External Affairs

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W VA PUBLIC SERVICE  
COMMISSION  
SECRETARY'S OFFICE

ARTHUR W. DODDS, JR.  
PAMELA C. DODDS, Ph.D.  
P.O. Box 217  
Montrose, WV 26283

April 2, 2010

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Ms. Sandra Squire, Executive Secretary  
Public Service Commission of West Virginia  
201 Brooks Street  
Charleston, WV 25301

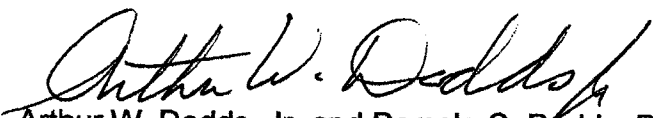
SUBJECT: GENERAL ORDER NO. 258  
In the matter of a General Investigation to adopt rules for net metering arrangements and interconnection pursuant to West Virginia House Bill 103, and House Bill 408, effective July 1, 2009: Alternative and Renewable Energy Portfolio Act, codified as W. Va. Code §24-2F-1 *et seq.*

Dear Ms. Squire,

We are hereby submitting comments on the rules for net metering arrangements as described above. Renewable resources operate largely off-peak, off-season, intermittently, and are not located in close proximity to where they could be used.

It is important that ALL alternative energy sources, including industrial-scale solar, bio-mass, wind, and geothermal facilities that operate within the state, be required to engage in net metering, including alternative energy intended for out of state use. This is the only way that an accountable production credit can be assigned. It is very important that all the net-metering information is made available to the public.

Sincerely,

 and Pamela C. Dodds  
Arthur W. Dodds, Jr. and Pamela C. Dodds, Ph.D.

April 4 2010 1:15 PM

Sandra Squire, Executive Secretary

Public Service Commission of West Virginia

PO Box 812

Charleston, WV 25323

Fax 304-340-0325

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2010 APR 5 AM 7 56  
W VA PUBLIC SERVICE  
COMMISSION  
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RE. Comments on comments on proposed net metering rules G.O. 258

Ms. Squire

Thank you for giving me this opportunity to comment on these rules. As a provider and an educator in the renewable energy market. I would like to take the opportunity to comments on several of these proposed rules.

150-33-3 (3.1) and (AVAILABILITY OF SERVICE) The peak demand should be changed or increased from the one percent. The reasoning behind this is the 1% demand can allow a few large industrial facilities to take the whole amount of allotted power. For example if we had 20 industrial customers that operated at 2 megawatts each this would amount for 40 megawatts of power or in actuality 1% of peak demand. But on the other hand if we had residential customers at 25 kilowatts it would take several thousand to make this same percent. Thus making a larger self sustaining market for the installers as well as the system owners.

I would ask for the 1% be changed to a much larger percent, or to allow residential 1%, commercial 2%, and industrial 2%. This would spread out the market and allow everyone to participate.

150-33-4 (4.6.B) should read by a licensed WV master electrician.

The wording as wrote will allow a low voltage electrician (such as fire alarm installers) or apprentice electricians to sign off. This is not acceptable! I would also like to state the company doing the install should be licensed in the state of West Virginia as a licensed electrical contractor with up to date registration and insurance.

150-33-3 (3.2) should be raised to 25%. The loads added to these lines will also be removed from these lines from the other consumers on these lines.

CONDITIONS OF SERVICE (7) The equipment as specified meets this requirement and the second disconnect only creates additional cost. Most states no longer require the use of this disconnect.

Kevin Foose

2222 Mount Vernon Ave.

Point Pleasant, WV 25550

304-593-2875



(304) 704-5943

PO Box 284  
Thomas, WV 26292

GO 258

Sandra Squire, Executive Secretary  
Public Service Commission of West Virginia  
PO Box 812  
Chareleston, WV 25323

04/02/2010  
RECEIVED  
VA PUBLIC SERVICE  
COMMISSION  
SECRETARY'S OFFICE  
APR 2 PM 1 50

RE: COMMENTS ON PROPOSED NET METERING RULES (G.O.285)

Ms. Squire,

I appreciate the opportunity to comment on the proposed net metering rules as I am a citizen, customer-generator, and as a business owner who sites and installs net metering systems (wind and solar) at homes, farms and small businesses throughout the state.

My comments regard Attachment B of G.O. 258.

-the definition of "Customer-generator" should include "within this state", but any further specification of location or property ownership is irrelevant here and should be omitted.

150-33-3 (3.1) – Any cap on participation should be removed. The previous 0.1% was ridiculous and 1% is also unacceptable. These rules are meant to promote interconnection and distributed generation. Capping participation is a limiting measure, not one that promotes net metering or the expansion of alternative and renewable energy systems.

150-33-5 (5.3) – This provision should be eliminated. The manual disconnect switch is an expensive and redundant piece of equipment. It costs several hundred dollars to install one of these switches which is an unnecessary burden on a customer-generator. Many states and utilities have stopped requiring these and I have spoken with utility personnel in WV who echo that it is really an unnecessary measure. Leave electrical safety issues to the NEC and get rid of this provision.

150-33-7 (7.2.d) – I support this provision, but it should be written to allow a customer-generator, at the end of the Reporting period, the option to sell excess kW hours or carry these kW hours over into the next Reporting period.

150-33-8 (8.2) – I strongly support this provision. Charges for bi-directional meter installation should be assumed by the electric utility.

1 RE: COMMENTS ON PROPOSED NET METERING RULES (G.O.285)



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Thomas, WV 26292

150-33-8 (8.5) – I don't understand why anyone would reject ownership of their RECs. What is this all about?

150-33-8 (8.6) – Virtual meter aggregation is very important and I generally agree with the provision as it is written. However, a customer-generator should not incur any expense for virtual meter aggregation. The provision should state that virtual meter aggregation will be provided at the expense of the electric utility. Likewise, any incremental expenses related to virtual meter aggregation should be the responsibility of the electric utility, not the customer-generator.

*[Handwritten Signature]*  
 Matt Sherald  
 PIMBY Energy, LLC  
 Thomas, WV

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April 2, 2010

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Via Hand Delivery

Sandra Squire, Executive Secretary  
Public Service Commission of West Virginia  
P.O. Box 812  
Charleston, West Virginia 25323

Re: General Order No. <sup>258</sup>528/Comments of Brookfield Renewable Energy to  
Proposed "Net Metering and Interconnection Rule"; 150 Code of State  
Regulations, Series 33.

Dear Ms. Squire,

Please accept this correspondence submitted on behalf of Brookfield Renewable Power ("Brookfield") by counsel as its comments in response to General Order No. 528 regarding the West Virginia Public Service Commission's ("Commission") proposed rule-making, Rules Governing Electric Utility Net-Metering Arrangements and Interconnections, 150 Code of State Regulations, Series 33, related to the Alternative and Renewable Energy Portfolio Act (the "Act"), West Virginia Code §§24-2F-1, et seq.

Brookfield owns through its subsidiaries two federally licensed hydro-electric generating facilities in West Virginia located at Hawks Nest and Glen Ferris, West Virginia, and is openly investigating investment opportunities in West Virginia. The Hawks Nest facility is located in Fayette County, West Virginia and supplies energy to the Elkem manufacturing facility and further provides excess energy to the market. The Glen Ferris facility is also located in Fayette County, West Virginia and is scheduled to undergo a significant rehabilitation in the coming twelve months and will generate electricity again for the open market.

Hydro power is the world's foremost, and one of the oldest forms of, renewable energy. The use of water to produce electricity provides a renewable and clean energy source. In certain portions of the United States, such as the northwest, hydropower provides in excess of 25% of the overall electrical needs of the region. Once a hydro-electric facility is constructed, the hydropower generated from that source is a clean, renewable, and domestic energy source which will be available for generations.

West Virginia, because of its many streams and rivers, provides substantial opportunity for the development of hydropower. For that reason, any rules and regulations which attempt to capitalize on potential alternative or renewable energy sources in West Virginia, must provide a

*Ms. Sandra Squire*

*April 2, 2010*

*Page 2*

place for hydropower. The construction of even smaller hydropower facilities represents a substantial capital investment in equipment and time by any owner or operator of these facilities. The Act, and its accompanying rules, can be a catalyst and incentive for development of further hydro power in West Virginia.

The Alternative and Renewable Energy Portfolio Act is consistent with other state statutes which are requiring electric utilities to obtain a certain percentage of their energy portfolio from renewable energy sources such as hydropower. These laws promote clean energy and are meant to provide incentives not only to larger energy suppliers to make alternative or renewable energy part of their energy portfolio, but also to those who are in the business of creating renewable and alternative energy by providing to them incentives to develop these types of power sources by expanding the available market for the energy they produce.

The rules proposed by the Commission, while pertaining only to net metering and interconnection, contain a definition for "run of river hydropower" which allows for uncertainty with regard to the eligibility of certain hydropower facilities to qualify as a "renewable" energy source. In order to avoid these issues in future rules, Brookfield would suggest certain amendments to the definition in this current rule. The Commission's current proposed definition states:

A hydropower facility that does not utilize storage and that has outflow from the facility equal to inflow of the facility impoundment on an instantaneous basis. The flow regime below a run of the river hydropower project will essentially be the river's natural regime, except in special circumstances, such as might follow reinstallation of flashboards or project shutdowns. Under those circumstances, a change in storage contents is necessary, and outflow is reduced below inflow for a period. Another circumstance is the flow transition after an idle station is brought on line, causing initial flows downstream to exceed inflow.

150 C.S.R., § 15-2.15.d.

The definition, as proposed, must be amended/clarified to remove uncertainty as a reading of the definition potentially removes from the definition of "run of river hydropower" traditional run of river hydropower facilities which have operated in West Virginia for generations. Brookfield believes that it is the intent of the definition to disallow facilities which must dam and store water in order to generate power, thus the definition's prohibition of the utilization of storage in the power generating process and the discussions of instantaneous equal inflows and outflows. Many run of river hydropower facilities though are required to maintain certain storage and outflows due to reasons wholly separate and apart from the need to store

water for purposes of energy production. Environmental and safety concerns which can often be found directly in the federal licenses issued to these facilities mandate certain variations in inflow from a facility's impoundment and outflow below the facility.

For example, the United States Army Corps of Engineers ("Corps") is beginning the process of partnering with private entities that have an interest in modifying existing locks and dams in West Virginia for the purposes of also producing hydropower. The Corps maintain these facilities for any number of purposes which include for the safe and secure navigation of our rivers and to control and limit the impact of high or low flows in these rivers during certain times of the calendar year. As a result, the outflow of water from these run of river facilities will not always equal the impoundment inflow of water, yet this is not the result of water being stored for the purpose of electrical power generation.

Power generated from these Corps facilities is run of river hydropower as the generation of electricity is subject to the natural flow and terrain of the stream to the extent it is controlled by the Corps.

Another potential example of uncertainty due to the definition proposed by the Commission is the Hawks Nest hydropower facility operated by Brookfield. The Hawks Nest facility is defined in its federal license as a "run of river" facility and maintains a set range of flows through its facility per the terms and conditions of its license for environmental purposes. These terms and conditions guarantee certain flow regimes and will result in fluctuations of outflow water and inflow impoundment waters dependent upon local circumstances and conditions. As a result, as with potential Corps facilities, the outflow of water from the facility will not always equal the impoundment inflow of water exactly, though they will very often be quite similar. The purpose of these actions though is not to promote the production of electricity, but to promote the environment or use of the river.

It could not have been the intent of the legislature or the Commission to remove from eligibility these Corps facilities or bring into question the status of facilities such as Hawks Nest as "run of river hydropower" and therefore question them as a "renewable energy resource." To remove any potential questions regarding the eligibility of these facilities as a "renewable energy resource," Brookfield would propose and submit the following modifications to the Commission's proposed definition of "run of river hydropower":

A hydropower facility that, during normal operating conditions, does not utilize storage and that has outflow from the project facility equal to inflow of the project facility impoundment on an instantaneous basis. The flow regime below a run of the river hydropower project will essentially be the river's natural regime, except in special circumstances, such as might follow reinstallation of flashboards, or project shutdowns, or as required pursuant to the terms and conditions of the facility's Federal Energy Regulatory Commission license to promote the environment, recreation, or fish habitat. Under those circumstances, a change in storage contents is necessary, and outflow is reduced below inflow for a period. Another circumstance is the flow transition after an idle

Ms. Sandra Squire

April 2, 2010

Page 4

station is brought on line, causing initial flows downstream to exceed inflow.

This slight modification to the proposed definition would insure that run of river hydropower facilities do not utilize storage as a means of generating power and further insure that traditional "run of river hydropower" is included in West Virginia's renewable energy portfolio.

Brookfield would like to thank the Commission for the opportunity to comment on its proposed rules and would offer to make itself available for any questions or issues the Commission would wish to discuss regarding the content of this correspondence or the production of hydropower in West Virginia. Should you have any questions or wish to discuss any of the comments contained herein, please feel free to call me at (304) 353-8147. Brookfield thanks you for your time and consideration to this matter.

Very truly,



Armando F. Benincasa

AFB/dav

cc: Mel Jiganti, Esquire, Brookfield  
Robert Ricketts, Brookfield  
Shannon Ames, Brookfield  
Jeffrey Auser, Brookfield  
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Sandra Squire, Executive Secretary  
Public Service Commission of West Virginia  
PO Box 812  
Charleston, WV 25323

RE: PROPOSED NET METERING RULES -- COMMENTS

Dear Ms. Squire:

As citizens of West Virginia, we are pleased to note that the State is making some attempts to move from totally fossil fuel based energy sources. West Virginia has untapped potential for tourism across the state because of our incredible natural resources, but we have a long way to go both economically and culturally in protecting our remaining mountains. For too many years, West Virginia resources have gone to enrich other states and big coal and natural gas companies and individuals headquartered in other states without a commensurate benefit to citizens to this state. To that end, we support the concept of net metering for feeding back into the energy grid from home-based energy systems such as wind power and solar collectors.

WV PSC General Order 258 (pursuant to WV House Bill 103 and House bill 408 in 2009) presents excellent frameworks such as customer owned RECs, net excess generation carry over at full retail rate, and virtual meter aggregation.

However, we have some concerns about aspects of the proposal that are not fully in accord with other state rules or the best practices of the IREC:

1. Interconnection fees, charges, and terms are not clearly specified.
2. Requirement that *customers* maintain \$100K of liability insurance for the utility to protect its plant.
3. *Non-renewable* resources (coal, natural gas, etc) are part of the net metering proposal. [where is the incentive for solar or wind power eg?].
4. Customers must pay for upgrades or construction to the electric utility system if needed to interconnect the facility. [What will the utility companies provide?]
5. The purpose for an external disconnect switch that is redundant is not clear.

We hope that West Virginia will continue on these encouraging pathways, difficult though it may be due to our historic dependence on coal mining. As the only state that totally "resides" within Appalachia, we have the opportunity to demonstrate that we are a progressive state of smart, intelligent, savvy, and caring people not beholden to a few special interests that have exploited us without due compensation. We owe that to all of our citizens, especially in these uncertain economic times that are exploited by those who do not have the best interests of West Virginia at heart.

Respectfully submitted,

  
Donna J. Dean

  
John L. Meyer